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Book of Proceedings

Editors:
Pornlapas Suwannarat, Sasivimol Meeampol, Bordin Rassameethes, Suparerk Sooksmarn

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CONTENTS

WEBSITE STORY CANVAS – A VISUAL FRAMEWORK FOR IMPLEMENTING STORYTELLING INTO WEBSITES

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ABSTRACT
This paper aims to developing a visual framework for the implementation of storytelling methods and its key elements on websites to improve conversion rates of online businesses. The definition of website conversion refers to the process of turning website visitors into paying customers or taking a desired action. Literature review on several storytelling frameworks are the basis for deriving relevant elements which are mapped in the Website Story Canvas (WSC) to be developed. The visualization of the WSC is also based on literature review, comparing different notions of business model visualization. As result, the Business Model Canvas (BMC) established by Osterwalder, Pigneur (2010) and the concept of the Hero´s Journey (HEJ) developed by Vogler (1992) were identified as the most suitable. The contribution of this paper consists of the development of the WSC which links the theory of storytelling used in writing and film towards the issue of improving website experience and thus increasing website conversion. It connects the central stages of the HEJ towards a structure scheme for designing websites. The developed model is an important step to capture the impact of WSC in an empirical study to be performed. The WSC will help scholars and managers to optimize website structures and contents and to improve the website experience. Reliability of the WSC will be considered after empirical testing the model in the near future.
Keywords: Online-Marketing, Storytelling, Hero´s Journey, Conversion optimization.

1. INTRODUCTION

Website conversion is an important aspect of online business, which measures the success of a website in converting visitors into customers. It is defined as the percentage of website visitors who complete a specific action, such as making a purchase, filling out a form, signing up for a newsletter, or downloading a white paper. A website with a high conversion rate is more likely to succeed in achieving its goals. (Koops, Kusters, 2016) A website may have difficulty converting visitors into customers or clients for a variety of reasons. (1) A website that is difficult to navigate, has slow load times, or has a confusing design can result in a poor user experience and low conversions. (2) Visitors may not understand what the website is offering and why they should act if the value proposition is unclear. (3) A website that doesn't have trust signals, such as customer reviews, social proof, or security certificates, may struggle to convince visitors to take action. (4) Websites that are not targeted to its intended audience may not be able to convert visitors, as the content and messaging may not be relevant to them. (5) Technical issues such as broken links, errors, or slow load times can prevent a website from converting visitors. (Fogg, Eckles, 2007; Giao, Nhat, Quan, 2020) A finding of Khoshaim (2013) is that website design is also a driver of trust, and that the use of certain design elements, such as color and typography, can increase consumer trust and improve conversion rates. Concerning the factor of engagement an hedonic aspects the study of Jongmans et. al. (2022) states that user engagement, or the degree to which users are involved and emotionally invested in the website´s storytelling, is a key factor in website success.

2. THEORETICAL FRAMEWORK AND RELATED RESEARCH

2.1. Storytelling and its impact on website success

Storytelling is the method of using words, images, and other forms of media to tell a story. A story can be a fictional narrative, such as a novel or a film, or it can be a true account of events, such as a biography or a news article. The orininal purpose of storytelling is to entertain, inform, or inspire the audience. Storytelling can also be used for educational or therapeutic purposes, such as teaching children a moral lesson or helping people process traumatic experiences. The elements of storytelling include characters, plot, setting, and theme. Transferred to business, storytelling uses these methods to communicate and engage with customers, stakeholders, and employees. Kotler, Pfoertsch, Sponholz (2020) emphasize the importance of storytelling in general business and traditional marketing and how it can help companies build brand loyalty. It is an efficient way for companies to create a lasting emotional connection that can influence purchasing decisions and foster brand loyalty. In a business context, storytelling can take many forms, including product descriptions, case studies, brand stories, company culture stories, and customer testimonials. Storytelling in business can be used in various channels such as websites, social media, advertising, presentations, and events. In terms of effectiveness, Adamson et. al. (2007) explore the impact of storytelling on website success, including increased engagement, increased conversion rates, and improved customer loyalty. In their exploratory study, Ching et. al. (2013) showed that narratives have a significant impact on consumer engagement and customer response to online advertising. Also purchase intentions as direct result of increased brand awareness can be tracked back to usage of website storytelling. (Lundqvist et al., 2013) Increased engagement resulting from the emotional connection with the target audience ultimately has a positive impact on website conversion rates. (Manowicz, Pfoertsch, Preikschas, 2022) By incorporating storytelling into marketing and branding efforts, companies can differentiate themselves from competitors, build trust with their audience, and effectively communicate their value proposition.

2.2. The hero´s journey as narrative framework

There exist several storytelling frameworks that can be used in business. The "Story Spine – Framework" is based on the classic story structure of setup, conflict, resolution, and conclusion. It can be used to simplify complex stories and make them more easily digestible for the audience. (Mc Key, Gerace, 2018) Several frameworks are described by Miller (2017). Among others, the "Problem-Agitate-Solve" (PAS) framework. It is focused on solving a specific problem for the customer. It involves outlining the problem, agitating it to increase the customer's sense of urgency, and then presenting a solution. Next, he describes the "Before-During-After" (BDA) framework, which puts the customer's journey into the center perspective, and involves telling the story of what the customer was like before they encountered the company's product or service, what happened during the interaction, and what their life is like now. Further, the "Journey of Transformation" is focused on the customer's personal growth and transformation. It involves telling the story of how the customer's life was before they encountered the company's product or service, how the interaction changed them, and what their life is like now. The described "Origin Story Framework" is focused on the company's history and the story of how it came to be. It involves telling the story of the company's founders, their struggles and challenges, and how they overcame them to achieve success. These examples of storytelling frameworks for business can be drawn back to the concept of the hero´s journey (HEJ), first described by the American scholar J. Campbell in his book "The Hero with a Thousand Faces" (1949). The HEJ is a narrative structure that is commonly used in storytelling, particularly in myths, legends, and epic tales.

It is a pattern that describes the typical adventure of the archetype known as "the hero," the story of a hero who goes on an adventure, and in a decisive crisis wins a victory, and then comes back home changed or transformed. The hero's journey is a universal pattern that can be found in stories from many different cultures and time periods, and it continues to be a popular narrative structure in modern storytelling, such as movies, books, and video games. Variations can be found in Leeming (1981) and Cousineau (1990). Vogler (1998) adapted Campbell's concept of the hero's journey. It outlines the common patterns found in many hero stories and mythologies from various cultures throughout history. Vogler's version of the Hero's Journey consists of 12 stages, (1) The ordinary world, (2) The call to adventure, (3) Refusal of the call, (4) Meeting with the mentor, (5) Crossing the threshold, (6) Tests, allies, and enemies, (7) Approach to the innermost cave, (8) The supreme ordeal, (9) The reward, (10) The road back, (11) The resurrection, and (12) Return with the elixir. In Table 1, the 12 stages are described in detail.

Stage	Title	Description
1	The ordinary world	The hero, uneasy, uncomfortable or unaware, is introduced sympathetically so the audience can identify with the situation or dilemma. The hero is shown against a background of environment, heredity, and personal history. Some kind of polarity in the hero's life is pulling in different directions and causing stress.
2	The call to adventure	Something shakes up the situation, either from external pressures or from something rising up from deep within, so the hero must face the beginnings of change.
3	Refusal of the call	The hero feels the fear of the unknown and tries to turn away from the adventure, however briefly. Alternately, another character may express the uncertainty and danger ahead.
4	Meeting with the mentor	The hero comes across a seasoned traveler of the worlds who gives him or her training, equipment, or advice that will help on the journey. Or the hero reaches within to a source of courage and wisdom.
5	Crossing the threshold	At the end of act one, the hero commits to leaving the Ordinary World and entering a new region or condition with unfamiliar rules and values.
6	Tests, allies and enemies	The hero is tested and sorts out allegiances in the special world.
7	Approach	The hero and newfound allies prepare for the major challenge in the special world.
8	The ordeal	Near the middle of the story, the hero enters a central space in the special world and confronts death or faces his or her greatest fear. Out of the moment of death comes a new life.
9	The reward	The hero takes possession of the treasure won by facing threat. There may be celebration, but there is also danger of losing the treasure again.
10	The road back	About three-fourths of the way through the story, the hero is driven to complete the adventure, leaving the special world to be sure the treasure is brought home. Often a chase scene signals the urgency and danger of the mission.
11	The resurrection	At the climax, the hero is severely tested once more on the threshold of home. He or she is purified by a last sacrifice, another moment of death and rebirth, but on a higher and more complete level. By the hero's action, the polarities that were in conflict at the beginning are finally resolved.
12	Return with the elixir	The hero returns home or continues the journey, bearing some element of the treasure that has the power to transform the world as the hero has been transformed.

Table 1: Detailed description of the HEJ´s stages.
(Source: Author, according to Vogler 1998)

He provides detailed descriptions and examples of each stage of the hero's journey, along with tips for creating compelling characters and conflicts. He presents the hero's journey as a widely used tool to structure a narrative. This structure can be adapted to any medium, and the hero's journey can be observed in stories that are not just in movies but also in books, games, comics and even in real-life. The main differences between Vogler´s and Campbell´s Hero's Journey are in the language used and the emphasis placed on certain stages. For example, Vogler's model is more detailed and practical for writers and filmmakers, while Campbell's monomyth is more focused on the universal archetypes and themes that underlie hero stories. Additionally, Vogler added some stages that were not present in Campbell's original work, such as the "Resurrection" stage and the "Return with the elixir" stage.
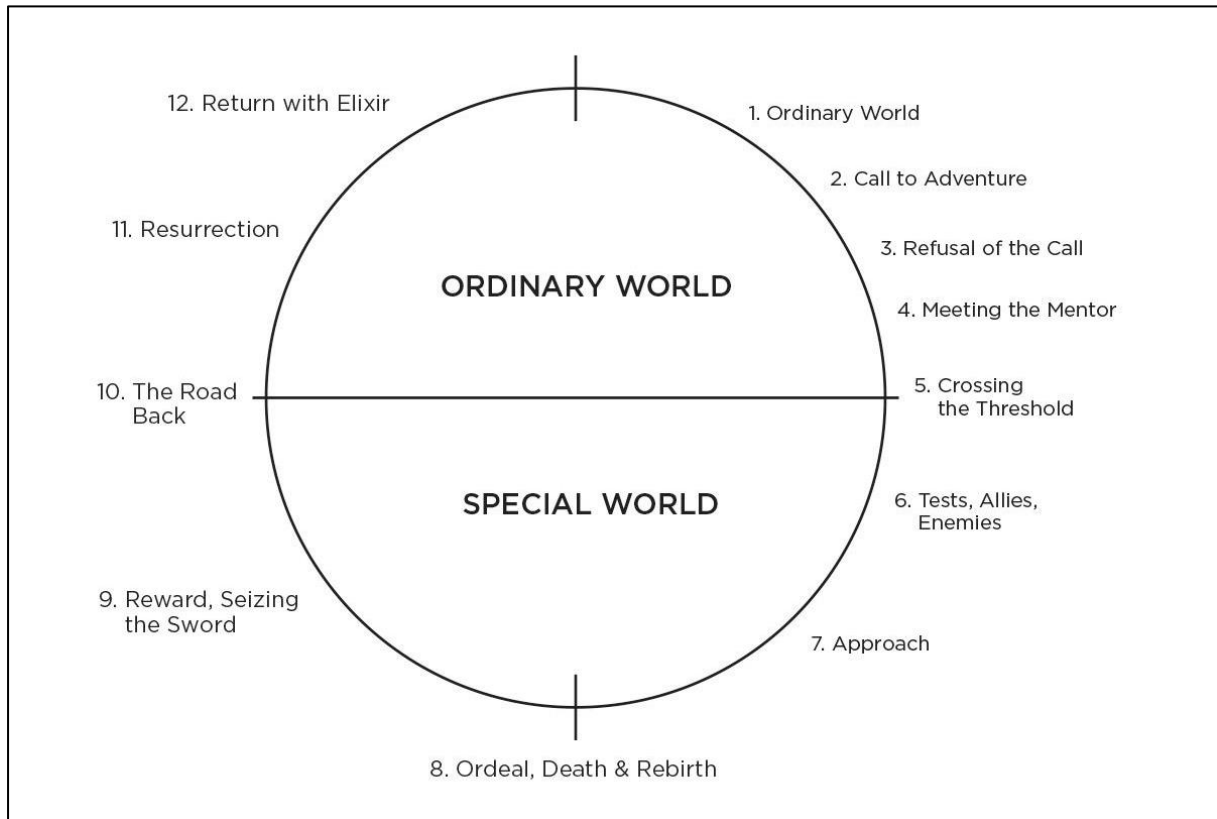
Figure 1: The 12 stages of the Hero´s Journey.
(Source: Vogler, 1998)

Summarizing, both models can be used as a framework for the development of the website story canvas, however the Hero's Journey as described by Vogler is more practical and tailored to the needs of online storytelling. Therefore, Vogler´s concept of the Hero´s Journey will be used as reference in this paper.

2.3. Business model canvas as visual framework
In order to develop a visualization for website storytelling different frameworks were investigated and evaluated with regard to the considered topic. Business model research is a rapidly growing field that is still in search of solid theory. The business model concept can be broadly defined as the abstract logic of an organization's creation, delivery and value capture. (Teece, 2010) In their research, Täuscher and Abdelkafi (2017) analyse a selection of 45 visual representations from the academic literature and a sample of 50 visualizations from outside the academic realm.

Using the categorization and criteria of Täuscher and Abdelkafi (2017), the Business Model Canvas (BMC) is considered suitable for applying the concept of website storytelling. By translating the key elements of website storytelling into the structure of the Business Model Canvas, the Website Story Canvas is derived. The Business Model Canvas is a visual framework for describing, designing, and analyzing business models. Published by Osterwalder, Pigneur (2010), it is widely used by businesses, startups, and established companies to describe existing and create and test new business models. It consists of nine building blocks that describe a company's (1) value proposition, (2) customer segments, (3) channels, (4) customer relationships, (5) revenue streams, (6) key activities, (7) key resources, (8) key partners, and (9) cost structure. The blocks are arranged in a visual map, making it easy for businesses to see how all the elements of their model fit together. Figure 2 shows the nine building blocks of the BMC.

Figure 2: Business Model Canvas.
(Source: Osterwalder, Pigneur, 2010)

The visual arrangement of the bulding blocks refers to a rather rational part (left side) and a emotional part (right side) picking up the idea of Kahnemann (2011). His theory proposes that human thinking operates in two distinct modes: System 1 thinking, which is fast, emotional, and automatic, and System 2 thinking, which is slow, deliberate, and reflective. Kahneman further argues that these two systems of thinking interact to influence our decision-making and that our understanding of the world is shaped by our biases, heuristics, and limitations. He also emphasizes that the biases and heuristics that govern System 1 thinking often lead to systematic errors and that our confidence in our beliefs is not always proportional to their accuracy. These insights have been applied to a wide range of fields, including economics, marketing, and behavioral finance, among others. Thus they will be respected in the development of the WSC.

3. DEVELOPMENT OF WEBSITE STORY CANVAS

The introduced frameworks on storytelling and business model visualization have their origin in other areas than website design. Yet, no model covers the specific requirements of website storytelling. In consequence a specific model based on the foundations of the HEJ and BMC is to be derived. In this paper, the concept of the WSC is established as an adaption and conjunction of the previous analysed models. The WSC in result depicts a framework and practical guideline for the design of Websites from the point of view of storytelling. The BMC provides the visualization structure. The main idea of this theoretical framework is that usage of website storytelling leads to an increased call to action in terms of a purchase, booking etc. towards the brand and its products. In consequence, this leads to the main proposition that the use of WSC fosters conversion rates of websites in a positive way. Given, the hypothesis is stated as follows: The use of WSC positively influences website conversion rates. The described model and derived hypothesis are to be tested in future research, e.g. in an combined approach using qualitative and quantitative research methods. Table 2 shows the mapping and condensing the individual stages of the hero's journey to the elements of the website story canvas.

Stages of HEJ (Vogler, 1996)	Element of WSC	Description
(1) The Ordinary World	1. Everyday hero	The ordinary customer becomes the everyday hero.
(2) The Call to Adventure	2. Weakness	Weakness and problem of the customer are shown/reflected and paraphrased.
(4) Meeting with the Mentor	3. Mentor	The company or a representative in person positions itself as a mentor.
(5) Crossing the Threshold	4. Solution	Customer gets a way to the solution, presented by the mentor.
(3) Refusal of the Call (6) Tests, Allies, and Enemies (7) Approach to the Innermost Cave	5. Doubts	Customer doubts and self-critical questioning of one's own needs. References and customer opinions are checked and inner doubts and thresholds are weighed.
(8) The Supreme Ordeal	6. Call to Action	Customer accepts the call to action and starts the journey.
(9) The Reward (10) The Road Back (11)The Resurrection (12) Return with the Elixir	7. Reward	Customer is rewarded with success and becomes a reference for subsequent customers or an ally for the company.

Table 2: Mapping and condensing the stages of the HEJ to the elements of the WSC.
(Source: Author of the paper)

As a result of the mapping the initial 12 stages of the HEJ are condened to seven stages in the WSC. This results from the combination of stages 3,6,7 of the HEJ into element 5 of the WSC. Also the stages 9,10,11,12 are combined to element 7 of the WSC. Furhter the sequence is adapted. Stage 3 of the HEJ is integrated into element 5 of the WSC. In the following, the individual stages of the website story canvas will be described.

- Stage 1, "Everyday hero": In the WSC concept, the customer represents the everyday hero. It is suggested that every customer can achieve something heroic by using the product or service. The focus is on the fact that the customer identifies himself as addressed target person and recognizes that exactly he is addressed here. Therefore it is important for business to develop a deep understanding of interests, characteristics and needs of their target group.

- Stage 2, "Weakness": Weaknesses, problems but also possible goals of the customers are presented with the aim of matching. The aim here is to ensure that the customer's problem is taken up and understood by the company. These, need to be mirrored on the website, so customers can identify them selfes with the company.
- Stage 3, "Mentor": The company positions itself or a personal representative as a mentor with the aim of providing experience and competence in problem solving. The essential goal is to build trust in the problem-solving competence and to create an emotional bond. This can be achieved by presenting personal or professional backround.
- Stage 4, "Solution": The company presents the path to the solution, the benefit of the product or service. It is shown how the situation of the customer is improved by the use of the product or service or how potentials remain unused by not using the product or service. The mentor here can take different roles, e.g. as a guide, trainer, coach or supervising the process.
- Stage 5, "Doubts": Customer doubts and skepticism are addressed by presenting customer references, ratings and feedback. Likewise, other elements of social proof such as star ratings from Google are presented. Turning doubts into confidence is key. The target is to make sure that the customer feels secure upon taking a buying-decision.
- Stage 6, "Call to action": If the offer is a logical outcome of the story-path, the customer accepts the call to action and makes use of the company's services. Clear price communication and easy checkout-processes with acknowledged payment-options support the process. At this point, the delivery process comes into effect. This is the moment of truth when the customer personally uses and evaluates the service.
- Stage 7, "The reward": A clear statement of the customer´s gains is to be communicated but also the missed out opportunity if the product or service is not purchased. Here the concept of loss aversion is used. (Schmidt, Zank, 2005) The successful solution of the customer's problem is used to generate further positive references. Positive feedback can be communicated. Negative feedback is addressed to improve services and provide a better experience for future customers.

The next step is to visualize the 7 steps of the WSC following the visualization of the BMC. According to the concept of the BMC the stages are arranged in a rather rational part (right side) and a rather emotional part (left side). The protagonists hero (customer) and mentor (company) are placed in the middle. Figure 3 shows the arrangement in the final concept of the Website Story Canvas.

Figure following on the next page

Website Story-Canvas

How should a website be structured to develop maximum appeal?

The website story canvas structures a website in such a way that prospective customers immediately understand, gain trust in the provider and buy the companies products or services.

1. Everyday Hero

Which target group should immediately feel addressed by your website?

- Persona/ target group
- B2B company
- Special features
- Interests
- Characteristics (socio-/demographic/...)
- Exclusions

2. Weakness

What bothers your everyday hero about the status quo? Can also be seen as a weakness:

- Wishes
- Goals
- Problems
- Fears
- Needs
- Frustrators

3. Mentor

What is your role as an expert problem solver and how do you support your everyday hero to reach his goal?

- Background
- Sympathy
- Trust
- Goodwill

4. Solution

IIn which stages can your everyday hero reach his goal, which manageable steps are necessary?

- Guide
- Milestones
- "Catch net"
- Mission Control
- Support

5. Doubts

What doubts occur most often, what prevents your everyday heroes from following your plan?

- Objections
- Social Proof
- References
- Trust
- Security

6. Call to Action

How do you make it easier for your everyday heroes to cross the "point of no return"?

- Offer / Performance
- Price / Discounts
- Checkout processes
- Money-back guarantee
- Delivery

7. Reward

What does your everyday hero's world look like when he embarks on the journey, and what does he miss out on when he doesn't?

- New world / paradise
- What if (not), ... / Missed opportunity
- "Fomo" - Fear of missing out

Figure 3: Visualised content of the Website Story Canvas.
(Source: Author of the paper)

4. CONCLUSION

Storytelling can support companies to increase website conversion. However, there yet doesn´t exist a visual framework to structure and develop website stories. Defining a visual framework can support researchers and practicioners to fulfill the different steps within this creative process of initiation, ideation, and integration elements of the Website Story Canvas. The developed WSC can also support researchers and practitioners in applying an appropriate visual representation to achieve specific tasks in terms of conversion optimisation. For this purpose this paper has analysed different approaches of storytelling and different representations from the field of business model visualization. Out of this selection the Hero´s Journey approach of Vogler (1998) and the Business Model Canvas of Osterwalder, Pigneur (2010) were found to be best suited to form the basis for the WSC. The developed Website Story Canvas consists of seven elements derived from the Hero´s Journey adapted to the requirements of online business. The distinction of the seven elements supports the different perspectives of scholars and practicioners and are combined to generate an integrated view on website storytelling. As a consequence, this research advances the academic discussion on website storytelling and opens directions for future research to validate the model in the future. For this purpose a qualitative and quantitative research design is recommended to validate the model. Hence, the findings can support the design of effective storytelling-software tools by encouraging researchers in the area of information systems to combine visualization and storytelling content. This research is not without limitations. The chosen methology has focused on visual desriptions of business model frameworks. In addition the chosen types of storytelling based on the recognition that further identified species are due to the principles of Campbell (1949). Further research could use the approaches of Leeming (1981) and Cousineau (1990). Consequently, this paper can be considered a call for a more research on storytelling in within marketing sciences, leveraging the existing knowledge from online marketing research.

LITERATURE:
1. Adamson, G., Pine, J., Van Steenhoven, T., Kroupa, J. (2006), "How storytelling can drive strategic change", Strategy & Leadership, Vol. 34 No. 1, pp. 36-41.
2. Campbell, J. (1949). The Hero with a Thousand Faces (1st ed.). Princeton, NJ: Princeton University Press.
3. Ching, R., Tong, P., Chen, J., Chen, H. (2013). Narrative online advertising: Identification and its effects on attitude toward a product. Internet Research: Electronic Networking Applications and Policy.
4. Fogg, B. J., Eckles, D. (2007). Mobile Persuasion: 20 Perspectives on the Future of Behavior Change, Stanford Captology Media.
5. Cousineau, P. (1990). The Hero's Journey: Joseph Campbell on His Life and Work. The Collected Works of Joseph Campbell, CA: New World Library.
6. Giao, H., Nhat, V.B., Quan, T. (2020). The influence of website quality on consumer's e-loyalty through the mediating role of e-trust and e-satisfaction: An evidence from online shopping in Vietnam. Journal of Supply Chain Management. 1-8.
7. Jongmans, E., Jeannot, F., Liang, L., Damperat, M. (2022). Impact of website visual design on user experience and website evaluation: the sequential mediating roles of usability and pleasure. Journal of Marketing Management. 1-36.
8. Kahneman, D.(2011). Thinking, Fast and Slow. Farrar, Straus & Giroux, New York.
9. Khoshaim, L. (2013). The Impact of Web Design Dimensions on Consumer Trust at Different Price Ranges (Master Thesis), Halifax, Canada.
10. Koops, J., Kusters, M. (2016). Website conversion rate optimization: a literature review, Journal of Direct, Data and Digital Marketing Practice.
11. Kotler, P. Pfoertsch, W., Sponholz, U. (2020). H2H Marketing: The Genesis of Human-to-Human Marketing, Springer.
12. Leeming, D.A. (1981). Mythology: The Voyage of the Hero. New York: Harper & Row.
13. Lundqvist, A., Liljander, V., Gummerus, J., van Riel, A. (2013). The impact of storytelling on the consumer brand experience: The case of a firm-originated story. Journal of Brand Management. 20. 283-297.
14. Manowicz, A., Pfoertsch, W., Preikschas, M. (2022). Business-to-Business Marketing. 6th ed., Kiehl.
15. McKey, R., Gerace, T. (2018) Storynomics: Story-Driven Marketing in the Post-Advertising World, Twelve.
16. Miller, D. (2017). Building a StoryBrand: Clarify Your Message So Customers Will Listen, HarperCollins Leadership.
17. Osterwalder, A., Pigneur, Y. (2010). Business Model Generation: A Handbook For Visionaries, Game Changers, and Challengers. John Wiley & Sons, Hoboken, NJ.
18. Schmidt, U., Zank, H. (2005). What is Loss Aversion?. Journal of Risk and Uncertainty. 30, pp. 157-167.
19. Teece, D.J., 2010. Business Models, Business Strategy and Innovation. Long Range Planning 43 (2-3), pp. 172–194.
20. Täuscher, K., Abdelkafi, N. (2017): Visual Tools for Business Model Innovation: Recommendations from a Cognitive Perspective. Creativity and Innovation Management 26(2), pp. 160–174.
21. Vogler, C. (1998). The Writer's Journey: Mythic Structure For Writers. Studio City, CA: Michael Wiese Productions.

THE APPLICATION OF THE NON-PARAMETRIC DATA ENVELOPMENT ANALYSIS METHODOLOGY IN INTERNET OF THINGS-RELATED RESEARCH: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The number of devices connected to the Internet is ever-growing and is expected to continue to grow exponentially as people increase the number of devices they purchase for both private and business purposes. Therefore, the Internet of Things (IoT) is currently an emerging topic of technical, social, and economic importance. Moreover, IoT-related research has drawn considerable public attention. Considering the applicability of IoT in many areas of life and business, it should come as no surprise that IoT-related research is the main focus of this study. This systematic literature review explores the applications of the non-parametric Data Envelopment Analysis (DEA) in IoT-related research. The main objective is to survey, identify and present the relevant studies and their findings regarding the application of the Data Envelopment Analysis (DEA) in efficiency evaluation in IoT-related research. Notwithstanding, another goal is to provide a theoretical background on the DEA methodology and the Internet of Things. The conducted literature review has explored the Scopus and Web of Science scientific databases with the key phrases „DATA ENVELOPMENT ANALYSIS" and „INTERNET OF THINGS", which resulted in a total of 45 studies (25 in the Scopus and 20 in the Web of Science database). After applying all the exclusion criteria, a total of nine papers are qualitatively analysed in this study. The findings indicate that the surveyed studies have been published in the period between 2016 and 2022. Moreover, they primarily show the applicability of DEA in the IoT-related literature.
Keywords: DEA, Data Envelopment Analysis, IoT, Internet of Things, literature review

1. INTRODUCTION
The "Internet of Things" emerged in the early 2000s and this term "describes a vision where objects become part of the Internet: where every object is uniquely identified, and accessible to the network, its position and status known, where services and intelligence are added to this expanded Internet, fusing the digital and physical world, ultimately impacting on our professional, personal and social environments" (Coetzee & Eksteen, 2011). The Internet of Things (IoT) is "an important emerging technology that enables (usually) pervasive ubiquitous devices to connect to the Internet" (Mutunhu et al., 2023). It is also considered and defined as "a part of the Internet of the future" which will include billions of intelligent communicating

devices and "a things-connected network, where things are wirelessly connected via smart sensors" (Li et al., 2015). As the number of "connected devices" (i.e. the devices that communicate and offer services via the Internet) continuously and exponentially grows, the number of innovations from both a technical and societal perspective arises. Furthermore, the explosive growth is "unprecedented within not just the communications industries, but also the wider global economy" (Holler et al., 2014). IoT is "driven by the expansion of the Internet through the inclusion of physical objects combined with an ability to provide smarter services to the environment as more data becomes available" (Coetzee & Eksteen, 2011). Thus, IoT is a topical and very popular research issue and its impact on business performance and efficiency has become increasingly popular. On the other hand, one of the most applied methodologies for performance and efficiency measurement is the non-parametric DEA methodology. In light of this, the main objective of this study is to survey, identify and present the relevant studies and their findings regarding the application of the Data Envelopment Analysis (DEA) in efficiency evaluation in IoT-related research. For this reason, a systematic literature review with the exploration of the two global scientific databases (Web of Science and Scopus) was conducted. The rest of this study is organised as follows. In the second section, a theoretical background on the Internet of Things (IoT) and Data Envelopment Analysis (DEA) is given. Section 3 elaborates on the methodology and the research process, whereas Section 4 presents the research results (i.e. the surveyed relevant papers and their findings). The fifth section includes a discussion of the results and concluding remarks.

2. THEORETICAL BACKGROUND
In this section, the theoretical background on the Internet of Things (IoT) and the Data Envelopment Analysis (DEA) are given as follows.

2.1. Internet of Things (IoT)
The term "Internet of Things" (IoT) has gained large attention from researchers globally ever since the early 2000s and ever since 2010 there has been "a tremendous surge of interest in the Internet of Things" (Wortmann & Flüchter, 2015). It is commonly stated that „the future is the Internet of Things, which will transform the real world objects into intelligent virtual objects" (Madakam et al., 2015). Even though the term has become well-known, a common definition of what Internet-of-Things actually encompasses is still unavailable. It refers to "the networked interconnection of everyday objects, which are often equipped with ubiquitous intelligence". Moreover, IoT is expected to "increase the ubiquity of the Internet by integrating every object for interaction via embedded systems, which leads to a highly distributed network of devices communicating with human beings as well as other devices" (Xia et al., 2021). The main objective of the IoT is to "unify everything in our world under a common infrastructure", thus letting us control not only our surroundings but also informing us of the state of the things (Madakam et al., 2015). IoT represents a "powerful integration of radio-frequency identification (RFID), sensor and wireless devices", which enables existing systems to become smart (Mehta et al., 2018). Moreover, radio frequency identification (RFID) is seen as "one of the pivotal enablers of the Internet of Things" (Tan & Wang, 2010). IoT represents "a technological revolution that represents the future of computing and communications", and its further development and growth are dependent on "dynamic technical innovation in several important fields, from wireless sensors to nanotechnology" (Madakam et al., 2015). As a result of rapid technological advances, IoT is likely to enter many new spheres of everyday life and improve its quality. The Internet of Things (IoT) represents "an emerging new paradigm that has changed the traditional way of living into a high-tech lifestyle", and "smart city, smart homes, pollution control, energy saving, smart transportation, smart industries are such transformations due to IoT" (Kumar et al., 2019).

According to Nižetić et al. (2020), the key objective of IoT technologies is "to simplify processes in different fields, to ensure a better efficiency of systems (technologies or specific processes) and finally to improve life quality". It is expected to change and transform "the real-world objects into intelligent virtual objects" (Madakam et al., 2015). Even though the future and perspective of the Internet of Things are "bright and expectations are rising", there are many obstacles, challenges and issues to be solved, both from technological and business perspectives (Wortmann & Flüchter, 2015). However, an enormous number of physical objects "are expected to be connected to form a system creating wide distribution network inferencing meaningful deductions from raw data shortly", which emphasizes the key challenges of IoT, such as privacy of information, the safety of physical devices and confidentiality of information (Mehta et al., 2018). Considering the high expectations and the importance of IoT in the economic and industrial growth of developing regions, as well as its consideration as "a revolutionary step in trade and stock exchange market", these issues regarding the security of data and information are the major challenge for IoT in the foreseeable future (Kumar et al., 2019).

2.2. Data Envelopment Analysis (DEA)
DEA is „a potent approach for evaluating the relative efficiency" of a set of homogenous Decision-making units (DMUs), especially used for small samples and widely implemented in many sectors such as "health care, higher education, and manufacturing" (Azadi et al., 2021). However, the study of Emrouznejad & Yang (2018) has shown that there are five economic sectors in which the DEA method is mostly applied as follows: agriculture, banking, transportation, supply chain and public policy. DEA has been first introduced in the seminal paper of Charnes, Cooper & Rhodes (1978), but was based on the work of Farrell (1957). Since the first introduced DEA model – namely the CCR model, "the related theoretical research is deepening and the application field is more and more extensive" (Fan & Sun, 2017). It has gained huge popularity among scholars and academic members as well as business analysts, due to its simplicity to use, and its many advantages over parametric methodologies. Namely, DEA „can handle a variety of input and output variables; it does not require an assumption regarding the functional relationship; it can handle the input and output elements at different scales; eliminates the need to create separate data for a performance measurement and reveals the best practices" (Park & Lee, 2021). According to Goodarzian et al. (2022), DEA is „one of the best-known criteria in the field of multicriteria decision-making". As a part of Operation Research (OR), the DEA is a non-parametric methodology "used to measure the efficiency in the field of economics". The DEA measures relative and not absolute efficiency, that is, "a value expressed relative to the highest level of efficiency" (Park & Lee, 2021). Data envelopment analysis (DEA) is a "new method for analysis of the effective system on the basis of efficiency evaluation concept" employing mathematical programming. All of the peer units included in the analysed sample (the decision-making units) are projected to the DEA frontier, and are later on compared with "the extent to which DMU deviates from the frontier of DEA production". Therefore, DEA is also a frontier method (Fan & Sun, 2017). Finally, the DEA methodology is often recognized as "an excellent and easy-to-apply approach for modelling operational processes for performance evaluation" (Cooper et al., 2011).

3. METHODOLOGY AND RESEARCH PROCESS
The main objective of this study is to survey, identify and present the relevant studies and their findings regarding the application of the Data Envelopment Analysis (DEA) in efficiency evaluation in IoT-related research. Therefore, two of the most relevant scientific databases (i.e. the Web of Science and Scopus) were surveyed in search of published work employing the DEA methodology regarding Internet-of-Things.

The applied methodology, i.e. the systematic literature review (SLR) is commonly referred to as an "essential tool for summarizing evidence accurately and reliably" (Liberati et al., 2009). The research design for the conducted systematic literature review surveyed a very low number of published papers applying the DEA methodology in the research field of Internet-of-Things. The research process consisted of four phases as shown in Figure 1 (identification, screening, eligibility, and inclusion). In the first phase (the identification phase), both of the selected global scientific databases were surveyed with the keywords/key phrases „DATA ENVELOPMENT ANALYSIS" and „INTERNET OF THINGS". This resulted in a total of 45 papers, out of which 25 were in the Scopus and 20 papers in the Web of Science database. In the second phase (the so-called screening phase), the authors screened the abstracts of the fully downloadable and English-written 21 papers. In this phase, 8 papers were excluded. Therefore, 13 papers entered the third phase (the eligibility phase). In this phase, a secondary abstract and full-text manual screening of papers occurred, which resulted in a total of 8 relevant and eligible papers employing DEA in IoT in the last, inclusion phase. An in-detail presentation of the surveyed eight studies and their findings is provided given in the next section.
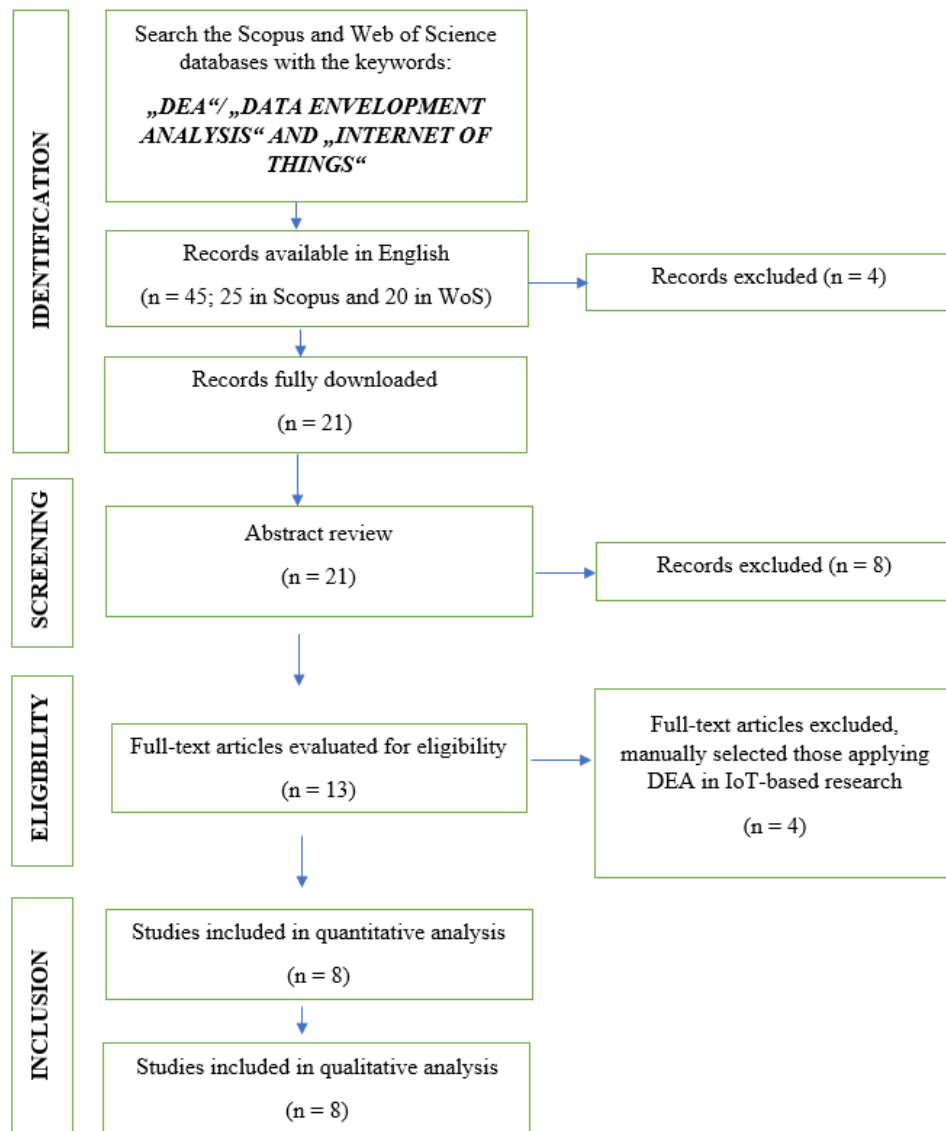
Figure 1: The research process.
(Source: Authors' work)

4. RESULTS

The main goal of this review was to survey the most relevant scientific databases (i.e. Scopus and Web of Science) in systemizing the previous relevant published work regarding the application of DEA in Internet-of-Things-related research. The results from the research process presented in Figure 1 show that only 8 (eight) papers were included in this review. Therefore, it is safe to conclude that the DEA methodology (even though very popular in many other industries and research areas) is neglected in the Internet-of-Things-related research field. This reveals that the applications of DEA in IoT-related research are very modest. The surveyed relevant papers are presented in Table 1 and a more elaborate and qualitative analysis regarding each paper is given thereafter.

Authors and year of publication	*Title of the paper*
Goodarzian, Navaei, Ehsani, Ghasemi & Munuzuri (2022)	Designing an integrated responsive-green-cold vaccine supply chain network using Internet-of-Things: artificial intelligence-based solutions
Liu, Fan, Cao, Peng & Huang (2022)	Study on the Drivers of Inclusive Green Growth in China Based on the Digital Economy Represented by the Internet of Things (IoT)
Park & Lee (2021)	Improved mitigation of cyber threats in IIoT for smart cities: A new-era approach and scheme
Azadi, Moghaddas, Cheng & Farzipoor (2021)	Assessing the sustainability of cloud computing service providers for Industry 4.0: a state-of-the-art analytical approach
Pérez-Pons, Plaza-Hernández, Alonso, Parra-Domínguez & Prieto (2021)	Increasing profitability and monitoring environmental performance: a case study in the agri-food industry through an Edge-IoT platform
Osman, Anouze, Irani, Lee, Medeni & Weerakkody (2019)	A cognitive analytics management framework for the transformation of electronic government services from users' perspective to create sustainable shared values
Tan, Ng & Low (2017)	Internet-of-Things Enabled Real-time Monitoring of Energy Efficiency on Manufacturing Shop Floors
Hu, Li, Chen, Yan & Ran (2016)	Adaptability evaluation of electronic vehicle identification in urban traffic: A case study of Beijing

Table 1: List of the authors, year of publication and title of the relevant IoT-related papers.
(Source: Authors' work)

Goodarzian, Navaei, Ehsani, Ghasemi & Munuzuri (2022) have tackled artificial intelligence-based solutions in solving the problem of the vaccine supply chain network with the use of Internet-of-Things. Moreover, their study is revolutionary due to the fact it is the first study it developed a new „multi-objective, multi-period, four-echelon mathematical model for the distribution-allocation-location problem" for the COVID-19 pandemic. They have integrated Internet-of-Things application in the COVID-19 pandemic and thus "enhanced the accuracy, speed, and justice of vaccine injection with existing priorities" for the case study of the city of Tehran (the capital of Iran). They have suggested GWO and VNS algorithms and developed a new heuristic method called modified GWO (MGWO). The methodologies used for algorithms comparison are the performance of the convergence and assessment metrics "containing Percentage of Domination (POD), Number of Pareto Solutions (NPS), Data Envelopment

Analysis (DEA), and Diversification Metric (DM)". Their findings reveal that supply chain costs increase sharply as demand increases, due to "the increase in total transportation time and the increase in transportation costs". Furthermore, they found that the environmental impacts decrease as vehicle capacity, supply chain costs and delivery times increase.

Liu, Fan, Cao, Peng & Huang (2022) focus on the drivers of inclusive green growth (IGG) in China based on the digital economy and digital technologies such as the Internet of things (IoT), big data, and artificial intelligence. In their study, they evaluate the efficiency and performance of IGG and thus explore the key drivers of IGG in China. They applied the DEA methodology to a sample of 281 cities in China in the period from 2005 to 2020. Moreover, they implement a "Machine Learning (ML) algorithm to demonstrate the vital drivers of urban IGG, which avoids the defects of the endogenous linear hypothesis of traditional econometric methods". Their findings show that the digitization represented by the IoT and other digital technology "is the core driver of the urban IGG in the overall sample, accounting for about 50% among all of the drivers".

Park & Lee (2021) have tackled the issue of cybersecurity in the Industrial Internet of Things (IIoT) in smart cities. They have applied the DEA to „identify features for efficiently detecting anomalous behavior in smart cities", i.e. DEA was used as an efficiency measurement approach for each feature set. They analyzed "a server-side bot detection methodology" for detecting abnormal behaviour and included the following features: The features determined included a trading network, gameplay style, social network, sequence analysis, self-similarity, character movement, and character behaviour on a sample of 63 DMUs. Their findings and scientific contribution are valuable due to the development of a process model based on the DEA methodology.

Azadi, Moghaddas, Cheng & Farzipoor (2021) have assessed the sustainability of cloud computing service providers (CSPs) for Industry 4.0 and for that purpose they developed a state-of-the-art analytical approach. They have developed "a comprehensive analytical method based on data envelopment analysis (DEA) to gauge the sustainability of CSPs for Industry 4.0", in the presence of integer data and undesirable outputs. The main contribution of the study is that the developed DEA model has many advantages, such as: "it considers the manager's viewpoints; it deals with the quasi-fixed inputs directly; it handles ratio data directly; it fully ranks sustainable CSPs". Their novel proposed model includes real data, undesirable output, integer data, quasi-fixed inputs, ratio data and weight restrictions. Their sample consists of 30 CSPs and the obtained results from the CCR, BCC, and SBM models indicate that a majority of the CSPs are efficient.

Pérez-Pons, Plaza-Hernández, Alonso, Parra-Domínguez & Prieto (2021) explore the implementation of technology and IoT in smart farming and the agri-food industry 4.0., which are very topical and interesting research areas. Namely, they have employed the DEA methodology to analyse a "real scenario for making farms more profitable and sustainable". The results of „tracking different variables from the Environmental Performance Index with real-time sensors and the application of an Edge-Computing platform that reduces the data traffic to the Cloud" reveal that "the costs of edge and non-edge data transfer have an impact on the farms' efficiency". Moreover, the study shows that the implementation of IoT and Edge-Computing in agriculture in the long term "can represent a competitive advantage when measuring the efficiency of the Decision-Making Units".

Osman, Anouze, Irani, Lee, Medeni & Weerakkody (2019) tackle the electronic government services (e-services), i.e. they propose a cognitive analytics management (CAM) framework to implement the transformation of electronic government services. Other than the CAM framework, they employ the DEA methodology to generate new insights for improvement and thereafter apply a classification and regression tree to the DEA results "to identify characteristics of satisfaction to advance relationships". They conducted an online survey to capture data from users from Turkey while interacting with an e-service "to ensure the highest level of data quality, triangulation and veracity". The main contribution of their study is the carefully designed CAM framework which models "the human–machine online interactions with e-services". They propose suggestions for the practical use of their framework, which is beneficial to policymakers.

Tan, Ng & Low (2017) focus on energy efficiency (EE) evaluation as a crucial indicator in the manufacturing industry. Moreover, they introduce an "internet-of-things (IoT) enabled software application for real-time monitoring of EE on manufacturing shop floors". They implement the DEA methodology to spot any "abnormal energy consumption patterns and quantify energy efficiency gaps". This study brings large managerial contributions since it assists energy managers "to embed best practice energy management in day-to-day operations and achieve better EE by eliminating possible energy wastages in the manufacturing operations". Furthermore, it reveals how IoT solutions could be used in solving day-to-day business issues and operations.

Hu, Li, Chen, Yan & Ran (2016) have evaluated the adaptability of electronic vehicle identification (EVI) in urban traffic in the case of Beijing, China. For this purpose, they introduce an EVI adaptability evaluation model based on a combination of principal component analysis (PCA) and data envelopment analysis (DEA) with two scenarios. Their findings are especially valuable for policymakers in the determination of "the priority domains of internet of things technology applications by assessing the adaptability of these technologies before deployment". Moreover, this study offers an overview of IoT adaptability in urban traffic.

5. DISCUSSION AND CONCLUSION

The eight surveyed papers provide new insights into the application of DEA in Internet-of-Things-related research. Taking into consideration the number of papers published in the Internet-of-Things-related research altogether (108.684 papers with the keyphrase „INTERNET OF THINGS" in the Clarivate Web of Science and 153.652 papers in Scopus database), it can be, without doubt, concluded that the DEA methodology has not enjoyed huge popularity among scholars in this area. This issue demands additional efforts to implement the DEA and to popularize it among scholars and researchers in the area of Internet-of-Things. The results from this study reveal that the applications of DEA in IoT-related research are quite modest. Moreover, all of the surveyed papers have been published in the period 2016 to 2022. Moreover, five out of eight papers have been published in the past two years (2021 and 2022), i.e. post-COVID-19. Thus, this confirms the novelty of this research and the IoT area, especially when it comes to DEA applications. Two of the surveyed papers (Liu, Fan, Cao, Peng & Huang, 2022; Hu, Li, Chen, Yan & Ran, 2016) have implemented research regarding China, one revolves around Iran (Goodarzian, Navaei, Ehsani, Ghasemi & Munuzuri, 2022) and one around Turkey (Osman, Anouze, Irani, Lee, Medeni & Weerakkody, 2019). The rest of the surveyed papers tackle theoretical issues and develop DEA models and have not specified a particular country. These results are shown in Table 2, together with the subjects of research. Moreover, there are many different aspects of efficiency addressed in the surveyed papers, such as the issue of the vaccine supply chain network (Goodarzian et al., 2022), the main drivers of

inclusive green growth based on the digital economy (Liu et al., 2022), the cybersecurity in Industrial Internet of Things (IIoT) in smart cities (Park & Lee, 2021), the efficiency of cloud service providers (CSPs) for Industry 4.0 (Azadi et al., 2021), the efficiency evaluation of the Agri-Food industry through an Edge-IoT Platform (Pérez-Pons et al., 2021), the potential benefits of the transformation of electronic government services (Osman et al., 2019), Internet-of-things (IoT) enabled software application for real-time monitoring of EE on manufacturing shop floors (Tan et al., 2017) and the evaluation of electronic vehicle identification adaptability in urban traffic (Hu et al., 2016).

Authors and year of publication and title of the paper	Subject of research and country
Goodarzian, Navaei, Ehsani, Ghasemi & Munuzuri (2022): Designing an integrated responsive-green-cold vaccine supply chain network using Internet-of-Things: artificial intelligence-based solutions	Artificial Intelligence-based solutions in solving the problem of the vaccine supply chain network (Tehran, Iran)
Liu, Fan, Cao, Peng & Huang (2022): Study on the Drivers of Inclusive Green Growth in China Based on the Digital Economy Represented by the Internet of Things (IoT)	Drivers of Inclusive Green Growth Based on the Digital Economy (China)
Park & Lee (2021): Improved mitigation of cyber threats in IoT for smart cities: A new-era approach and scheme	Cybersecurity in Industrial Internet of Things (IIoT) in smart cities (n.a.)
Azadi, Moghaddas, Cheng & Farzipoor (2021): Assessing the sustainability of cloud computing service providers for Industry 4.0: a state-of-the-art analytical approach	Assessment of the efficiency of cloud service providers (CSPs) for Industry 4.0 (n.a.)
Pérez-Pons, Plaza-Hernández, Alonso, Parra-Domínguez & Prieto (2021): Increasing profitability and monitoring environmental performance: a case study in the agri-food industry through an edge-IoT platform	Efficiency evaluation of the Agri-Food Industry through an Edge-IoT Platform (n.a.)
Osman, Anouze, Irani, Lee, Medeni & Weerakkody (2019): A cognitive analytics management framework for the transformation of electronic government services from users' perspective to create sustainable shared values	Transformation of electronic government services (Turkey)
Tan, Ng & Low (2017): Internet-of-Things Enabled Real-time Monitoring of Energy Efficiency on Manufacturing Shop Floors	Internet-of-things (IoT) enabled software application for real-time monitoring of EE on manufacturing shop floors (n.a.)
Hu, Li, Chen, Yan & Ran (2016): Adaptability evaluation of electronic vehicle identification in urban traffic: A case study of Beijing	Adaptability evaluation of electronic vehicle identification in urban traffic (Beijing, China)

Table 2: Subjects of research and analysed countries in the surveyed papers. (Source: Authors' work)

This study has some limitations. First and foremost, even though the authors have surveyed the most relevant global scientific databases (i.e. the Scopus and the Web of Science database), there is a possibility that there are other published and relevant papers revolving around the IoT with the application of DEA that have not been surveyed and analysed with this study.

Secondly, this study only surveys papers that apply the DEA methodology. However, many other methodologies are used in the context of IoT that have not been included in the study. And lastly, and as a guideline for future work, other than conducting a literature review on this subject, the authors plan to explore and empirically assess the creative industries in the EU (and thus, the IoT) with the application of the DEA.

LITERATURE:
1. Azadi, M., Moghaddas, Z., Cheng, T.C.E. & Farzipoor Saen, R. (2021). Assessing the sustainability of cloud computing service providers for Industry 4.0: a state-of-the-art analytical approach. *International Journal of Production Research*, DOI: 10.1080/00207543.2021.1959666
2. Charnes, A., Cooper, W. W., Rhodes, E. L. (1978). Measuring the efficiency of decision making units, *European Journal of Operational Research, 3*(4), 429–444.
3. Coetzee, L., & Eksteen, J. (2011). The Internet of Things-promise for the future? An introduction. In *2011 IST-Africa Conference Proceedings* (pp. 1-9). IEEE.
4. Cooper, W.W., Seiford, M.L. & Zhu, J. (2011). *Handbook on Data Envelopment Analysis*, Second Edition, Springer, International Series in Operations, Research & Management Science, Volume 164.
5. Emrouznejad, A., Yang, G. (2018). A survey and analysis of the first 40 years of scholarly literature in DEA: 1978–2016, *Socio-Economic Planning Sciences, 61*, 4-8, https://doi.org/10.1016/j.seps.2017.01.008.
6. Fan, X.N., Sun, M.M. (2017). Evaluation of cultural creative industry efficiency in Dalian based on DEA model. *Proceedings of The Second International Conference on Economic and Business Management (Febm 2017)*, 33, 154-161.
7. Farrell, M. (1957). The measurement of productive efficiency, Journal of the Royal Statistical Society, *Series A (General), 120*(3), 253-290. https://doi.org/10.2307/2343100
8. Goodarzian, F., Navaei, A., Ehsani, B., Ghasemi, P., Muñuzuri, J. (2022). Designing an integrated responsive-green-cold vaccine supply chain network using Internet-of-Things: artificial intelligence-based solutions. *Annals of Operations Research*, https://doi.org/10.1007/s10479-022-04713-4
9. Holler, J., Tsiatsis, V., Mulligan, C., Karnouskos, S., Avesand, S., & Boyle, D. (2014). *Internet of things*. Academic Press.
10. Hu, H., Li, B., Chen, X., Yan, Y., Ran, B. (2016). Adaptability Evaluation of Electronic Vehicle Identification in Urban Traffic: A Case Study of Beijing. *Tehnički vjesnik 23* (1), 171-179. DOI: 10.17559/TV-20151002055617
11. Kumar, S., Tiwari, P., Zymbler, M. (2019). Internet of Things is a revolutionary approach for future technology enhancement: a review. *J Big Data 6*:111. https://doi.org/10.1186/s40537-019-0268-2
12. Li, S., Xu, L. D., & Zhao, S. (2015). The internet of things: a survey. *Information systems frontiers*, *17*(2), 243-259.
13. Liberati, A., Altman, D., Tetzlaff, J., Mulrow, C., Gøtzsche, P, Ioannidis, J., Clarke, M., Devereaux, P.J. Kleijnen, J. & Moher, D. (2009). The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration. *Journal of clinical epidemiology*, *62*, e1-34. DOI: 10.1016/j.jclinepi.2009.06.006.
14. Liu, X., Fan, S., Cao, F., Peng, S., Huang, H. (2022). Study on the Drivers of Inclusive Green Growth in China Based on the Digital Economy Represented by the Internet of Things (IoT). *Computational Intelligence and Neuroscience*, 8340371, https://doi.org/10.1155/2022/8340371

15. Madakam, S., Ramaswamy, R., Tripathi, S. (2015) Internet of Things (IoT): A Literature Review. *Journal of Computer and Communications*, 3, 164-173. doi: 10.4236/jcc.2015.35021.
16. Mehta, R., Sahni, J., Khanna, K. (2018). Internet of Things: Vision, Applications and Challenges. *Procedia Computer Science 132,* 1263-1269, https://doi.org/10.1016/j.procs.2018.05.042.
17. Mutunhu, B., Chipangura, B., Twinomurinzi, H. (2023). A Systematized Literature Review: Internet of Things (IoT) in the Remote Monitoring of Diabetes. In: Yang, XS., Sherratt, S., Dey, N., Joshi, A. (eds) *Proceedings of Seventh International Congress on Information and Communication Technology. Lecture Notes in Networks and Systems, vol 448*. Springer, Singapore. https://doi-org.ezproxy.nsk.hr/10.1007/978-981-19-1610-6_57
18. Nižetić, S., Šolić, P., Gonzalez-de-Artaza, D.L.-I., Patrono, L. (2020). Internet of Things (IoT): Opportunities, issues and challenges towards a smart and sustainable future. *Journal of Cleaner Production 274*: 122877, https://doi.org/10.1016/j.jclepro.2020.122877
19. Osman, I.H., Anouze, A.L., Irani, Z., Lee, H., Medeni, T.D., Weerakkody, V. (2019). A cognitive analytics management framework for the transformation of electronic government services from users' perspective to create sustainable shared values. *European Journal of Operational Research 278*(2), 514-532, https://doi.org/10.1016/j.ejor.2019.02.018.
20. Park, S., Lee, K. (2021). Improved Mitigation of Cyber Threats in IIoT for Smart Cities: A New-Era Approach and Scheme. *Sensors*, 21, 1976. https://doi.org/10.3390/s21061976
21. Pérez-Pons, M.E., Plaza, M., Alonso, R.S., Parra, J., Prieto, J. (2021). Increasing Profitability and Monitoring Environmental Performance: A Case Study in the Agri-Food Industry through an Edge-IoT Platform. *Sustainability,* 13, 283. https://doi.org/10.3390/su13010283
22. Tan, L., & Wang, N. (2010). Future internet: The internet of things. In *2010 3rd international conference on advanced computer theory and engineering (ICACTE)* (5, V5-376). IEEE.
23. Tan, Y.S., Ng, Y.T., Low, J.S.C. (2017). Internet-of-Things Enabled Real-Time Monitoring of Energy Efficiency on Manufacturing Shop Floors. *Procedia CIRP 61*, 376-381. DOI: 10.1016/j.procir.2016.11.242
24. Wortmann, F., & Flüchter, K. (2015). Internet of things. *Business & Information Systems Engineering*, 57(3), 221-224.
25. Xia, F., Yang, L. T., Wang, L., & Vinel, A. (2012). Internet of things. *International journal of communication systems*, 25(9), 1101.

ANTECEDENTS OF CUSTOMER RESILIENCE TO NEGATIVE INFORMATION

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ABSTRACT

Establishment of sempiternal association with consumers is a fundamental objective for marketing scholars and practitioners. But how should such relationships can be developed always remains a mystery. Based on the theory of social identity and self-verification, we postulate that value congruence and customer-to-customer similarity impulse consumer–brand identification that triggers customer active participation and citizenship behavior that in turn develop deep and enduring affiliations with brands. The current study use customer perspective to access the proposed model. The empirical study uses structural equation modeling (Smart PLS-SEM 3,2), with an initial sample of 580 customers of Small and Medium Size Enterprises (SMEs). The findings of the study are in line with the proposed hypotheses. Results suggest that brand managers should explore factors that trigger the identification and affiliation with the brand. Moreover, managers should work on to establish platform (whether online or offline) that facilitate in creating consumer-brand analogy.
Keywords: *Customer Active Participation (CAP), Consumer Brand Identification (CI), Customer Citizenship Behavior (CCB), Customer-to-customer similarity (CCS), Customer Value Co-creation (CVC), Resilience to negative information (RTNI), and Value Congruence (VG)*

1. INTRODUCTION

Among several intangible assets, consumer based brand-equity-such as consumer resilience to negative information (RTNI) (Augusto, Godinho, & Torres, 2019; Torres & Augusto, 2018) serve as a source of differentiation and competitive advantage in the market. Therefore, to explain the factors on which consumer willingness to dismiss any negative information depends a definite interest for marketing managers and scholars as well (Hatta, I. H., Thalib, S., Wulandjani, H., & Siregar, A. O., 2022). Researchers identify several factors that initiate RTNI among customers. For instance, digital marketing, (Torres and Augusto, 2018) and consumer brand identification (CI) (Elbedweihy et al., 2016). Marketing scholars argue that resilience to negative information occurs only when a customer has a strong sense of identification with the brand (Bergami and Bagozzi, 2000, Elbedweihy et al., 2016). However, Qazi (2017) claim that CI is not a stand-alone predictor of RTNI rather some other factors mediates between the relationship of CI and RTNI such as customer value co-creation behavior (CVC). Customer active participation (CAP) and customer citizenship behavior (CSB) are two categories of CVC. Although, scholars used co-creation as a collective construct. But this study measure co-creation behavior through its sub-component, i.e., CAP and CSB. We proposed and empirically examine CAP and CSB as new antecedents to RTNI. The proposed antecedent work as a connector between CI and RTNI. The customer involvement in the creation process becomes nascent terrains in the marketing literature . A quick search in the ScienceDirect using the keyword value co-creation shows 120,052 articles that published in scientific journals since 2010. and Prahalad and Ramaswamy (2000) indicate a remarkable change in the philosophies

of marketing because of customer involvement in the creation process. Firms follow this new trend by adopting the role of a facilitator for value creation, (Vargo and Lusch, 2004). Empirical evidence suggests numerous benefits of customer role as a co-creator, e.g., behavioral loyalty and attitudinal attachment (Payne et al., 2008); customer engagement and continuation as a co-creator (Cossío-Silva et al., 2016); brand equity and customer satisfaction (Frasquet-Deltoro, 2019); brand image and reputation (González-Mansilla et al., 2019); electronic word of mouth and psychological ownership (Foroudi et al., 2019). The purpose of this study is two folded. The one is to connect CI and RTNI through the parallel mediation of customer active participation (CAP) and customer citizenship behavior (CSB). Value congruence (VG) and customer-to-customer similarity (CCS) trigger CI that influence RTNI. So the second objective of the study is to examine the indirect effect of VG and CCS on RTNI through sequential link of CI, CAP, and CSB. In the managerial perspective, the significance of this study lies in the influence of RTNI on achieving triumph in the organization. To nurture a customer who is more prone to any negative information proved to be more expansive as compared to attract and retain a new customer (Ndubisi, 2006; Shi, Y., Cui, T., & Liu, F., 2022). Customers who support brand against any negative information become brand ambassador that not only willing to pay more than regular price but also recommend the brand to the other prospective clients. The length of the relationship with such type of resilient customers generates profits over year.

2. CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The proposed conceptual framework shown in Figure 1 illustrates the sequential mediation link between the relationship of VG, CCS, and RTNI. The proposed conceptual framework drive from social identification and verification (Xie et al., 2019, Swann, 1983) theories, along with philosophies of marketing relating to CI (Tajfel and Turner, 1979). The current study hypothesize that VG and CCS influence, directly and indirectly, RTNI through the sequential mediation of CI and CVC (i.e., CAP and CSB).
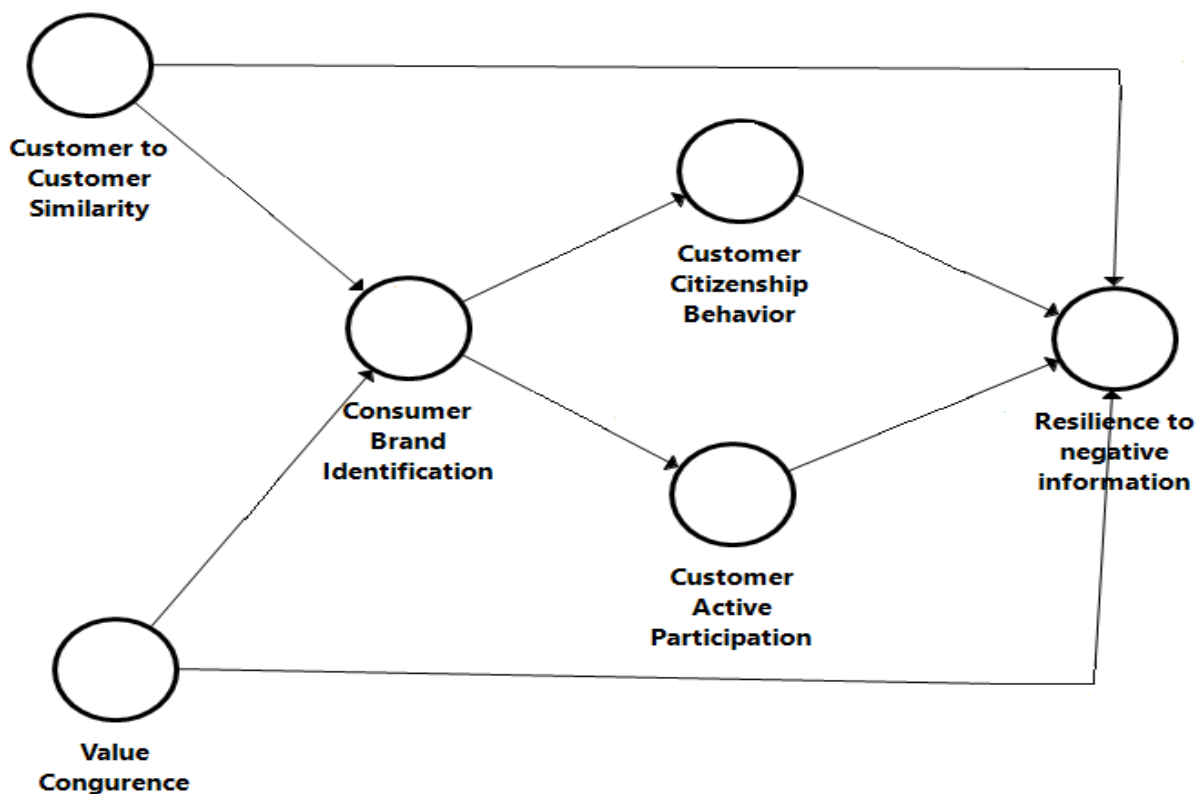
Figure 1: Conceptual Framework

2.1. Social Identification (SI) Theory and CI

Social identity theory provides a hypothetical background of identification for both organizational and marketing literature (2003). Theory suggests that along with individual self-identity, identity within social circle or surroundings is the fundamental part of one's self-concept. Social entities drive Individuals' social identity to which they belong, such as cast, age, schooling, and profession (Lam, 2012; Riketta, 2005). The protagonist of social identity theory suggests that individuals classify themselves and others into the various social group to simplify the social world. Tajfel and Turner (1986) coined the concept of consumer-company identification using social identity theory and organizational identification. However, consumer-company identification does not require any prerequisite such as formal membership (Bhattacharya and Sen, 2003). Scott and Lane (2000) claim that meaningful and striking societal characteristics of companies help the consumer to fulfill vital self-definitional desires partially and accordingly are the most suitable targets for identification. Likewise, the present paper suggests that CI (Bhattacharya and Sen, 2003) assists in creating and enduring customer personality (Stokburger-Sauera et al., 2012).

2.2. Social Verification (SV) Theory

The self-verification theory argues that individuals are interested in validating, authenticating, and maintaining to support their self-perception either positive or negative (Fournier, 1998). Individuals are always in search of products and brands that confirms their viewpoints and evade situations/products/brands that impend prevalent self-perspectives (Swann, 1983). People try to endorse a sagacity of self-verification over time and across different circumstances to apprehend their selves and social worlds (Escalas and Bettman, 2003). Marketing literature postulates that the consumers' SV needs determine the selection of particular products or brands (e.g., Dutton et al., 1994). Moreover, researchers hypothesize that consumers satisfy the desire for SV through the resemblance between their personal perspective and that of relevant brands. The similarity process between customer perspective and a particular brand's emblematic traits is known as self-congruity or value congruence (VG) (Stokburger-Sauera et al., 2012).

2.3. VG and CI

Value congruence or consumer–brand value congruence is defined as the similarity of between consumers' self-concept and brand characteristics or brand attributes (Edwards & Cable, 2009; Kim, Y., & Legendre, T. S. 2021). Individual values refer to set of belief that supports a particular mode of conduct that is personally or socially preferable against an opposite way of conduct or end-state of existence" (Rokeach, 1973, p. 5). Evidence is available that self–brand congruity influence constructs similar to consumer brand identification, such as brand relationship quality and brand attachment. Self-brand congruity means that brand personality used as a referencing point for self-congruity rather values. Moreover, the results of Elbedweihy et al. (2016) indicate that value congruence positively influences consumer brand identification. Therefore, to confirm the relationship of value congruence and consumer brand identification we hypothesize;

- H_1: VG has a positive impact on CI.

2.4. CCS and CI

assert that CCS can be measured that whether the customers of a particular brands are analogous in terms of demographical and psychographic traits. Customers or users of a particular brand defined as intangible assets (Elbedweihy et al., 2016), external communicators (Shen et al., 2010), or non-product-related attributes that are not under the jurisdiction of the company (Bhattacharya & Sen, 2003). Keller (1993) claim that users of a particular brand can influence the other users.

The underlying assumption of identification is customer perceived attachment to a specific community (Ashforth & Mael, 1989). According to SI theory (Kim and Ko, 2012) and similarity-attraction paradigm (Martin, 1996) individuals give preference to establish an enduring relationship with like-minded people to gratify the self-concept (Tajfel and Turner, 1979). The proposition mentioned above is analogous to Byrne (1971) claim that individuals nurture the relationship through similarities with the other individuals. There is significant empirical evidence are available that support theory of similarity-attraction regarding consumption (Karaosmanoglu et al., 2011), signifying that customers perceived resemblance tend to increase the tendency to become attached to that particular firm. Based on the above discussion, we develop the following hypothesis.

- H_2: CCS has a positive impact on consumer brand identification.

2.5. CVC as a mediator between CI and RTNI

Marketing scholars have a difference of opinion regarding the impact of CI on resilience to negative information. Marin and Ruiz (2007) claim that CI satisfies consumer self-definitional needs. Such type of customers having the highest tendency to negate any inadmissible evidence they receive about the company. Notably, consumers with a positive CI are more likely to negate information or news contains hatred material regarding brand in a predisposed and self-protective manner (Cialdini, 2001). RTNI is likely to occur because of strong CI that increases the consumers' voluntary participation in the extra-role behavior, such as courtesy, altruism, and sportsmanship (Elbedweihy et al., 2016). However, researchers claim that strong consumer identification with a particular product or brand is not a stand-alone predictor of resilience to negative information (Einwiller et al., 2006, Bergami and Bagozzi, 2000). Instead, CI triggers specific behavior such as CVC that mediates the relationship between CI and RTNI. The customer-brand interaction to augment the value-in-use, is called CVC (Torres and Augusto, 2018). CVC take place when all the stakeholders or actors (i.e., customers and service providers or brands) engaged through a platform whether online or offline. The notion of CVC behavior characterized as seeking, and sharing information, amenable behavior, responsiveness, rapport building, advocacy, helping and tolerance (Qazi, 2017). The above said eight dimensions further categorized into two behaviors, i.e., CAP and CSB. CAP characterized as seeking and sharing information to perform the role of co-creator; display responsible behaviors during interactions and having sustainable interactive rapport with employees. While CSB refers to specific behavior that are precondition to take part in CVC, i.e., feedback, advocacy, help, and tolerance. Based upon the above discussion, we can infer that consumer desired to co-create (i.e., CAP and CSB) with the brand that give sense of similarity often go beyond regular purchase (Grönroos and Voima, 2013). Resultantly, such type of extra role behavior tends to increase customer support for the brand against any negative publicity. Thus, we propose,
H_3: (a) CAP, and (b) CSB mediates between the relationship of CI and RTNI.

2.6. Sequential mediation of CI, customer active participation, customer citizenship behavior

VG and CCS create positive customer behavior such as loyalty, and RTNI through the mediation of brand attractiveness, and CI (Youjae and Gong, 2013). Although, in the past attempt has been made to establish mediation link between construct mentioned above plausibly but fails to examine the sequential mediation as proposed in Figure 1. Therefore, the current paper aims to explore the relation between the proposed exogenous (VG and CCS) and endogenous (RTNI) variable through the sequential mediation of CI, and CAP and CSB.

- H_3: CI, CAP, and CSB sequentially mediate between the relationship of VC, CCS, and RTNI.

3. METHODS
3.1. Research Design
The present study was designed as a correlational study that allows the researchers to examine the associations and effects of the variables of interest. This study intended to investigate the cause-effect relationship of VC, CCS, and RTNI with a sequential mediation of CI, active customer participation, and citizenship behavior. Figure 1 shows the conceptual model hypothesized to describe the possible effect of VC and CCS on RTNI.

3.2. Participants
The current study considers the customers of five industries of SME's for population of the study. We choose the 25 brands of five selected industries of SMEs (five brands from each industry) i.e., bakeries, boutiques, beauty salons, furniture, and printing services, using purposive sampling technique. We choose purposively these brands of SMEs as customers involved in these businesses on regular basis. The current study calculates the sample size using the largest formative indicator technique (Khan and Qazi, 2018). This rule required that the largest formative indicators is multiplied with the 20. The questionnaire used consisted of 29 items to measure all of the constructs in this study, so a multiple of 20 equals to 580. As per rule, a sample size of 580 customers was considered appropriate to collect the data. Therefore, 580 questionnaires were personally administered to the customers using multi-layer sampling. We create five strata based on five industries. Then equally distribute 580 questionnaires to five strata (116 to each) using simple random sampling technique. Out of 580, 330 filled questionnaires were returned with a response rate of 56.89% (330 out of 580).

3.3. Measures
The present study used a 29-item closed-ended questionnaire to collect the data. The items used in the instruments were adapted from different sources. We used four-item scale to measure CI on Five Point Likert Scale (1=Strongly Disagree to 5=Strongly agree) as developed by Elbedweihy et al. (2016). Costello and Osborne (2005) develop 13-item scale to access the concept of CVC (six-item for CAP, and seven-item for CSB). The respondents were requested to rate their disagreement or agreement with the statement on the five-point Likert scale (1=Strongly Disagree to 5=strongly agree). Moreover, three and six-item scales were adopted developed by Bergami and Bagozzi (2000) to measure CCS and VC respectively. Furthermore, customer perception about RTNI was measured using three-item scale of Youjae and Gong (2013). The collected data through questionnaires then entered in the software programs SPSS 21 and used PLS SEM 3.2 for analysis.

3.4. Data Analysis
The initial reliability analysis of SPSS 21 shows that the instrument used is reliable as the calculated value of Cronbach Alpha (α=0.930) is greater than recommended threshold (Sirgy et al., 1997) i.e., 0.70. However, researchers suggest accessing convergent validity using Smart PLS Algorithm technique. Algorithm procedure calculate Composite Reliability (CR), Average Variance Extracted (AVE), and outer loadings to obtain convergent validity. The recommended threshold for CR and AVE require that estimated value should be greater than 0.70 and 0.40 (Du et al., 2007). The values of CR and AVE for the constructs used in the propose model falls within the acceptance range, therefore, the reliability and convergent validity is established.

Table following on the next page

Items	Factor Loading		AVE	CR
CI			0.591	0.852
CI1	0.718			
CI2	0.804			
CI3	0.791			
CI4	0.759			
CCS			0.730	0.890
CCS1	0.842			
CCS2	0.883			
CCS3	0.838			
RTNI			0.628	0.835
RN1	0.827			
RN2	0.783			
RN3	0.767			
CAP			0.479	0.880
CAP1	0.707			
CAP10	0.660			
CAP 11	0.723			
CAP12	0.712			
CAP13	0.704			
CAP2	0.702			
CSB			0.577	0.871
CSB3	0.727			
CSB4	0.812			
CSB5	0.810			
CSB6	0.774			
CSB7	0.664			
CSB8	0.727			
CSB9	0.632			
VG			0.487	0.850
VG1	0.632			
VG2	0.700			
VG3	0.738			
VG4	0.770			
VG5	0.712			
VG6	0.624			

Table 1: Results of CR and AVE

Once, convergent validity is established, the next step is to estimate discriminant validity. We used heterotrait-monotrait (HTMT) ratio of correlations as suggested by Tajfel and Turner (1979), (Diamantopoulos and Siguaw, 2000) to measure discriminant validity rather than Hair et al. (2017) technique to increase the acceptability of results. The calculated value of HTMT ratio for all the variables is less than 0.90 indicating that discriminant validity is established.

Sr. No	Constructs	1	2	3	4	5	6
1	CI						
2	CAP	0.744					
3	CCB	0.719	0.882				
4	CCS	0.749	0.698	0.629			
5	RTNI	0.625	0.849	0.751	0.645		
6	VG	0.974	0.699	0.716	0.748	0.612	

Table 2: HTMT Ratio of Correlation

4. RESULTS

Smart PLS-SEM is used to test the proposed conceptual framework. PLS-SEM offer Algorithm, Bootstrapping, and blindfolding procedure to access the different aspect of model estimation. PLS-Algorithm calculate model fitness and coefficient of determination (i.e., R^2); while blindfolding procedure calculate Q^2 that authenticate the calculated value of R^2. Finally, PLS-bootstrapping procedure calculate the path coefficient and significance values using multiple iterations.

4.1. Model fitness

PLS algorithm estimate model fitness using the Standardize Root Mean Square (SRMR), ranges from zero to one (Hair et al., 2017). Fornell and Larcker (1981) add that value of SRMR less than 0.08 indicate a perfect model fit. The value of SRMR for the proposed model is 0.086 indicating a good model fit.

4.2. Hypotheses Testing

Figure 2 shows that proposed hypotheses are accepted as CCS and VC shows highly significant positive indirect impact on RTNI through sequential mediation of CI, CAP and CSB. Although, figure shows no significant direct effect of CCS and VC on RTNI as the level of significance for path coefficient (i.e., β=0.118 and β=0.033 respectively) is greater than 5% or 0.05. Moreover, the results show that CCS (β=0.211) and VC (β=0.629) has highly significant positive impact on CI as the level of significance is less than 5% or 0.05. The affirmative CI induce customer to perform the role of co-creator by exhibiting CAP (β=0.601, level of significance<0.01), and CSB (β=0.573, level of significance<0.01). Consequently, CAP, and CSB strengthen the consumer RTNI (β=0.467, level of significance<0.01; β=0.158, level of significance<0.01) respectively.
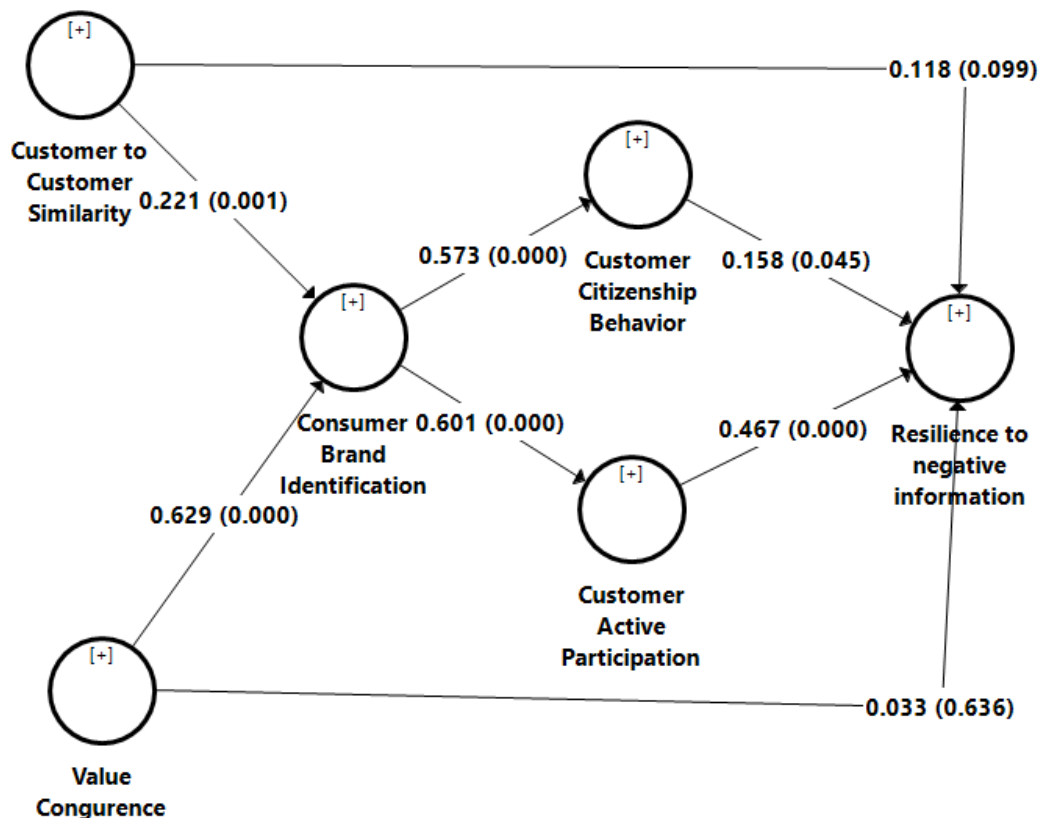
Figure 2: Estimated Model From PLS-Bootstrapping Procedure

4.3. Sequential mediation analysis

The current study aimed to investigate the indirect effect of CCS and VC on RTNI through sequential mediation of CI, CAP, and CSB. To test the sequential mediation, we adopt the technique of Hooper et al. (2008), Hooper et al. (2008) and Preacher and Hayes (2008) rather "casual-step approach" (Shrout and Bolger, 2002). Researchers negate casual-step approach due to limitation in basic assumption of this approach. The first assumption of casual-step approach claims that mediation only exist when the predictor has significant influence on dependent variables. It has become evident that there is no need of significant direct relationship between independent and dependent variable for mediation. Due to misleading assumption of casual-step approach, Zhao et al. (2010) suggest to calculate path coefficient and significance of indirect effect. Smart PLS-SEM can calculate the magnitude and significance of direct, indirect and total effects in one go. Moreover, Baron and Kenny (1986) suggest calculating Variance Accounted For (VAF) for testing mediation. VAF refers to the proportion of total effect that indirect effect captivates. VAF should be greater than 0 and less than 1.0 (Shrout and Bolger, 2002). Mediation is said to be partial if the computed value of VAF falls within 0.20-0.80 and if VAF is higher than 0.80, then we can infer a full mediation. Furthermore, if VAF has positive value then it will be complimentary partial or full mediation. On the other side, if VAF has a negative sign then it will be competitive partial or full mediation. Although, the role for partial and full mediation remained same as discussed above. The Table 3 shows the value of VAF for current model. The mediation analysis reveals that only path 2 shows no mediation between the relationship of CCS and RTNI. However, all the other path lines show a complimentary partial sequential mediation between the relationship of CCS, VC, and RTNI.

Path. No	Path	Effect			VAF	*Mediation
		Direct	**Indirect**	**Total**		
1	CCS->CI->CAP->RTNI	0.118	0.062	0.020	0.309	Partial
2	CCS->CI->CCB->RTNI	0.118	0.020	0.020	0.099	No
3	VC->CI->CAP->RTNI	0.033	0.176	0.266	0.663	Partial
4	VC->CI->CCB->RTNI	0.033	0.057	0.266	0.214	Partial

* VAF<0.20=no mediation; 0.20>=VAF=<0.80, Partial Medium; VAF>0.80, Full Mediation

Table 3: Mediation Analysis; Sequential Mediating of CI, CAP, CCB

4.4. Predictive accuracy

Predictive accuracy i.e., R^2 is defined as the amount of variance generated in the dependent variable due to independent variable. Moreover, Stone-Geisser Q^2 is calculated to authenticate the calculated value of R^2, (Hair et al., 2013). Table 4 shows the results of predictive accuracy obtained through PLS-Algorithm and Blindfolding procedure. Predictive accuracy is established when the calculated value of Q^2>zero. The calculate value of R2 and Q2 shows that predictive accuracy is established.

Constructs	R^2	Q^2	Effect Size*
CI	0.612	0.335	Medium
CAP	0.361	0.158	Medium
CCB	0.328	0.172	Medium
RTNI	0.476	0.270	Medium

*Effect Size: Small=if Q^2>0.0 and Q^2< 0.15; Medium=0.15> Q^2< 0.35; and Large=Q^2> 0.35

Table 4: Results of Predictive Accuracy

5. DISCUSSION, IMPLICATION, LIMITATION AND FUTURE DIRECTION

5.1. Discussion

The results of this study reveal that strongly identified customer is not enough to support brand against negative publicity. Instead, strong consumer identification with the brand drives customers to exhibit CAP and CSB. Resultantly, customers become brand ambassador by ignoring any negative information and protect the brand against negative publicity. Based on the result, we can infer that CI, and engagement platform for active customer participation, and customer citizenship behavior are essential for shaping customer to become a brand ambassador.

5.2. Implications

This paper has several theoretical and practical implications which discussed in the next section.

5.2.1. Theoretical Implication

Results strengthen the existing marketing literature by ascertaining the missing link between CI and RTNI. Researchers believed that resilience to negative information occurs when a customer feels a strong identification with the brand. Although, the results of this study argue that CI triggers consumer behavior that is a prerequisite for value co-creation. Behavior develops as a result of CI can then enhance customer support against negative propaganda about the brand.
Moreover, the findings of this study add to the existing literature by examining the missing sequential mediation link of CI, CAP, and CSB between the relationship of CCS, VG, and RTNI. Results of this study confirm that social identification (VG) and verification theory (CCS) shows the only indirect effect on RTNI through sequential mediation. Findings suggest that strong CI, CAP, and CSB link is required to connect VG and CCS with RTNI. The outcome of the current study implicates that future researchers should explore other constructs that mediate the relationship between VG, CCS, and RTNI such as positive brand response.

5.2.2. Managers Implication

Results of this study reveal the importance of an engagement platform to exhibit active customer participation and citizenship behavior to defend brands against negative publicity. So we give the following suggestions to marketing managers of both large and small organization to shape customer into brand ambassadors.

1) Marketing managers should inculcate engagement platforms that promote active customer participation and allow to exhibit citizenship behavior. Engagement platforms may be online or offline that facilitate active customer participation and citizenship behavior. As compare to offline, online platform becomes more popular due social networking sites such as Facebook, Instagram, Twitter, WhatsApp, Snapchat, line, We Chat, and many other. These online communities improve customer-brand interactions that in turn increases customer active participation and citizenship behavior.
2) Moreover, marketing managers should focus on to create a positive response among customer towards the brand. Positive response refers to the creation of positive emotions such as joy, excitement, emotional bonding, and many other. Consumer positive response toward brand increase tendency to exhibit CAP and CSB that is essential for co-creation.

5.3. Limitations and Future Direction

The current study has several limitations that researchers should need to address in future. The first limitation is the purposive selection of brands relating to only five industries of SMEs in Lahore, Pakistan. The first limitation can be overcome by collecting from other sectors of SMEs across Pakistan.

Second, this paper only considers the customer perception. Future researchers should take into account the perception of Frontline employees. Moreover, the present study used quantitative research design. It is recommended to use other research design such as mixed method approach. The mixed method helps to collect at multiple points using different research tool.

LITERATURE:
1. BARON, R. M. & KENNY, D. A. 1986. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology,* 51**,** 1173-1182.
2. BERGAMI, M. & BAGOZZI, R. 2000. Self-categorization, affective commitment, and group self-esteem as distinct aspects of social identity in the organization. *British Journal of Social Psychology,* 39**,** 555-577.
3. BHATTACHARYA, C. & SEN, S. 2003. Consumer–company identification: A framework for understanding consumers' relationships with companies. *Journal of Marketing,* 67**,** 76-88.
4. BYRNE, D. E. 1971. *The attraction paradigm,* New York, Academic Press.
5. CIALDINI, R. 2001. *Harnessing the Science of Persuasion*.
6. COSSÍO-SILVA, F., REVILLA-CAMACHO, M., VEGA-VÁZQUE, M. & PALACIOS-FLORENCIO, B. 2016. Value co-creation and customer loyalty. *Journal of Business Research,* 69**,** 1621-1625.
7. COSTELLO, A. B. & OSBORNE, J. 2005. *Best Practices in Exploratory Factor Analysis: Four Recommendations for Getting the Most From Your Analysis*.
8. DIAMANTOPOULOS, A. & SIGUAW, J. A. 2000. *Introducing LISREL: A Guide for the Uninitiated,* London, SAGE.
9. DU, S., BHATTACHARYA, C. & SEN, S. 2007. Reaping relational rewards from corporate social responsibility: The role of competitive positioning. *International Journal of Research in Marketing,* 24**,** 224-241.
10. DUTTON, J. E., DUKERICH, J. M. & HARQUAIL, C. V. 1994. Organizational images and member identification. *Administrative Science Quarterly,* 39**,** 239–263.
11. EINWILLER, S. A., FEDORIKHIN, A., JOHNSON, A. R. & KAMINS, M. A. 2006. Enough is enough! When identification no longer prevents negative corporate associations. *Journal of the Academy of Marketing Science,* 34**,** 185.
12. ELBEDWEIHY, A., JAYAWARDHENA, C., ELSHARNOUB, M. & ELSHARNOUBYW, T. 2016. Customer relationship building: The role of brand attractiveness and consumer–brand identification. *Journal of Business Research*.
13. ESCALAS, J. E. & BETTMAN, J. 2003. You are what they eat: The influence of reference groups on consumers' connections to brands. *Journal of Consumer Psychology,* 13**,** 339–348.
14. FORNELL, C. & LARCKER, D. F. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* 18**,** 39-50.
15. FOROUDI, P., YU, Q., GUPTA, S. & FOROUDI, M. M. 2019. Enhancing university brand image and reputation through customer value co-creation behaviour. *Technological Forecasting and Social Change,* 138**,** 218-227.
16. FOURNIER, S. 1998. Consumers and their brands: Developing relationship theory in consumer research. *Journal of Consumer Research,* 24**,** 343-373.
17. FRASQUET-DELTORO, M. 2019. Antecedents and consequences of virtual customer co-creation behaviours. *Internet Research,* 29**,** 218-244.
18. GONZÁLEZ-MANSILLA, Ó., BERENGUER-CONTRÍ, G. & SERRA-CANTALLOPS, A. 2019. The impact of value co-creation on hotel brand equity and customer satisfaction. *Tourism Management,* 75**,** 51-65.

19. GRÖNROOS, C. & VOIMA, P. 2013. Critical service logic: making sense of value creation and co-creation. *Journal of the Academy of Marketing Science* 4**,** 133-150.
20. HAIR, J. F., HULT, G. T. M., RINGLE, C. & SARSTEDT, M. 2013. *A primer on partial least squares structural equation modelling (PLS–SEM)*, Sage Publications.
21. HAIR, J. F., HULT, G. T. M., RINGLE, C. & SARSTEDT, M. 2017. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM),* Thousand Oakes, CA, Sage.
22. HOOPER, D., COUGHLAN, J. & MULLEN, M. 2008. Structural Equation Modelling: Guidelines for Determining Model Fit. *Electronic Journal of Business Research Methods,* 6**,** 53-60.
23. KELLER, K. L. 1993. Conceptualizing, Measuring, and Managing Customer-Based Brand Equity. *Journal of Marketing,* 57**,** 1-22.
24. KHAN, M. M. & QAZI, A. A. Role of brand Identification and co-creation in customer relationship management. *In:* GAL, D., HEWETT, K. & JAYACHANDRAN, S., eds. 2018 AMA Summee Academic Conference, 2018 Boston: MA. American Marketing Association, CB-37.
25. KIM, A. J. & KO, E. 2012. Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business Research,* 65**,** 1480-1486.
26. MARIN, L. & RUIZ, S. 2007. "I Need You Too!" Corporate Identity Attractiveness for Consumers and The Role of Social Responsibility. *Journal of Business Ethics,* 71**,** 245-260.
27. MARTIN, C. L. 1996. Consumer-to-consumer relationships: Satisfaction with other consumers' public behavior. *Journal of Consumer Affairs,* 30**,** 146–169.
28. PAYNE, A., STORBACKA, K. & FROW, P. 2008. Managing the co-creation of value. *Journal of the Academy of Marketing Science,* 36**,** 83-96.
29. PRAHALAD, C. K. & RAMASWAMY, V. 2000. Co-opting customer competence. *Harvard Business Review* 78**,** 79-87.
30. PREACHER, K. J. & HAYES, A. F. 2008. Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods,* 40**,** 879-891.
31. QAZI, A. A. 2017. *Antecedent and consequent behaviors of customer value co-creation* MPhil, University of the Punjab.
32. SCOTT, S. G. & LANE, V. R. 2000. A Stakeholder Approach to Organizational Identity. *The Academy of Management Review,* 25**,** 43-62.
33. SHEN, Y.-C., HUANG, C.-Y., CHU, C.-H. & LIAO, H.-C. 2010. Virtual Community Loyalty: An Interpersonal-Interaction Perspective. *International Journal of Electronic Commerce,* 15**,** 49-74.
34. SHROUT, P. E. & BOLGER, N. 2002. Mediation in experimental and non-experimental studies: new procedures and recommendations. *Psychological Methods,* 7**,** 422–445.
35. SIRGY, J., GREWAL, D., MANGLEBURG, T. F., PARK, J.-O., CHON, K.-S., CLAIBORNE, C. B., JOHAR, J. & BERKMAN, H. 1997. Assessing the predictive validity of two methods of measuring self-image congruence. *Journal of the academy of marketing science,* 25**,** 229.
36. STOKBURGER-SAUERA, N., RATNESHWAR, S. & SEN, S. 2012. Drivers of consumer–brand identification. *International Journal of Research in Marketing,* 29**,** 406–418.
37. SWANN, W. 1983. *Self-verification: Bringing social reality into harmony with the self,* Hillsdale, NJ, Lawrence Erlbaum.
38. TAJFEL, H. & TURNER, J. 1979. *An integrative theory of intergroup conflict,* Monterey, CA, Brooks/Cole.
39. TAJFEL, H. & TURNER, J. 1986. The social identity theory of inter-group behavior. *Psychology of intergroup relations***,** 7-24.

40. TORRES, P. & AUGUSTO, M. 2018. Building resilience to negative information and increasing purchase intentions in a digital environment. *Journal of Business Research,* 101.

41. VARGO, S. & LUSCH, R. 2004. Evolving to a new dominant logic for marketing. *Journal of Marketing,* 68**,** 1-17.

42. XIE, X.-Z., TSAI, N.-C., XU, S.-Q. & ZHANG, B.-Y. 2019. Does customer co-creation value lead to electronic word-of-mouth? An empirical study on the short-video platform industry. *The Social Science Journal,* 56**,** 401-416.

43. YOUJAE, Y. & GONG, T. 2013. Customer value co-creation behavior: Scale development and validation. *Journal of Business Research,* 66**,** 1279–1284.

44. ZHAO, X., LYNCH, J. G. & CHEN, Q. 2010. Reconsidering Baron and Kenny: Myths and truths about mediation Analysis. *Journal of Consumer Research,* 37, 197-206.

THE EFFECT OF PERSONALIZED ADVERTISING ON USERS BEHAVIOR: EXTENDING THE PRIVACY CALCULUS MODEL

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ABSTRACT

This study aims to analyze the effect of personalized advertisements on the benefit/risk perceptions and purchase intention of advertisements. Our study found that the higher the perceived personalization, the higher the benefit factor of advertisement and the lower the risk factor, resulting in higher purchase intention. Moreover, our study confirmed the role of cognitive needs as a moderator of the privacy calculus model. Our study shows that the relationship between perceived personalization and purchase intention can vary depending on the user's Need For Cognition(NFC).
Keywords: *Need For Cognition(NFC), Perceived personalization, Personalized advertising, PLS-SEM, Privacy calculus model*

1. INTRODUCTION

Recently, personalized advertisements actively utilize users' demographic, personal identification information, and online activity information to reduce users' advertising avoidance. Unlike general advertisements, personalized advertisements can maximize the efficiency of advertisements because they provide advertisements that are of interest to each individual based on user information. Companies can make a profit of up to 10% of their revenue through personalization and reduce marketing costs by up to 30% within one online channel(Boudet et al., 2021). Many companies that understand the efficiency of personalized advertising are trying to provide target advertising that maximizes the level of personalization by collecting more customer data. Personalized advertising has a positive aspect not only for companies but also for individuals in that it saves product search time for users who are struggling to make choices amid information overload and helps them make quick decisions. The recent statistics that 71% of e-commerce users expect to receive personalized advertisements reflect consumers' expectations for personalized advertisements(Korea Internet Associaton, 2021). Despite the positive aspects of personalized advertising, studies up to now have generally focused on the negative aspects of personalized advertising (e.g., privacy infringement). Considering that personalized advertisements have both positive and negative aspects, it is becoming important to study users' reactions to personalized advertisements. While the positive aspects of personalized advertising are ignored, it is not desirable for both users and advertisers to highlight only the negative aspects of personalized advertising due to excessive personal information collection. Considering the negative and positive aspects of personalized advertising together, it is necessary to analyze in what circumstances users perceive the benefits of personalized advertising while recognizing the risks.

Based on the privacy model, this study aims to analyze the effect of personalized advertisements on the benefits, risk perception, and purchase intention of advertisements.

2. THEORETICAL BACKGROUND

According to privacy calculus model, users calculate the benefits and risks to determine whether to provide personal information(Culnan & Armstrong, 1999). Users comprehensively consider the benefits of providing their information and the risks of providing information, if the expected benefits outweigh the risks(Cambell & Carlson, 2002). Prior studies have considered the benefits of information disclosure(e.g., usefulness, financial compensation, etc.) as a benefit factor, and the cost of information disclosure(e.g., privacy risk) as a risk factor. They have shown the effect of benefit and risk factors on user's information disclosure(Li et al., 2010). However, users have an attitude or determine their intention to purchase advertising products based on the attributes of advertisements(Jain et al., 2018). Therefore, this study aims to examine the effect of perceived personalization on users' perception of benefit factors considering the attributes of advertisements proposed by Ducoffe as benefit factors(e.g., information, reliability, and entertainment). Prior studies have mainly considered privacy concerns as a risk factor. Along with privacy concerns, unilateral exposure to advertisements regardless of the user's intention can cause intrusiveness. Prior studies have shown that intrusiveness can hinder advertising effects(Edwards et al., 2013). Therefore, we attempt to examine the effect of perceived personalization on users' risk perception considering intrusiveness as a risk factor in addition to privacy risks. According to self-referencing theory, people are more likely to be persuaded especially when exposed to information relating to them (Rogers, Kuiper, & Kirker, 1977), because people interpret self-related messages more precisely(Escalas, 2007; Markus, 1977). Therefore, when users think that personalized advertisements reflect their preferences, they will highly perceive personalization, and perceive the benefit factor of advertisements more positively. If the users more positively perceived the benefits of advertising, then they will less negatively perceive risk factors, which could affect purchase intention. Meanwhile, the persuasion of advertisements may appear differently depending on the user's needs for cognition. The need for cognition (NFC) is tendency to enjoy thinking and deliberate with cognitive effort and has been used that explains people's personal characteristics. Cassiopo and Petty (1986) explained the process of people accepting information through a central route and an ambient route based on the Elaboration Likelihood Model(ELM). People with high NFC process information deliberately through the central route because they have higher information processing motivation than those with low NFC, while people with low cognitive needs process information heuristically using the peripheral cues(Haugtved et al, 1992). Therefore, even if it is the same personalized ad, the degree of persuasion of the same personalized ads may vary depending on the degree of NFC which represents the user's information processing motivation and ability. Those with low NFC will deal with the benefits and risks they can gain from personalized advertisements in a heuristic process rather than carefully considering them. If users perceived an advertisement reflects their preferences well, they might perceive the benefit factor more positively and risk factors less negatively, and are more likely to respond favorably to the advertisement. On the contrary, people with high NFC are more likely to critically accept advertising due to systematic information processing even if they perceive advertisements well personalized, so the persuasion effect will be lower than that of the people with low NCF. Therefore, we assume that the effect of perceived personalization on the perception of benefits and risk factors, and purchase intention would differ based on the user's NFC.

- Hypothesis 1. The higher the perceived personalization of advertisements, the greater the benefit factor than the risk factor of advertisements, and the higher the user's purchase intention.
- Hypothesis 2. The effect of perceived personalization of advertisements on purchase intention through the benefits and risk factors of advertisements will vary depending on the level of user's cognitive needs(Need for cognition·NFC).

3. METHODOLOGY AND RESULTS
3.1. Sampling and Data Collection
This study conducted an online survey of people in their 20s and 30s who had heard of personalized advertisements and had used them. The survey was conducted for seven days from May 27, 2022 to June 2, 2022 through Macromill Embrain, a company specializing in opinion polls. Of the 480 data collected, 354 samples were finally used for analysis, excluding insincere responses. As a result of analyzing the demographic characteristics of the sample, there were 174 men(49.2%) and 180 women(50.8%), of which 187 were in their 20s(52.8%), 167 in their 30s(47.2%), and the average age was 29.1.

3.2. Measurement model
Structural equation modeling(SEM) was used to analyze the impact of perceived personalization of personalized advertisements on product purchase intentions by mediating awareness of benefits and risk factors. PLS-SEM was selected for the current study because it enables to simultaneously analyze the factor analysis measuring the validity of measurement items and path coefficients explaining the relationship between variables. In this measurement model, Convergent validity, reliability, and discriminant validity checks should be required(Gefen et al., 2005). First, convergence validity is evaluated using three criteria: factor loadings, extracted distributed value(average variance extracted, AVE), and CR(Construct Reliability). Convergent validity is confirmed if factor load value is higher than the threshold of 0.7, AVE value is higher than the threshold of 0.5, and CR value is higher than the threshold of 0.7. The results revealed satisfactory factor loadings of all items, high AVE values and CR values of all latent variables. Specifically, the AVE and the CR values of all latent variables were greater than 0.6 and 0.8 respectively, so convergent validity was established. As the Crohnbach alpha values of the measurement variables were also higher than 0.7, the measurement model of this study showed a desirable convergent validity and reliability. Lastly, discriminant validity was evaluated using the heterotrait–monotrait ratio of correlations (HTMT) criterion. In general, discriminant validity is confirmed between two reflective constructs if the HTMT value is below 0.85 or 0.9(Henseler et al., 2015). From the HTMT results, the values among variables were less than 0.9(0.10~0.86), which confirms discriminant validity(Henseler et al., 2015). Since the requirements for testing validity and reliability were met, we moved to structural model.

3.3. Structural model and hypotheses testing
3.3.1. Structural model
The structural model was assessed using the estimation full data set. The results of the test are discussed in the following section. First, collinearity is assessed. All VIF values are below the threshold value of 5(1.0~2.6) indicating that collinearity does not reach critical level, and therefore it is not an issue for the estimation of the PLS path model. Second, the determination coefficients (R^2) represent the model's predictive accuracy. The R^2 values of all endogenous constructs are greater than 0.26%(high level) except those of privacy concern 1, 2. Finally, a bootstrapping resampling procedure is implemented to test whether path coefficients estimated in the structural model are significant.

The results of the hypothesis testing are shown in Figure 1. The results show that perceived personalization have positive significant impact on informativeness (β = 0.69, p<.001), reliability (β = 0.53, p<.001), and entertainment (β = 0.65, p<.001). That means the more personalized the advertisement is, the greater the perception of the ad benefits(informativeness, reliability, entertainment) is. However, perceived personalization do not have significant impact on privacy concern 1 and privacy concern 2. That means, those who perceive ads are personalized feel the benefits of personalized ad greatly, and the risks(privacy concerns) are relatively less considered. On the other hand, perceived personalization has negative significant impact on intrusion (β = -0.28, p<.001). That means those who think the ads are personalized perceive less invasiveness of the ads.
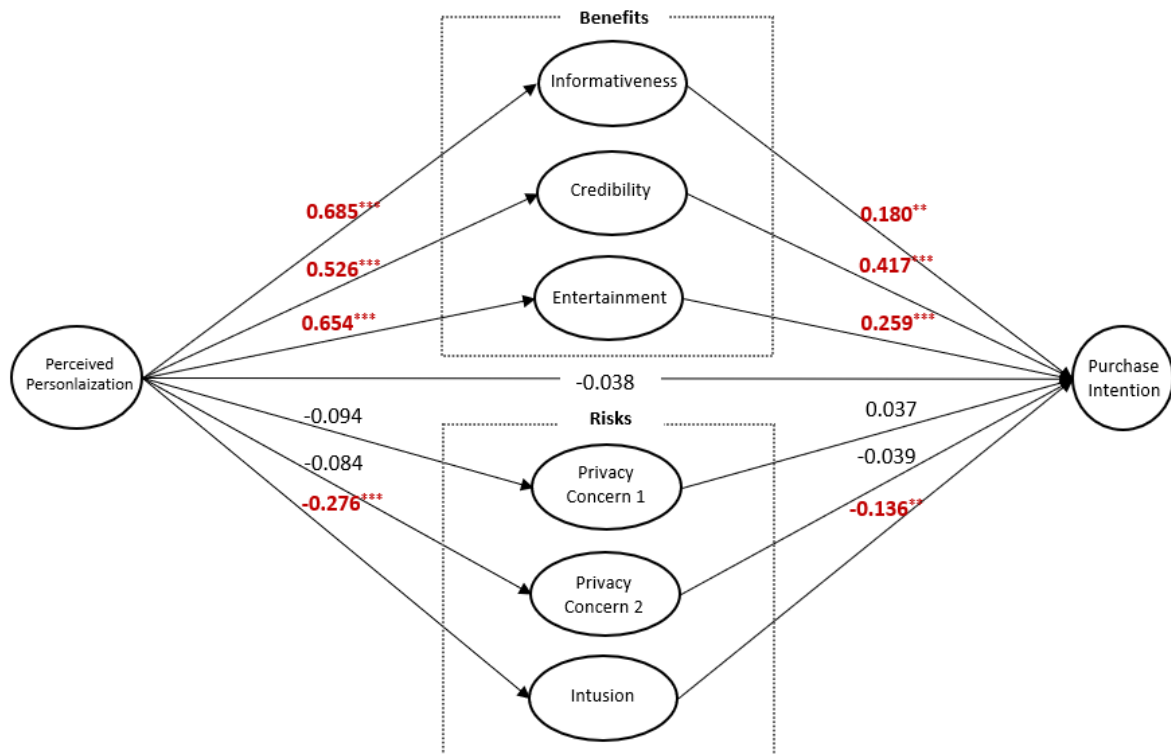
Figure 1: Path analysis results of the hypothesized structural model for the full sample

Regarding the mediating effects of benefit and risk factors of personalized ads on the relations between perceived personalization and purchase intention, the results of mediation effects are as follows. The direct effect(perceived personalization→ purchase intention) was statistically insignificant(β = -0.04, p<.05), but the indirect effects(perceived personalization→ benefit/risk factors→ purchase intention) were statistically significant through benefit and risk factors. The results show that informativeness(β = 0.18, p<.001), reliability(β = 0.42, p<.001), and entertainment(β = 0.26, p<.001) have a positive significant impact on purchase intention. Privacy concern 1(β=0.49, p>0.05) and privacy concern 2(0.46, p>0.05) do not have a significant impact on purchase intention, while intrusion has a negative significant impact on purchase intention (β = -0.14, p<.001). To summarize, as predicted in Research Hypothesis 1, perceived personalization had a significant impact on the purchase intention by mediating the benefits and cost factors of personalized ads. Therefore the results support that the benefits(informativeness, reliability, entertainment) and risk(intrusion) of ads serve as mediators of the effects of perceived personalization on purchase intention.

3.3.2. Moderating effect on need for cognition

Since our integrative model involves moderating variables, we used multi-group analysis in SEM-PLS to see if the proposed mediated relationships would vary across different conditions of the need for cognition(NFC). Based on need for cognition measurement scale, two groups of need for cognition(low vs. high) were created by a median split, and were then used to examine the moderator role of this variable. Path coefficients between the two groups(low. n=179 vs. high. n=175) according to the condition of individual need for cognition are shown in <Figure 2> . From the moderating effects results, the effect of benefit factors was greater in a high group than in a low group on the path in which perceived personalization affects purchase intention by mediating benefit/risk awareness. That means, the higher perceived personalization of group in a high need for cognition rather than group in a low need for cognition is, the greater impact on purchase intention through the awareness of benefits on personalized ads will be. In addition, to test this difference between these two groups(need for cognition low vs. high), it was necessary to see the structural differences in the path coefficients for both groups. The results showed that there were significant differences between the two groups in six paths of the hypothesized structual model. Specifically, the difference between the both groups was statistically significant in the paths of 'perceived personalization→informativeness(benefit)', 'perceived personalization→privacy concerns 1/privacy concerns 2/intrusion(risks)', and 'informativeness/reliability(benefits)→ purchase intention'. First, the impact of perceived personalization on informativeness, which is a benefit factor, was greater in the need for cognition low group than in the need of cognitive high group (NFC low group $\beta = 0.76$ > NFC high group $\beta = 0.61$). We found a significant difference between the two groups in the path of informativeness and reliability(benefits) to purchase intention. The effect of informativeness on purchase intention in a group with high need for cognition was greater (NFC low group $\beta = -0.04$ < NFC high group $\beta = 0.28$). On the other hand, in a group with a low need for cognition, the effect of perceived personalization on the risk factors such as privacy concern 1 (NFC low group $\beta = -0.27$ > NFC high group $\beta = 0.06$), privacy concern 2 (NFC low group $\beta = -0.24$ > NFC high group $\beta = 0.09$) and intrusion (NFC low group $\beta = -0.44$ > NFC high group $\beta = -0.18$) was greater. That means individuals with a low need for cognition perceived less concerns about collecting personal information, the possibility of abuse of personal information and invasion as they thought ads were personalized. Hence, in the group with a high need for cognition, the effect of perceived personalization on risks was not statistically significant. In summary, individuals in the group with a low need for cognition recognized informativeness, which is the benefits of ads, as the ads became personalized, and less recognized the concerns about personal information collection, the possibility of misuse of personal information, and invasion. The above results show that people with a low need for cognition tend to immediately less recognize the risks by responding greatly to the benefits of personalized ads.

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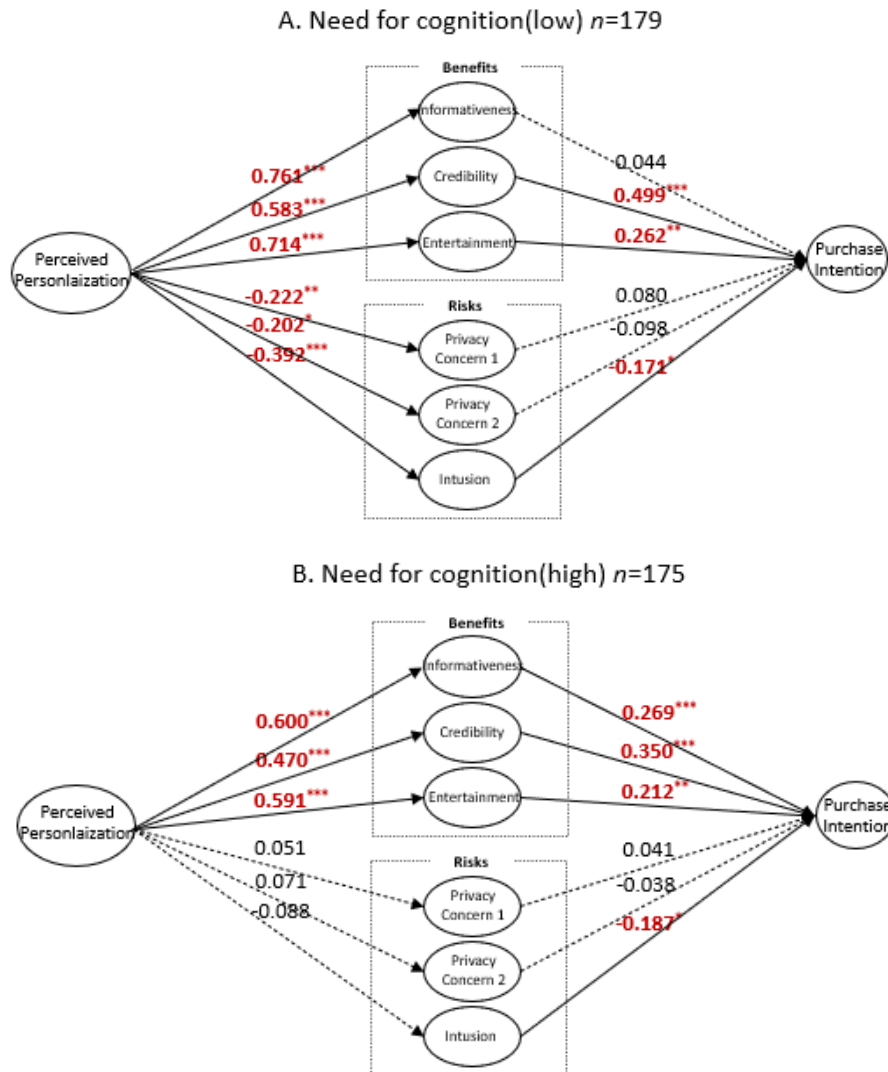
Figure 2: Multi-group path analysis results: low and high Need For Cognition groups

4. CONCLUSION

This study has several implications in terms of theoretical and practical aspects. First, this study empirically examined the effect of personalized advertisements on purchase intention by mediating the benefit and risk perceptions of advertisements based on the relationship between advertisement attributes, privacy concerns, and intrusion. In particular, this study is differentiated from previous studies in that it verifies that privacy risks are divided into 1) concerns about personal information collection (privacy concerns 1) and 2) concerns about the possibility of misuse of personal information (privacy concerns 2). In addition, the results confirm that the impact of perceived personalization on purchase intention was mediated by various factors. It is of theoretical significance in that the attributes (information, reliability, and entertainment) of advertisements, which were not well covered in previous studies, and 'intrusion' were used in the privacy calculus model. Second, this study confirmed the role of cognitive needs as a moderator of the privacy calculus model. Until recently, cognitive needs have been actively studied as a variable that moderates advertising effects (Haugtvedt et al., 1992; Oh, J., 2022; Zhang & Buda, 1999), but few studies have analyzed advertising effects according to cognitive needs in the context of personalization. In particular, few studies have confirmed that the process in which perceived personalization leads to purchase intention by mediating benefits and risk factors may vary depending on cognitive needs.

The results of this are of theoretical significance in that it expands the existing privacy calculation model that the relationship between perceived personalization and purchase intention can vary depending on the user's level of cognitive desire. Third, as a result of this study, the higher the perceived personalization, the higher the benefit factor of advertisement and the lower the risk factor, resulting in higher purchase intention. In other words, users who encounter personalized ads that reflect their tastes or preferences will think that the ads are highly informative, reliable, and fun, and this perception eventually leads to purchase intention for the product. This means that in order to increase the user's purchase intention, it is necessary to establish an advertising strategy that reflects the user's tastes and preferences and can be highly recognized for the information, reliability, and entertainment of advertisements.

LITERATURE:
1. Boudet, J., Gregg, B., Rathje, K., Stein, E., & Vollhardt, K. (2019). 'The future of personalization And how to get ready for it. *McKinsey & Company*. Retrieved 10.09.2022 from https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/the-future-of-personalization-and-how-to-get-ready-for-it
2. Campbell, J. E., & Carlson, M. (2002). Panopticon. com: Online surveillance and the commodification of privacy. *Journal of Broadcasting & Electronic Media, 46*(4), pp.586-606.
3. Culnan, M. J., & Armstrong, P. K. (1999). Information privacy concerns, procedural fairness, and impersonal trust: An empirical investigation. *Organization science, 10*(1), pp.104-115.
4. David, G., & Detmar, S. (2005). A Practical Guide To Factorial Validity Using PLS-Graph: Tutorial And Annotated Example. *Communications of the Association for Information Systems, 16*(5), pp.91-109.
5. Edwards, S. M., Li, H., & Lee, J. H. (2002). Forced exposure and psychological reactance: Antecedents and consequences of the perceived intrusiveness of pop-up ads. *Journal of advertising, 31*(3), pp.83-95.
6. Escalas, J. E. (2007). Self-referencing and persuasion: Narrative transportation versus analytical elaboration. *Journal of Consumer Research, 33*(4), pp.421-429.
7. Haugtved, C., Petty, R. and Cacioppo, J. (1992), "Need for cognition and advertising: understanding the role of personality variables in consumer behavior", *Journal of Consumer Psychology, 1*(3), pp.239-260.
8. Henseler, J., Ringle, C.M. & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*, pp.115–135.
9. Jain, G., Rakesh, S., & Chaturvedi, K. R. (2018). Online video advertisements' effect on purchase intention: an exploratory study on youth. *International Journal of E-Business Research (IJEBR), 14*(2), pp.87-101.
10. Korea Internet Association. (2021). A study on the rational revision of the E-commerce act in response to changes to the online era. Retrieved from http://m.kinternet.org/policy/data/view/57
11. Li, H., Sarathy, R., & Xu, H. (2010). Understanding situational online information disclosure as a privacy calculus. *Journal of Computer Information Systems, 51*(1), pp.62-71.
12. Self-schemata and processing information about the self. *Journal of personality and social psychology, 35*(2), pp.63-78.
13. Oh, J. (2021). Quantity vs. Quality of Interactions: The Combinatory Effects of Website Interactivity and Need for Cognition on Anti-Smoking Message Perceptions and Smoking Attitudes. *Mass Communication and Society*, pp.1-30.

14. Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag, in press.
15. Rogers, T. B., Kuiper, N. A., & Kirker, W. S. (1977). Self-reference and the encoding of personal information. *Journal of personality and social psychology, 35*(9), pp.677-688.
16. Zhang, Y., & Buda, R. (1999). Moderating effects of need for cognition on responses to positively versus negatively framed advertising messages. *Journal of Advertising, 28*(2), pp.1–15.

EXPLORING THE FACTORS INFLUENCING SMES LIVE-STREAMING SHOPPING PERFORMANCE - MODERATING EFFECT OF PRODUCT VARIETY

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ABSTRACT

In this paper, we examine effect of 5 variables – SMEs' marketing usage motivation, communication usage motivation, usage hours, financial resource availability and business years - on SMEs' live-streaming performance. Live-streaming shopping market has increased rapidly but the studies in live-streaming has not yet been specialized especially on the seller side. We have integrated social media usage studies to extract 3 variables – marketing usage, communication usage, and usage hours - for live-streaming shopping as social media and live-streaming shopping shares similarities in terms of interactivity and user patterns. Based on studies related to marketing strategy and digital performance we extracted other two variables; financial availability and business years. We further investigated the moderating effect of product variety on each independent variable. We gathered data from 1,236 SMEs and through screening process we analyzed 124 SMEs performances. Our hypotheses show practical and theoretical guideline to potential live-streaming sellers and platforms. Our study indicates the effort to communicate and interact with customers are more important than financial ability, business years and product variety in the field of live-streaming shopping.
Keywords: Live-Streaming Shopping, SME performance, Social Media Usage, Live-Streaming Usage, Financial Ability, Business Years, Product Variety

1. INTRODUCTION

Since 2020, after the advent of Covid 19, the prevalence of quarantine has made people to stay in longer; consequently, the market volume of online shopping has increased rapidly. The online shopping hours have increased 47% since Covid 19, and 29% only in South Korea (Datareportal, 2020). Korea's online shopping market value has jumped to 188 trillion Won in 2021 which is a 66% increase since 113 trillion Won in 2018. It is anticipated to reach 300 trillion Won in 2026(Statistics Korea, 2022). With the growth in online shopping in general, online shopping channels have been diversifying as well. Live-streaming shopping have been attracting users and market share. Compared to 2020, live-streaming shopping has doubled its market volume – from 3 trillion Won in 2020, to 6 trillion Won in 2022. The growth rate is expected to continue and reach 10 trillion Won in 2023 (Statistics Korea, 2022). Since the advent of 'Grip (Korean shopping platform specialized in live-streaming shopping)' in February 2019, 'Naver' and 'Kakao' – which are the two leading company technology and platform business field – has also launched live-streaming service in July 2020 and October 2020 respectively (Roh, 2022).

Live-streaming shopping platform has embedded real-time social interaction, and convenience as users could communicate with the seller directly via smartphone application; thus, the users have been increasing since the advent of service (Roh, 2022). Sellers have also found live-streaming shopping attractive marketing tool as it requires low broadcasting cost and direct communication with the users (Kim et al., 2022). As users and sellers increase, studies related to live-streaming shopping has also gained attention; yet, most of the studies so far are mainly focused on influence of user motivation and characteristics (Lee et al., 2021; Kim et al., 2022, Jang et al., 2022 etc.) or user information source (Lee, 2022; Park, 2022) on users' behavior. Studies on the seller, or the entrepreneur, side have yet been explored. As the sellers engaged in live-streaming shopping are mostly SMEs (Small and Medium-sized enterprise), studies on the seller side would give thorough insight for upon the seller's usage of live-streaming shopping and SME performance. The paper is structured to seek factors contribute to the SMEs live-streaming shopping performance. The independent factors are based ton usage motivation, usage time, financial source availability and business longevity. It also intends to analyze the moderating effect of product variety on this relationship. Through exploring motivations and characters on the seller-side of the live-streaming shopping, this paper seeks to provide SMEs, especially potential live-streaming shopping sellers, better insight upon future strategy practice and research opportunities.

2. THEORETICAL BACKGROUND
2.1. Live-streaming shopping performance factor
2.1.1. Social Media usage and Live-streaming usage
Social Media has been recognized as an effective tool for communication and media marketing for its ease of real-time interaction and feedback. Users could share product information and service information via social media (Park et al., 2020). As social media requires less resource and devices – e.g., any smartphone or personal computer – SMEs and startups have found social media effective attractive tool to interact with their customers (Kim et al., 2017; Dutta, 2010; Piskorski, 2011) Social media shares significant similarities with live-streaming shopping in terms of interaction and ease of use (Wang et al., 2022). Both social media and live-streaming shopping users form intimacy and share information with other users through real-time communication. Through this process users build trust and intimacy with the seller as well; thus, earn satisfaction and prolong their usage intention (Ma et al., 2022). Based on the similarities between social media and live-streaming shopping, we have extracted several key variables for performance from Parveen et al. (2015)'s study on social media usage. Parveen et al. (2015)'s paper has extracted factors based on explanatory in-depth interviews. Responds were categorized and 10 key words were extracted for the factor. Factors included 'information sharing and search', 'branding', 'advertising and promotion', 'conduct market research', 'reach new customers', 'getting referrals', 'develop customer relations,' 'communicate with customers', 'customer service activities', and 'receive customer feedback.' This study integrated the social media usage factor in terms of live-steaming shopping through pre-survey and in-depth interview. Based on the intention of the usage, we grouped the key word into two variables; communication usage and marketing usage. We further formed hypotheses based on the elaborated variable.

- H1: SMEs marketing usage motivation has a positive impact and live-streaming shopping performance.
- H2: SMEs communication usage motivation has a positive impact and live-streaming shopping performance.

Yoon et al. (2022)'s study showed the impact of users' application usage time on application MAU (Monthly Active Users). Study showed as users spent more time on social media shopping application (i.e., applications that provide broadcasting and media related to shopping products) users tend to spend more time on shopping application. This meant spending more time in shopping related social media actually increased the user MAU and on-line shopping time. Simultaneously, increased visits of the users – i.e., customers – lead to more shopping opportunities and increase in sales. Live-streaming shopping is a video media-based shopping platform. Users experience increase in flow and buying intension as they watch more videos (Hwang et al., 2022; Kim et al., 2022). Therefore, as a seller uploads more videos and medias on live-streaming shopping, the user is given more opportunities to be exposed to the certain seller's media. As the seller SME accumulates more broadcasting hours from, it is plausible to assume the overall user intention and sales would increase as well; leading to following hypothesis.

- H3: SMEs accumulated usage hours of live-streaming broadcasting has a positive impact and live-streaming shopping performance.

2.1.2. Direct effect of financial ability and business year

Besides the variables extracted from the social media usage, we selected several factors that affect SME performances in terms of implementing new marketing strategy or digital technology. The two additional variable included financial source ability and business years. Each company has different amount of investment volume that would maximize the performance (Kwak et al., 2017). More or less financial resource could increase or decrease the overall performance. Business years is an effective variable that explains the experience of the firm. A longer business year usually means more experience, information resource and competitiveness (Lee et al., 2018). In general cases, as the sales of a firm increases, a longer experience, i.e., business year, accelerates the performance of the firm. Consequently, financial resource ability and business year have been added to the hypotheses.

- H4: SMEs financial resource ability has a positive impact and live-streaming shopping performance.
- H5: SMEs business year has a positive impact and live-streaming shopping performance

2.2. Moderating effect of product variety

Product variety has been highlighted as an important factor which moderates the attractiveness of a store (Baumol et al., 1986; Lancaster, 1990; Langer et al., 1976; Chernev et al., 2009). In Baumol et al. (1986)'s study it has been proven that the customers show higher preferences when the store posed more variety of products. As the choice spectrum expended, the customers found the store more attractive as they could reflect their preferences. However, the total perceived benefit decreased when there were too many choices (Chernev et al., 2009). In terms of live-streaming shopping, the seller SME's impact of each independent variables on performance could be moderated by product variety. For instance, even though the SME does not show marketing or communication usage, the store's general attractiveness could be elevated if it shows high product variety; thus, satisfying more customers and earning higher performance. Usage hours could be moderated as well, since the seller's attractiveness gained by product variety maximized the outcome of each broadcasting hours. Financial ability and business years represents the robustness of the firm (Kwak et al., 2017). If a SME has reached a certain level of robustness, the product variety would have less moderating effect as the SME's own brand identity and customer relationship has been formed.

However, in the early stage of business, when the brand identity and customer relationship have not yet been formed, gaining attractiveness through product variety could maximize the performance. Hence, hypothesize that:

- H6: The product variety of the SME would moderate the effect of marketing usage motivation's impact on live-streaming shopping performance.
- H7: The product variety of the SME would moderate the effect of communication usage motivation's impact on live-streaming shopping performance.
- H8: The product variety of the SME would moderate the effect of accumulated usage hours' impact on live-streaming shopping performance.
- H9: The product variety of the SME would moderate the effect of financial resource ability's impact on live-streaming shopping performance.
- H10: The product variety of the SME would moderate the effect of business years' impact on live-streaming shopping performance.
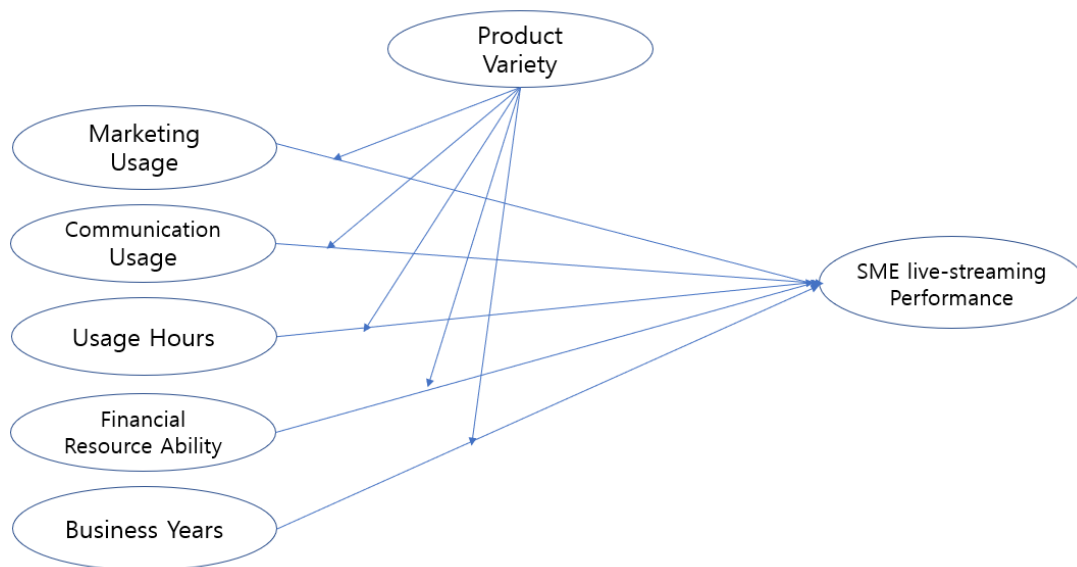
Figure 1: SEM (Structural Equation Model) of the Study

3. RESEARCH METHOD
3.1. Data instrument
This paper has analyzed the variables influencing SMEs live-streaming performance. Based on social media usage, the paper has extracted survey questions for live-streaming shopping usage motivation and usage time (P.S. Borah et al., 2022; F. Parveen et al., 2022). Based on the extracted question, we conducted in-depth interview of 5 live-streaming shopping SME sellers who were chosen randomly. Through the interview we found 6 out of 10 key words compatible to live-streaming shopping and grouped them to 2 categories – marketing and communication. Further survey questions were elaborated based on 2 groups and the answer was measured using a 7-point Likert scale. To estimate the usage time, we asked the SME sellers the total accumulated hours of broadcasting they have done so far. SMEs would directly input the number of hours they have spent in live-streaming media (Yoon et al., 2022). Financial ability was asked though the amount of initial capital the company invested (Kwak et al., 2017). Business years was assessed asking the year the firm started the business (Lee et al., 2018). The we calculated the gap years by deducting the opening year from this year, 2022, and gained the exact years the firm has been on business.

3.2. Sample and data collection

We collected data for 2 weeks between November 7th 2022 and November 21st 2022. We contacted more than 2,000 SME sellers who are using Naver store, Korea's No.1 shopping platform both in sales in general, and live-streaming shopping. The SMEs with at least one live-streaming broadcasting experience were screened. Out of 1,236 respondents only 1,192 responds were usable responses, and only 124 respondents have used live-streaming shopping. Following is the demographic value of the usable responds.

Factor	Values	Number(%)
Sex	Male	59(47.6%)
	Female	65(52.4%)
Age	20s	14(11.3%)
	30s	52(41.9%)
	40s	46(37.1%)
	50s~	12(9.7%)
Sum	Sum(N)	124

Table 1: Demographic value

4. RESULT

4.1. Measure of construct

For this research we used PLS-SEM analysis in SmartPLS4 (Hair et al., 2019; Khan et al., 2019). To validate the result, we conducted an instrumental analysis. We conducted confirmatory factor analysis (CFA), convergent test and discriminant test. Among the 7 variables – 5 independent variable, 1 dependent variable and 1 moderating variable- only 3 variables were latent variable, marketing usage motivation, communication usage motivation and SMEs live-streaming performance. Thus, CFA test and convergent test was conducted based on these 3 variable whereas discriminant test was conducted using all 7 variables. For factor CFA and convergent test each factor loading value should exceed 0.7, at least 0.6 given its and explanatory research (Hair et al, 2019), and all the factors exceeded the guided value. The convergent test result should include, the average variance extracted(AVE), composite reliability(CR), and Cronbach α, and each value should exceed 0.5, 0.7 and 0.7 respectively; the test result exceeded the standard result. To assess discriminant test, Pearson R and the root of AVE was measured for Fornell-Larker Criterion and HTMT analysis. The correlation value was less than the root of AVE, and HTMT values was less than 0.85(Hair et al., 2019). Variance inflation factors (VIF) were less than 3, in dicating multicollinearity is not a concern. All the instrument tests were supported.

4.2. Structural model analysis

With the validity of our measurement model, we tested our structural model, and the result indicated, communication usage(H2), usage hours(H3) and financial ability(H4) have significant effect on SMEs live-streaming shopping performance. In this study we determined the factors in $p<0.1$ significance value to further explore the variables. Communication usage showed highest effect on SMEs live-streaming performance (β =0.42, p<0.001, see Table 2, Model 1). It was followed by usage hours (β =0.29, p<0.001). Financial ability also showed influence but it was less statistically significant than the other two variables (β =-0.11, p<0.1). The R^2 of Model 1 was 0.36, which meant 36% of the data was explained in this model (see Table 2).

	Model1	Model2	Model3
Financial ability	*-0.11	*-0.11	-0.11
Communication usage	***0.42	***0.40	***0.38
Usage hours	***0.29	***0.30	**0.27
Business years	-0.12	*-0.13	-0.21
Marketing usage	0.01	0.04	0.08
Product Variety (PV)		**-0.14	**-0.18
PV x Finance			0.05
PV x Business years			*-0.14
PV x Usage hours			0.07
PV x Marketing usage			0.10
PV x Communication usage			-0.02
R^2	0.36	0.38	0.41
F value			**9.82
***(p<0.001), **(p<0.05), *(p<0.1)			

Table 2: SEM Regression & moderating model result

4.3. Post-hoc analysis

To test the moderating effect of the product variety we formed two models; Model 2 which added product variety as an additional independent variable, and Model 3 which shows the interaction term of product variety on each independent variable (see, Table 2). The result of Model 2 showed the individual impact of business years and product variety on live-streaming performance. In Model the influence of business years was statistically insignificant, but in Model 2 it indicated negative impact on live-streaming performance (β =-0.13, p<0.1). Product variety also showed negative influence on live-streaming performance. The R^2 of Model 2 is 0.38, and the increase in R^2 was statistically significant based on the F value (see Table 2, Model 2). The interaction term of each independent variables were tested in Model 3. The negative significant interaction term supported H10 (β =-0.14, p<0.1). As shown in Fig 2, the SMEs with more variety of products showed significant decrease in performance as the business year increased. In other words, the SMEs with longer business years performed poorly in live-streaming when they had more product variety. The R^2 of Model 3 was 3% higher than Model 2 and this improvement was statistically significant based on the F value (see Table 2, Model 3).

	Shorter Business Years	Longer Business Years
Higher Variety	4.14	0.88
Lower Variety	4.31	3.05
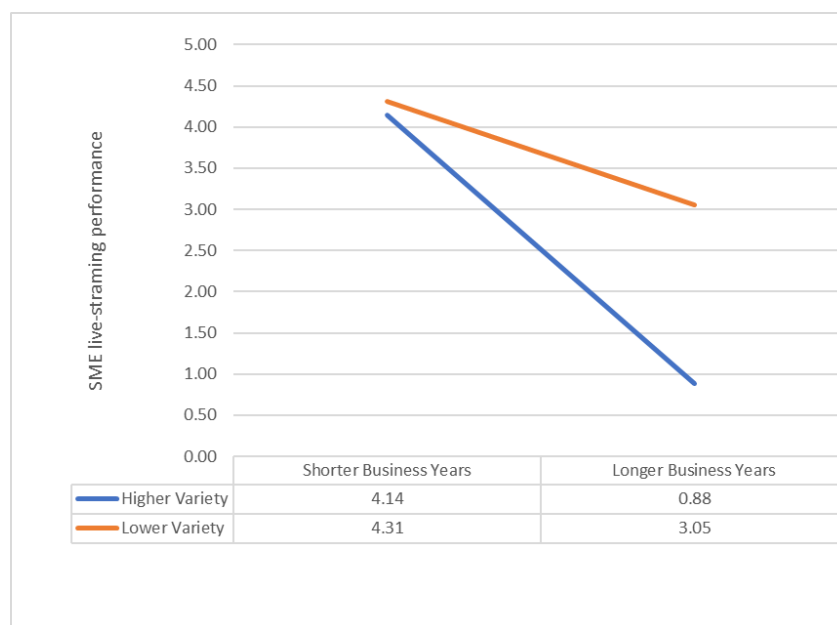
Figure 2 : Moderating effect of PV X Business year

5. DISCUSSION

The purpose of this study is to examine independent variables that influences SMEs live-streaming performance. The independent variable included marketing usage, communication usage, usage hours, financial ability and business years. Among the independent variables, whereas marketing usage was insignificant in every model, communication usage showed positive influence in all SEM models. According to previous studies, users of live-streaming shopping has perceived interactivity as an important satisfaction factor of live-streaming shopping. Users showed higher satisfaction level and user intention when live-streaming shopping's interactivity met their expectation (Choi et al., 2022). If the SMEs shows higher communication usage, they are more likely to engage higher interactivity with users. The two results support each other from the sellers' point of view and users' point of view. Usage hours also showed positive influence on SME live-streaming performance. This result supports the previous user study results that shows users' social media and shopping application usage hours have positive influence on shopping satisfaction and MAU increase (Yoon et al., 2022). Financial ability showed negative influence on live-streaming shopping performance. As live-streaming is known for its ease of use and low cost (Choi et al., 2022), it could be further supported that robust financial ability does not show significant advantage in live-streaming shopping performance. Business year had negative effect on live-streaming shopping but the influence was significant in limited models. Although business year could improve the firm (Kwak, et al., 2017), in case of live-streaming shopping, longer experience and business years were not essential to performance. It could be further interpreted that live-streaming performance is suitable for startups and newly started businesses. Contrary to the previous studies on product variety (Baumol and Ide 1986), it showed negative influence both as an independent variable and moderating variable. The interactions term showed gaining more product variety accelerated the decrease in live-streaming performance. It could be deduced that in live-streaming shopping focusing on key product and highlighting the brand image and identity leads to performance; rather than developing product spectrum in general. In general, live-streaming shopping does not require high financial resource, business years, product variety but it calls for usage motivation in communication and longer usage hours. The general social perception that live-streaming shopping is apt for newly started business sand SME is supported as it does not require heavy resources. Even though the seller SME poses few spectrums of product and low budget, it could still outperform through interactivity and accumulated broadcasting hours. Still, the study poses limitation as there are only few numbers of SMEs who are actually using the live-streaming shopping; only about 10% of the survey respondents had experience with live-streaming shopping. We expect this study would give practical guidelines to the SMEs and live-streaming shopping platforms, so that more firms could benefit from live-streaming shopping performance.

LITERATURE:
1. Baumol, W. J. (1986) *On the possibility of continuing expansion of finite resources* Kyklos (Basel), 39(2), 167-179
2. P.S. Borah et al. (2022) *Linking social media usage and SME's sustainable performance: The role of digital leadership and innovation capabilities* Technology in Society 68 101900
3. S. Chatterjee et al. (2022) *SME entrepreneurship and digitalization – the potentialities and moderating role of demographic factors* Technological Forecasting & Social Change 179 121648
4. Chernev, Alexander and Ryan Hamilton (2009) *Assortment Size and Option Attractiveness in Consumer Choice Among Retailers* Journal of Marketing Research, 46(June), 410-420.

5. Choi, H., & Hwang, S. J. (2022) *Effect of Information Source, Sales Promotion Type, and Impulse Buying Tendency Characteristics on Fashion Live Commerce Purchase Intention* Journal of Fashion Business, 26(4), 52–63.

6. Daniel Tolstoy, Emilia Rovira Nordman, Uyen Vu (2022). *The indirect effect of online marketing capabilities on the international performance of e-commerce SMEs* International Business Review, Volume 31, Issue 3,101946,

7. Datareportal. (2020). *DIGITAL 2020: GLOBAL DIGITAL OVERVIEW. DATAREPORTAL* Retrieved from : https://datareportal.com/reports/digital-2020-global-digital-overview

8. Ding, C., Cheng, H. K., Duan, Y.,&Jin, Y.(2017) *The power of the "like" button: The impact of social media on box office* Dicision Support systems, 94, 77-84.

9. Dutta S (2010) *What's your personal social media strategy?* Harvard Business Review Nov;88(11):127-30, 151.

10. P. Hanafizadeh et al. (2021) *Exploring the consequence of social media usage on firm performance* Digital Business 1 100013

11. K.L.P. Ho, H.T. Quang and M.P. Miles(2022) *Leveraging entrepreneurial marketing processes to ameliorate the liability of poorness: The case of smallholders and SMEs in developing economies* Journal of Innovation & Knowledge 7 100232

12. Joe F. Hair, Matt C. Howard, Christian Nitzl(2020) *Assessing measurement model quality in PLS-SEM using confirmatory composite analysis* Journal of Business Research, Volume 109, 101-110

13. Joiner, Christoper, Barbara Loken(1998) *The Inclusion Effect and Category-Based Induction: Theory and Application to Brand Categories* Journal of Consumer Psychology, 7, 101-12

14. Jovanovic, B.(1982), *Selection and the Evolution of Industry* Econometrica: Journal of the Econometric Society, 649-670.

15. Katz, E., Haas, H., & Gurevitch, M. (1973) *On the use of the mass media for important things* American Sociological Review, 38(2), 164~181.

16. Kim, Ga Young, & Lee, Woo Jin. (2017). *A Study on the Influence of Social Media (SNS) Content Type of Corporate Marketing to User Purchase Intention: Focusing on the Mediating Effect of Satisfaction and the Moderating Effect of Individual Characteristics* Asia-Pacific Journal of Business Venturing and Entrepreneurship, 12(3), 75–86.

17. Kwak JinMan, Kim, Myung-Seuk, & Yang Youngseok. (2017) *A Study on the Influence of Personal Characteristics, Business Management Factors, and Capital Factors on Entrepreneurial Performance: In the Center of Ameliorating Small Businesses Supporting Policy by Government in Beauty Service Industry* Asia-Pacific Journal of Business Venturing and Entrepreneurship, 12(3), 119–133.

18. Lancaster, K. (1990). The economics of product variety: A survey. Marketing Science (Providence, R.I.), 9(3), 189-206

19. Langer, E. J., & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. Journal of Personality and Social Psychology, 34(2), 191-198

20. Lee, J.-H. (2011). *Persuasive Communication Strategy of Showhost in TV Homeshopping. The Journal of the Korea Contents Association* The Korea Contents Association. Retrieved from : https://doi.org/10.5392/jkca.

21. N. Michaelidou et al. (2011). *Usage, barriers and measurement of social media marketing: An exploratory investigation of small and medium B2B brands* Industrial Marketing Management (40) 1153–1159

22. F. Parveen et al. (2015*). Social media usage and organizational performance: Reflectionsof Malaysian social media managers* Telematics and Informatics (32) 67–78

23. Piskorski, M. J. (2011) *Social strategies that work* Harvard Business Review, 89: 116-122.

24. Sandip Rakshit, Nazrul Islam, Sandeep Mondal, Tripti Paul(2022). *An integrated social network marketing metric for business-to-business SMEs* Journal of Business

25. Statistics Korea. (2022) *Annual online shopping statistics Research* Volume 150, 73-88

26. Rogers, E. M.(1986). *Communication technology. The new media in society*. New York: Free Press

27. Hee-Yun Roh. (2022) *Market research of Korean TV home-shopping and the business strategy* Media and Issue Trends (51), 82-94.

28. Genevieve Sedalo, Henry Boateng, John Paul Kosiba. (2022) *Exploring social media affordance in relationship marketing practices in SMEs* Digital Business, 2(1)

29. Fu-Sheng Tsai, Sladjana Cabrilo, Hsin-Hui Chou, Feng Hu, Au Due Tang(2022). Open innovation and SME performance: The roles of reverse knowledge sharing and stakeholder relationships, Journal of Business Research, Volume 148, 2022, 433-443,

30. Wilkie, W. L. (1994) *Consumer behavior (3rd ed)* John Wiley & Sons, Inc., USA

31. J.Y. Yoon et al. (2022) *The effect of social media apps on shopping apps* Journal of Business Research 148 23–32

DIGITAL TRANSFORMATION PROJECT IN A FUNCTION OF RAISING COMPETITIVE ADVANTAGE

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ABSTRACT

In today's business world of great competition, all companies must strategically plan their growth, development, improvement of business processes and reduction of current costs to achieve the highest possible income and, consequently, profit. Strategic innovation is a sector that requires IT assistance in identifying new development prospects. To reduce the risk of new ventures, every company requires corporate-wide digital and analytics capabilities. Providing management with the correct data at the right time to improve decision-making processes is an approach to cut expenses because it not only saves time and money but also protects your company from the costly consequences of bad investment decisions. Initiatives for digital transformation are frequently performed to stay up with changing market needs, boost team productivity, or provide better customer experiences. The goal of digital transformation is to change the way business is done, including how to be more successful and efficient. This entails strategically planning how to leverage technology to facilitate the achievement of overall corporate goals and objectives. This paper was created with the intention of presenting digital transformation usage through the case study to improve the process of displaying prices and other informative content to end customers. Additionally, it reduces cost which means replacing the traditional display of product information on paper with digitization of prices using a screen that can be controlled locally and remotely via an internet connection. Following all the above, the initial development is ultimately acceptable according to the financial structure, and in the period of exploitation, it achieves financial profit, which is the most important feature of the project with direct economic effect.
Keywords: digital transformation, project management, project, competitiveness, digitalization of prices

1. INTRODUCTION

The rapid advancement of digital technology has a profound impact on people's lives. New phenomena emerge as digital technology advances, such as the Internet of Things (IoT), big data, artificial intelligence, and cloud computing. This has created a challenge for many industry sectors, rendered many business models obsolete and prompted companies to adapt in the form of digital transformation to survive and gain a competitive edge in the market. Digital transformation also has an impact on financial operations. Customer demands are moving in the direction of business digitization because traditional methods are considered less efficient in terms of time and money spent (Laila & Kusumawardhani, 2022). The Covid-19 pandemic is one such example that caused a great shock in the world economy. Compared to the pre-pandemic period, respondents are now three times more likely to say that at least 80% of contact with their consumers is through digital channels (McKinsey, 2020). However, there is no doubt that companies had to deal with the immediate consequences of the pandemic (FTI Consulting, 2022). Many businesses were forced to close their doors, affecting supply chains and demand and businesses were forced to rapidly modify their operations to survive.

The dramatic impact of digital transformation has resulted in a shift in customer behavior, resulting in significant growth in online shopping and the adoption of digital services. As a result, organizations are increasingly investing in digital infrastructure and digital technology management skills. This significant growth in digital technologies has encouraged companies to invest in cloud-based solutions and IT support to enable their employees to work remotely and collaboratively. During the period of the Covid-19 pandemic, digital transformation was no longer optional, it became a necessity for companies. Those who have already started their digital transformation journey are far more likely to survive and thrive in the new normal. Digital challenges are well-known for facilitating cross-functional collaboration through technology (Verhoefa et al 2021). Initiatives from these challenges result in modular, adaptable technology that can successfully support transformation and strategic value. However, these business-technical concepts can act as a barrier for senior executives to participate in the technology-dominated discourse. Decision makers can also help develop digital plans that consider workforce implications as well as technological realities. They essentially act as a channel for coordinated communication between employees and operations managers, as well as business and technology executives. This paper will use, as an example, the use of digital transformation to improve business processes. This case study will show the launch of a new company in the IT sector, which delivers products and services that are not yet sufficiently available in the local market. The idea is to digitize the existing slow and uncertain processes of displaying prices and other informative content to end customers, mostly in the trade sector, but also in other industries. The goal of this digital transformation is to establish a company that will digitize product prices in stores, gas stations, pharmacies, and all other retail chains that display the prices of their products to end customers in any non-digital way. In addition to the above, it is possible to use the product to display an informative content, for example, in higher education institutions, museums, hospitals, offices, warehouses, etc. This work, based on the presentation of a specific case study, is presented in abbreviated form of the elements that are commonly used when creating project start-up documentation. The project start-up document is the basic description of the project, created with what information is known at the point when the management of the organization requests it. The tactics, which, as a rule, are confirmed by the project management, are the basis for the later creation of the project plan (Hauc, 2007: 131). One of the goals of this project is to develop the project idea from realization to sale and introduction of new products to the market, but also to set standards for the digitization of price displays and other informative content. The mere fact that the Republic of Croatia entered the eurozone on January 1, 2023, makes the way of displaying prices even more interesting for retailers, given that it is possible to display a double price in a simple way (from September 1, 2022, in HRK and EUR) to satisfy the legal regulations and fully display the new prices in euros. In addition to reducing the cost of classic printed price cards, reducing the possibility of human error, increasing productivity, automation and many other benefits, the end customers also benefit. Customers are provided with a full display of product information, with the option of scanning a 2D barcode to display more product details. After the establishment of a new company, it is necessary to create recognition, that is, a brand. Branding is more than just a logo or a name. A brand is the link between a company and its audience, representing the entire "personality" of the organization. A brand can connect with its audience in a variety of ways, from what we see and hear to our physical interaction with the brand and our general feelings or opinions about the company. A brand encompasses the tangible and the intangible and can be applied to practically anything we can imagine - a person, a company, or a country. The term "branding" is often used as a catchphrase. Anything to do with recognizing a variety of things, from basic product marketing to a name change or logo design. Creating a lasting brand requires a thorough understanding of how that company, organization, or individual functions.

The branding process provides the backbone of the business by helping to define the company's market position, including its position among competitors, as well as the company's direction and goal. Once this is defined, a brand strategy can be developed which serves as a blueprint for the company and further specifies areas such as audience and brand values. Ultimately, the brand summarizes the company's core values while simultaneously symbolizing the company's desires and goals. It must be an honest and fair representation of the company and must be obvious to both workers and consumers. (Davis, 2017:12). As this case study of the use of digital transformation follows the methodology of the initial project documentation, the input strategies of the project, the necessary human, material and non-material resources and the analysis of the market and competition were carried out. This paper also presents the project objectives, based on which the project plan was drawn up and the project risk analysis presented. The goals were determined in such a way as to capture the largest possible market and contribute to the creation of recognition and the establishment of new business standards, previously unknown to the market. Also, the goal of the project is to attract as many customers as possible, which would start a new era of business and open new jobs for young experts with numerous cost savings as well as simplifying the process.

2. ENTRY STRATEGY OF THE PROJECT

Strategy is the glue whose purpose is to build and deliver a consistent and specific set of values to the target market. Bruce Henderson, founder of the Boston Consulting Group, warned: if a company does not have some unique advantage over its competitors, it has no reason to exist. If you have the same strategy as your competitors, then you have no strategy. If the strategy is different but can be easily copied, it is a weak strategy. If the strategy is uniquely different and difficult to copy, then you have a strong and sustainable strategy (Kotler, 2004:173). This project aims to implement strategies that will enable the digitization of prices so that the existing paper prices and information leaflets will be replaced by the so-called digital paper. The key stakeholders of this project are both suppliers and customers, who want to improve their business process and thus reduce costs.

The input strategies of this project are:
- company branding
- placement on the market of the City of Zagreb and expansion into the area of Zagreb County
- introduction of new products and services.

Establishment of input strategies of the project:
- *S1: Company branding*
  It is necessary to create recognition and gain the trust of end customers to increase the value of services and products on the market and achieve better market placement. Branding is the process of creating the personality of a newly founded company, the products, and services it offers. It represents the expression of the entire business and gives long-term positive effects. Product branding begins with the analysis of product positioning when we must ask ourselves the question: how, to whom and why?

- *S2: Placement on the market of the City of Zagreb and expansion into the area of the Zagreb County*
  Before creating a new brand, it is necessary to research the market and find out who the potential competitors are. After market research, it is necessary to define the target group that would like this product, and highlight the advantages of the product and service, what makes this service different from others as well as the true value of the service offered.

A very important component is the visual communication of the brand as a poorly designed visual identity can damage the image of a newly opened company. Because of the above, it is important to have a design strategy to achieve the goal, which is certainly a clearly defined visual identity. By placing it, initially in the City of Zagreb, it creates an impression of our company in the minds of consumers to strategically position is more favorably, occupy a leading position in consumer perception and secure a position within the business segment.

- *S3: Introduction of new products and services*
  The subject of the business is the sale of services and IT solutions mainly to retailers such as pharmacies, gas stations, museums, hospitals, and public administrations, that is, to all retailers for whom this type of highlighting of information or prices in digital form is important. The implementation of digital pricing also requireslicensing, consulting, maintenance and upgrading of the installed systems to meet the needs of the users and any possible expansion of the system. New business ideas for expanding the existing service and introducing new services will be considered after reseraching the needs of the marker when it will be possible to predict future trends and market needs.

3. PROJECT SCOPE
Projects are traditionally defined as processes with specific features that are reflected in the complexity of the content, relative uniqueness, high risk and great strategic significance for the company and other organizations. Projects are goal-oriented processes because the goals (determined by scope, deadlines, required resources and costs) are planned, coordinated (agreed) and controlled. In accordance with organization theory, projects can be seen as temporary organizations for the execution of time-limited business processes. Like every organization, the project also has a specific identity that is expressed in the specific goals of the project, project organization, project evaluation and relations with the environment. The project is a temporary organization (Hauc, 2007:24). The scope of the project is briefly stated in the continuation of this chapter.

3.1. Establishment and registration of the company
The entrepreneurial idea arose from the fact that in some stores around the world, the classic paper price format is no longer used, but they are displayed on a digital screen, which can be controlled from a remote location, in several stores at once, using a computer. Considering the sheer size and complexity of the business, it is suggested to establish a limited liability company, given that it supports all future expansion plans and business plans on the domestic and foreign markets.

3.2. Resources
In developing the project plan, it is necessary to determine which resources are needed to realize the project and how we can acquire and use them. The resources of this project are human, organizational, and material. Each activity of the project should be supported with a certain type of resource, as well as considering possible hidden resources that are not shown in the cost estimate of the project.

3.3. Market analysis
The main goal of the market analysis procedure is to gather, analyse and interpret data about the project and its market. The interactions of providers and customers in the market drive competitiveness. Suppliers compete in a market by better serving market demands than their competitors by utilizing available resources. Their offers take the shape of product features that are intended to produce consumer advantages that satisfy the demands of the customer.

To be successful, a new project must discover unfulfilled market demands for which it may create skills and position itself to address market performance gaps (Savvides, 2000).
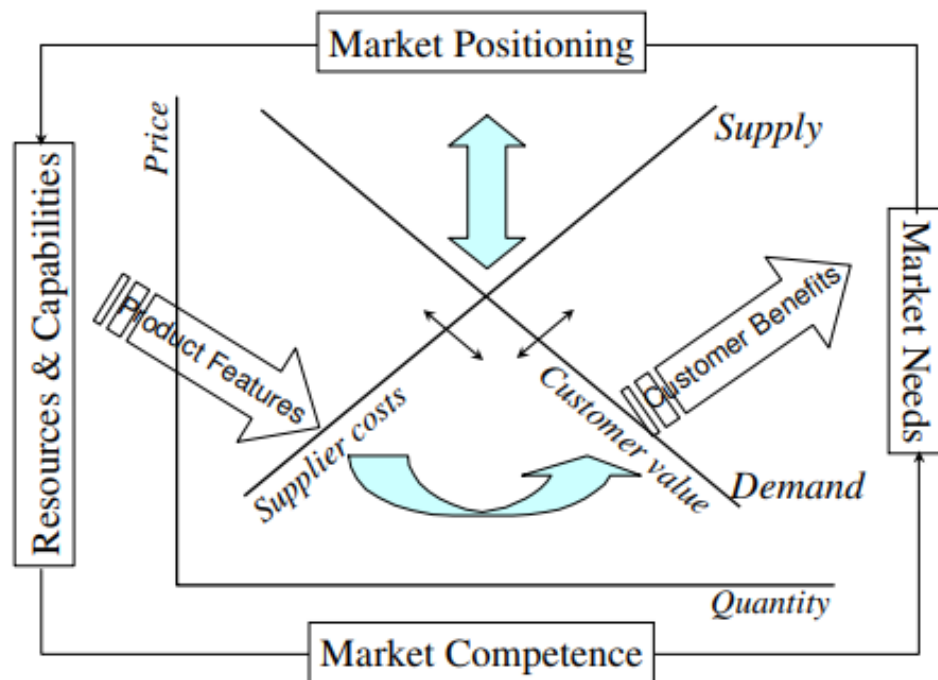
Picture 1: The competitive environment of a project
(Source: Savvides, Savvakis C. (2000): Market Analysis and Competitiveness in Project Appraisal)

The sales market is initially the area of the City of Zagreb, then the Zagreb County, and depending on interest, it is later expanded to other parts of the Republic of Croatia. The end customers are mostlyretailers in all industries, especially in the food industry, where it is necessary to highlight the price of the product for the end customer, but also everyone else who wants to digitize some information to show it to their users. Thus, the field of application can also be in hospitals for displaying information about patients, marking medical staff rooms, meeting rooms, information about exhibitions in museums, highlighting prices in pharmacies, city offices, companies, and many others.

3.4. Competition analysis
Currently, there is no known direct or indirect competition in Croatia for this type of service offered by the proposed company, which puts it in a very favorable position. Positioning yourself in the market will not be easy at all because there is still a need to convince the customer that the service offered is financially more profitable in the long term than the current process of marking prices. The advantage is certainly that potential clients are all companies that use traditional non-digital methods of displaying prices on their products.

3.5. Product description
The ESL (electronic shelf labels) solution technology uses three components necessary for operation, namely the MTag price display series, the Gateway, and the cloud platform. The technology uses a BLE 5.0 solution that helps increase operational efficiency, automate various processes, and increase the so-called customer experience.

- MTag e-paper is a display of prices and products that are received and sent via the G1-D gateway device. Thus, the e-paper can display the price, information about the product, barcodes, QR codes and many other useful information for the customer. The data display itself is mostly in black and white, but there are also yellow and red display options. The MTag e-paper itself is powered by batteries that, depending on the size of the display, can last from two to five years.
- G1-D Gateway is two-way WiFi and Bluetooth communication between the device and the cloud platform. This device collects data from the MTag e-paper device and other devices that use Bluetooth technology, on the one hand, and the server computer or cloud platform on the other hand, using the MQTT protocol using a WiFi or Ethernet connection.

The ESL cloud platform is a network display control panel that serves to manage all devices. Thus, through this platform, new stores can be added, product prices can be changed, display design, user administration of the system and much more. The main advantage is the possibility of connection or integration to existing systems via API.

3.6. Project promotion

When we approach the study of marketing, we are not at first aware that we are entering into the study of an extremely complex system which, through numerous connections and influences, is incorporated not only into management in the narrower sense of the word, but into society and life in general. Although marketing is used primarily in production (of products and services), its scope is extremely wide. It functions at all levels of human activity. Where goods are produced and exchanged and in activities such as health, education, art, etc. (Rocco, 1994:13). After the establishment of the company, the plan is to promote its services by hiring a marketing expert with the aim of arranging meetings with potential customers and presenting the products and services the company offers. Thus, it will be possible to demonstrate to the customer on the ESL demo kit how the product works, how it can save money in the future, reduce human error in price display, speed up the business process of setting prices, and make their company highly technologically aware of its customers. In addition to the above, the company will promote itself through various business fairs, portals, social networks, and media.

4. PROJECT GOALS

Each activity in the project achieves some result, and the logical connection of the activities using these results enables the implementation of a goal or the final goal of the project. At that point, it doesn't matter what the interdependence of the activities is, it is only significant that it is possible to determine the results of the activities and the achieved goal of the project. It follows that the results of logically connected activities lead to the gradual realization of goals, and the project is completed when all goals have been achieved. The logical connection of activities forms the structure of activities, and the logical connection of sub-goals forms the structure of project goals (Hauc, 2007:40). The intended final goal (Gf) is the final part of the project that is confirmed by its effect on the client. It arises from the strategy or other development directions of business or other needs. These are strategic, business, and other effects that we want, in accordance with the strategy and annual business plans, to achieve with the project already during its implementation or after its completion in the project exploitation phase (Hauc, 2007:45).

The goals of the proposed project are as follows:
- Gf1 – The first dedicated goal of the project is the introduction of a new product and service on the Croatian market by the middle of 2023.

- Gf2 – The second dedicated goal of the project is to win the trust of customers and win 10% of the market in the city of Zagreb. We want to create the competences among users to facilitate further breakthroughs in the market. The above is expected by the end of 2023.
- Gf3 – The third dedicated goal of the project is to set the basic market rules, create a recognizable name and logo of the company and the impression with the end customer that it is a superior product and services that bring many savings by the middle of 2024.
- Gf4 – The fourth specific goal of the project is to employ additional workers, expand operations to other cities, develop and provide new services, improve existing processes, introduce modern technology, all for the purpose of reducing business costs and increasing efficiency. With this goal, it is intended to expand the market share by an additional 10% by the end of 2024.
- Gf5 – The fifth dedicated goal of the project is additional promotion both at domestic and foreign events such as fairs, events and other gatherings that promote similar products and services throughout the year 2025. This is how they try to win customers from other countries.
- Gf6 – The sixth specific goal of the project is the opening of branches in other cities, additional business expansion, employment of new workforce to be able to fully meet all the needs of consumers. The above is expected in 2026.

5. PROJECT PLAN AND RISKS
Project planning is, according to some definitions, the process of preparing a project plan. We can consider it as an independent process, but this is not possible in most cases. We must connect it at least with project management because the project plan is one of the basic conditions for successful management. Each project plan must be created in accordance with the rules of the profession. It is necessary to constantly adapt it to new situations, which appear later in the execution of the project. That is why the planning process needs to be connected (Hauc, 2007:202):

- with the preparation of the project launch, i.e., the project launch plan
- with revision as a result of performed controls of project execution according to plan, which is performed by the project manager.

5.1. Project plan
The plan should contain the activities necessary for the implementation of the project, as well as the expected start and end dates of each activity. It is also necessary to incorporate the necessary inputs (human and material), as well as the expected results. Also, it is necessary to determine the persons responsible for the implementation of certain activities. Below (Fig. 1) we present the plan of the proposed project in an abbreviated form.
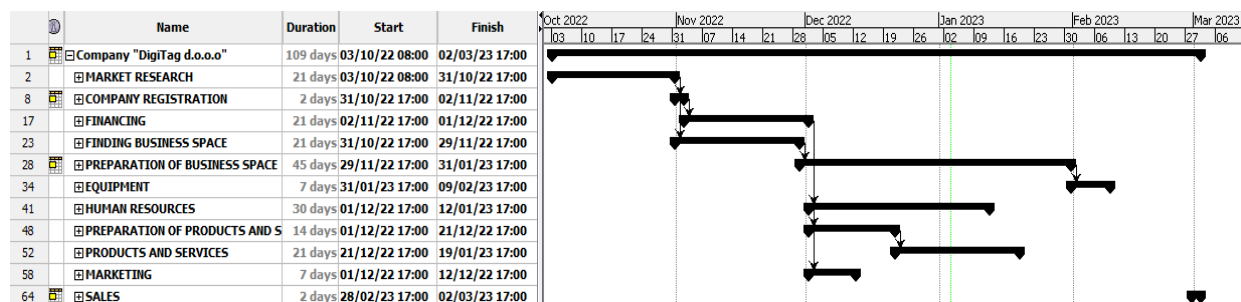
Picture 2: A Gannt diagram of the digital transformation project
(Source: authors)

5.2. Risk analysis

Decision makers need to know the size and nature of the risk they are taking by choosing a course of action. Every decision is based on the interaction of several important variables, many of which contain an element of uncertainty, but perhaps a high degree of probability. Thus, the justification of launching a new product may depend on the following crucial variables (Vukičević, Odobašić, 2012:47):

- product introduction costs
- costs of its production
- necessary capital investments
- the price that can be charged for the product
- the size of the potential market
- in the part that the product will have on the overall market.

Below (table 1), we present an analysis of the main risks of the proposed project.

Project management	External	Technical	Organizational
delay in the preparation of the initial study	problems with loan realization	inability to deliver the product	problem with finding an adequate employee
delay in creating the main project	change in legal regulations		problem with placement on the market

Table 1: Identified main risks of the digital transformation project according to their categories
(Source: authors)

6. CONCLUSION

Companies are constantly developing and experiencing digital transformations because of modern technologies, which increases their productivity and competitiveness on the market. The adoption of a particular new technology, however, does not mark the end of digital transformation. Organizations must go beyond just using technology to achieve true digital transformation. Companies must take advantage of the benefits of digitization, such as operational gains, opportunities for collaboration, expanding service offerings, a revolutionary new approach to customer experience, and drastically reorganizing their organizational structures. With this concrete example of a price digitization project, the authors wanted to show how digital transformation projects can introduce a new, innovative, and technologically developed product, with the aim of achieving additional competitiveness on the market.

LITERATURE:
1. Davis, M. (2017). *The fundamentals of branding.* Bloomsbury Publishing. Retrieved 03.01.2023. from https://books.google.hr/books?id=CK06DwAAQBAJ&lpg=PP1&ots=W1kRMVzigP&dq=branding&lr&pg=PT12#v=onepage&q=branding&f=false
2. FTI Consulting, Inc. (2022). *Supply Chain Disruption – the Risk to Global Economic Recovery* Retrieved 30.12.2022.) from https://www.fticonsulting.com/insights/articles/supply-chain-disruption-risk-global-economic-recovery
3. Gad, T. (2005). *4-D BRANDING.* Zagreb: D!FFERO d.o.o.
4. Hauc, A. (2007). *Projektni menadžment i projektno poslovanje.* Zagreb: M.E.P. Consult i Visoka škola za poslovanje i upravljanje, s pravom javnosti „B.A.Krčelić"
5. Kuvačić, N. (2010). *Biznis-plan ili poduzetnički projekt.* Split: Beretin d.o.o.

6. Laila, M. K., Kusumawardhani, A. (2022) *Digital Transformation as a Competitive Advantage an empirical study*, Budapest International Research and Critics Institute-Journal (BIRCI-Journal), Volume 5, No 2, May 2022, Page: 17604-17615, e-ISSN: 2615-3076 (Online). Retrieved 24.12.2022. from www.bircu-journal.com/index.php/birci

7. McKinsey & Company (2020). *How COVID-19 has pushed companies over the technology tipping point—and transformed business forever*, Retrieved 03.01.2023. from https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever

8. Republika Hrvatska, Ministarstvo znanosti i obrazovanja, (2019). *Prilog 8 – Plan projekta – sažetak.pdf.* Retrieved 07.11.2022. from https://mzo.gov.hr/UserDocsImages// dokumenti/EUfondovi/OPRK-2007-2013/OPRK-2007-2013-STRIP/STRIP-Rok-10-4-2014//Prilog%208%20-%20Plan%20projekta%20-%20sa%C5%BEetak.pdf

9. Savvides, Savvakis C. (2000). *Market Analysis and Competitiveness in Project Appraisal.* MPRA Munich POersonal RePEc Archive. Retrieved 11.01.2023. from https://mpra.ub.uni-muenchen.de/9796/1/MPRA_paper_9796.pdf

10. Strize, S. (2021). *Digitalna transformacija u poduzetništvu*, Završni rad, Sveučilište u Splitu, Sveučilišni odjel za stručne studije, Retrieved 19.12.2022. from https://urn.nsk.hr /urn:nbn:hr:228:521263

11. Tomić, J. (2020). *Digitalna disrupcija : Stručni završni rad*, Završni rad, Veleučilište s pravom javnosti Baltazar Zaprešić, Retrieved 27.12.2022. from https://urn.nsk.hr/ urn:nbn:hr:129:325366

12. Verhoefa, P.C., Broekhuizena, T., Bartb, Y., Bhattacharyaa, A., Qi Dong, J., Fabian, N., Haenlein, M., (2021). *Digital transformation: A multidisciplinary reflection and research agenda* Retrieved 29.12.2022.) from https://www.sciencedirect.com/science/article/pii/ S0148296319305478

13. Vukičević, M., Odobašić, S. (2012). *Upravljanje rizicima.* Zagreb: AKD

REMOTE WORK CULTURE: LITERATURE REVIEW

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ABSTRACT

According to the European Commission (2020), there was only 15% of employees in the EU that had "ever" teleworked, with only 5.4% that "usually" and only 9% that "at least sometimes" worked from home in 2019. That all changed with the pandemic and in 2020, astonishing 48% of employees worked from home "at least sometimes". The aim of this paper was to give an overview of literature regarding remote work culture, analyse key findings and discuss international aspect of remote work. Most of the authors agree that organisational culture is hurting when employees are working remotely. Culture is weakened by the loss of physical contact and failure to address the lack of interpersonal interaction can lead to employees feeling disconnected from the corporate culture. Literature also suggests that teleworkers begin to lose touch with the organisational reality and also showed decline in the quality of relationships with co-workers. Teleworkers have difficulties with integration into the corporate culture therefore culture difficulties can occur.
Keywords: remote work, remote work culture, telework

1. INTRODUCTION

The Covid 19 pandemic changed the world. It changed the people. And it changed the way they work. In particular how they work in the office. People realised that work can be done outside the office and they can suddenly do without face-to-face meetings. Even the World Health Organisation (2020) suggested to switch from face-to-face meetings to online meetings. Remote working became our new normal. After the lockdowns were over, many companies still gave the option to their employees to continue working remotely. Question is now how is that increased teleworking impacting business culture as it is known that social networking and relationship building happens in the workplace when workers are physically present and lack of social interactions can negatively impact worker's well-being (Fana et al., 2020). The aim of this paper is twofold: to give an overview of literature regarding remote work culture and analyse key findings and to discuss international aspect of remote work. Paper consists of 6 sections. After the introduction section, main terms are explained in theoretical framework section. The third section presents research methodology and its key findings. The fourth section focuses on international aspect. The fifth section consist of limitations and future research recommendation. The sixth section concludes the paper.

2. DEFINITIONS AND THEORETICAL FRAMEWORK

Telework is not a new term. The concept dates back to the 1970s when it was developed by Jack Nilles to increase organisational benefits and reduce traffic (Pauline Ramos & Tri Prasetyo, 2020). Over time, with advancement of technology, the concept was further developed. Garrett & Danziger (2007) define telework as work done outside the organisational office, supported by information and communication technologies (ICT).

According to Raghavan et al., (2021) telework allows employees to work at an approved alternative worksite. In a lot of cases, that alternative is the employee's home. For the purpose of this paper, telework and remote work are going to be used as synonyms. According to the International Labour Organization (ILO) (2020), those two terms represent a way of work where workers execute their tasks from an alternative location rather than the default place of work. Juchnowicz & Kinowska (2021) pointed out that there is a substantial use of new technologies in that type of work. It is also important to mention that remote and virtual work are not the same. Remote team are employees that work remotely, outside the main place of work, and answer to the same manager/organisation, while virtual team members come together for a specific project, could be working remotely, but not necessarily, and usually report to different managers so, leading of the virtual team is done through influence and not hierarchy (Global Integration, 2022). According to the European Commission (2020), there was only 15% of employees in the EU that had "ever" teleworked, with only 5.4% that "usually" and only 9% that "at least sometimes" worked from home in 2019. That all changed with the pandemic and in 2020, astonishing 48% of employees worked from home "at least sometimes" (Eurofound, 2020). The percentage of people "usually" working from home in the EU 27 was around 5% from 2012 all the way to 2019. In 2020 that jumped to 12% and continued growing. In 2021 percentage was 13.4, indicating that almost one in seven employees in the EU was "usually" working from home last year. As pointed out by Treacy (2022) move to teleworking due to the pandemic is "the most significant organisational design change in our lifetimes". Culture can be best described by four terms: symbols, heroes, rituals and values where symbols ("*words, gestures, pictures or objects that carry a particular meaning"*) are the most superficial and values ("*core of culture, broad tendencies to prefer certain states of affairs over others*") are the deepest manifestations of culture, while heroes ("*persons, alive or dead, real or imaginary that serve as models for behaviour"*) and rituals ("*collective activities that are considered socially essential"*) are in between (Hofstede et al., 2010). Organisational culture is "the glue and driving force of any company." (Sidor-Rządkowska, 2022). It is the way in which attitudes are expressed within an organisation. (Trompenaars & Hampden-Turner, 2011). It is "collective programming of the mind that distinguishes the members of one organisation from another" (Hofstede et al., 2010). It is determined by relationship between employees and the organisation, hierarchical system and the way employees see the purpose and goal of the organisation and their own place within (Trompenaars & Hampden-Turner, 2011). As that relationship is not as easy to maintain in the remote environment, which became new workplace for so many since the start of the pandemic, next section will focus on the research that was done in the last five years on this subject and its key findings.

3. OVERVIEW OF EMPIRICAL LITERATURE
3.1. Methodology
A literature review was conducted during December 2022, by searching 2 databases – Web of Science (WoS) and Scopus. There were several phrases that were included in the search. Firstly, expression "organisational culture" (both British and American spelling) and its synonyms "*corporate culture*", "*organisational climate*", "*company culture*" and "*remote work culture*" were included. Secondly, *"telework"* and all the synonyms and their truncations were included. All those words and phrases were searched in Title, Abstract or Keywords. Research was limited to the last five years – from 2018 to 2022. In total 40 results were identified in WoS and 85 in Scopus as per Table 1. After eliminating 35 duplicates, there were 90 results left. Abstracts of those 90 articles were read and of those, 36 articles were marked irrelevant for this paper as telework culture was not the focus. In the next step, using Google Scholar, 54 papers were searched for, of which 28 papers were not available and 2 were in languages other than English (Russian and Spanish).

After reading 24 articles in details, 10 more articles were marked as irrelevant for this paper and 14 articles were chosen for it, of which 8 papers were indexed in both mentioned databases, 3 were only in WoS and 3 were indexed only in Scopus. Twelve of them are articles, one is a conference paper and one is a review paper.

Table 1: Literature review methodology

	WoS	Scopus
Timeframe of the search	Dec-22	
Searched topic terms	("organisational culture" OR "organizational culture" OR "corporate culture" OR "organisational climate" OR "organizational climate" OR "company culture" OR "remote work culture") AND ("telework*" OR "remote work*" OR "telecommut*" OR "work* from home") Publication Years: 2018 - 2022	
In the following fields within a record	Title, Abstract, Author keywords	Article Title, Abstract, keywords
Initial number of papers found	n = 40	n = 85
Result merge/read Abstracts	n = 90	
Irrelevant based on Abstract	n = -36	
Searched papers in Google Scholar	n = 54	
Unavailable papers	n = -28	
Papers not in English	n = -2	
Read articles	n = 24	
Irrelevant based on a whole article	n = -10	
Final list of most relevant papers	**n = 14** (8 in both, 3 only in WoS, 3 only in Scopus) (12 articles, 1 conference paper, 1 review paper)	

Source: Authors

3.2. Key Findings

Key findings of the fourteen chosen papers, are presented in Table 2. Most of the authors agree that organisational culture is hurting when employees are working remotely. According to Chen (2021), culture is weakened by the loss of physical contact and failure to address the lack of interpersonal interaction can lead to employees feeling disconnected from the corporate culture. Farcane et al. (2022) said that teleworkers begin to lose touch with the organisational reality. According to Fayard et al. (2021) people need in-person touchpoints for productive collaboration. Giauque et al. (2022) research showed decline in the quality of relationships with co-workers. Gorokhova et al. (2021) pointed out that that teleworkers have difficulties with integration into the corporate culture. Rad & Rad (2021) said that human connection is difficult to develop and culture difficulties can occur. Some authors were focusing on job specific impact. According to Farcane et al. (2022) prevention of audit data manipulation is largely determined by organisational culture so strong organisational culture in favour of ethics and business conduct norms could be a necessity for performing quality remote audit. And with remote working possibly weakening the culture, or even detaching employees from company's culture, telework could be a challenge for audit companies. Sharma & Aparicio (2022) pointed out that organisational culture is one of the most important factors for effective usage of information systems and policy compliance so, making sure that the company involves

employees as a part of the culture, helps in compliance with the information security policy which can again be a challenge if employees are working remotely. Other authors were focusing on management skills needed in telework. Klimova & Klimov (2021) indicated that remote wok is not effective in a system of strict hierarchical relationships and it requires different principles of leadership and subordination, initiative and responsibility. Spagnoli et al. (2021) concluded that managers need to communicate differently when interacting with teleworkers as known social skills may not be sufficient to lead in virtual environments. They pointed out that positive work atmosphere with a sense of connectedness with the group needs to be created in order to enhance communication and collaboration through digital communication methods. Interestingly, only one author mentioned that virtual work environment is likely to be more culturally diverse. And, on top of challenges already mentioned above, this is another layer of complexity that companies have to deal with in the remote environment. So, this will be the focus of the next section.

Table 2: Reviewed papers' findings

	Methods/data	Key findings
Asatiani et al. (2021)	Case Study	Highly virtual work environments are likely to be more culturally diverse. In highly virtual work settings substitute for socialisation is needed. In this case study, the substitute for socialisation had the form of a digital artefact => organisational culture handbook.
Chen (2021)	Literature review, cost-benefit analysis	The role of corporate culture is significantly weakened by the loss of physical distance contact. Face-to-face interaction is a key to developing closer social relationships. Failure to address the lack of interpersonal interaction can ultimately lead to employees feeling disconnected from the corporate culture and work environment.
Farcane et al. (2022)	Multivariate data analysis	Teleworkers, who are not part of the changes and do not observe activities alongside their peers, begin to lose touch with the organisational reality. All informal conversations, knowledge exchange and interactions, result in the development of unwritten rules and common values that affect the workers' actions and behaviour. In addition to the implementation of emerging technologies, prevention of audit data manipulation is largely determined by organisational culture. A strong organisational culture, in favour of ethics and business conduct norms, might be the prerequisite for performing a quality remote audit.
Fayard et al. (2021)	Exploratory research	A short meetup at a colleague's desk can result in a *human moment* - emotional connection where people are energized and more likely to empathize with each other, which supports organisational culture and collaboration. Supportive infrastructure, technologies and organisational processes are necessary, but not sufficient for productive collaboration. People need in-person touchpoints that provide opportunities to clarify and align expectations, to refresh rules and work practices and to build, or revive, trust.

Giauque et al. (2022)	Questionnaire (n=1373) - public sector employees in Switzerland	Forced teleworking had a negative impact on the access to colleagues as well as on the collaboration within the work climate. There was a decline in the quality of relationships with co-workers and the inability to collaborate with colleagues and supervisors.
Gorokhova et al. (2021)	Questionnaire (n=36) - exports in engineering and commercial companies	One of the negative aspects of remote work for the employees are difficulties with integration into the corporate culture. Possible solution is to participate in shaping the corporate culture and in important team meetings and events to feel like a part of the team.
Klimova & Klimov (2021)	Semi-structured interviews, (Russia)	Effective remote work "doesn't feel good" in a system of rigid hierarchical relationships. It requires different principles of leadership and subordination, initiative and responsibility.
Petcu et al. (2021)	Questionnaire (n=338) - correlation analysis and regression analysis (Romania)	The existence of clear and precise procedures ensures increased employee comfort and the possibility to appreciate by comparison the result of their work, in order to increase satisfaction. Easy access to relationships based on trust and help at all levels involved, ensures the effective resolution of problems that may occur and a stimulating climate of collaboration that amplifies participation and commitment to the company, as well as job satisfaction.
Rad & Rad (2021)	Theoretical narrative review	Values, real work practices and leadership styles combine to form culture. When members of a group are unable to physically attend meetings, human connection is more difficult to develop and communication, culture, trust and knowledge management difficulties occur. Organisations should make clear decisions with workers who do not actively embody and show the intended values, mindsets and behaviours by letting go of individuals who do not comply with the organisation's fundamental cultural values and categorized behaviours.
Sharma & Aparicio (2022)	Questionnaire (n=341), USA	Culture determines what will be prioritized within an organisation. Organisational culture is one of the most important factors in organisational effectiveness and employee work outcomes, including effective usage of information systems and policy compliance. Making sure that the company involves employees as a part of the culture, keeps the culture consistent, adapt to the changes, focus on the mission, have ethical leadership and has rules, helps in compliance with the information security policy. Organisational culture impacts employees' cognitive ability to appraise threat and coping, which in turn impacts behavioural intention to comply with information security policies.
Sousa-Uva et al. (2021)	Questionnaire (n=1004), online via social media	In this study, workers satisfaction levels with telework were high. Its major predictors were having higher organisational trust and feeling good in the workspace at home. Thus, this study points out that organisational culture and work environment play a crucial role in affecting telework satisfaction.
Spagnoli et al. (2021)	Theoretical exploration, conceptual model	Isolation in remote work can lead to lower engagement, as social interaction in the workplace provides socialisation, participation and a sense of belonging and trust. Managers need to communicate differently when interacting with employees in person and virtually, they need to define and adopt new behaviours that can be observed by all in order to promote social cohesion and build trust in their teams. The known social skills, such as the characteristics of effective face-to-face communication, may not be sufficient to lead in virtual environments, where these characteristics need to be complemented by the skills of managing different virtual communication platforms. Positive work atmosphere with a sense of connectedness with the group needs to be created to enhance communication and collaboration through digital communication methods.

Swain (2020)	Position article	Organisational culture is built on the premise that "people make the place", but as traditional definitions of "place" do not hold in remote work settings, essentially eliminating the element of physically collocated workers, rethinking the definition and assessment of organisational culture is needed. While physical and environmental factors are minimised, norms and principles inherent in work practices in an organisation carry over in remote work settings. Organisational culture is a multi-dimensional construct cutting across job dimensions of interests, work values, work activities, social skills, structural job characteristics, work styles and interpersonal relationships.
Wax (2022)	Questionnaire (n=391), path analysis	Less lonely employees feel more connected and committed to their employer. They have higher levels of affective organisational commitment, signifying that tackling workplace loneliness will reduce employee turnover and the costs of recruiting and training replacements. Employers need to strategically nurture positive, supportive relationships among co-workers and supervisors, as this may reduce loneliness in the workplace. This can be done by facilitating relationship-building amongst employees' interventions such as team building, networking via events, or structured social hours. Study found that loneliness at work is not tied to where a person works; employees working from home were just as lonely as those working from corporate offices. However, those working from home reported higher affective organisational commitment and co-worker/supervisor support levels than those who did not, suggesting that it may be better to be lonely working from home than from a corporate office.

Source: Authors

4. INTERNATIONAL ASPECT OF REMOTE WORK

It is clear from the literature review that remote work can be very challenging for the organisational culture. But there is another layer of complexity that needs to be considered. One of the positives that remote work can bring is the removal of geographical barriers which means that employees have a bigger employment possibility, but also, employers have a much bigger pool of candidates. What that could possibly mean is that companies might have more culturally diverse workforce. Due to different backgrounds, cultures, languages etc., among the employees, there could be communication and cultural misunderstandings or conflicts and different ways in which employees embrace telework and technologies they need to use to be able to telework. Therefore, it is important to understand cultural differences. Hofstede developed theory of cultural dimensions that can help understand differences in cultures across countries (Nickerson, 2022). His latest model has 6 dimensions (Mascarenhas et al., 2016): (1) individualism (*"societies in which the ties between individuals are loose: everyone is expected to look after him- or herself and their immediate family"*) versus collectivism (*"societies in which people are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty"* (Hofstede et al., 2010)), (2) power distance (*"extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally"* (Hofstede et al., 2010)), (3) masculinity (*"emotional gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success, whereas women are supposed to be more modest, tender, and concerned with the quality of life"*) versus femininity (*"emotional gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life"* (Hofstede et al., 2010)), (4) uncertainty avoidance (*"extent to which the members of a culture feel threatened by ambiguous or unknown situations"* (Hofstede et al., 2010)), (5) long-term (*"society in which wide differences in economic and social conditions are considered undesirable"*) versus short-term orientation *("meritocracy, differentiation according to abilities"* (Hofstede et al., 2010)) and (6) indulgence (*"tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun"*) versus

restraint (*"such gratification needs to be curbed and regulated by strict social norms"*(Hofstede et al., 2010)). Similar to Hofstede, researchers from the GLOBE identified nine cultural dimensions of which most are very similar to Hofstede's: (1) uncertainty avoidance, (2) power distance, (3) future orientation, (4) assertiveness orientation (masculinity), (5) gender egalitarianism (femininity), (6) institutional and (7) societal collectivism. The only two cultural dimensions that are different are: (8) performance orientation ("*degree to which societies emphasize performance and achievement*") and (9) humane orientation ("*extent to which societies places importance on fairness, altruism, and caring*") Bright & Cortes (2019). Research by Adamovic (2022) showed that employees with low power distance and high individualism will be more successful at telework as they have positive attitude towards remote work and look at it as an opportunity to increase effectiveness. That means that companies would need to provide extra support to teleworkers with high power distance and low individualism. Lopez-Fresno et al. (2021) pointed out that employees with high individualism are finding in easier to move to the virtual collaboration. Dumitru (2021) pointed out that trust is critical as it helps to suspend employees' uncertainty. According to Fleischmann et al. (2020) employees from different cultures might accept new technologies differently, depending on their cultural background. In their study, they pointed out that uncertainty avoidance, future orientation and collectivism have an impact on "expectations and experiences with a smart communication technology" and that "future orientation and performance orientation moderate the relationship between the use of the technology and communication effectiveness". Those studies show that employers need to be extremely aware of the cultural background of their employees, especially if they are expecting them to work remotely. It seems that understanding cultural dimensions can help organisations achieve successful implementation of remote work by, for example, providing extra support for the employees with low individualism. Or, for employees from uncertainty avoiding cultures, provide extra training to help them understand technology and build skills to reduce uncertainty.

5. LIMITATIONS AND FUTURE RESEARCH RECOMMENDATION

There are some limitations of this research that need to be taken into consideration, mostly related to the methodology. Firstly, only two databases were searched. Secondly, due to chosen search words, it is possible that some articles that had some other phrases, were missed that might have been important for this paper. Regarding future research, it should be focused on post-pandemic telework. Most research presented in this paper was done during the forced telework so both companies and employees were not prepared for it. More research should be conducted using primary data, by talking to employees and employers after companies had sufficient time to adjust to the remote work environment.

6. CONCLUSION

Although one can think of many positives that telework can bring, for example better flexibility for the employees with more autonomy and control over their work, time and cost savings, better work-life balance, removal of geographical barriers, to name just a few, it is visible from the previous research work presented in this paper, that remote work can present a big challenge for the organisational culture. It seems that without face-to-face interactions, relationships within the organisation are not as strong. People need in-person moments for productive collaboration, for building a sense of belonging and trust, which are critical for organisational culture. It also has to be considered that full-time telework was forced due to the pandemic and many companies and employees were not ready for it and organisations did not have the time to really look into and focus on establishing remote culture. Well prepared and organised remote working might not be as big of a problem for organisational culture.

However, looking at the research so far, full-time remote work might not be the best solution for some companies, even with sufficient preparation. It is possible that optimal solution will be hybrid work where employees would be able to combine the best of both worlds and achieve the right balance – working part of the time in the office, where they can satisfy their need for socialisation and working other part remotely where they can still attain time and cost savings and obtain work-life balance. Hybrid working arrangement could be a solution for organisational issues between telework and company's culture. Regardless of that, companies should be aware of the employees' cultural background as understanding of it, can help them get the best from their employees.

LITERATURE:
1. Adamovic, M. (2022). How does employee cultural background influence the effects of telework on job stress? The roles of power distance, individualism, and beliefs about telework. International Journal of Information Management, 62, 102437.
2. Asatiani, A., Hämäläinen, J., Penttinen, E., & Rossi, M. (2021). Constructing continuity across the organisational culture boundary in a highly virtual work environment. *Information systems journal*, 31(1), 62-93.
3. Bright, D.S., & H Cortes, A. (2019). [eTextbook] *Principles of Management* (Doctoral dissertation, Rice University, USA).
4. Chen, Z. (2021). Influence of working from home during the COVID-19 crisis and HR practitioner response. *Frontiers in Psychology*, 12.
5. Dumitru, C. (2021). Building Virtual Teams: Trust, Culture, and Remote Working. Routledge.
6. Eurofound (2020), Living, working and COVID-19, COVID-19 series, Publications Office of the European Union, Luxembourg. Available from: https://www.eurofound.europa.eu/ sites/default/files/ef_publication/field_ef_document/ef20059en.pdf [Accessed 26th November 2022]
7. European Commission (2020) Telework in the EU before and after the COVID-19: Where We Were, Where We Head to. Available from: https://ec.europa.eu/jrc/sites/default/files/ jrc120945_policy_brief_-_covid_and_telework_final.pdf [Accessed 26th November 2022]
8. Eurostat (2022) Employed persons working from home as a percentage of the total employment, by sex, age and professional status (%). Available from: https://ec.europa.eu/ eurostat/databrowser/view/lfsa_ehomp/default/table?lang=en [Accessed 17th December 2022]
9. Fana, M., Milasi, S., Napierala, J., Fernández-Macías, E., & Vázquez, I. G. (2020). *Telework, work organisation and job quality during the COVID-19 crisis: a qualitative study* (No. 2020/11). JRC Working Papers Series on Labour, Education and Technology.
10. Farcane, N., Bunget, O. C., Blidisel, R., Dumitrescu, A. C., Deliu, D., Bogdan, O., & Burca, V. (2022). Auditors' perceptions on work adaptability in remote audit: a COVID-19 perspective. *Economic Research-Ekonomska Istraživanja*, 1-38.
11. Fayard, A. L., Weeks, J., & Khan, M. (2021). Designing the hybrid office. *Harvard Business Review*, 99(2), 114-123.
12. Fleischmann, C., Cardon, P. W., & Aritz, J. (2020, January). Smart Collaboration in Global Virtual Teams: The Influence of Culture on Technology Acceptance and Communication Effectiveness. In *HICSS* (pp. 1-11).
13. Garrett, R. K., & Danziger, J. N. (2007). Which telework? Defining and testing a taxonomy of technology-mediated work at a distance. *Social Science Computer Review*, 25(1), 27-47.
14. Giauque, D., Renard, K., Cornu, F., & Emery, Y. (2022). Engagement, Exhaustion, and Perceived Performance of Public Employees Before and During the COVID-19 Crisis. *Public Personnel Management*.

15. Global Integration (2022). Virtual teams. Available from: https://www.global-integration.com/insights/whats-the-difference-between-remote-and-virtual-working-and-does-it-matter/ [Accessed 17th December 2022]

16. Gorokhova, A. E., Eskerkhanova, L. T., & Shishkin, A. N. (2021). The effect of remote work on the successful development of engineering company. *Nexo Revista Científica*, 34(06), 1720-1729.

17. Hofstede, G., Hofstede, G. J., & Minkov, M. (*2010*). *Cultures and organizations: Software of the mind* (3rd ed.). New York: McGraw-Hill.

18. Hofstede Insights (2022). Country Comparison. Available from: https://www.hofstede-insights.com/country-comparison/croatia,ireland/ [Accessed 17th December 2022]

19. International Labour Organization (2020). COVID-19: Guidance for Labour Statistics Data Collection. Available from: https://ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_747075.pdf [Accessed 26th November 2022]

20. Juchnowicz, M., & Kinowska, H. (2021). Employee well-being and digital work during the COVID-19 pandemic. *Information*, 12(8), 293.

21. Klimova, S., & Klimov, I. A. (2021). The experience of Russian companies in switching to remote work in the context of the pandemic. *Sotsiologicheskie issledovaniya*, (8), 203-211.

22. Lopez-Fresno, P., Savolainen, T., & Miranda, S. (2021, September). TRUST BUILDING FOR INTEGRATIVE TRADE NEGOTIATIONS Challenges posed by Covid-19. In *22nd European Conference on Knowledge Management*, ECKM 2021 (pp. 501-508).

23. Mascarenhas, S., Degens, N., Paiva, A., Prada, R., Hofstede, G. J., Beulens, A., & Aylett, R. (2016). Modeling culture in intelligent virtual agents. *Autonomous Agents and Multi-Agent Systems,* 30(5), 931-962.

24. Nickerson, C (2022). Hofstede's Cultural Dimensions Theory. Available from: https://www.simplypsychology.org/hofstedes-cultural-dimensions-theory.html [Accessed 17th December 2022]

25. Pauline Ramos, J., & Tri Prasetyo, Y. (2020, September). The Impact of Work-Home Arrangement on the Productivity of Employees during COVID-19 Pandemic in the Philippines: A Structural Equation Modelling Approach. In 2020 *The 6th International Conference on Industrial and Business Engineerin* (pp. 135-140).

26. Petcu, M. A., Sobolevschi-David, M. I., Anica-Popa, A., Curea, S. C., Motofei, C., & Popescu, A. M. (2021). Multidimensional assessment of job satisfaction in telework conditions. Case study: Romania in the covid-19 pandemic. *Sustainability*, 13(16), 8965.

27. Rad, D., & Rad, G. (2021). Going Agile, a Post-Pandemic Universal Work Paradigm-A Theoretical Narrative Review. *Postmodern Openings*, 12(4), 337-388.

28. Raghavan, A., Demircioglu, M. A., & Orazgaliyev, S. (2021). COVID-19 and the New Normal of Organizations and Employees: An Overview. *Sustainability*, 13(21), 11942.

29. Sharma, S., & Aparicio, E. (2022). Espoused organizational and team culture values as antecedents of protection motivation among IT employees. *Computers & Security*, 102774.

30. Sidor-Rządkowska, M. (2022). Human–the weakest or the strongest link? The role of organisational culture in ensuring cyber security of remote work. *Journal of Modern Science*, 2(49), 609.

31. Sousa-Uva, M., Sousa-Uva, A., & Serranheira, F. (2021). Telework during the COVID-19 epidemic in Portugal and determinants of job satisfaction: a cross-sectional study. *BMC public health*, 21(1), 1-11.

32. Spagnoli, P., Manuti, A., Buono, C., & Ghislieri, C. (2021). The Good, the Bad and the Blend: The Strategic Role of the "Middle Leadership" in Work-Family/Life Dynamics during Remote Working. *Behavioral Sciences*, 11(8), 112.

33. Swain, V. D., Saha, K., Abowd, G. D., & De Choudhury, M. (2020, October). Social media and ubiquitous technologies for remote worker wellbeing and productivity in a post-pandemic world. In 2020 *IEEE Second International Conference on Cognitive Machine Intelligence* (CogMI) (pp. 121-130). IEEE.

34. Treacy, S. (2022, September). Digitally Transforming Organisational Cultures: Ensuring Enhanced Innovation in a Remote Working World. In *European Conference on Innovation and Entrepreneurship* (Vol. 17, No. 1, pp. 548-556).

35. Trompenaars, F., & Hampden-Turner, C. (2011). Riding the waves of culture: Understanding diversity in global business. *Nicholas Brealey International*.

36. Wax, A., Deutsch, C., Lindner, C., Lindner, S. J., & Hopmeyer, A. (2022). Workplace loneliness: The benefits and detriments of working from home. *Frontiers in Public Health*, 10.

37. World Health Organisation (2020). Getting your workplace ready for COVID-19. Available from: https://www.who.int/docs/default-source/coronaviruse/getting-workplace-ready-for-covid-19.pdf [Accessed 26th November 2022]

THE IMPACT OF COVID 19 PANDEMIC ON BUSINESS RESULT OF LYFT PLATFORM

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ABSTRACT
The aim is to analyse the business results of the Lyft platform during the Covid 19 pandemic. Research and analysis of business results are the basis for comparison with the business results of other corporations in the sharing economy model. Selected financial indicators were used in the analysis, which were put in relation with selected ride-hailing indicators. The research was done using the financial analysis of parameters from the corporation's profit and loss account, that is, statistical regression of the ride-hailing trend in the selected time period. The research results indicate a strong impact of the Covid 19 pandemic on the overall activities of the corporation. In the first quarter of 2020, during the lockdown in the USA, the corporation's revenues and the number of rides dropped sharply. The corporation's revenues continuously grew until the emergence of the Covid 19 pandemic, and fell sharply with the advent of the lockdown model. The same trend was shown with the number of ride-hailing activities. After emerging from the crisis, revenues are recovering as well as the number of ride-hailing.
Keywords: *disruption, Lyft, platform economy, ride hailing, sharing economy*

1. INTRODUCTION
The Lyft platform was founded in 2012, three years after the emergence of the Uber platform, which will forever remain synonymous with car transportation in the platform economy model. In its early beginnings, the Lyft platform was founded as an organized transportation of passengers by car over long distances. It was not an entirely new idea as such a mode of transport already existed in Zimbabwe. Very quickly, the platform began to transport passengers within cities, which directly entered the area of operation of the Uber platform. Lyft has captured close to 30% of the US market, but Uber has always remained a significant competitor in the industry. While Uber expanded globally, Lyft remained a local competitor in North America. The research proved that Uber continued to grow after Lyft entered the market, while the number of classic taxi rides decreased significantly when Uber entered the market (Brodeur, Nild 2018). The vision and idea behind the Lyft platform is to build a transportation model that will allow people to give up their private cars. In addition, provide people in cities with more green spaces and parks instead of car parks (Mainwaring 2021). The Lyft platform belongs to a new generation of technologically developed corporations that use the platform economy model (Parker et. al. 2016; Moazed, Johnson 2016). Technology platforms, which use the platform economy model, include various activities such as housing and rental (Airbnb), short-term rental of bicycles, romobiles and scooters, as well as car rentals with and without drivers (Uber, Lyft), cleaning services and home help (TaskRabbit) and similar (Kim 2019).

Technological platforms in the platform economy model develop separate ecosystems, based on digital technologies, using disruptive entrepreneurial strategies (Lozić 2020). Corporations in the platform economy model belong to the group called "Big Tech". At the head of that group are the four leading corporations Amazon, Facebook, Google and Apple, which Simon called the "Gang of four" back in 2011. Lyft and Uber, as platforms for the disruptive development of the car transport market, certainly belong to the narrowest circle of "Big Tech" corporations. Like other corporations from the platform economy model, they develop special ecosystems that aspire to a monopoly position, and realize some form of monopoly rent, and investors make available to them different types of resources to satisfy expected returns in the future (Birch, Cochrane 2021). In 2021, Lyft operated in 644 cities in the US and 12 cities in Canada. In the US, as the largest global market for car sharing and organization, it held 29% of the market, with two million contract drivers. The drivers' working hours were not regulated by a single contract, and the average annual salary was $29,627. In the same year, the revenue of the platform was more than 3.2 billion dollars (Lyft Annual Report 2021). The paper investigates the financial aspect of business by analysing selected financial indicators. In the context of financial results research, the trend of users of sharing services and the use of transportation services is analysed.

2. LITERATURE REVIEW

Ride-hailing companies such as Uber and Lyft have built innovative business models that create value by connecting individual service providers with customers. Using information technology and ubiquitous Internet connectivity, these platforms enable business processes related to car transportation (Henten, Windekilde 2016). The transportation services provided by the companies Uber and Lyft significantly influenced the choice of means of transportation in the last century, which includes the choice of travel mode, daily activities as well as travel models (Conwey et.al. 2018). The ride-on-demand service allows users who request a ride through a smartphone app to connect with potential drivers nearby who are willing to provide a ride in real time (Shaheen et.al. 2015). Transportation service providers find motivation in flexible working conditions (Honga et.al. 2020) as well as stable driver compensation models (Hall, Krueger 2018). Various qualitative and quantitative studies were conducted, which included both sides of the platform, i.e. service providers and users (Wilhelms et.al 2018; Zhu et.al. 2018). On the supply side, the research was directed towards models of the use of flexible working hours in the context of the driver's income level. Based on the results of the research, the authors published a study on the need for the number of drivers in certain situations, that is, on the phenomena of excess drivers on the market (Chen et.al. 2018). In order to better understand the results of the study, a survey was conducted among service users in order to better interpret the results of the research on the supply side (Hall, Krueger 2018). Research on the demand side showed that 48% of service users used the multihoming model to meet their transportation needs more quickly and easily (Honga et.al. 2020). The results of the research proved the significant impact of the Covid 19 pandemic on the number of trips and on the mobility of passengers. While on the one hand the number of passenger trips decreased, the number of food and grocery delivery trips to doorsteps increased (Agrawal et.al. 2021). Surveys among drivers have revealed that greater earning potential in the door-to-door distribution of food and groceries on platforms for car transport is the most significant reason why delivery drivers decide to move from secure jobs to flexible employment on the platform. The results of the survey were confirmed by the statements of a Domino's pizza driver who earns more as a driver with flexible working hours, and the same reason was also motivated by one of the night guards of warehouse space in industrial zones (Zwick, Spicer 2019). Research has proven the lack of classic taxis during the rain in NYC, unlike Uber and Lyft vehicles that regulate transportation prices in a model of supply and demand for rides (Faber 2015).

Cohen et.al (2016) proved that Uber and Lyft replace a large number of classic taxi vehicles during the rain. The low barriers to entry for employment in the platform economy make work easily available, i.e. easy to start, but also easy to leave. Studies have shown that more than 60% of those who start driving higher are not active on the platform after six months. Many of them leave work on the platform because they have found a better job or have no need for additional income. However, given that the platforms have continuously open "job contests", it can be assumed that most have "quit", which is a very strange term since most have never been formally employed (Cook et.al. 2018). In addition, Uber and Lyft offer additional services to their drivers that further place them under corporate control through vehicle financing schemes that charge drivers exorbitant interest rates to buy or lease a new car that they use to transport passengers. The attitude of these companies towards employees can only be described as predatory (Green 2019). Platforms have negative financial results and still continue to operate, which indicates a predatory attitude towards competitors who try to enter the industry. The conundrum with such business strategies is that to other competitors who do not receive capital infusions from investors, such aggressive pricing could very easily qualify as a predatory business model (Vasconcelos 2015). The approach is multi-predatory as the losses continue until one platform wins or the few remaining platforms somehow make a truce. After the market relations are consolidated, the balance is frozen for an indefinite period. The result is that the platform or platforms that remain, can raise the prices of services to users, lower fees to service providers, and use other predatory models to secure additional financial gains for the platform (Kenney et.al. 2019). The platforms benefit from changes in the habits of users, who on the one hand do not want to own personal cars because of the associated costs, and on the other hand use cheap transportation services on the platforms. The platform economy is based on a change in the capitalist model of production and distribution of products and services in postmodern societies (Lozić et.al. 2019), as well as on changes in the habits of users, primarily Generation Z (Seemiller, Grace 2019).

3. METHODOLOGY AND RESEARHC QUESTIONS

The research and analysis is based on the official results published by the corporation in the form of the "Lyft Annual Report", ie the "Form 10-K" document. The financial parameters that form the basis of the financial analysis were selected from the published financial statements. The results of the analysis of the selected financial parameters were compared with the results of the analysis of the number of rides in the analysed period. Research and analysis are based on two research questions:

1) How strongly did the Covid 19 pandemic affect the financial result of the Lyft platform? Empirical research has proven a strong negative impact of Covid-19 on the transport and accommodation sector, while this has not had such a strong impact on other forms of the sharing economy such as freelance work, streaming service and online deliveries (Batoola et.al. 2021).

2) How strongly did the Covid 19 pandemic affect the number of rides on the Lyft platform? Lyft as well as other ride-hailing apps have faced a major drop in rides during the Covid 19 pandemic (O'Brien 2020). Selected financial parameters were analysed using financial and statistical processing models, as well as a statistical trend regression model. Data on driving trends in the analysed period were analysed using statistical models and trend regression analysis. The recapitulation of the platform's business results consists of an analysis of three fundamental parts of the platform's operations: financial analysis, user trend analysis, and market share analysis. The selected parameters were analysed in the ANOVA model to investigate the relationship between the analysed parameters, which provides a framework for answering the research questions.

3.1. Financial analysis

The platform for long-distance car transport, founded in 2012, already after four years of operation had total revenues of more than 340 million dollars. The analysis covers a period of six years, i.e. from 2016 to 2021. Revenues grew continuously from year to year, except in 2020 due to the impact of the global pandemic Covid 19. Total revenues grew at an average annual rate of 24.5%, i.e. 834.6% in the analysed period. The average total revenues, from the selected six-year sample, amounted to 2.12 billion dollars, which means that the platform achieved above-average revenues in the last four analysed periods. Direct production costs increased from 279 million dollars to 1.702 billion dollars, that is, they increased by 510%. The average annual growth of direct costs was 31.4%, which is higher than the average growth of total revenues. The average gross profit margin was 37.4%, which means that it is higher than the average in the last four analysed periods. In the last analysed period, the gross profit margin was 46.9% of total revenues, which is the best result in the analysed period.

Table 1: Analysis of selected financial parameters (000; $)

	2016	2017	2018	2019	2020	2021
Revenue	343.298	1.059.881	2.156.616	3.615.960	2.364.681	3.208.323
Cost of revenue	279.011	659.533	1.243.400	2.176.469	1.447.516	1.702.317
Gross profit	64.287	400.348	913.216	1.439.491	917.165	1.506.006
%	18,7%	37,8%	42,3%	39,8%	38,8%	46,9%
Operating loss	-692.603	-708.272	-977.711	-2.702.480	-1.808.382	-1.135.217
Net loss	-682.794	-688.301	-911.335	-2.602.250	-1.752.857	-1.062.144

Source: Lyft Annual Report 2021; Own illustration

Table 2: Percentage change of selected financial parameters (000; $)

	2017/16	2018/17	2019/18	2020/19	2021/20	2016/21
Revenue	208,7%	103,5%	67,7%	-34,6%	35,7%	834,6%
Gross profit	136,4%	88,5%	75,0%	-33,5%	17,6%	510,1%
%	522,8%	128,1%	57,6%	-36,3%	64,2%	2242,6%
Operating loss	2,3%	38,0%	176,4%	-33,1%	-37,2%	150,7%
Net loss	0,8%	32,4%	185,5%	-32,6%	-39,4%	63,9%

Source: Lyft Annual Report 2021; Own illustration

Despite the overall increase in total revenues and gross profit margin, the overall financial results of operations are still negative. Operating losses grew from 692 million dollars at the beginning of the analysed period to 1.135 billion dollars. Total operating losses grew at an average annual rate of 29.3%. The same trend had the total loss of the corporation, which grew from 682 million dollars to 1.062 billion dollars. The average total loss grew by 29.3% annually, i.e. at the same rate as the operating loss. The results of the research are shown in table 1.

Table following on the next page

Table 3: Selected financial parameters regression analysis

Revenue

$y = -156371x^2 + 1E+06x + 196495$
$R^2 = 0.8316$

Gross profit

$y = -51373x^2 + 522159x + 38939$
$R^2 = 0.83$

Operating loss

$y = 144613x^2 - 929869x - 338389$
$R^2 = 0.4986$

Net loss

$y = 138764x^2 - 887575x - 336351$
$R^2 = 0.4807$
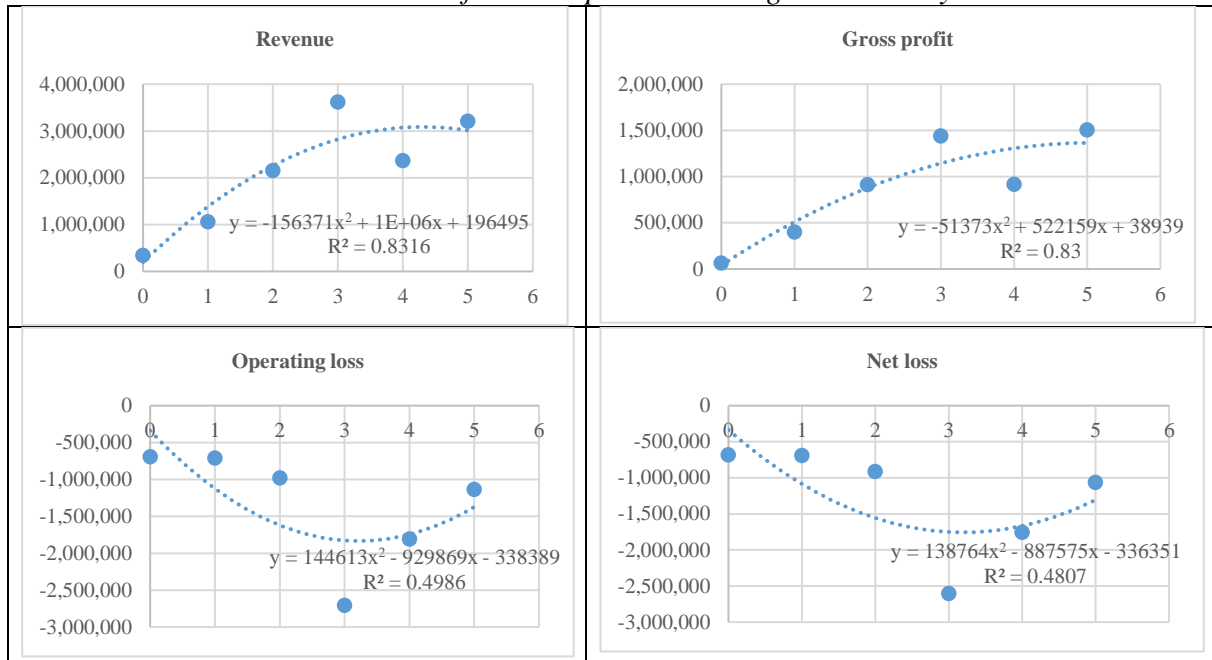
Source: Own illustration

The increase in total revenues was degressive, and fell sharply in 2020 due to the onset of the global pandemic. In the last analyzed period, revenues recovered, but the recovery was equal to the decline in revenues in the previous period. Direct production costs had a similar trend as total revenues, but the increase in the last analyzed period was approximately half of the increase in revenues, which was significantly reflected in the growth of the gross profit margin. This positive trend was not transferred to operational and total losses, which indicates large interest costs and other forms of financing. The increase in operational business losses in the last period was 37.2%, and the increase in total business losses was 39.4%, which is more than the increase in total revenues in the last analyzed period. The results of the research and analysis are shown in table 2. In the first part of 2021, the platform began to recover strongly financially and in August had 23.8 million dollars in profit. The sudden financial recovery gave a new impetus to transform the platform into what is the long-term vision of the platform, which is defined as a "transportation network" (Ahuja 2021).

Picture 1: Selected financial parameters (2016-2021)
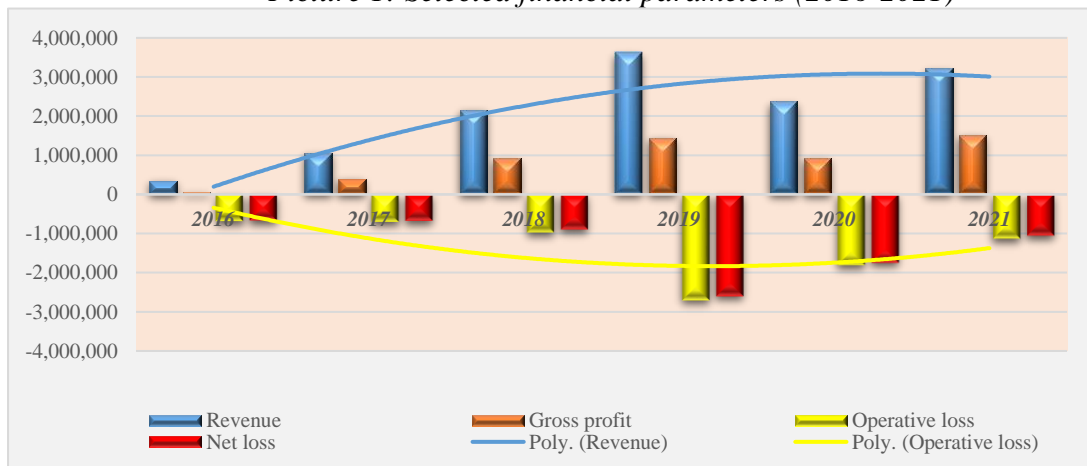
Source: Lyft Annual Report 2021; Own illustration

The analysis of selected financial parameters using the statistical trend regression model proves the results of the research done using the indexation model in Table 2. Revenues and gross profit grew digressively due to the sharp drop in income during the pandemic. The direction coefficients in the regression equations are negative, which proves the research results. The results of the operating loss and net loss research show the opposite results. The direction coefficients of the trend regression equations are positive, which indicates the recovery of business in the last three analysed periods. The results of the research are shown in table 3. The trends of selected financial parameters are shown in Figure 1. Revenues were continuously growing until the onset of the pandemic. They grew in 2019, when the pandemic was already present in some parts of the world, and then fell sharply in 2020. The gross profit margin had a similar trend. Operating and total losses grew from year to year, reaching their maximum in 2019. After that, the losses decreased, which can be connected to a lower number of rides in 2020, which directly affected the reduction of business costs. Operating losses followed the trend of total losses. Analysts estimate the recovery of the car transport market, for Uber and Lyft platforms, while the pandemic subsides, and point out that the shares of these corporations are still traded at "most undervalued levels" compared to other shares on the market (Ponciano 2022). The growth in revenue and the continuous decline in losses, which will directly affect stock prices, is shown in Figure 1.

3.2. Riders trend analysis

The emergence of the global pandemic significantly affected the number of rides, i.e. the business result of the platform. The number of platform rides in the US fell sharply in the first quarter of 2020 due to closures and movement restrictions. The research results showed that the pandemic did not affect all platforms equally, while the number of rides on transport platforms decreased, the number of views and revenues of platforms such as Netflix and Spotify continued to grow (Batoola et.al. 2021). In the absence of demand for passenger transportation services, corporations from this sector have turned to door-to-door delivery of groceries, which is a form of business model transformation that has enabled them to retain part of their income. A similar transformation took place in media corporations as well (Lozić, Fotova Čiković 2021). The research results showed a sharp upward trend for door-to-door grocery delivery in the first quarter of 2020, but already in the second quarter, the number of orders drops sharply and the number of rides slowly returns to the results of 2019 (Batoola et.al. 2021).

Table 4: Number of riders (2016-2021; mill.)

Year	Riders
2016	20,3
2017	41,5
2018	65,5
2019	87,5
2020	54,9
2021	68,1
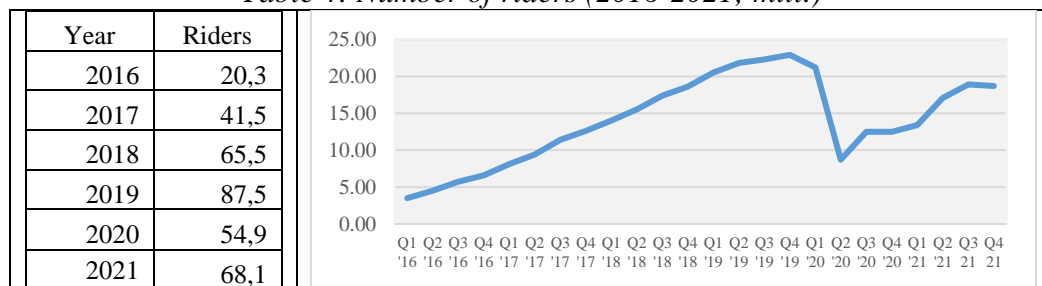
Source: Lyft Annual Report 2021; Own illustration

Research has shown a sharp increase in the number of drivers with a contract in the period from 2015 to 2017 (Agarwal et.al. 2021), but also a sharp drop in the number of drivers during the pandemic due to driver dissatisfaction caused by a decrease in income, as well as a lack of health and other forms insurance (Beckem et.al. 2021). This pandemic has ramifications on the gig economy as well and has left the gig economy workers more vulnerable as they have inadequate social protection (Chohan 2020). These leaves millions of gig economy workers unprotected during one of the biggest economic crises (Batoola et.al. 2021).

Analysis of the trend in the number of users indicates a strong connection or correlation between total revenues and the number of users. The total number of users increased from 20.3 million at the beginning of the period to 38.1 million at the end of the period. The trend of users had the same characteristics as the trend of total revenues. The number of users was increasing until 2019, and then fell sharply in 2020. In the last analysed period, the number of users began to recover, but did not return to the figures from 2019. In the period from the first quarter of 2016 to the fourth quarter of 2021, the number of users grew at an average annual rate of 10.9%. A sharp drop in the number of users was recorded in the first quarter of 2021, after which the number of users continues to grow. The results of the research are shown in table 4. In 2020, rides fell by 40% comparing them to the year before the pandemic. However, driver earnings reached a record high of over $35 per driving hour in some of the platform's busiest markets, and the number of drivers grew by 50% in the second quarter of the year (Ahuja 2021). All this proves the slow recovery in the car transport industry.

3.3. Market share analysis

The basic business idea of the platform was to transport passengers by car over longer distances. The platform started operating as a passenger transport between cities, in order to avoid competition in the transport of passengers within cities at the beginning of the business. After a year of existence, the platform started transporting passengers in the city, but in terms of market share, it never caught up with its competitor Uber. In addition to the USA, the platform also developed business in Canada, but did not try to develop business outside of these two countries.

Picture 2: Lyft market share in USA (2016-2021)
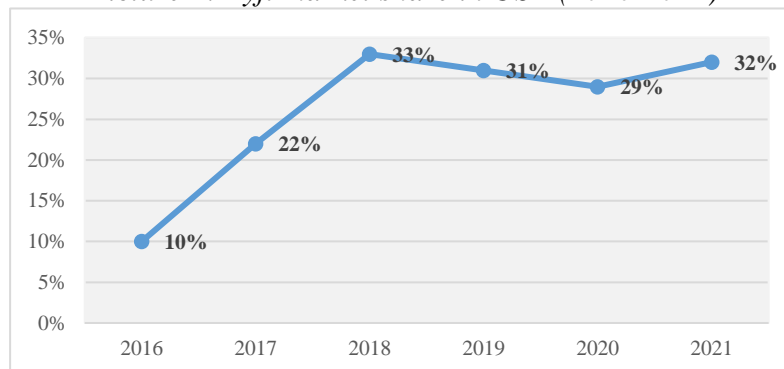
Source: Lyft Annual Report 2021; Own illustration

The US market share trend follows the total revenue curve. The total market share grew from 10% to 32% of the US market in the analyzed period. The market share started to fall already in 2019, which coincides with the decline in the operating and total profit of the corporation. In 2020, the share decreases to 29% of the market share, but in the last analyzed period it rises to 32%. The highest market share was recorded in 2018, which means that the platform has not yet returned to the share level of three years ago. The results of the analysis are shown in Figure 2. Analysts still see Lyft in the shadow of Uber as a much bigger competitor in the market (Ahuja 2021).

3.4. ANOVA analysis

The results of the research using trend regression models were also confirmed by the analysis of selected parameters in the ANOVA model. The model analysed data on total revenue and the number of ride-hailing in the selected period. The regression analysis of the selected parameters proved a strong connection, that is, the multiple regression coefficient is 0.95862.

The coefficient of multiple determination for sets with a smaller number of frequencies is 0.89869 (Adjusted R Square), i.e. the interpretability of the model is almost 90%. The coefficient of multiple determination of 89.7% proves the representativeness of the analysis model.

Table 5: Model ANOVA

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0,9586225							
R Square	0,9189570							
Adjusted R Square	0,8986963							
Standard Error	396614,59							
Observations	6							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	7,13472E+12	7,13472E+12	45,3565	0,00253273			
Residual	4	6,29213E+11	1,57303E+11					
Total	5	7,76394E+12						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-761673,07	458159,8013	-1,66246159	0,17175	-2033728,61	510382,468	-2033728,61	510382,468
Riders	51269,3825	7612,690305	6,734725896	0,00253	30133,1658	72405,5993	30133,1658	72405,5993

Source: Own illustration

The model is statistically significant, as indicated by the value of the F-ratio, which is 0.00253 (Significance F), that is, the selected variable Riders is statistically significant at the 5% risk level. The P-value for the Riders variable is 0.0253, which proves the variable's significant impact on overall business results. The number of ride-hailing directly affects the level of income, which is best manifested in a pandemic situation when income drops sharply due to a drop in the number of rides.

4. DISSCUSION AND CONCLUSION

The technological platform Lyft, according to the organization and management model, belongs to the model of the platform economy, that is, among corporations that develop their business based on some form of the sharing economy. The basic income of the corporation comes from the transportation of passengers by car, which are the property of the driver, and they work with the corporation in a contractual relationship that is easy to start, but also to end. In addition, the driver's working hours are flexible, that is, the drivers themselves choose the time when they will provide transportation services. The law of supply and demand for rides on the market directly affects the price of transportation. The platform has been operating for ten years, but its financial results are negative. Similar economic results are achieved by global platforms from some form of transportation service provision, as well as other corporations from the platform economy model. The research results were directed towards two basic research questions. In this context, the research showed five fundamental conclusions related to the research questions:

- In 2020, revenues fell by more than 30% compared to the previous year, which proves the strong impact of the Covid 19 pandemic on the platform's overall operations.
- The gross profit margin is the highest in the last analysed period, which indicates, on the one hand, the strong impact of the pandemic in the previous period, and on the other hand, implicitly indicates a strong recovery of the platform's business results after the pandemic.
- Operating and total profits are still negative, but in the last three analysed periods they are sharply decreasing.

- The direction coefficients of the regression equations of the selected financial parameters indicate the trends of the platform's business results.
- The number of rides fell sharply in the first quarter of 2020, and has not yet returned to the level before the pandemic, which proves the strong impact of the Covid 19 pandemic on the overall business results of the platform.

In the context of the first research question, the research results proved a very strong impact of the Covid 19 pandemic on the overall business results of the platform. Revenues fell sharply in the first quarter of 2020, and all of this was directly related to the drop in ride-hailing numbers, which was proven by the analysis in the ANOVA model. In the context of the second research question, the research results proved a sharp drop in driving during the pandemic. The sharp drop in rides is directly related to the lockdown effect, as media content distribution platforms (Spotify and Netflix) did not experience a drop in views. Lyft has been steadily increasing revenue year over year, but despite this, its gross profit margin has been declining. This points to two fundamental problems. The first refers to the high costs of maintaining the platform as a developed technological system, and the second is the insufficient number of trips that would cover the growing costs through income. In the analysed period of six years, the platform tripled the number of rides, but the revenues are still not enough to cover the growing costs. In addition, the pandemic had a significant impact on the decline in income in 2020. The market share in the US market is about 30%, which is not enough to generate profit with the existing level of operating costs. On the other hand, such a large share of the US market will continue to provide security to investors who expect returns from the platform in the future.

LITERATURE:
1. Agrawal, S; Schuster, A.M.; Britt, N.; Liberman, J. & Cotten, S.R. (2021). Expendable to essential? Changing perceptions of gig workers on Twitter in the onset of COVID-19. Information, Communication & Society, DOI: 10.1080/1369118X.2021.2020323.
2. Ahuja, M. (2021). We can control our destiny: John Zimmer shares Lyft vision for the company's future and $1 trillion market opportunity. Forbers. https://www.forbes.com/sites/maneetahuja/2021/09/23/we-can-control-our-own-destiny-john-zimmer-shares-lyfts-vision-for-the-companys-future-and-1-trillion-market-opportunity/?sh=1cbc641a1168.
3. Batoola, M.; Ghulama, H.; Hayata, M.A.; Naeemb, M.Z.; Abdullah Ejazc, A. & Imrand, Z.A. (2021). How COVID-19 has shaken the sharing economy? An analysis using Google trends data. Economic research – Ekonomska istraživanja, Vol. 34, No. 1, 2374-2386.; https://doi.org/10.1080/1331677X.2020.1863830.
4. Beckman, K. L., Monsey, L. M., Archer, M. M., Errett, N. A., Bostrom, A., & Baker, M. G. (2021). Health and safety risk perceptions and needs of app-based drivers during COVID-19. American Journal of Industrial Medicine, 941–951. https://doi.org/10.1002/ajim.23295
5. Birch, K.; Cochrane, D.T. (2021). Big Tech: Four Emerging Forms of Digital Rentiership. Science as Culture, DOI: 10.1080/09505431.2021.1932794.
6. Brodeur, A.; Nield, K. (2018). An empirical analysis of taxi, Lyft and Uber rides: Evidence from weather shocks in NYC. Journal of Economic Behavior and Organization 152 (2018) 1–16.
7. Chen, M.K.; Chevalier, J.A.; Rossi, P.E. & Oehlsen, E. (2019). The value of flexible work: Evidence from Uber drivers. Journal of Political Economy, *127*, 6, 2735–2794.
8. Chohan, U. W. (2020). A post-coronavirus world: 7 points of discussion for a new political economy. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3557738

9. Cohen, P.; Hahn, R.: Hall, J.; Levitt, S. & Metcalfe, R. (2016). Using Big Data to Estimate Consumer Surplus: The Case of Uber . NBER Working Papers 22627.

10. Conway, M., D. Salon, and D. King. 2018. "Trends in Taxi Use and the Advent of Ridehailing, 1995–2017: Evidence from the US National Household Travel Survey." *Urban Sciences* 2: 79. doi:10.3390/urbansci2030079.

11. Cook, C., Diamond, R., Hall, J., List, J.A., & Oyer, P. (2018). The Gender Earnings Gap in the Gig Economy: Evidence from over a Million Rideshare Drivers. Stanford University.

12. Farber, H.S. (2015). Why you can't find a taxi in the rain and other labor supply lessons from cab drivers. Q. J. Econ. 130 (4), 1975–2026.

13. Green. J.W. (2019). Where Is Economic Development in the Platform City? Planning Theory & Practice, 20:3, 423-446., https://doi.org/10.1080/14649357.2019.1629197.

14. Hall, J.V. & Krueger, A.B. (2018). An analysis of the labor market for Uber's driver-partners in the United States. Industrial and Labor Relations Review, *71*, 3, 705–732.

15. Henten, A.; Windekilde, I.M. (2016). Transaction costs and the sharing economy. *Info*, *18*, 1, 1–15.

16. Honga, J.S.; Bauerb, J.M.; Kwangjin Leea, K. & Nelson F. Granadosa, N.F. (2020). Drivers of Supplier Participation in Ride-Hailing Platforms. Journal of management information systems, Vol.37, No. 3, 602-630; https://doi.org/10.1080/07421222.2020.1790177.

17. Kenney, M.; Rouvinen, P.; Seppälä, T. & Zysman, J. (2019). Platforms and industrial change. Industry and Innovation, 26:8, 871-879. DOI:10.1080/13662716.2019.1602514.

18. Kim, A.J. (2019). Planning and So-Called „Sharing" Economy. Planning Theory & Practice, 20:2, 261-287., https://doi.org/10.1080/14649357.2019.1599612.

19. Lozić, J. (2020). Utjecaj razvoja tehnologije na temeljne postavke teorije disruptivnih inovacija. Zbornik radova Međimurskog veleučilište u Čakovcu, 11(2); 45-52.

20. Lozić, J.; Fotova Čiković, K. (2021). The impact of digital transformation on the business efficiency of the New York Times. UTMS Journal of economics, 12(2); 225-239.

21. Lozić, J.; Milković, M. & Lozić. I. (2019). Entrepreneurship development in the context of postmodern: future of entrepreneurship or adaptation to development of postmodern society. 49th International Scientific Conference on Economic and Social Development – "Building Resilient Society". Zagreb, pp. 578-590.

22. Lyft Annual Report 2021. – https://s27.q4cdn.com/263799617/files/doc_financials/2021/AR/Lyft-Annual-Report-2021.pdf. [26.09.2022.]

23. Mainwaring, S. (2021). Purpose At Work: Lessons From Lyft On How to Transform Lives Through Transportation. Forbes. https://www.forbes.com/sites/simonmainwaring/2021/05/17/purpose-at-work-lessons-from-lyft-on-how-to-transform-lives-through-transportation/?sh=7a403e66b8a6.

24. Moazed, A.; Johnson, N.L. (2016). Modern Monopolies – What it takes to Dominate the 21st Century Economy, Applico, LLC. ISBN 9781250091895.

25. O'Brien, S. A. (2020). The ride hailing industry is getting turned on its head by coronavirus - CNN. https://edition.cnn.com/2020/03/27/tech/drivers-delivery-workers/index.html.

26. Parker, G.G.; Van Alstyne, M.W.; Choudary, S.P. (2016). Platform Revolution: How Networked Markets are Transforming the Economy and How to Make Them Work for You, W.W. Norton & Company Ltd. ISBN 978-0-393-24913-2.

27. Ponciano, J. (2022). Uber, Lyft Stocks Surge As Americans Splurge On Travel Despite Skyrocketing Inflation. Forbes. https://www.forbes.com/sites/jonathanponciano/2022/08/02/travel-is-on-fire-uber-lyft-stocks-surge-as-americans-splurge-despite-skyrocketing-inflation/?sh=113a75912d89.

28. Seemiller, C.; Grace, M. (2019). Generation Z: A century in a making. Routledge. ISBN 9781138337312.

29. Shaheen, S.; Chan, N.; Bansal, A. & Cohen, A. (2015). Shared Mobility: A Sustainability & Technologies Workshop: Definitions, Industry Developments, and Early Understanding. Transportation Sustainable Research Centre, UC Berkeley.

30. Simon, P. (2011). The age of the platform: How Amazon, Apple, Facebook, and Google Have Redefined Business. Motion Publishing. ISBN 978-0-9829302-5-0.

31. Vasconcelos, H. (2015). Is Exclusionary Pricing Anticompetitive in Two-Sided Markets? International Journal of Industrial Organization 40: 1–10. doi:10.1016/j.ijindorg.20 15.02.005.

32. Wilhelms, M.-P.; Henkel, S. & Falk, T. (2017). To earn is not enough: A means-end analysis to uncover peer-providers' participation motives in peer-to-peer car sharing. Technological Forecasting and Social Change, 125, 38–47.

33. Zhu, G.; So, K.K.F. & Hudson, S. (2017). Inside the sharing economy: Understanding consumer motivations behind the adoption of mobile applications. *International Journal of Contemporary Hospitality Management*, *29*, 9, 2218–2239.

34. Zwick, A. & Spicer, Z. (2019). Blight or Remedy: Understanding Ridehailing's Role in the Precarious "Gig Economy". Planning Theory & Practice, 20:3, 423-446., https://doi.org/10.1080/14649357.2019.1629197.

THE ROLE OF HUMAN RESOURCES MANAGEMENT IN THE IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT (TQM)

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ABSTRACT
This paper focused on the presentation of total quality management and its importance for human resources management. Total quality management has a positive effect on the development of employees and the entire organization. TQM's focus on quality helps identify skill gaps in employees while providing the necessary training, education or mentoring to address them. TQM can be defined as the constant pursuit of excellence by creating the right skills and attitudes of people to enable the prevention of defects and to fully satisfy customers and users at all times. TQM is an organization-wide activity that must reach every individual within the organization. In the paper, the authors conducted empirical research in Croatian companies in order to determine employees' attitudes about the application and representation of the concept of total quality management in the company where they are employed. The results of the research showed that the implementation of full quality management in the company's operations is extremely important, and that employees believe that the quality management system affects employee satisfaction and the work performance of their company.
Keywords: excellence, human potential, total quality management (TQM)

1. INTRODUCTION
In the last few years, Total Quality Management (TQM) has received worldwide attention and has been adopted in many industries, especially in developed economies. TQM developed primarily due to changes in the global economy, but also due to the demand of market forces. TQM can also be defined as a management framework based on the belief that an organization can build long-term success so that all its members, from low-level workers to top managers, focus on improving quality and thus increasing customer and user satisfaction. TQM requires continuous improvement of organizations. It focuses on long-term process improvements rather than simply emphasizing short-term financial gains.

1.1. Importance of human resources
All organizations, regardless of their size, use various types of capital for business productivity. Capital includes finance, raw materials used to generate income for the business, and the like. Regardless of the type of industry, all companies have one thing in common: they must have employees who will make their capital work for them. Human Resource Management deals with all aspects of hiring and managing people in organizations. The term is largely taken from the term personnel management, which took over previous terminology including labour or welfare management.

In the 1980s, against the background of economic recession and increased pressures on companies due to globalization and the accelerated pace of change brought about by technological development, many academics began to think about people in organizations from a different perspective. The combination of this thinking developed into what became known as human resource management (Sekhar Patro , 2013). It can be said that human potential is represented by the total number of employees that the company needs to perform its activities (Rashid, et al., 2020). In addition to employees who are usually the basic human fund of the company, human potential also includes other members outside the unit, who through the board of directors, consultants or other forms use part of the time budget for works and actions in the interest of the respective organizations. The analysis of the size and structure of human resources follows the quantitative and qualitative side of the framework of economic organizations with their personnel, structure and size (Hall, Taylor, Torrington, 2008). Quantitative analysis of human potential highlights the human potential at the disposal of an economic entity and is expressed by the number of employees. This indicator characterizes the level of human potential at a certain moment and consists of all persons who have a work contract with the unit for which the calculation is made, whether they were present at work or absent for various reasons during the accounting period. Qualitative analysis of human resources aims to reflect the qualitative aspects of human resources, which have a special importance for companies, in the degree of qualification. In the literature, there are specific indicators for the qualitative analysis of human potential, such as (Hall, Taylor, Torrington, 2008): the level of education and the average complexity of the works performed. Human resources is a department of the company whose primary goal is to find, check, hire and train a potential candidate for employment. Also, they manage various employee benefit programs such as rewards. In addition, their key role is helping the company cope with the business environment that is prone to rapid change and finding quality employees (Avraham , 2009). Human resource management is a strategic, integrated, and coherent approach to the recruitment, development and well-being of people working in organizations. In other words, it is the process by which management builds the workforce and tries to create the human performance that the organization needs (Hall, Taylor, Torrington, 2008). Human resources have become very important due to the complex and uncertain environment. Their department in organizations has to progress due to globalization, technological progress, and competition. Companies now operate and expand their operations around the world, and they face different cultures, values, and behaviours of people, which employees bring with them to the workplace (Rashid, et al., 2020). Today's organizations understand that their employees are their strongest asset and competitive advantage. To this end, great efforts are being made to cultivate a better understanding and infrastructure for employees so that organizations can succeed. The HR function is constantly growing in complexity, and HR professionals play a key role in adding value to an organization's strategic direction and culture. These experts ensure that organizations are effective and efficient when attracting, developing, retaining, and rewarding employees (Alghamdi, 2018). The Human Resources Department fulfils its functions in various ways. It provides business staff with the tools, training, services, and oversight they need. In addition, he oversees teams to drive employee engagement and productivity. HR departments also plan events and campaigns that develop company culture and establish the company in the community. Responsibilities of human resources managers fall into three main areas, i.e. recruitment, compensation and benefits of employees and definition, i.e. job design. They oversee the recruitment process to locate, screen and hire new employees. Human resource managers also try to retain and continue to train and develop the best employees (Hall, Taylor, Torrington, 2008).

1.2. Human resources management activities

When it comes to the effective management of human resources and the pursuit of goals, the employee and the work environment are the most important factors. Work culture plays an important role in defining human resource management and business performance. The HR manager must be active while calling for strategies to foster a better work culture. Automated activities such as leave approvals, confirmation of reimbursement claims, etc. can help. Fast operations and employee empowerment help create a positive workplace environment. Developing and maintaining healthy and transparent relationships between team members and teams contributes to building a good example of work culture. Adopting the right solutions such as employee management software can solve more than half the work (Alghamdi, 2018). Recruitment is one of the main activities of the human resources department. In order to attract and retain qualified, experienced, dedicated, and well-motivated employees, a high level of resources and commitment is necessary. The recruitment process includes various tasks such as creating job specifications, advertising, sorting applications, interviewing, and advertising (Rashid, et al., 2020). The key functions of planning are predicting the future and avoiding anticipated employee-related problems. Two aspects can be highlighted, one is the planning of manpower needs and the planning of manpower supplies. Analysing and identifying specific skilled labour at the right time and designing programs to achieve human resource needs (Hall, Taylor, Torrington, 2008). Recruitment is one of the main activities of the human resources department. In order to attract and retain qualified, experienced, dedicated, and well-motivated employees, a high level of resources and commitment is necessary. The recruitment process includes various tasks such as creating job specifications, advertising, sorting applications, interviewing, and advertising (Rashid, et al., 2020). On-the-job training and refresher training for new and existing employees is another key activity. Training improves the specific skills of the organization's staff. Training programs can be specific business skills, communication skills, team building, and legal and political issues. Training and development are very important for preparing organizations to face future challenges (Alghamdi, 2018). Accurate and timely processing of benefits and payroll for everyone in the organization is the main duty of the human resources department. Remuneration can be a guaranteed or variable salary. Bonuses or incentive pay depends on performance. An hourly wage or a fixed salary is guaranteed. Managing harmonious relations between employees and management is a key role of the human resources management department. The rights of employees must be protected regardless of whether they are represented by unions or not. The employee relations function includes negotiating with unions about wages, working conditions, and resolving disputes and complaints (Sekhar Patro, 2013).

2. MEANING AND DEFINITION OF COMPLETE QUALITY MANAGEMENT IN BUSINESS

Total quality management is an organization-wide set of management practices aimed at consistently meeting or exceeding customer requirements. Successful quality management constantly strives to improve and change the classic way of thinking about the application of outdated quality control measures, modernizing methods, and providing effective training for personnel. As can be seen, conventional methods lead nowhere in quality assurance, and the future lies in process innovation, thinking outside the box and seeking improvement not after the final product, but during every stage of production (Godinho Antunes et al., 2021). Successful quality management requires the participation and commitment of all participants in the process, from production employees to senior management. Culture plays a significant role when it comes to success. Quality chains and the processes covered by them are at the heart of the quality management model.

The first and basic principle of total quality management is to focus on customers who buy products and services, as well as on potential customers. Customers are people who justify the quality of products and services. So, the company must ensure that customers feel that they have spent their money on a quality product if it can last a long time to meet the demands. Thus, successful companies align their goals with the needs of their clients. Leadership is essential in maintaining unity among employees to achieve interdependent goals. Although there are mainly three types of leadership in the industry, the democratic style of leadership is the best for achieving good results. A leader can form a suitable environment for effective work within the organization, and it encourages all employees to achieve the organization's goals. Thus, it seems that leadership is a significant principle of total quality management (Godinho Antunes et al., 2021). Employees from all levels put all their efforts and dedication to the profit of the organization. The total commitment of employees enables the industry to develop products and increase sales growth. Therefore, all employees in the organization must be well trained, committed and dedicated to achieving the interdependent goal on time (Jiménez-Jiménez, Jiménez-Jiménez , 2009). Total quality management emphasizes the systematic execution of the strategy. The industry makes an appropriate implementation plan and collects data during the implementation of these processes. The International Organization for Standardization (ISO) describes this principle as identifying, managing, and understanding processes that are interrelated as a system that contributes to the company's effectiveness in achieving business goals. Continuous process improvement is an essential step for any industry to keep their customers satisfied. Therefore, total quality management helps the company to constantly monitor the improvement of the system to improve the service and product of the industry. Above all, continuous improvement helps companies achieve competitive advantages, and it is the most critical principle among the eight principles (Jimoh et al., 2018). A mutually beneficial relationship with suppliers is another important principle of total quality management for building relationships with suppliers (Milojević, Veselinović, 2009). It is also called reciprocity. Usually, a business is run by multiple combined departments, and each department is assigned individual tasks, even though the functions of these departments are interrelated. The total quality management process helps all departments work together to achieve an interdependent goal. The company uses visual aids and flow charts to understand how employees perform perfectly.

2.1. It benefits from the implementation and improvement of the quality of TQM in the company

The concept of total quality management has become a frequently used term in quality discussions. The international and national competitive environment is in the process of constant changes due to market globalization and increased interdependence of economic entities. This process has increased the requirements for the competitiveness of organizations, and customers are in the centre of their attention (Ellitan , Dihardjo , 2021). TQM is considered an important management philosophy that supports organizations in their efforts to obtain satisfied customers. TQM is described as the mutual cooperation of everyone in the organization and related business processes in order to produce products and services that meet, and hopefully exceed, the needs and expectations of customers. For an organization to be truly effective, each of its parts must work properly together towards the same goals, recognizing that each person and each activity affects each other (Pambreni et al., 2019). It can be said that organizations that operate according to the principles of total quality management differ from organizations that operate based on classical management methods, i.e., according to the principle of plan, organize and control. Total quality management requires continuous quality improvement and the involvement of all employees in order to achieve business excellence and maximize the quality of products and services.

The implementation of total quality management primarily depends on the size of the organization itself, while the task of management in the implementation process is to define goals, support the development of total quality management, and set requirements for continuous improvement of business processes and quality (Ellitan , Dihardjo , 2021). When properly implemented, TQM results in a company producing a product for less. By emphasizing quality and minimizing waste, TQM companies provide more consistent products to which customers are more loyal. As TQM touches every department throughout the organization, a company can achieve significant savings from material procurement, production, distribution or back office functions (Younes , Alofi , 2019). Companies that successfully implement TQM are usually able to respond more quickly to change and proactively plan ahead to avoid obsolescence. In order to take full advantage of TQM, a company must fully adhere to its principles. This implies a significant engagement of each department in the entire organization. This level of commitment is very difficult to achieve because it requires significant financial investment and the involvement of all levels of management. The transition to TQM can be time-consuming, and workers can resist change. A company may be required to replace processes, employees, equipment, or materials in favour of an untested, partially developed TQM plan. In addition, more skilled workers may decide to leave the company if they feel that TQM processes do not exploit their skill set adequately (Godinho Antunes et al., 2021). The role of total quality management in today's business has never been more important. With all the resources available to businesses today, most businesses are not maximizing their potential. By controlling the quality of all systems, people and processes, organizations can now easily improve the bottom line and increase customer satisfaction.

2.2. The role of human resources management in the application of total quality management

Human resources management really plays an important role in the implementation of total quality management, primarily because it motivates staff to achieve total quality and, of course, manages the transition to a strategy of total quality management in the organization (Milovanović, 2014). Sasmita and Nayantara (2005) conducted a study whose aim was to analyse the strategic role played by HR professionals at different stages of TQM implementation, to determine exactly how they act as internal consultants, to study the interface between HR and other TQM support departments- in and reveal the various human resource challenges associated with the implementation of TQM in a sample organization. Data were collected from primary and secondary sources. Secondary data was obtained from sources such as records and documents and annual reports. Nevertheless, the analysis made is primarily based on the findings of a structured interview held with senior managers of the Human Resources and Personnel Development Department, the TQM-ISO unit and other support departments, and union leaders. The study reveals that HR professionals helped top management in aligning HR policies and quality policies, formulating policies, systems and procedures adapted to quality, creating and communicating the mission and vision of TQM, creating awareness of quality among employees, organizing the organization as well as employees to implement TQM, develop management support for quality action plans (QAP), organize quality workshops and TQM training programs and change the conventional way of thinking of employees, etc. Human resources act as internal consultants to other departments in quality matters. The implementation of TQM in the company created numerous challenges in human resources, for example, motivating experts, mobilizing key management personnel, achieving employee satisfaction, overcoming communication barriers, and the like (Sasmita, Nayantara, 2005). Human resources management has become one of the most important management factors in most organizations. The success of any organization depends to a large extent on the effectiveness of human resources management.

It is stated that the HR department is responsible for (Soltani et al., 2003): managing the transition to a TQM strategy, motivating staff to achieve total quality, aligning the TQM strategy with the business strategy, HR specialists act as internal consultants to other departments and key role in building TQM culture.

3. RESEARCH METHODOLOGY
In order to investigate the importance of applying the concept of total quality management, and to determine the attitudes and reflections of employees on the application of the above model in Croatian companies, an empirical study was conducted in October 2022. The survey questionnaire was created in such a way that respondents were presented with certain statements that they should confirm in full (grade 5) or refute in full (grade 1). The results of the Likert measurement scale are presented in several ways: average ratings with corresponding deviations, absolute and relative representation of individual ratings, absolute and relative representation of answers - I disagree and agree. The research results are presented in accordance with the sections in the survey questionnaire. Among the respondents who participated in the research, 72.2% were male and 27.8% were female. The youngest employee is 21 years old, and the oldest is 59 years old. The average age of employees is 36.5 years.
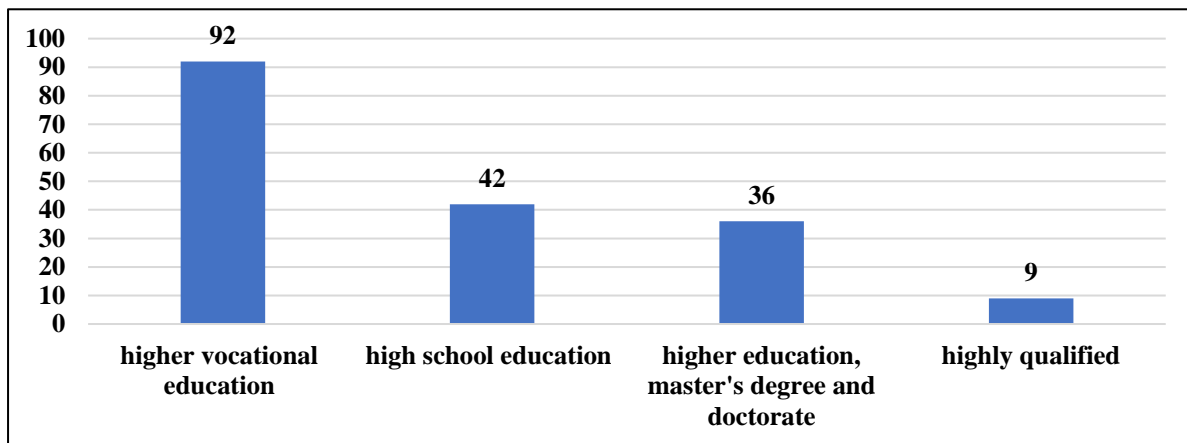
Graph 1 The structure of respondents' answers related to the level of education
(Source: processing by the author based on completed questionnaires)

Almost half of the employees, more precisely 51.4% of them, stated that they have a higher education. In addition, 23.5% of employees state that they have a secondary education, and 20.1% have a university education, while 5% of respondents stated that they are highly qualified.

		The owners are the only members of the management	The board functions separately - board members are not owners	A smaller part of the board members are owners	Most of the board members are owners	I do not know
1.	Does the organization have a separate management and ownership part or is the ownership structure part of the management?	9.5 %	54.5 %	6.7 %	1.7 %	27.4 %

Table 1 The structure of respondents' answers about the ownership and management structure of the organization where they are employed (in %)
(Source: processing by the author based on completed questionnaires)

When it comes to the ownership structure of companies where employees are employed, it is evident that a little more than half of them, 54.7%, state that their boards function separately, that is, that the members of the board are not the owners, and that the owners are the only members of the board (9, 5%). In addition, the employees also state that a smaller part of the board members are owners (6.7%), that is, that a larger part of the board members are owners (1.7%), while 27.4% of them state that they do not know this. Table 3 shows the respondents' views on whether the organization uses EV analysis, or realized value analysis, to monitor project progress in their company.

		That	**Not**	**I do not know**
1.	Does your organization use EV analysis (realized value analysis) to monitor project progress?	70.4 %	5.6 %	24 %

Table 2: The structure of respondents' answers related to the use of EV analysis in the company where they are employed (in %)
(Source: processing by the author based on completed questionnaires)

When it comes to the use of EV analysis, i.e., the analysis of realized value for monitoring project progress, it is evident that more than half of the respondents, 70.4%, state that their company uses EV analysis, while 24% of respondents stated that they do not know whether their company uses EV analysis organization this analysis. Finally, 5.6% of them stated that their organizations do not use EV analysis. The following table shows the respondents' views on whether the organization has a defined vision, mission, and business strategy and whether they are familiar with it.

		Yes, I am familiar with them	**Yes, but I'm not familiar with them**	**Not**	**I do not know**
1.	Does the organization have a defined vision, mission and business strategy and are you familiar with it?	59.2 %	33 %	0 %	7.8 %

Table 3. The structure of respondents' answers related to the vision, mission, business strategy and familiarity of employees with the same in their companies (in%)
Source: processing by the author based on completed questionnaires

When it comes to the vision, mission, business strategy and employees' familiarity with it, it can be seen that more than half of the respondents, 59.2% of them, state that they are familiar with the vision, mission, and business strategy of their company, while 33% of them employee states that the company has the above, but they are not aware of it. To this question, 7.8% of employees stated that they do not know if the organization has a vision, mission, and business strategy. The following table shows the average ratings of statements related to the application and representation of total quality management, while the next graph shows the attitudes of employees on the representation of employees who agree and those who disagree with certain statements. The claims were related to the examination of the degree of agreement of respondents for the application and representation of total quality management.

code	Claim	M	SD
t1	Employees of all levels are enabled to present their own ideas (suggestions) about improving the quality management system more easily.	4.38	0.81
t2	Employees were more clearly explained their work tasks.	4.59	0.73
t3	Seminars and trainings are held more often, which gives employees better training for future tasks.	4.42	1.02
t4	Employees are more familiar with management processes, main processes and support processes.	4.32	0.82
t5	Specific customer requirements are explained more precisely to all employees whose work area is affected by the requirements.	4.46	0.68
t6	By monitoring and controlling product quality, production costs and losses were reduced.	4,10	0.86
t7	The satisfaction of customers and other interested parties is monitored and analysed more often, and the results of the analysis are announced to employees.	4.05	0.83
t8	The introduction of a quality management system means that employees are better informed about all aspects of business.	4.34	0.73
t9	The introduction of the quality management system increased the awareness of the importance of quality for the success of the company.	3.90	1.03
t10	The organization monitors statistically the reliability of each product or service.	4.29	0.70
t11	The company continuously invests effort and effort in the implementation and improvement of total quality management in order to satisfy its consumers.	4.33	0.71
t12	The organization continuously invests in internal employee training.	4.27	0.76
t13	Employees on the project set their own goals and strive to achieve them.	4.42	1.02
t14	In business, the organization uses a monitoring system for statistical control of processes and/or quality.	4.32	0.82
t15	Internal complaints between departments are noticed and resolved more quickly as a result of quality internal communication	4.46	0.68
t16	The organization accepts and plans project risk management.	4,10	0.86
t17	The organization is fully focused on meeting the customer's needs.	4.38	0.81
t18	The organization has developed employee knowledge management procedures.	4.59	0.73
M – arithmetic mean; SD – standard deviation			

Table 4: Average ratings of statements
(Source: processing by the author based on completed questionnaires)

Analyzing the respondents' responses, it is evident that a significantly larger number of them agree with the statements made, that is, they believe that their company applies and has a good representation of total quality management. In addition, the respondents believe that their company continuously invests effort and effort in the implementation and improvement of total quality management in order to meet the needs of its consumers to the greatest extent possible.

Graph following on the next page
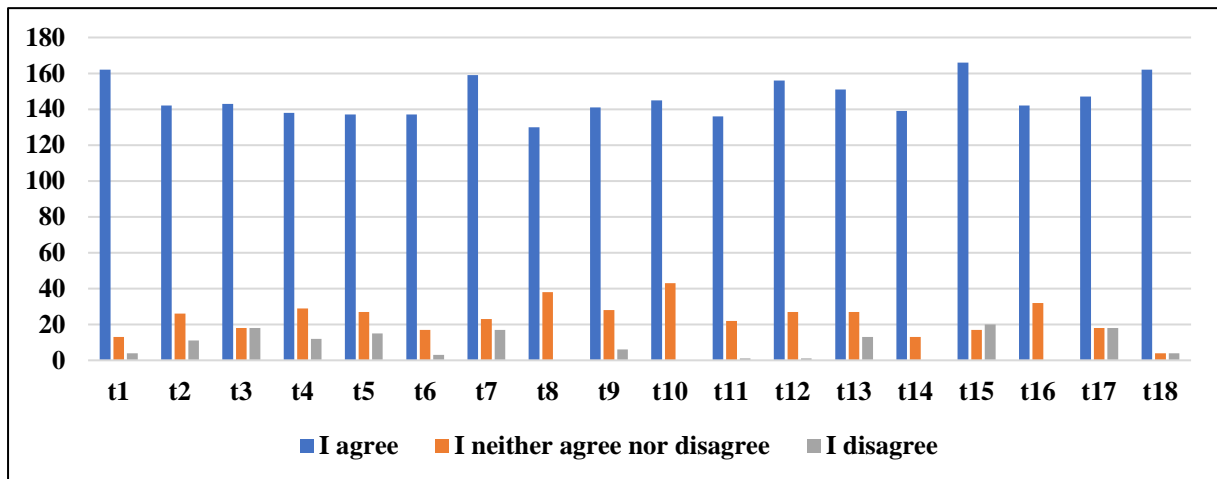
Graph 2: The structure of respondents' answers related to the representation of statements with which they agree and disagree
(Source: processing by the author based on completed questionnaires)

In the questionnaire, there were 18 statements to which the employees had to answer from " I completely disagree" to "I completely agree". When all the answers are summarized, they can be divided into two groups, i.e. "I disagree" and "I agree". The graph shows that all 18 statements have a significantly higher number marked with "agree", from which it can be concluded that employees believe that their company applies and has a good representation of total quality management. Namely, the company where they are employed continuously invests effort and effort in the implementation and improvement of complete quality management in order to satisfy its consumers. It also invests in internal education. In addition, the respondents were familiarized with the vision, mission, and business strategy of the organization. In addition to the above, the research results showed that the vast majority of respondents believe that the quality management system affects the performance of their company. Namely, the majority of respondents agreed that the awareness of the importance of quality for the success of the company increased, and the costs and losses in production were reduced by monitoring the satisfaction of customers and other interested parties, which is exactly the goal of the company to satisfy the needs of its customers through complete quality management.

4. CONCLUSION
Quality is a key term for all products and services. Total Quality Management, abbreviated as TQM, is a set of principles responsible for balancing the relationship between customers and employees. In simple words, total quality management or TQM is defined as a management approach to achieve long-term product success and satisfaction with success. In TQM, all members of an organization work together to improve the processes, products, services and culture of their workplace. For this reason, it is defined in scientific terms as a customer-oriented process. Total quality management aims at regular business improvement. TQM ensures that all components of an industry work together with the common goal of improving the quality of their services and products. It usually focuses on improving production and service delivery. The whole process is performance oriented to manage the progress of the organization. Based on the presented research, it can be concluded that the implementation of full quality management is extremely important for the company's operations and that the respondents believe that the quality management system affects the success of their company. Also, the implementation and improvement of total quality management can contribute to more successful operations of the organization and increase the satisfaction of customers and employees if the organization pays enough attention to its implementation.

The results of this research should be viewed taking into account the limitations of the research, given that the analysis used a convenient sample and cannot be generalized but viewed as indicative, but they can serve as a basis for further research that would be conducted on a representative sample related to a larger sample of Croatians. companies that have implemented the concept of total quality management.

LITERATURE:
1. Alghamdi , F. (2018). Total Quality Management and Organizational Performance : A Possible Role of Organizational Culture , International Journal of Business Administration , 9(4), 186-192.
2. Avraham , Y. (2009). Project management in a Lean World: Translating Lean Six Sigma into the project environment . Goldratt Institute: Velocity white paper.
3. Ellitan , L., Dihardjo , D. (2021). Total Quality Management: A Review of Recent Trends, International Journal of Trends in Research and Development, 8(6), 40-45.
4. Godinho Antunes , M., et al. (2021). Effects of Total Quality Management (TQM) Dimensions on Innovation — Evidence from SMEs . Sustainability , 13(18), 2-18.
5. Hall, L., Taylor, S., Torrington , D. (2008). Human resource management, Prentice Hall, 7th edition , England .
6. Jiménez-Jiménez , D., Jiménez-Jiménez , M. (2009). The performance effect of HRM and TQM: a study in Spanish organizations , International Journal of Operations & Production Management, 29(12), 1266 - 1289.
7. Jimoh , R. et al. (2018). Total quality management practices and organizational performance : the mediating roles of strategies for continuous improvement , International Journal of construction management, 19(2), 162-177.
8. Milojević , A., Veselinović, S. (2009). Total quality management and personnel. Technical diagnostics, 8(1), 39-44.
9. Pambreni , Y. et al. (2019). The influence of total quality management towards organization performance , Management Science Letters , 9(9), 1397-1406.
10. Rashid, Farhana and Taib , Che Azlan and Zien Yusoff , Rushami and Ahmad , Mohd . Akhir Hj . (2020). Human Resources Management Practices and Total Quality Management (TQM) is the Precondition to Gain the Sustainable Competitive Advantage in the Bangladesh Ready-Made Garments Sector , Journal of Economics and Business, Vol.3 No.1 (2020).
11. Sasmita Palo Nayantara , P. (2005). How HR professionals drive TQM: a case study in an Indian organization . The TQM Magazine, 17(5), 467 - 485.
12. Sekhar Patro , C. (2013). The Role of Human Resource Management in Implementation of TQM. International Journal of Computer Science and Management Research, 2(6), 2689-2695.
13. Younes , A., Alofi , K. (2019). Total Quality Management (TQM) Implementation in the Manufacturing Sector in Saudi Arabia : A Systematic Review , Business and Management Research, 8(1), 40-54.

INVESTMENT RIGHTS IN THE INTERNATIONAL CONTEXT: SPECIFICITIES AND CHALLENGES

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ABSTRACT

The subject of this review article is investment rights in an international context. The aim of the paper was to present the impact of law in terms of investment activities. This article states that investments in the international context are specific and present challenges. Investments often take place across borders and are subject to different legal frameworks, which can lead to doubts and uncertainties regarding the rights of investors. International investment treaties provide stability and protection for investors, but there is still debate about the rights that belong to the investor and the country where the investment is made. Legal qualification issues are also a challenge as they are treated differently in different legal systems. It is therefore important to understand the specifics and challenges that arise in the international context of investment law in order to ensure investor protection and fairness in these relationships.
Keywords: international law, investments, investor protection, economic development, bilateral investment agreements

1. INTRODUCTION

Investment rights represent an important aspect of international commercial law that deals with the protection and promotion of foreign investments. In the international context, investment rights refer to the relations between the host country and foreign investors, who deal with different sectors of the economy. The specificities of this area of law arise from different international frameworks and instruments that regulate investments, as well as from different national legal systems. Challenges in this field arise from the conflict of interests between the host country and foreign investors, as well as from the need for a balance between the need to protect investments and the need for sustainable development. This article will deal with the specifics and challenges of investment law in the international context, as well as its impact on economic development and international relations. Investment rights also relate to issues of liability, compensation and arbitration in case of insufficient fulfillment of obligations towards foreign investors. Investment rights are also essential for the development of international economic cooperation and trade between different countries. This article will deal specifically with international investment agreements related to investment rights, as well as their role in the protection and promotion of foreign investments. International investment legal relations are characterized by their own tradition of development of international law. That tradition is marked by elements of international public law and international trade law, which contributed to the authenticity and spread of international investment development law as a special branch of law. International law, as an organic system, is constantly developing in content and structure, with a particularly noticeable trend in the last fifty years (Delany, Signal, & Thomson, 2018). While the fundamental elements of the system, such as the state, treaties and international customs, do not change, there is progress in reconceptualizing other aspects of the international legal system (Simma, 2011). The departure from the classical model of international law as a system primarily focused on relations between states is increasingly visible. In this context, the role of the state in international investment disputes takes on a different dimension, supported by an almost self-sufficient set of legal rules that develop through the practice of arbitration tribunals and derive from a complex network of bilateral, regional and sometimes multilateral investment agreements, as well as special rules applicable

in substantive and procedural matters. aspect of arbitration disputes of an investment nature (Mulalić, 2018). Normative organization of international investment relations is most often connected with the need to overcome differences in the economic position of developed and less developed countries. Since consensus in this sense could not be reached at the level of multilateral forums, solutions were sought on a bilateral basis and on mutually acceptable terms for certain groups of countries (Dorsey, 1997). At the beginning, bilateral agreements were considered functional only between the mentioned countries, but that paradigm was later overcome, and today they are included in all countries. One of the biggest criticisms of these agreements is certainly the one that emphasizes their role in strengthening competition among less developed countries, because they offer better conditions for investments and thus open up space for opportunistic interests of investors, which can threaten the sustainability of public interest goals.

2. THE ROLE AND SIGNIFICANCE OF INVESTMENTS

Investments are an important part of any economy, because they enable growth and development. They contribute to the creation of jobs, increased production and the development of new technologies. Investments also contribute to the diversification of economic activity and increase the competitiveness of the economy (Hennart & Sutherland, 2022). Investments are especially important for less developed countries, because they provide access to capital, technologies and knowledge that are needed for economic development. They also help create jobs and reduce poverty. International investments also play an important role in international economic cooperation and trade between different countries. They help develop new markets and increase economic growth. Investments also play an important role in sustainable development, as they help create permanent jobs, increase production and develop new technologies that are sustainable and do not harm the environment. Investments in renewable energy sources and infrastructure that support sustainability are particularly important for achieving sustainability goals (Dorsey, 1997). Investments are also important for improving the standard of living of the population, as they contribute to the creation of jobs, increased production and the development of new technologies. Investments in sectors such as health, education and infrastructure help to improve the standard of living of the population. In any case, investments are a key factor for economic growth and development, and are important for achieving sustainability goals and improving the living standards of the population. They are necessary for economic development and growth, and important for improving the standard of living of the population (Elsig, Polanco, & van den Bossche, 2021). Investments represent the investment of capital, time and effort in projects or activities that are expected to bring future income. Investments can be made in different sectors, such as real estate, stocks, bonds, manufacturing, services and many others. Investments are an important part of any economy, because they enable growth and development, and can also help diversify the portfolio (Delany, Signal, & Thomson, 2018). The law plays an important role in the regulation of investments, both at the national and international level. At the national level, there are laws and regulations that regulate investments in certain sectors, such as real estate, stocks and bonds. International legal frameworks also regulate investments, such as international investment agreements that refer to the protection and promotion of foreign investments (Ayub, n.d.). Law also plays an important role in resolving potential conflicts between investors and the host country. If there is insufficient fulfillment of obligations towards foreign investors, liability, compensation and arbitration procedures are regulated by international legal frameworks and national legal regulations (Guntrip, 2016). Although investment regulation is important for the protection of investors' interests, it is important to achieve a balance between investment protection and sustainable development.

This means ensuring that investments are carried out in a way that does not endanger the environment, does not discriminate against the local population and does not compromise the public interest (Coleman, Cordes, & Johnson, 2019). International legal frameworks, as well as national laws and regulations, must ensure that investments take place in accordance with sustainable development standards, and that the protection of the environment, human rights and public interest is ensured. Investments are an important part of every economy, because they enable growth and development (Simma, 2011). Law plays an important role in the regulation of investments, both at the national and international level, through laws and regulations that regulate investments in certain sectors, as well as international investment agreements (Sheffer, 2011). Although investment protection is important, it is important to strike a balance between investment protection and sustainable development, to ensure that investments are carried out in accordance with sustainability standards (Roberts, 2012). Customary international law protects direct investment because a foreign investor exports resources that could otherwise be used to advance the economic growth of his country. The investor's country has a direct interest in protecting such investments. However, when investing through portfolio investments, there is no need for a territorial forum to determine liability in case of non-compliance with the obligations assumed by the country in which the investment is made. There is a trend of expanding responsibility based on portfolio investments through bilateral agreements or investment contracts, and in international investment practice, portfolio investments are no longer included in the term investment (Perelman, 2019). One can take the example of an American company deciding to invest in the production of cars in Brazil. This direct investment is subject to the protection of customary international law because the American company exports its resources (capital, technology, know-how) to Brazil, which could otherwise be used to promote economic growth in the United States. On the other hand, if the same American company decides to invest in a Brazilian company through the purchase of shares (portfolio investment), there is no need for a territorial forum to determine liability in case of non-compliance with the obligations assumed by the Brazilian company. Determining the term investment by the countries that are signatories to the Convention is the first step in determining the extent of coverage of the investment relationship through bilateral investment agreements (UNPRI, 2022). It is rarely a reason to review the jurisdiction of arbitral tribunals. Instead, arbitral tribunals usually rely on the typical characteristics of the investment, such as the significant contribution (technical or financial) of the investment to the investee country, the duration of the investment relationship, the degree of risk/expectation of profit, and the significant contribution to economic development, to determine its jurisdiction in the specific case (Elsig, Polanco, & van den Bossche, 2021). However, the set criteria are subject to criticism and questioning of their legitimacy.

3. ANALYSIS OF THE STRUCTURE OF THE INVESTMENT-LEGAL RELATIONSHIP

An investment legal relationship is a relationship between an investor and an invested entity, which is based on investing money in a specific project or business activity. The structure of this relationship may differ depending on the type of investment and the circumstances in which it is realized. One of the key components of the investment-legal relationship is the investment contract (Gabisa, 2014).. This contract usually contains details of the investment amount, repayment terms, interest rates and other terms relating to the investment. In some cases, the contract may also contain provisions on the rights and obligations of the investor and the investee. Another important component of the investment-legal relationship is the right to management and control. Investors often want to have some degree of management and control over the investee, to ensure that the money they have invested is used as intended.

However, the investee also wants to have the freedom to manage its business and not be overburdened by the control of the investor (Perrone, 2016). Therefore, the investment contract usually contains provisions on the rights and obligations of the investor and the investee in relation to management and control. The third important component of the investment-legal relationship is the right to earn or profit. Investors often want their investment to pay off in the form of earnings or profits, while the invested entity wants to keep as much profit as possible for itself (Roberts, 2012). Therefore, the investment contract usually contains provisions on profit sharing between the investor and the investee. The fourth component of the investment-legal relationship is the right to return the investment. Investors often want their investment to be repaid within the period stipulated in the investment contract, while the investee may want to hold the investment longer to ensure higher earnings or profits (Mulalić, 2018). Therefore, the investment contract usually contains provisions on the terms of return of the investment and the conditions under which it can be returned. For investments in the private sector, the structure of the investment-legal relationship may include a joint-stock company or a capital investment. In this case, the investor becomes a shareholder of the company and has the right to earnings in the form of dividends and the right to participate in the management of the company by participating in the shareholders' meeting. However, for investments in the public sector, the structure of the investment-legal relationship may include projects financed from public funds, such as infrastructure projects or projects financed through public-private partnerships (PPPs). In this case, the investor has contractual rights and obligations towards the public sector, and the investment is realized in accordance with the regulations and rules of the public sector (Coleman, Cordes, & Johnson, 2019). In any case, it is important that the investment-legal relationship is based on clear and precise provisions that regulate the rights and obligations of all parties involved in the relationship. The components of the structure of the investment relationship are strongly connected, and this connection is especially pronounced between the subjects of such a relationship. In addition, this connection further complicates the structure because it presupposes the inclusion of the investor as a de facto autonomous subject of the investment relationship (Naidu & Vickers, 2014). Namely, bilateral investment agreements for subjects are sovereign states and the fundamental intention is to provide a stable legal environment for investments as objects of investment relations, and direct mechanisms of legal protection are ensured by these agreements. However, the effectiveness of the general legal mechanisms contained in bilateral agreements depends on the chosen procedural rules available to the parties (Cotula, 2018). The direct legal link between the state in which the investment is made as the subject of the investment relationship and the investor at the level of bilateral agreements is not sufficiently defined (Mulalić, 2018). On the one hand, this may mean that bilateral agreements from the perspective of investors have the character of affordable agreements. On the other hand, investments are carried out in stages and take some of the legal forms of contracts or concessions. That is why it was necessary for legal theory and practice to recognize some clearer legal connections between the aforementioned entities (McLachlan, 2008). The complexity of the relationship structure in question is also visible in the fact that international investment agreements indisputably protect investors, but only from certain unilateral measures of the state in which the investment is made (expropriation without adequate compensation, discriminatory treatment of investors), and through arbitration on the investor-state relationship. investors guarantee the fulfillment of the obligations assumed by the state. What remains unclear is the area of investor protection in the context of unilateral measures of the investor state and collective measures of the subjects of the international investment agreement. Those agreements do not address the described connections (Khanna & Singh, 2015).

International investment agreements prescribe certain obligations to the state in which the investment is made in terms of protecting investors and investments, but at the same time they do not clearly define who has correlative rights, the investor or the state in which the investment is made or whether these rights are divided between them (Roberts, 2012). Procedurally, these agreements contain two types of dispute resolution clauses: one for disputes between the investor and the state in which the investment is made, and the other for disputes between the signatory states of the agreement. However, most agreements do not regulate the interaction between these two forms of dispute resolution. In investment arbitration practice, the starting point for the interpretation of international investment agreements is the Vienna Convention on the Law of Treaties. It stipulates that agreements are interpreted in good faith and in accordance with the ordinary meaning of the terms contained in the agreement, as well as in the context of the agreement and in accordance with its aim and purpose (Perelman, 2019). The aim and purpose of investment agreements are usually proclaimed in their preamble as the promotion and reciprocal protection of investments (Mulalić, 2018). However, although the objectives may appear to favor investors, most arbitral tribunals take a balanced approach to the interpretation of investment treaties.

4. INVESTMENT CONTRACTS

Investment contracts are legal instruments that regulate relations between investors and the country in which the investment is made. They usually contain provisions on investment return deadlines, conditions under which it can be returned, investment protection and investor protection. There are different types of investment contracts, such as concession contracts, partnership contracts or direct investment contracts (Cotula, 2018). A concession contract is usually used for infrastructure projects and regulates the relationship between the state and the investor involved in the construction and management of the project. A partnership agreement is usually used for projects financed through a public-private partnership (PPP) and regulates the relationship between the state and the investor in terms of financing, construction and management of the project. A direct investment agreement is usually used for private investments and regulates the relationship between the investor and the investee company. Each investment contract contains provisions on the rights and obligations of all parties involved in the relationship. This includes provisions on investment protection, such as the prohibition of discrimination or expropriation without adequate compensation, as well as provisions on investor rights, such as the right to profit and the right to compete. Also, investment contracts typically contain dispute resolution provisions, such as arbitration or remedy clauses. Investment contracts are important because they provide stability and security for the investor and help promote investment in the country (Gabisa, 2014). They also ensure that the state fulfills its obligations towards the investor and the investment. However, investment contracts can also have negative consequences, such as regulatory or environmental restrictions (Martini, 2017). In any case, it is important that investment contracts are considered and interpreted in a balanced manner, respecting the interests of all parties involved in the relationship and that they adhere to international standards and rules. Investment contracts are an important part of investment law and play an important role in regulating investment relations and providing protection for investors. There is considerable debate about whether investment contracts belong to public or private law. Determining their legal nature is difficult based on the essential nature of the contract, and is more based on objective criteria. Private law contracts assume equal strength of the contracting parties, while investment contracts imply a clear relationship of subordination between the state as the protector of the public interest and the investor (Subedi, 2006). However, investment contracts represent a special type of public contract and are qualified differently in different legal systems.

In continental legal systems, they are considered public law contracts, while in Anglo-Saxon law there is no clear distinction between these two categories, where the principles of public law are in certain cases integrated into the framework of private law (McLachlan, 2008).

5. INTERNATIONAL ASPECTS OF INVESTMENT CONTRACTS

Internationalization of investment contracts refers to the process of transition of investment contracts from the national framework to the international framework. This happens when investors from one country invest in other countries and international aspects appear in investment relations. The internationalization of investment contracts is becoming increasingly important with the growing number of international investments. Investors face different legal frameworks and rules in different countries and need protection at the international level. Therefore, international investment agreements have emerged that regulate relations between states and investors and provide protection for investors. International investment agreements usually contain provisions to protect the investment, such as prohibition of discrimination or expropriation without adequate compensation, as well as provisions to resolve disputes, such as arbitration or remedy clauses. International investment agreements are important because they provide stability and security for investors and help promote international investment. They also ensure that states meet their obligations to investors and investments. However, there are also criticisms that these agreements give too much protection to investors at the expense of states and their ability to regulate domestic issues, such as environmental protection or labor rights (Subedi, 2006). The internationalization of investment contracts also has an impact on dispute resolution. Given that investment contracts take place between parties from different countries, there is a need for international dispute resolution mechanisms. Investment arbitration mechanisms are most commonly used to resolve disputes between investors and states, and the Vienna Convention on the Law of Treaties is commonly used as a starting point for the interpretation of international investment agreements (UNPRI, 2022). Internationalization of investment contracts is an important process that takes place in today's world. Investors face different legal frameworks and rules in different countries and need protection at the international level. International investment agreements provide that protection, but they can also have negative consequences for states and their ability to regulate domestic affairs (Gabisa, 2014). Dispute settlement is also an important aspect of investment treaty internationalization and requires international dispute settlement mechanisms. One of the key issues related to investment contracts is the determination of the applicable law. Investment contracts have a specific nature that differs from other types of contracts, which requires determining which law will apply to them. Intangible assets, including contractual rights, are considered part of an investment that enjoys investment law protection at the international level. However, no consensus has yet been reached on which specific contractual rights are subject to such protection.In bilateral investment agreements, contracts that are usually considered investments and accepted in investment arbitration practice are: construction contracts, know-how, joint venture contracts, project cooperation and service contracts, leasing, profit-sharing contracts, etc. (Martini, 2017). Concession contracts also fall into this classification, but due to their public law character, international investment law protection for this type of contract is not disputed.

6. CONCLUSION

In the conclusion of this article, it can be pointed out that the right investments in the international context are specific and present challenges. Namely, investments often take place across borders and are subject to different legal frameworks, which can lead to ambiguities and doubts regarding the rights of investors. International investment agreements provide stability and protection to investors, but there is still a debate about what rights belong to the investor

and the country in which the investment is made. The legal qualification of investment contracts is also a challenge as they are treated differently in different legal systems. It is therefore important to understand the specifics and challenges that arise in the international context of investment law in order to ensure investor protection and fairness in these relationships. Investment-legal relations are complex, based on the economic origin of the object of those relations and complex legal consequences that relate not only to the directly involved subjects, but also to the wider environment. This problem highlights the need to understand the changed role of the state in these relations and a new way of classification. Therefore, the responsibility is taken on the arbitration bodies that have the task of harmonizing the unequal positions of the subjects in these relations. However, their role still remains unclear due to future economic and political circumstances, which confirms the importance of arbitration. It is also necessary to legally qualify certain legal institutions that are immanent in investment relations, both materially and procedurally. The scientific contribution of this article is in providing an overview of the specificities and challenges of investment law in the international context, as well as their impact on economic development and international relations. International investment agreements related to investment rights are also discussed, as well as their role in the protection and promotion of foreign investments. The article also analyzes the tradition of development of international investment law as a special branch of law and critically reflects on controversies related to bilateral investment agreements. Recommendations for future research may include analyzing the impact of bilateral investment agreements on the economic development of less developed countries, as well as examining alternative approaches to regulating international investment relations that could lead to a more balanced relationship between the need for investment protection and sustainable development.

LITERATURE:
1. Anthea Roberts. (2012). Divergence Between Investment and Commercial Arbitration. Proceedings of the Annual Meeting (American Society of International Law), 106, 297–300. https://doi.org/10.5305/procannmeetasil.106.0297
2. Ayub, A. J. (n.d.). International Investment Agreements: Challenges and Opportunities for Malaysia. In Malaysia's Trade Governance at a Crossroads. Kuala Lumpur: KR Institute. Retrieved from https://www.krinstitute.org/assets/contentMS/img/template/editor/5%20 Investment.pdf
3. Coleman, J., Cordes, K. Y., & Johnson, L. (2019). Human Rights Law and the Investment Treaty Regime. Columbia Law School Scholarship Archive, Columbia Center on Sustainable Investment Staff Publications, 6.
4. Cotula, L. (2018). Raising the bar on responsible investment: what role for investment treaties? International Institute for Environment and Development. http://www.jstor.org/ stable/resrep17988
5. Delany, L., Signal, L., & Thomson, G. (2018). International trade and investment law: a new framework for public health and the common good. BMC Public Health, 18(1), 602. https://doi.org/10.1186/s12889-018-5486-6
6. Dorsey, J. E. (1997). International Human Rights. The International Lawyer, 31(2), 659–669. http://www.jstor.org/stable/40707344
7. Elsig, M., Polanco, R., & van den Bossche, P. (Eds.). (2021). Part II - Current Challenges in International Investment Dispute Settlement. Cambridge University Press.
8. Gabisa, H. (2014). The Fate of International Human Rights Norms in the Realm of Bilateral Investment Treaties (BITs): Has Humanity Become a Collateral Damage? The International Lawyer, 48(2), 153–167. http://www.jstor.org/stable/43923936

9. Guntrip, E. (2016). SELF-DETERMINATION AND FOREIGN DIRECT INVESTMENT: REIMAGINING SOVEREIGNTY IN INTERNATIONAL INVESTMENT LAW. The International and Comparative Law Quarterly, 65(4), 829–857. http://www.jstor.org/stable/26348271

10. Hennart, J. F., & Sutherland, D. (2022). International business research: The real challenges are data and theory. Journal of International Business Studies, 53, 2068–2087. https://doi.org/10.1057/s41267-022-00566-y

11. Khanna, V., & Singh, A. (2015). Current Trends in International Investment Arbitration. Litigation, 41(3), 41–44. http://www.jstor.org/stable/44677775

12. Martini, C. (2017). Balancing Investors' Rights with Environmental Protection in International Investment Arbitration: An Assessment of Recent Trends in Investment Treaty Drafting. The International Lawyer, 50(3), 529–584. https://www.jstor.org/stable/26415686

13. McLachlan, C. (2008). Investment Treaties and General International Law. The International and Comparative Law Quarterly, 57(2), 361–401. http://www.jstor.org/stable/20488211

14. Mulalić, A. (2018). Međunarodni kontekst i specifičnosti investicionopravnih odnosa. Anali Pravnog Fakulteta Univerziteta u Zenici, 11(21), 91-107.

15. Naidu, S., & Vickers, B. (2014). Global Change and the International Investment Agreements Landscape. In SOUTH AFRICA, AFRICA, AND INTERNATIONAL INVESTMENT AGREEMENTS (pp. 10–12). Centre for Conflict Resolution. http://www.jstor.org/stable/resrep05167.

16. Nicolás M. Perrone. (2016). The International Investment Regime After the Global Crisis of Neoliberalism: Rupture or Continuity? Indiana Journal of Global Legal Studies, 23(2), 603–628. https://doi.org/10.2979/indjglolegstu.23.2.0603

17. Perelman, J. (2019). Human Rights, Investment, and the Rights-ification of Development: The Practice of 'Human Rights Impact Assessments' in Large-Scale Foreign Investments in Natural Resources. In Part V - Economic and Social Rights in Development. Cambridge University Press.

18. Sheffer, M. W. (2011). Bilateral Investment Treaties: A Friend or Foe to Human Rights. Denver Journal of International Law & Policy, 39(3), Summer, Article 7.

19. Simma, B. (2011). Foreign investment arbitration: a place for human rights? The International and Comparative Law Quarterly, 60(3), 573-596

20. Subedi, S. P. (2006). The Challenge of Reconciling the Competing Principles within the Law of Foreign Investment with Special Reference to the Recent Trend in the Interpretation of the Term "Expropriation." The International Lawyer, 40(1), 121–141. http://www.jstor.org/stable/40708012

21. UNPRI. (2022, November 29). What data do investors need to manage human rights risks? https://www.unpri.org/human-rights/what-data-do-investors-need-to-manage-human-rights-risks/10856.article

GREEN FINANCE: SIGNIFICANCE AND ANALYSIS OF THE ISSUANCE OF CORPORATE GREEN BONDS IN EUROPE

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ABSTRACT

The European Green Deal (EGD) was published by the European Commission in December 2019. This development strategy aims to achieve a climate-neutral economy by reducing carbon. More precisely, by 2030 it is planned to reduce it by at least 50% and achieve carbon neutrality by 2050. In this regard, in the last few years, a lot of attention has been given to various research in this area, including the impact of green finance on the environment and sustainability. Namely, green finance represents a relatively new model of financing sustainable projects, so many studies have been conducted in recent years in order to examine its contribution. The aim of this paper is to provide an overview of analyzes and contributions related to green finance, with an emphasis on green corporate bonds, based on available literature and research. Thanks to data from the Refinitiv database, this paper presents an analysis of the issuance of corporate green bonds in Europe, by region. The period from 2015 to 2021 was taken for analysis. The results of this analysis showed that according to the value of the emission, Western Europe has the largest share in the analyzed period, while from the aspect of the number of issuers, this is not the case. Companies, issuers of cooperative green bonds in Northern Europe have consistently had the largest number of issuers since 2018. According to the purpose of issuing corporate green bonds, for the period of analysis, Clean Transport and Energy Efficiency are the most prevalent. This research contributes to the literature of green finance, and at the same time aims to increase the visibility of the contribution of green finance and encourage the general public to consider the use of this form of finance.
Keywords: corporate green bonds, territory of Europe, green finance

1. INTRODUCTION

Green finance became popular in the 1980s and continues to attract attention globally. (Nawaz at al., 2021, p.6504). This financing model is a cornerstone for countering the existential threats of climate change (Nawaz et al., 2021, p.6504; Wang et al., 2016, p.311). It is used to finance investments that provide benefits for the environment in the broader context of ecologically sustainable development (Falcone & Sica, 2019, p.2). In essence, green financing is part of the green carbon reduction project because it connects the financial industry, the improvement of natural destinations and the economic growth of countries, which is an essential aspect of long-term sustainable development. (Ilic et al. 2020, p.3). Although green financing primarily refers to the financing of climate change, it also encompasses a wider range of other environmental goals, for example, industrial pollution control, water sanitation or biodiversity protection (Nawaz at al., 2021, p. 6506). United Nations Environment Program and DBS (2017) provides an overview of the numerous definitions of green finance that have been established internationally. Organization for Economic Co-operation and Development (OECD) defines green finance as financing to "achieving economic growth while reducing pollution and greenhouse gas (GHG) emissions, minimizing waste and improving efficiency in the use of natural resources." The People's Bank of China (PBOC) states that green finance policy refers to a range of policies and institutional arrangements to attract private capital investment into green industries such as environmental protection, energy conservation and clean energy through financial services, including loans, private equity funds, bonds, stocks and insurance.

Indonesian Financial Services Authority (OJK) states that green finance in Indonesia is defined as "the comprehensive support of the financial services industry to achieve sustainable development resulted from a harmonious relationship between economic, social and environmental interests."

2. GREEN BONDS

Corporate green bonds essentially did not exist before 2013. That year, the total issuance of corporate green bonds was about $3 billion. Since then, the issuance of corporate green bonds has more than doubled every year (Flammer, 2021, p.2). The risk of investing in bonds is relatively low. Also, bonds can collect a larger volume of funds whose maturities are relatively long, so bonds are very suitable for those infrastructure construction investment projects that require huge capital and return investments over a longer period. At the same time, bond markets facilitate the entry and exit of investors, adjust the investment portfolio, thus having greater flexibility in liquidity management (Wang, at. al., 2016 p.314). Fatica and Panzica (2021) analyzed the issuance of green bonds worldwide, in the period from 2007 to 2019. Based on their research, they came to the conclusion that about half of the issued bonds (56%) were issued to finance projects aimed at mitigating climate change. These are mainly projects related to renewable energy sources and energy-efficient technologies. Nawaz, et al. (2021) in their work analyzed green financing and mitigation of climate change in the N-11 countries, as well as the BRICS countries, in the period from 2005 to 2019. The approach revealed the need for the N-11 and BRICS countries to formulate policies to address the systemic risks posed by climate change. After the analysis, recommendations were made that governments should support regulations and efforts aimed at the development of the bond market. Non-corporate bodies such as pension funds in developing countries should issue green bonds. Finally, green bonds must be established in accordance with the principles of green bonds. This would ensure transparency, full disclosure of the allocation of funds for projects. Wang & Zhi (2016) examine the relationship between green finance and CO_2 emissions. Green bonds, more precisely the market capitalization of green bonds per capita, are used as a measure of green financing. The period from 2008 to 2019 was taken for the analysis, and for the ten economies with the largest market capitalization of green bonds (Canada, Denmark, Hong Kong, Japan, New Zealand, Norway, Sweden, Switzerland, Great Britain and the USA). Based on this research, the recommendations are that the Government should use fiscal policy to promote the development of green finance and use fiscal financing to channel credit financing and social capital into green investments, green loans and green securities. One of the recommendations is that developing countries should use green financing to help the environment. Yeow & Ng (2021) conclude in their paper that green bonds are effective in improving environmental performance, but only when they are certified by third parties. In addition, green bonds have no impact on financial performance. The findings suggest that the dependence of green bonds on external certification may be a consequence of the underdeveloped green bond market, where weak governance still dominates the green bond market. Therefore, corporations tend to take advantage of the growing popularity of green finance, causing the problem of "greenwashing". After the analysis of studies dealing with green finance, it can be concluded that there is an awareness of the impact of climate change on the environment, as well as a desire to reduce the risks that arise from it. In this connection, various researches are conducted on the topic of green finance and sustainable development. The context of observing this problem can be different. The measure of that impact depends on the dependent variable of the research, that is, what is taken as a measure of green finance. As previously stated in the literature review, some authors take the issuance of green bonds as a measure of green finance (Wang & Zhi, 2016).

3. RESEARCH
3.1. Database overview

In this research, the Refinitiv database was used as the data source. We started from the assumption that the database has data on issuance of bonds on a global level, so we downloaded the list of issuances of green securities. For the sample, all green securities for the period 2014-2021 that are in the database were taken, and descriptive statistics of the database is given below. As it could be seen by looking at the database, since 2014, green securities have recorded a significant growth, and for that reason, that year was taken as the beginning of the analysis period.
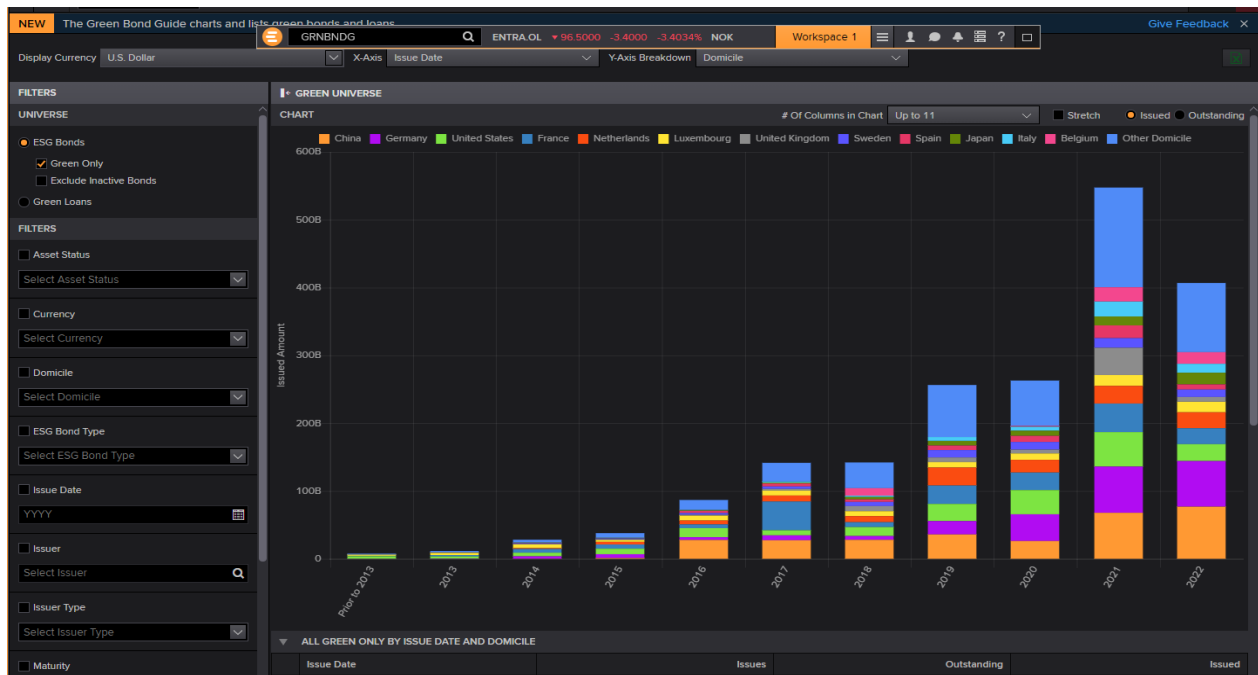
Figure 1: Image of the graphic representation of the issuance of green bonds from the Refinitiv database
(Source: Refinitiv database)

In table no. 1. an overview of the number of issues and the value of all issues by year, in dollars, regardless of asset status (*assets status*). Based on the analysis, a growing trend in the emission of green securities can be observed, which is represented by figure no. 2.

Year	Number of Issues (*Issues*)	The value of the issue in dollars (*Issued USD*)
2014	140	29,511,341,768.48
2015	304	45,672,393,362.61
2016	251	94,944,067,880.58
2017	452	152,849,449,639.86
2018	543	151,055,980,845.87
2019	942	272,262,416,428.45
2020	1,194	285,391,722,734.15
2021	2,082	602,583,486,362.46

Table 1: Overview of issuance of green securities for the period from 2014-2021
(Source: Refinitiv database)
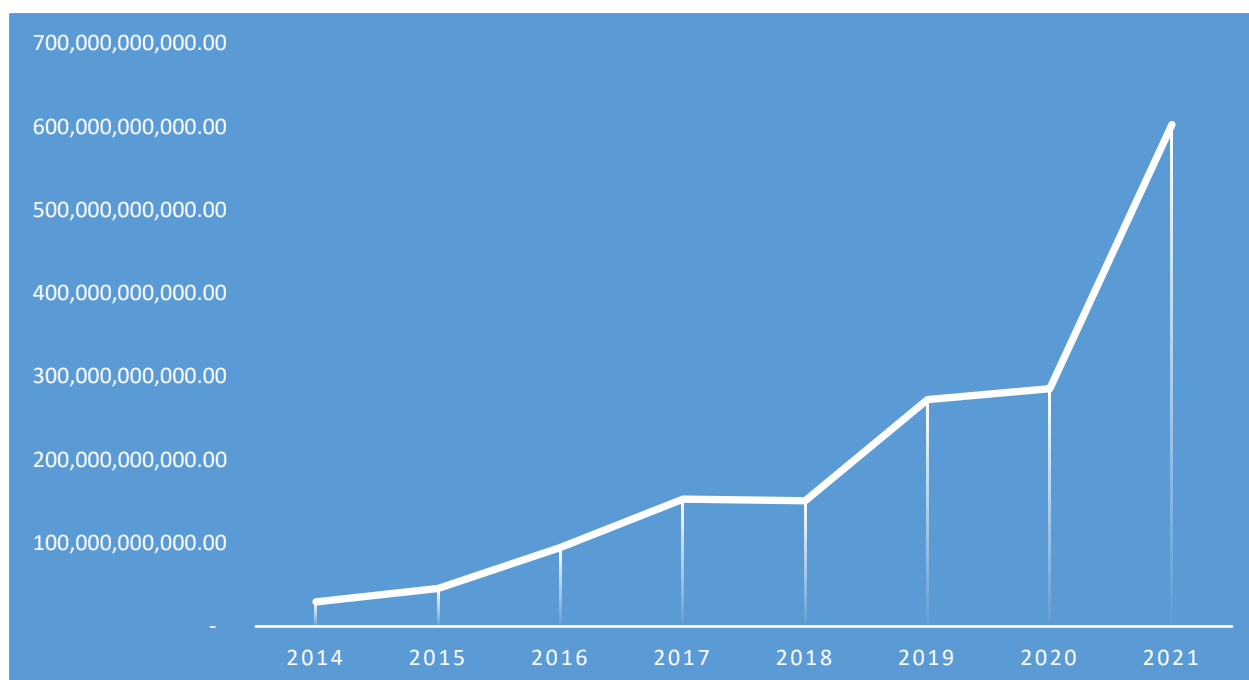
Figure 2: Overview of the value of green bond issues for the period 2014-2021
(Source: Refinitiv database)

The structure of green securities can be analyzed from the aspect of the type of securities (*Instrument type*). After considering the structure, for the mentioned period (2014-2021) we single out two instruments with the largest share, namely Note with 55% and bonds with 35%. Further filtering of the database can go in the direction of issuer type. At the level of the database for the period 2014-2021, a cross-section presented in table no. 2 was obtained, which applies only to bonds as a type of green securities of this base.

Issuer Type	Sum of Issued Amount (USD)	Percentage share
Agency	213,440,295,046.05	13%
Corporate	1,063,427,502,090.97	65%
Govt/Treasury/Central Bank	193,500,230,187.48	12%
Non-US Munis	9,382,969,289.96	1%
Other Gov/Supra	154,519,862,407.99	9%

Table 2: Classification according to the type of issuers issuing green bonds for the period 2014-2021
(Source: Refinitiv database)

Since the goal of this research is the analysis of green finances, which we measure by issuing green bonds, after analyzing the type of green bond issuers in further research, we decided on corporate green bonds, as the type of issuer with the highest percentage participation of 65%.

3.2. Analysis of issued corporate green bonds in Europe, by region
For the purpose of further analysis, an overview of the share of the issuance of corporate green bond in Europe was made, in relation to the issuance of corporate green bonds issued by issuers from all countries included in the database. Based on the analysis given in table no. 3 we conclude that there were no issues of corporate green bonds in 2014 in Europe and this is the reason for defining the research period 2015-2021 for the latest, current and available data.

Year	Issued USD	% share of the emission value of European countries in relation to all issuing countries
2015	547,965,000.00	77%
2016	3,591,661,500.00	65%
2017	6,871,762,030.26	33%
2018	8,358,807,002.68	49%
2019	17,980,696,356.48	40%
2020	23,083,675,232.36	45%
2021	43,632,162,488.59	42%

Table 3: Presentation of the value of the issuance of corporate green bonds in Europe, and the share of that value in the total value of the issuance of green corporate bonds of all countries from the database
(Source: Refinitiv database)

In this analysis, for the period 2015-2021, all countries from the database are divided into four regions in accordance with the UN criteria[1]. Eastern Europe (Hungary, Poland, Romania, Russian Federation and Slovakia) participates with 2%, Southern Europe (Greece, Italy, Portugal, Spain) has 4%, Northern Europe (Denmark, Finland, Iceland, Latvia, Lithuania, Norway, Sweden, Great Britain) has a third, i.e. 31%, while Western Europe (Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Netherlands, Switzerland) has the largest share of 63%. If we analyze each year individually, we have an identical overview. Namely, the percentage share of the value of the issue of issued green bonds by year is the largest for Western Europe, except for 2018, where the largest share was Northern Europe (table no. 4).

	Region			
Year	Eastern Europe	Western Europe	Northern Europe	South Europe
2015		100%		
2016		100%		
2017		91%	9%	
2018		29.80%	70.10%	0.10%
2019	1.10%	70.90%	25.30%	2.80%
2020	2%	64.90%	29.40%	4.10%
2021	2.50%	58.50%	32.80%	6.20%

Table 4: Summary presentation of the percentage share in the value of issues issued (issued assets status) of green corporate bonds on an annual basis, for the period 2015-2021
(Source: Refinitiv database)

Despite the COVID-19 pandemic, the issuance of green bonds has recorded constant growth, even in the period 2020-2021. Although according to the value of the issue, Western Europe has the largest share in the analyzed period, we can conclude that this is not the case in terms of the number of issuers. Companies, issuers of cooperative green bonds in Northern Europe have consistently had the largest number of issuers since 2018. All European countries that are issuers of corporate green bonds belong to developed countries, in accordance with the UN[2]

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[1] How many countries in Europe? - Worldometer (worldometers.info)
[2] https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2022_ANNEX.pdf
*explanation: "%" refers to the summarized presentation of the percentage share in the value of issues issued (*issued assets status*) of green bonds on an annual level for the financial and non-financial sectors

classification. Some papers when analyzing short-term green bond issues make a distinction between the financial and non-financial sectors (Zhou & Cui, 2019). Regarding that table no. 5 provides an overview of the percentage share of the value of bond issues for the financial and non-financial sectors by region and year.

Financial sector (Non-financial sector)				
Year	Eastern Europe	Western Europe	Northern Europe	South Europe
2015 %*	0% (0%)	100% (0%)	0% (0%)	0% (0%)
2016 %	0% (0%)	14% (86%)	0% (0%)	0% (0%)
2017 %	0% (0%)	79% (21%)	35% (65%)	0% (0%)
2018 %	0% (0%)	60% (40%)	68% (32%)	0% (100%)
2019 %	100% (0%)	53% (47%)	73% (27%)	57% (43%)
2020 %	54% (46%)	45% (55%)	41% (59%)	81% (19%)
2021 %	30% (70%)	46% (54%)	57% (43%)	23% (77%)

Table 5: Presentation of the value of the issuance of the green corporate bond for the financial and non-financial sector by region, for the period 2015-2021 (Source: Refinitiv base)

Based on the obtained results, it can be concluded that by 2019, the dominant participation of the financial sector is in the issuance of corporate green bonds in the Europe territory, while in the period 2020-2021, the share moves in favor of the non-financial sector.

3.3. Purpose of issuing corporate green bonds in Europe territory
From the point of view of the intended use of corporate green bond issues, for the period of analysis, it is mostly aimed at Clean Transport and Energy Efficiency. In order to better understand the diversification of purpose, below is an overview of the issuance of corporate green bonds by purpose, by region and country.

Region/ Country	% participation in total emissions at the annual level
Eastern Europe	2.5%
Hungary	0.9%
Circular Economy Adapted/Eco-efficient Products, Production Technologies/Processes	0.4%
Clean Transport	0.0%
Energy Efficiency	0.3%
Green Construction/Buildings	0.1%
Renewable Energy Projects	0.1%
Poland	0.1%
Energy Efficiency	0.1%
Romania	0.2%
Eligible Green Projects	0.2%
Russian Federation	0.4%
Alternative Energy	0.4%
Clean Transport	0.1%
Slovakia	0.9%
Clean Transport	0.7%
Eligible Green Projects	0.2%
South Europe	6.2%
Greece	1.0%
Green Construction/Buildings	1.0%
Italy	2.3%
Clean Transport	2.3%
Portugal	0.2%
Renewable Energy Projects	0.2%
Spain	2.7%
Climate Change Adaptation	1.1%
Energy Efficiency	1.5%
Environmental Protection Projects	0.1%
Green Construction/Buildings	0.0%

Northern Europe	**32.8%**
Denmark	0.8%
Climate Change Adaptation	0.1%
Energy Efficiency	0.7%
Finland	3.5%
Clean Transport	2.9%
Climate Change Adaptation	0.5%
Energy Efficiency	0.0%
Sustainable Management of Land Use	0.2%
Latvia	0.3%
Energy Efficiency	0.3%
Norway	17.2%
Circular Economy Adapted/Eco-efficient Products, Production Technologies/Processes	0.8%
Clean Transport	7.2%
Climate Change Adaptation	0.2%
Eligible Green Projects	0.2%
Energy Efficiency	5.9%
General Purpose	0.6%
General Purpose/Refinance	0.2%
Green Construction/Buildings	1.8%
Renewable Energy Projects	0.3%
Sweden	9.4%
Circular Economy Adapted/Eco-efficient Products, Production Technologies/Processes	0.2%
Clean Transport	3.9%
Climate Change Adaptation	1.6%
Eligible Green Projects	1.0%
Energy Efficiency	2.1%
Green Construction/Buildings	0.6%
United Kingdom	1.6%
Climate Change Adaptation	0.6%
Green Construction/Buildings	1.1%
Western Europe	**58.5%**
Austria	2.3%
Clean Transport	1.1%
Energy Efficiency	0.6%
Green Construction/Buildings	0.6%
Belgium	4.1%
Clean Transport	1.7%
Eligible Green Projects	1.7%
Energy Efficiency	0.3%
Green Construction/Buildings	0.3%
France	28.5%
Other	0.1%
Access to Essential Services	5.1%
Clean Transport	15.0%
Eligible Green Projects	5.1%
Energy Efficiency	3.1%
Pollution Prevention & Control	0.0%
Germany	11.6%
Clean Transport	8.0%
Eligible Green Projects	0.9%
Energy Efficiency	0.3%
Green Construction/Buildings	2.4%
Liechtenstein	1.4%
Eligible Green Projects	1.4%
Luxembourg	3.2%
Clean Transport	2.6%
Energy Efficiency	0.7%
Netherlands	3.5%
Clean Transport	2.3%
Energy Efficiency	1.3%
Switzerland	3.9%
Clean Transport	1.2%
Climate Change Adaptation	0.7%
Energy Efficiency	0.9%
Green Construction/Buildings	1.0%
Total	**100.0%**

Table 6: Percentage share of issues issued (issued assets status) of corporate green bonds for 2021, by region, country and purpose
(Source: Refinitiv database)

4. CONCLUSION

As the world is in the period of recovery after the Covid-19 pandemic, climate change policy cannot be a priority, but green transition through decarbonization represents one of the possibilities for sustainable development and is certainly a support for general economic recovery. Green financing would help the green economy to come to the fore in all its forms, and would especially affect the realization of EGD. After reviewing the literature, it can be concluded that, although there is no universal definition of green financing, it encompasses economic growth, environmental improvement, and the development of the financial industry. The issue of corporate green bonds shows a growing trend in the world, as well as in Europe. The results of the analysis showed that Western Europe has the highest value of corporate green bond issuance in the period 2015-2021. It can be concluded that the growing trend of this issuance directs the entity's operations on the market in the direction of creating and using green products and services such as green bonds, which will ensure the sustainable development of the economy for generations to come.

LITERATURE:

1. Flammer, C. (2021). Corporate green bonds. *Journal of Financial Economics*, *142*(2), 499-516.
2. Falcone, P. M., & Sica, E. (2019). Assessing the opportunities and challenges of green finance in Italy: An analysis of the biomass production sector. *Sustainability*, *11*(2), 517.
3. Fatica, S., & Panzica, R. (2021). Green bonds as a tool against climate change?. *Business Strategy and the Environment*, *30*(5), 2688-2701.
4. Ilić, B., Pavićević, N., & Stojanović, D. (2020). Održivost na primeru zemalja Indonezije i Srbije upravljanjem zelenimkhan finansiranjem. *Megatrend Review*, 17(2).
5. Nawaz, M. A., Seshadri, U., Kumar, P., Aqdas, R., Patwary, A. K., & Riaz, M. (2021). Nexus between green finance and climate change mitigation in N-11 and BRICS countries: empirical estimation through difference in differences (DID) approach. *Environmental Science and Pollution Research*, *28*(6), 6504-6519.
6. United Nations Environment Program and DBS, (2017): Design of a Sustainable Financial System - Green finance opportunities in ASEAN.
7. Wang, Y., & Zhi, Q. (2016). The role of green finance in environmental protection: Two aspects of market mechanism and policies. *Energy Procedia*, *104*, 311-316.
8. Yeow, K. E., & Ng, S. H. (2021). The impact of green bonds on corporate environmental and financial performance. Managerial Finance.
9. Zhou, X., & Cui, Y. (2019). Green bonds, corporate performance, and corporate social responsibility. Sustainability, 11(23), 6881

ELEMENTS OF COMPUTER GAMES IN MODERN BUSINESS

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ABSTRACT
The aim of this work is to review gamification methods in the context of business and to compare previous scientific research that elaborates on the issue of implementing video game elements in business systems to improve motivation and engagement of employees and consumers. How to use valid techniques to implement successful business process and business transformation using gaming elements in a company or organisation. Examples of good and bad implementation in practice supported by research and scientific works of experts in the field. What are the advantages of gamification in business, what is the undesirable impact and how to minimise it, that is, how to avoid these unfavourable effects.
Keywords: *gamification, game elements, business, business transformation, motivation, PBL system, MDC concept, 6D model, Octalysis system*

1. INTRODUCTION
The term gamification refers to the application of game design methods, techniques and elements of computer games in a non-gaming area and environment. It includes elements of computer games as a means to improve the motivation and engagement of employees, as well as consumers. The purpose of gamification is to foster change in the behaviour of employees and consumers with the aim of achieving the desired effect such as business success, which is built on the emotional and immersive qualities of the game. Gamification is a trend that has become quite significant in various fields of business in recent years. The EachnavioPlus (2021) report, which extensively covers market segmentations by end-users, needs, geography (North America, Europe, APAC, South America and MEA) and potential market drivers that vendors are capitalising on to sustain profitable growth, found that the gamification market has the potential to grow by USD 19.69 billion during 2021-2025, and the market's growth momentum will accelerate to an average annual growth rate of 26.66% (TechnavioPlus, 2021). Through this paper, key research related to gamification in general and more recent research related to gamification in the context of business are reviewed by going through the theoretical foundations of gamification. Through the review of the literature, first the concepts, methods and systems of gamification will be singled out, and then the elaborated models and systems that are used to implement gamification in business and business systems will be underscored.

After that, by comparing research and previous practices, good and bad sides will be distinguished, as well as the examples of gamification with the aim of determining how unfavourable effects can occur. By reviewing previous research, it will be determined which adverse effects have been discovered, that is, how these can be avoided.

2. OVERVIEW OF THEORETICAL BASICS OF GAMIFICATION

The concept of gamification is already extremely popular today and has spread to many branches of human activity. It is applied in the fields of information and communication technology, medicine, marketing, education and business. There are several similar concepts, such as 'serious games', which deal with the implementation of serious, non-fun elements in gaming environments (Alvarez & Djaouti, D., 2011). It is necessary to distinguish the term gamification from the terms: game and serious game. A game has rules by which players play, and compete or cooperate with limited resources to achieve goals. Such games are for example: board games, video games, card games and others, and their primary purpose is entertainment. A serious game is also a category of games with rules, but the main purpose of such a game is acquiring some skill, education, or for business purposes, so the primary purpose is not entertainment. A serious game is mainly a computer game that is used to train employees in various branches of business, from engineering, medicine, sports, to economics and others (Alvarez & Djaouti, D., 2011). The difference between gamification and a serious game is that serious games usually use a computer game or application whose purpose is to achieve the game's goal, while gamification uses game elements such as points, badges, and leaderboards with the purpose of motivating the user to achieve goals. In doing so, it is possible either to use the application or to integrate these elements into an already existing system. Accordingly, gamification would be "the process of transforming any activity, system, service, product or organisational structure into one that provides positive experiences similar to those provided by games, often referred to as a gaming experience" (Högberg et al., 2019). "To facilitate changes in behaviour or cognitive processes, gamification is usually implemented by game design" (Huotari & Hamari, J. , 2017). Gamification has attracted the interest of researchers and scientists as a growing trend and a potential system for improving the motivation of employees or service users. (Deterding et al., 2011) In 2011, Detering et al. specifically used and defined through research the term gamification as: "the process of using elements of computer games in a negating context" that does not refer to games for the purpose of improving user cooperation and user experience. Gamification can improve the business process (Yilmaz et al., 2016) (Shi et al., 2017). For business purposes, J. Kumar (2013) describes "a player-centred design methodology" as a practical guide for user experience designers, product managers, and developers to incorporate gamification principles into their software. The methodology is based on the player-centred design (Charles & Black, M., 2004), a related shared viewpoint in other frameworks. The process focuses on a good understanding of both the player and the mission. N. Kumar (2013) specified a gamification design environment in an enterprise as a prescribed method for designing a gamification environment for an enterprise. As the author says, the gamification process is very complex and includes several stages. Therefore, a framework is proposed to guide designers from concept to implementation and improvement. This approach is divided into three phases. The first phase involves defining goals, understanding challenges and motivations, and managing challenges. The second phase, game design, involves creating the narrative, game mechanics, and interface. The process ends with the implementation of the gamification system and its evaluation in the third phase (Kumar N., 2013). Schönen (2014) defines gamification as the process of introducing, transforming and managing a system of elements to achieve a game-like experience in order to encourage the creation of total user value.

Li (2014) proposes a theoretical model for gamification in the context of Information System (IS) in the workplace. From an IT perspective, it is a theoretical framework of the process of designing and implementing gamification at the workplace in an IS environment. The model is based on the technology acceptance model, known as TAM, which looks at how users accept and use technology (Li, 2014). Furthermore, Herzig (2014) describes the development of gamification as a technology-oriented design process. His approach is based on RUP (Rational Unified Process), an iterative software development process framework adapted to the gamification domain. His proposal aims to visualise how gamification is gradually introduced into arbitrary information systems, starting from the business modelling phase and ending in the monitoring and improvement phases. Oravec (2015) states that fun and engaging elements typical of games are used to increase people's commitment and engagement in productive activities (Oravec, 2015). Vesa et al. (2017) observed that more and more gamified applications and software are being used in an organisational context. Accordingly, gamification can motivate employees not only by providing them with increased access to visible, comparable and real-time performance data, but also by making work tasks more enjoyable and meaningful (Cardador et al. 2017). Groening and Binnewies (2019) state that gamification impacts through individual and collective challenges that aim to create a sense of achievement and continued success by completing smaller goals. Careful selection of gamification mechanisms, rewards, and evaluation systems should influence the work experience at the individual and organisational level (Friedrich et al., 2020; Koivisto et al., 2020). Werbach and Hunter (2020) list four contexts that are not related to games, but are particularly highlighted: internal gamification, external gamification, behaviour change and crowdsourcing.

2.1. Types of players

When implementing a gamified system, it is worthwhile thinking of customers and users as players. Everyone is different and experiences things differently, so it is important to anticipate that not all gamification techniques suit all 'players' equally well. Richard Bartle is one of the first researchers who in 1978 classified the types of players of online games in the first MUD, ("Multi-User Dungeon") or today better known as MMO (Massively Multiplayer Online). Studying the game, Richard Bartle identified four personality types of players. Achievers are oriented towards achieving a goal in the game, usually some form of collection such as points, levels or badges. Their goal is to solve tasks, collect as many prizes as possible, and advance in the leaderboards. They focus on achieving their best result and are not oriented towards other players and their opinions. Ramussen (2014) states that the motivation of such players can be stimulated by the gradual discovery of hidden elements (Rasmussen, 2014). According to Bartle, 10% of players are of this type (Schönen, 2014) (Bernik, 2017). Explorers want to know everything about the game and find everything inside the system. They can tirelessly spend time doing repetitive tasks, and spend time repeating tasks to unlock new levels of the game or discover a certain part of the system (Rasmussen, 2014). According to Bartle, 10% of players are of this type (Schönen, 2014) (Bernik, 2017). Socializers play for the sake of interacting with others, not for the sake of the game itself or the system. Rasmussen (2014) states that such types of players are motivated by communicating with others, helping each other and creating relationships through the game or system (Rasmussen, 2014). According to Bartle most players, 80% fall into this category (Schönen, 2014) (Bernik, 2017).

Figure following on the next page
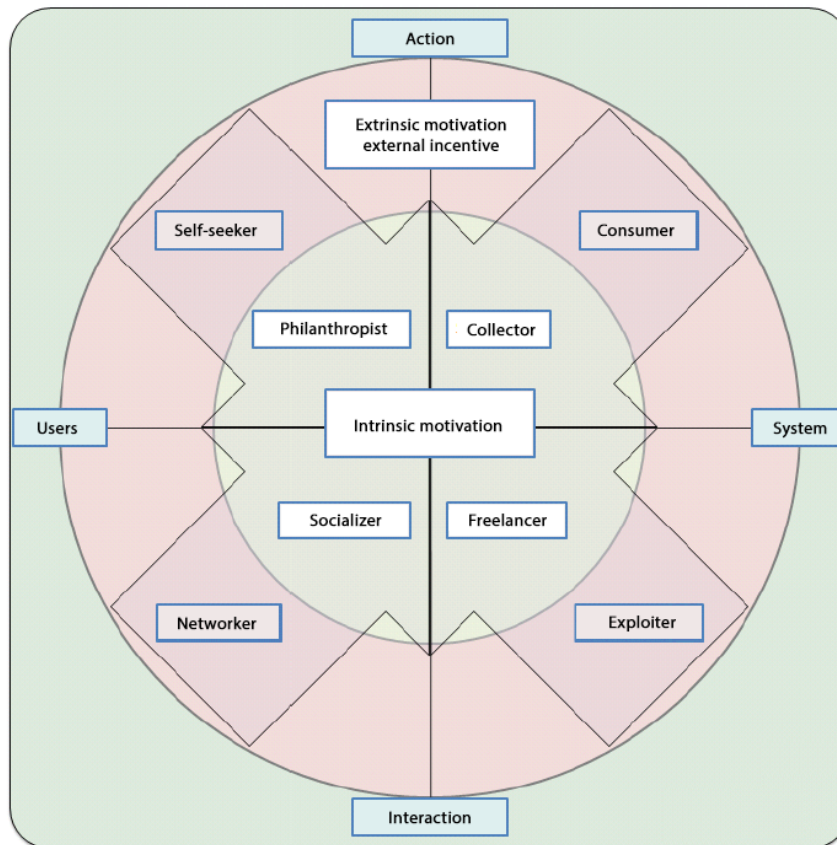
Figure 1: Expanded player classification and relationships

Killers are similar to collectors in the fact that they like to win points, status and prizes, but what distinguishes them is that they are motivated by winning against other players. Rasmussen (2014) characterises winners as the opposite of socializers who create a positive experience, that is, as players who create a negative experience for other players. Winners like duels and leaderboards (Rasmussen, 2014). According to Bartle, there are less than 1% of such players (Schönen, 2014) (Bernik, 2017). In addition to the previously mentioned types, there are players who are motivated by extrinsic rewards. Extrinsic rewards are those "such as money and verbal reinforcement which are mediated outside of the person," while intrinsic rewards are "mediated within the person" (Deci, 1972). Andrzej Marczewski complements Bartle's classification of players with extrinsically motivated types of players (Marczewski, Gamification: A Simple Introduction and a Bit More, 2013) (Tondello et al., 2019):

- Self-seekers claim rewards for helping other users. They will answer questions to get points, prioritising quantity over quality.
- Consumers want a reward for their actions in the system. They will complete tasks, join loyalty programs and learn, but only if they get something in return.
- Networkers want to connect with others in order to increase their profile and thereby achieve more rewards.
- Exploiters aim to get a reward by using the system at any cost. For example, they will create things solely to sell them. Often this type of player finds and uses loopholes in the rules, if it helps them win prizes.

Summarizing all the mentioned types of players and their relationship with the system, actions and interactions, Bernik (2017) presented them taking into account intrinsic and extrinsic motivation in Figure 1.

2.2. Concept - PBL

Most of the systems that implemented some form of gamification started with three elements: points, badges and leaderboards, known as the PBL system, i.e. "the points, badges, and leaderboard system". Due to its frequency of use, PBL is often described as gamification itself. Although the PBL system is one of the good ways to start building gamified tools, it is not gamification. If used correctly, PBL can be a very powerful and practical solution. Points are used in gamification as an incentive for users to complete tasks by connecting the collection of points with tasks. Considering the limitation and dry feedback provided by points, they are often supplemented with badges. Badges are a visual representation of some achievement within the gamified system. The term achievement is often used alongside the term badges. Badges can sometimes simply symbolise the amount of points, sometimes they can denote different types of activities. One of the most important attributes of badges is their flexibility. Different badges can be awarded for different types of activities, and the range of badges is limited only by the imagination of the gamification designer and the needs of the company. This allows the gamified service to engage a more diverse group of users and to identify with their interests. Accreditation badges can be a way for employees to demonstrate certain skills. A badge system can serve large companies that have extensive corporate training programs (Werbach & Hunter, D. , 2020.). Leaderboards display information in the context of progress. If in-game performance is important, leaderboards make status information publicly available, which can be a powerful motivator. A strong motivator for users can be the fact that the player needs only a few more points to move up or even reach the top. On the contrary, the leaderboard can also strongly demotivate. If a player sees how far behind the best players he is, it can make him stop trying. Several studies have shown that introducing only a leaderboard into a business environment tends to reduce performance. A leaderboard doesn't have to be a static scoreboard and doesn't have to track just one attribute, but can track any features the designer wants to emphasise. Multiple leaderboards may measure different values or may not be universal for all participants (Werbach & Hunter, D., For the Win, Revised and Updated Edition: The Power of Gamification and Game Thinking in Business, Education, Government, and Social Impact, 2020.).

2.3. Concept - DMC

Points, Badges and Leaderboards (PBL) are the starting tools for planning the gamification of the system. But these elements are only a part of a larger structure that is divided into three types of elements called Dynamics, Mechanics, and Components, hereinafter referred to as the DMC concept. The DMC concept was not directly, but to a lesser extent, influenced by the DMA concept presented by Hunicke et al. (Hunicke et al. 2004), which consists of elements of Dynamics, Mechanics and Aesthetics. Aesthetics describes the desired emotional reactions evoked in the player when interacting with the game system (Walk et al., 2017). Dynamics refers to the elements that provide motivation through narrative or social interactions. Mechanics represents an element of interaction that encourages player participation, and includes aspects such as chances, turns, or rewards. Components are specific elements such as points, virtual goods, or tasks (Werbach & Hunter, D. , 2015). Dynamics is a bigger picture of a gamified system that needs to be considered and managed, but which cannot be directly incorporated into the system. In the world of management, correlation to dynamics would be employee development, creation of an innovation culture, or almost any other major goal in business. Good managers create the desired dynamics in organisations. In order to achieve this, they have to direct the existing organisation in the desired direction through recruitment, management, and leadership, and they cannot do it from scratch. In contrast, creating a gamified system offers endless possibilities. Mechanics involves the core processes that move the action forward and create player engagement.

There are several definitions of game mechanics, but the following definition by game designer Danijel Cook provides a good explanation: "Game mechanics are rule-based systems that facilitate and encourage a user to explore and learn the properties of their possibility space through the use of feedback mechanics" (Cook, 2006). Components are specific forms that mechanics or dynamics can take. The most frequently used elements are points, which were used in as high as 79% of gamified systems and 78.4% of achievements; while boss fights were used in 17.5% and gift giving in 13.8% of cases (Buckley et al., 2019).

3. GAMIFICATION DESIGN AND INTEGRATION PROCESS IN THE BUSINESS CONTEXT
3.1. 6D model
Werbach and Hunter (2020) propose a 6D model with six consecutive steps for implementing gamification in a system (Werbach & Hunter, D. , 2020): Define business goals; outline target behaviours; describe your players; design activity loops; do not forget fun, apply the right tools. Although it almost goes without saying, the first step is to clearly and thoroughly define the goals. More specifically, the specific goals of the gamified system, such as increasing employee productivity, increasing client loyalty, or the like. If the goals of gamification are not specifically defined, the system may initially deliver results, but eventually it will fail. In order to avoid this failure, it is necessary to create a list of all potential, precisely defined goals, from which the less important ones can later be eliminated. It is necessary to remove the ideas of performance and leave only goals. For example, the goal is not for the users of the system to collect points, but this is rather mechanics, a means of gamification. Finally, the remaining goals need to be justified as to how they will contribute to the business. After defining the goals of gamification, it is necessary to define what is required of users and how performance will be measured. It is necessary to monitor the targeted behaviour with metrics to determine if this is specifically what is required. It is important that the user's behaviour is desirable, whether it goes towards previously set goals or it indirectly supports them. Since each user is specific, as stated in the chapter on player types, it is good to initiate by designing as many potential behaviours as possible so that users can have more options and activities. At the same time, care should be taken to ensure that the system is not too complex. Next, it is necessary to develop performance metrics. Points can serve as a metric. However, these may not necessarily need to be presented to users, but can be used by system designers for feedback. Metrics can also be analytics that measures key performance indicators through data and algorithms, such as the ratio of active users in a certain time or, for example, how many points have been collected. The third step is to define your players. It is important to define who will use the system, whether they are clients or employees, what are the characteristics of that specific target group and what motivates them. One of the most influential theories of motivation is the concept of "Self-Determination Theory" (SDT), which is divided into intrinsic and extrinsic motivation, and consists of user autonomy, competence in navigating the external environment, and connection with other users. Intrinsic motivation is an activity that a person does because it is interesting or pleasant in itself, while extrinsic motivation is something that a person does because it leads to some outcome, or external influence (Ryan & Deci, EL, 2000). Intrinsic and extrinsic motivation is important to define which motivators will be most suitable for the system. It is equally important to anticipate what could potentially demotivate users. In addition to the above, it is necessary to divide users and players into groups so that the system is suitable for several different groups, or types of users. The same gamified system can be experienced differently by different types of players. As stated earlier in the paper, we divide players into certain types according to Bartle (1996) and Marczewski (2016, 2018). After the division, each type of player or user can be assigned an avatar with a description that classifies them into groups. This will contribute to an easier understanding of the groups and how the specific

system is perceived by certain groups. The last thing to anticipate is the player's life cycle, that is, the player's progression path: novice, expert and master. Novice or in the slang of the gaming industry "noob" needs introduction into the system, and support from colleagues. When a novice grows into an expert, he needs to be offered something new to continue with the desired action. Once the player, i.e. the user becomes a master, they need challenges to keep them motivated. The longer the system exists, the more it will be necessary to offer tasks and options to players at all stages. The next step is to design activity loops. Computer games are not linear, they do not have only a beginning and an end, but are enriched by branching and series of loops. According to Werbach and Hunter (2020), there are two types of loops in gamification: engagement loops and progress ladders. Activity loops work through feedback. In order for the user to take the requested action, motivation is needed. The progress ladders reflect the fact that the difficulty of the challenge increases with the progress level of the system user. At the same time, progress and difficulty are not completely linear. The first step, called "onboarding" must be like a tutorial in computer games, simple and with the aim of introducing and attracting users to the system. Once the user is in the game, the difficulty and challenge must increase. Each ladder (in level games, the level) is characterised by a gradual increase in difficulty, followed by a period of stagnation and ending with a culmination, a challenge (in games, a fight with the main opponent, i.e. boss fight). Besides the abovementioned, it is desirable to implement some randomisation event, such as a surprise, in order to avoid boredom or increase the cordiality and motivation of users. An important step in planning a gamified system is to look at it from a wider perspective and anticipate whether it is fun. The system should be interesting for users so that they participate in it even if extrinsic motivators are removed from it. The importance of fun in games and similar systems, and types of fun, was supported by research by N. Lazzaro (2009), game designer and consultant. (Lazzaro, 2009) The last step is the implementation of appropriate tools, that is, the selection of appropriate mechanics and components in the system.

4. STATISTICAL DATA

The size of the gamification market in 2019 was estimated to be between $3 billion and $12 billion, depending on the sources (Coppens, 2021). Research results support the impact of points- and leaderboard-based levels on IBM's internal social networking service. The short-term impact showed a 92% increase in published comments. Within this research, long-term engagement was also measured and an increase of 299% more published comments compared to the control group was determined (García-Jurado, et al., 2021). Below is a list of gamification in business with statistics and return on investment (ROI) figures:

- SAP: The SAP Community Network has once again transformed its already mature reputation system, increasing usage by 400% and community feedback by 96%. (Business that Works, 2021)
- Onmicare: introduces gamification to its IT service, getting a 100% participation rate from team members. (Liyakasa, 2021)
- Astra Zeneca: gamified medical training increased participation of their agent network by 97%, with a 99% course completion rate. (ZucchettiGroup, 2021)
- Spotify and Living Social: replaced annual reviews with a mobile, gamified solution in which 90% of employees voluntarily participated. (Zichermann, 2021)
- Objective Logistics: the company motivates employees through behavioural rewards and increases their profit margin by 40%. (Kessler, 2021)
- Google: Designed a travel expense system that results in nearly 100% employee compliance with travel expenses. (AON Hewitt, 2013)
- Deloitte: Training programs that were gamified took 50% less time to complete and they massively improved long-term engagement. (Bradt, 2021)

5. CONCLUSION

Following design and implementation guidelines, as well as good and bad practices, this paper can serve as an overview of the existing methods of creating gamified systems in business, as well as an overview of key research and recent research on the elements of computer games in modern business. The methods listed and described in the paper are: PBL system based on a system of points, badges and leaderboards; DMC concept that describes the dynamics, mechanics and components of games; 6D model and Octalysis system for development and implementation of gamification. The comparison, that is, the examples of good practice mentioned above, can be used for understanding and for getting ideas on how to implement the elements of computer games into business systems. Bad practices indicate potential problems in the implementation of elements of computer games or even a potentially dangerous or manipulative form of gamification that leads to consequences that are dangerous for business, thus giving knowledge of what to avoid. Although there are studies with negative connotations towards gamification, numerous studies and statistics mentioned in the paper show that gamification in business can indeed be desirable, with a caveat that the gamification system needs to be well developed. Gamification is no longer a foreign term, but a well-known practice that many companies use to improve their business. There are methods and systems of implementing game elements into business systems, but there is a lot of room for completing and improving them due to the complexity of gamification, which is a combination of game design, so-called "game-thinking", new technologies, psychology, business, and management. Furthermore, the growing trend of integration of gamification and new technologies such as artificial intelligence, "big data" and many others opens many doors and potential for a further development of elements of computer games in modern business.

LITERATURE:
1. Alvarez, J., & Djaouti, D. (2011). An introduction to Serious game Definitions and concepts. Serious Games & Simulation for Risks Management, 11(1), p. 11-15.
2. Antin, J., & Churchill, E. F. . (2011). Badges in social media: A social psychological perspective . CHI 2011 Gamification Workshop Proceedings, (p. Vol. 7, No. 2).
3. AONHewitt. (2013). Engaging Participants Through Gamification. Aon plc.
4. Bartle, R. (1996). Hearts, clubs, diamonds, spades: Players who suit MUDs. Journal of MUD research, 1(1), p. 19.
5. Bernik, A. (2017). Uvođenje elemenata računalne igre u online poučavanje sadržaja informatičkih nastavnih predmeta . Varaždin: Doctoral dissertation, University of Zagreb. Faculty of Organization and Informatics.
6. Bradt, G. (18.. 09. 2021.). How Salesforce And Deloitte Tackle Employee Engagement With Gamification
7. Buckley, P., Noonan, S., Geary, C., Mackessy, T., & Nagle, E. (2019.). An empirical study of gamification frameworks. Journal of Organizational and End User Computing (JOEUC), 31(1), 22-38.
8. Business that Works. (18.. 09. 2021.). Dohvaćeno iz Gamification: Is it the new way to market?: http://blogs.brighton.ac.uk/socialandpoliticalbusiness/
9. Cardador, M. T., Northcraft, G. B., & Whicker, J. . (2017). A theory of work gamification: Something old, something new, something borrowed, something cool? Human Resource Management Review, 27(2), p. 353-365.
10. Charles, D., & Black, M. (2004.). Dynamic player modeling: A framework for player-centered digital games. International Conference on Computer Games: Artificial Intelligence, Design and Education, (p. 29-35).
11. Cook, D. (2006.). What are game mechanics. Lost Garden.

12. Coppens, A. (18.. 09. 2021.). Gamification Trends for 2019. Retrieved from Linkedin: https://www.linkedin.com/pulse/gamification-trends-2019-an-coppens/

13. Deci, E. L. (1972.). The effects of contingent and noncontingent rewards and controls on intrinsic motivation. U Organizational behavior and human performance, 8(2) (p. 217-229).

14. Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (September 2011). From game design elements to gamefulness: defining" gamification". In Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments, (p. 9-15).

15. Friedrich, J., Becker, M., Kramer, F., Wirth, M., & Schneider, M. (2020). Incentive design and gamification for knowledge management. Journal of Business Research, p. 341-352.

16. García-Jurado, A., Torres-Jiménez, M., Leal-Rodríguez, A. L., & Castro-González, P. (2021). Does gamification engage users in online shopping? Electronic Commerce Research and Applications, 48, 101076.

17. Groening, C., & Binnewies, C. (2019). "Achievement unlocked!"-The impact of digital achievements as a gamification element on motivation and performance. Computers in Human Behavior, 97, p. 151-166.

18. H., W., Koivisto, J., Mayer, I., Vesa, M., & Hamari, J. . (2020). Gamification of production and logistics operations: Status quo and future directions. Journal of business research, 106, p. 331-340.

19. Herzig, P. (2014). Gamification as a service: Conceptualization of a generic enterprise gamification platform. Dresden: Doctoral dissertation, Saechsische Landesbibliothek-Staats-und Universitaetsbibliothek.

20. Högberg, J., Ramberg, M. O. , Gustafsson, A., & Wästlund, E. (2019). Creating brand engagement through in-store gamified customer experiences. Journal of Retailing and Consumer Services, 50, p. 122-130.

21. Hunicke, R., LeBlanc, M., & Zubek, R. (2004). MDA: A formal approach to game design and game research. . AAAI Workshop on Challenges in Game AI, (p. (Vol. 4, No. 1, p. 1722).

22. Huotari, K., & Hamari, J. (2017). A definition for gamification: anchoring gamification in the service marketing literature. Electronic Markets 27(1), p. 21-31.

23. Kessler, S. (18.. 09. 2021.). Can Gamifying a Restaurant Get You Better Service? Retrieved from Mashable: http://mashable.com/2011/11/30/objective_logistics/

24. Kumar, J. (2013.). Gamification at work: Designing engaging business software. In International conference of design, user experience, and usability. In International conference of design, user experience, and usability (p. 528-537). Berlin, Heidelberg.: Springer.

25. Kumar, N. (2013). A framework for designing gamification in the enterprise. Infosys Labs Briefings 11(3), (p. 8-13).

26. Lazzaro, N. (2009.). Why we play: affect and the fun of games. Human-computer interaction: Designing for diverse users and domains, 155, 679-700.

27. Li, C. (2014). Evaluation of a Theoretical Model for Gamification in Workplace IS context. Doctoral dissertation, University of British Columbia.

28. Liyakasa, K. (18.. 09. 2021.). Game On: Gamification Strategies Motivate Customer and Employee Behaviors. Dohvaćeno iz Destination CRM

29. Marczewski, A. (2013). Gamification: A Simple Introduction and a Bit More. self-published on Amazon Digital Services. Kindle edition, Loc, 1405.

30. Marczewski, A. (26.. 8. 2021.). Hexad: A player type framework for gamificaiton design. Dohvaćeno iz Gamified UK: https://www.gamified.uk/user-types/

31. Oravec, J. A. (2015). Gamification and multigamification in the workplace: Expanding the ludic dimensions of work and challenging the work/play dichotomy. Cyberpsychology: Journal of Psychosocial Research on Cyberspace 9(3).

32. Rasmussen, G. (2014). Creative expression as the objective in video games. Doctoral dissertation, Queensland University of Technology.

33. Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American psychologist, 55(1), 68.

34. Schönen, R. (2014). Gamification in Change Management processes: An empirical research by means of qualitative methods to analyze relevance, implications and selected use cases. Munich: University of Applied Sciences.

35. Shi, V. G., Baines, T., Baldwin, J., Ridgway, K., Petridis, P., Bigdeli, A. Z., & Andrews, D. (2017). Using gamification to transform the adoption of servitization. Industrial Marketing Management, 63, p. 82-91.

36. TechnavioPlus. (06 2021). Gamification Market by End-user, Need, Application, and Geography - Forecast and Analysis 2021-2025. Retrieved from Technavio: https://www.technavio.com/report/gamification-market-size-industry-analysis

37. Tondello, G. F., Mora, A., Marczewski, A., & Nacke, L. E. (2019). Empirical validation of the gamification user types hexad scale in English and Spanish. International Journal of Human-Computer Studies, 127, 95-111.

38. Vesa, M., Hamari, J., Harviainen, J. T., & Warmelink, H. (2017). Computer games and organization studies. Organization Studies, 38(2), p. 273-284.

39. Walk, W., Görlich, D., & Barrett, M. (2017). Design, dynamics, experience (DDE): an advancement of the MDA framework for game design. Game Dynamics (p. 27-45). Springer, Cham.

40. Werbach, K., & Hunter, D. (2015). The gamification toolkit: dynamics, mechanics, and components for the win. Wharton School Press.

41. Werbach, K., & Hunter, D. (2020). For the Win, Revised and Updated Edition: The Power of Gamification and Game Thinking in Business, Education, Government, and Social Impact. University of Pennsylvania Press.

42. Yilmaz, M., O'Connor, R.V., & Clarke, P. (2016). A gamification approach to improve the software development process by exploring the personality of software practitioners. International Conference on Software Process Improvement and Capability Determination (p. 71–83). Springer International Publishing.

43. Zichermann, G. (18.09.2021.). Gamification: The Hard Truths. Retrieved from Huffpost: https://www.huffpost.com/entry/gamification_b_2516376

44. ZucchettiGroup. (18.09.2021.). Go To Jupiter: E-learning Game for Employees. Retreived from alittleb.it: https://www.alittleb.it/game-based-marketing/go-to-jupiter-e-learning-game-for-employees/

STOCK EXCHANGE AND ECONOMIC GROWTH IN MOROCCO (1991-2022)

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ABSTRACT

The analysis of the relationship between stock exchange growth and economic growth in Morocco during the period 1991-2022 can help us to assess the degree of integration of financial market activities in the real economy. After a review of the theoretical and empirical literature of this relationship and an econometric analysis of the economic and variables, an explanation of the econometric results is proposed. The non-existence of a statistically significant relationship between economic growth and stock exchange growth can be explained by the weight and ripple effects of the agricultural sector in Morocco (14% of GDP on average), the dominance of few companies listed (47% of stock market capitalization, on average) and the very reduced number of companies listed on the Casablanca Stock Exchange (65 on average). So, it's possible to argue that the very low representativeness of Casablanca Stock Exchange (CSE) in the Moroccan economy explains its low level of integration and, consequently, the disconnection between the dynamics of CSE and the the Moroccan economy growth.
Keywords: *Buffett Indicator, Casablanca Stock Exchange (CSE), Economic growth, GDP, Stock index, Liquidity, MASI, Market Model, return, Risk*

1. INTRODUCTION

The assessment of the degree of integration of the financial sector in the economy can be approached from the banking sector, from the financial market or from both of them. The appreciation from the financial market is the one that relates stock exchange growth and economic growth. It's more the analysis - of the content of this relationship than its meaning (positive or negative) - that makes it possible to assess the importance of the integration of the financial system in the economy. In systems dominated by market intermediation, market segments are fully integrated into the real economy. The problem arises in systems still dominated by credit intermediation; but which are experiencing a significant development of market activities. In Morocco, the financing of production activity by market structures is still underdeveloped. But the very strong expansion of financial transactions[1] and the remarkable increase in market capitalization[2] raise many questions, mainly those relating to the role that market financing could possibly play in the future in supporting new investments. The analysis of the relationship between stock exchange growth and economic growth makes it possible to assess the degree of integration of financial market activities in the real economy and can thereby provide the first elements of an answer to the question raised. This analysis is approached in three stages: first, a review of the theoretical foundations and empirical studies of the relationship; then, an econometric analysis of the evolution of this relationship; and finally, an attempt to explain the results.

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[1] The Value Traded increased by 199 times between 1991 and 2007. It rose from 1,806 million MAD to 359,780 million MAD in 2007 and fell, in 2022, to 57,600 million MAD. (HCP)

[2] Market Capitalization increased by 89 times between 1991 and 2021

2. THEORETICAL FOUNDATIONS AND EMPIRICAL STUDIES

The relationship between stock exchange return and economic growth can find its theoretical foundations in the economic literature relating to the functions of financial markets and in portfolio management models. The models of J. Greenwood & B. Jovanovic (1990) and J.-C. Berthélémy & A. Varoudakis (1994) stipulate that the individual incentive to invest in financial markets increases when the economy develops. Because earnings increase with the amount of funds invested while operating costs and fees increase less, if at all. Indeed, growth leads to an increase in the volume of savings and therefore of funds to be intermediated. However, the savings processing costs are relatively fixed and therefore do not depend (or at the very least quiet slightly) on the volume of savings processed. Thanks to these returns to scale, growth then exerts a positive externality on the development of financial markets. This leads to a constant increase in the size of the financial system. It is possible to eventually arrive at a situation in which all agents participate in this system. This generates a higher growth rate than that obtained in an economy without a financial system. But, the results can be perverse. Indeed, given the double causal meaning between economic growth and financial development, it is possible to see the appearance of "poverty traps" where growth is not sufficient to allow significant development of the financial system and where this atrophy of the financial system in turn slows growth. Symmetrically, it is likely to also see the appearance of virtuous spirals where economic and finance develop together. Empirically, an inverse "growth→finance" causality link can therefore be observed in certain countries (Levine, 2004). The existence of multiple equilibria was tested by Berthélémy & A. Varoudakis (1995). According to these authors, below a certain level of financial development, countries have slower economic growth with a more difficult catch-up. It's therefore possible to expect to see a relationship appear, in one direction or another, between financial development and economic growth. Several indicators make it possible to approach the relationship between economic growth and the degree of integration of the financial market in the economy, including in particular the number of listed companies, the trade value, the capital collected via new issued shares, liquidity, return, risk, etc. The integration of Finance into the economy implicitly assumes a fairly significant relationship between economic growth and stock exchange performance. Indeed, the economic dynamic of a country is an aggregation of that of the various economic agents including in particular the companies of the various sectors. This dynamic will be reflected in the accounts of companies and will thereby determine their performance and return. The more a stock exchange is integrated into a given economy, the more its dynamics are in perfect relation with that of the national economy. The dynamics of the stock exchange can be approximated by the evolution of its index[3]. The latter can be considered as a portfolio of diversified[4] securities whose evolution can be explained by that of GDP, as stipulated in the market model developed by W. F. Sharpe (1991). Within the framework of financial market theory in general and portfolio management models in particular, the market model can constitute a theoretical basis for the relationship between stock exchange growth and economic growth. Indeed, as W.F. Sharpe points out, the market model assumes that the returns of individual securities or of a portfolio of securities "are related only to a basic underlying factor […which] may be the level of the in as a whole, the gross national product, a price index or any other factor which may be the most important and only influence on the returns of securities" (W. F. Sharpe (1991). The evolution of stock portfolios can be explained, in large part if it is well diversified, by a market indicator, a sector indicator or a macroeconomic aggregate such as GDP.

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[3] A stock index is generally calculated from the prices of listed securities and weighted by the market capitalization of these securities.

[4] In portfolio management, a diversified portfolio is assumed to have a very low specific risk, i.e. it is not very sensitive to individual information related to one or a few securities among those that constitute it. This diversification is optimal, in the Markowitz sense, when it incorporates stocks from several sectors whose dynamics are not the same.

The equation of the market model is expressed as follows:

$$R_{it} = \alpha_i + \beta_i I_{Mt} + \varepsilon_{it} \quad \text{(ALTMAN E., and, others (1972))}$$

with:
- R_{it}: rate of return of stock (or portfolio) i during period t;
- I_{Mt}: growth rate of the underlying factor;
- β_i: parameter indicating the relationship between the fluctuations of the share (or portfolio) i and the fluctuations of the underlying factor;
- ε_{it}: parameter specific to share (or portfolio) i;
- α_i: parameter whose value is such that the expected value of ε_{it} is zero; or expected value of R_{it} when I_{Mt} is zero.

Portfolio management models implicitly assume that the market is fairly structured and developed, that it has a long history, that it is deep enough, that its diversity represents that of the economy as a whole and, ultimately, that it tends to be efficient. These models, which have been developed to explain the evolution of stock exchange growth and economic growth variables in countries with a traditional financial market, can be transposed to a developing market?

3. ECONOMETRIC ANALYSIS
The results of the econometric test largely depend on the methodological end technical choices.

3.1. Variables, period and database
In order to carry out this work, choices were made in terms of variables, study period, periodicity and data source.

3.1.1. Variables
The two main variables studied are economic growth and stock exchange growth. The explanatory variables are the added value created by sector, the number of listed companies, Buffett Indicator[5], the sector index. Economic growth[6] is measured by the growth rate of gross domestic product at current prices. This choice is explained by the fact that stock market indicators, in particular stock market prices, are expressed in current currency and that the inflation rate in Morocco during the period of analysis was low. Stock exchange growth is measured by annual change of the MASI[7] index. It's a general index weighted by the free-float market capitalizations of all listed companies on the Casablanca Stock Exchange.

3.1.2. Period and periodicity
The study period extends from 1991 to 2022. This choice responds to several considerations: the period is marked by the process of modernization of the Casablanca Stock Exchange from 1993 and the underlying support measures (Investment fonds, electronic trading system, Maroclear, etc.) and by the privatization, which boosted the stock exchange by draining more paper and more savings. This period was also marked by the 2008 financial crisis and the Covid-19 pandemic (2022).

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[5] Buffett Indicator = (Stock Market capitalization / Gross Domestic product) x 100
[6] The growth rate used in this work is measured by the ratio between the variation of the variable between time t and time t-1 and the value of the variable at time t-1.
[7] Moroccan All Shares Index. It was adopted on January 2, 2002. Data from 1990 to 2001 have been restated based on the evolution of the old IGB stock exchange index.

The relationship between stock exchange growth and economic growth can be analyzed at two periodicities: annual and quarterly. Each of these periodicities has advantages and limitations. If the annual periodicity makes it possible to show the general trend of the two variables studied, it remains limited to a small number of observations, due to the short period of analysis (32 years). The quarterly periodicity, on the other hand, offers more observations for an econometric test; but it has the disadvantage of being a carrier of statistical noises which can possibly disturb the possibility of deduction of relations which can exist between the studied variables. The periodicity adopted is annual. In a situation of efficiency, publications relating to macroeconomic and sectoral aggregates and to the financial information of listed companies are information that must be instantly integrated into share prices and into the expectations of economic agents. This can influence prices of securities and aggregate demand.

3.1.3. Database
The annual data used are published in the various "Statistical Yearbook of Morocco" of the HCP[8] from 1990 to 2021. The 2022 data were collected via the HCP's economic reports[9] and the website of the Casablanca Stock Exchange (http:// www.casablanca-bourse.com). The data for other stock markets are those of the World Federation of Exchanges (https://www.world-exchanges.org).

3.2. Results of the econometric test
Before presenting the test results, a presentation of the data can give a first idea of the evolution of the two variables.
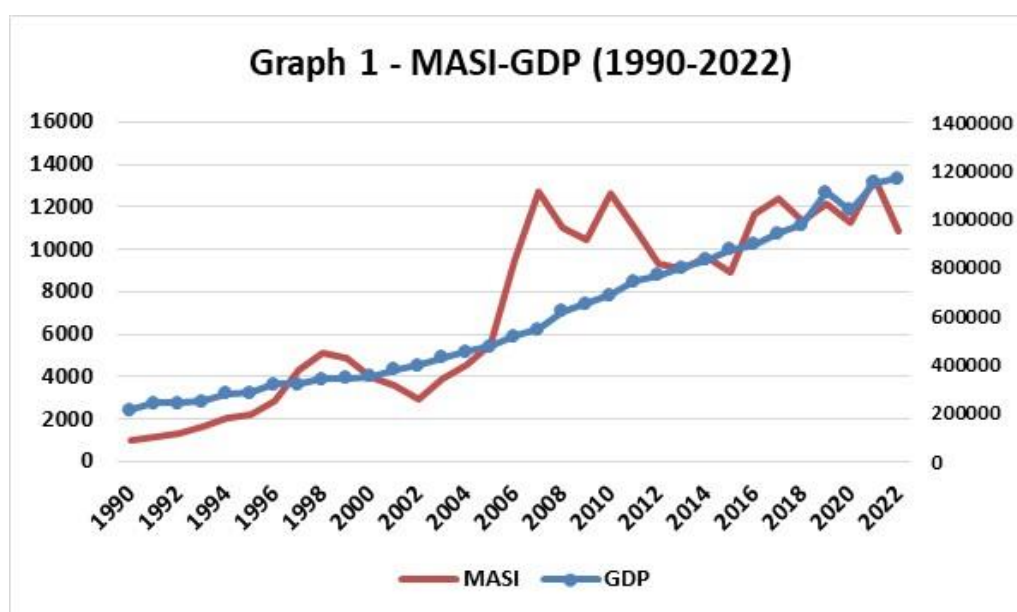
Graph 1: MASI-GDP (1990-2022)
(Source: Graph established by ourselves from the database (GDP in millions of MAD))

The evolution of MASI and GDP in absolute values show that they follow the same general trend linked to the time variable. They are two non-stationary series. But the amplitude of the variations is not the same. Hence the interest of presenting the two series in terms of annual growth rate.

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[8] (Haut-commissariat au Plan, http://www.hcp.ma)
[9] Sector data are provisional.
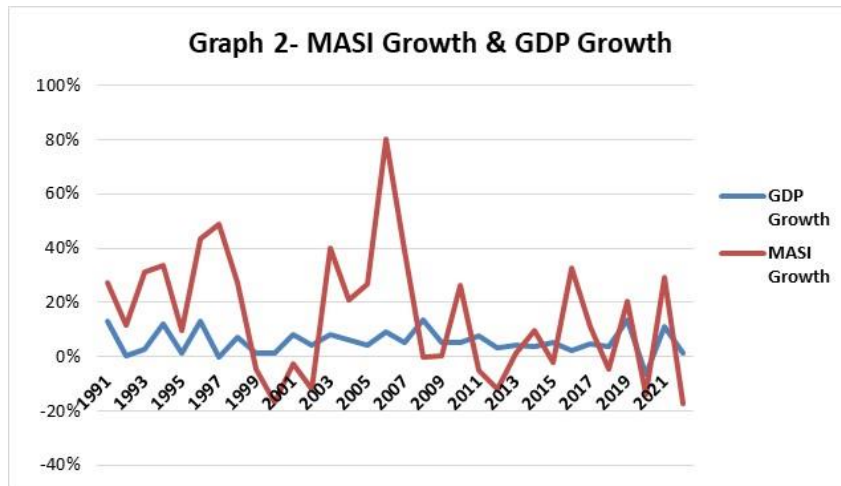
Graph 2: MASI Growth & GDP Growth
(Source: Graph established by ourselves from the database)

Stationarity tests and regressions of the studied time series were performed using E-Views[10] software. The results reproduced in Appendix I relating to the growth of the MASI between 1991 and 2022 show that the series is stationary (-3.713403<-2.960411, with a probability of 0.0088 at the level of error of 5%). The results reproduced in Appendix II relating to GDP growth between 1991 and 2022 show that the series is stationary (-10.73236<-2.960411, with a probability of 0.0000 at the 5% error level). The series overcome the ADF test, a test considered to be the most demanding in terms of stationarity (LARDIC S., 1996). This makes it possible to analyze the existence of stable correlation links between these variables. With a coefficient of determination (R^2) of 3.48%, it is impossible to retain the existence of an interaction between the Moroccan stock exchangeand the Moroccan economy, as shown in the following graph.
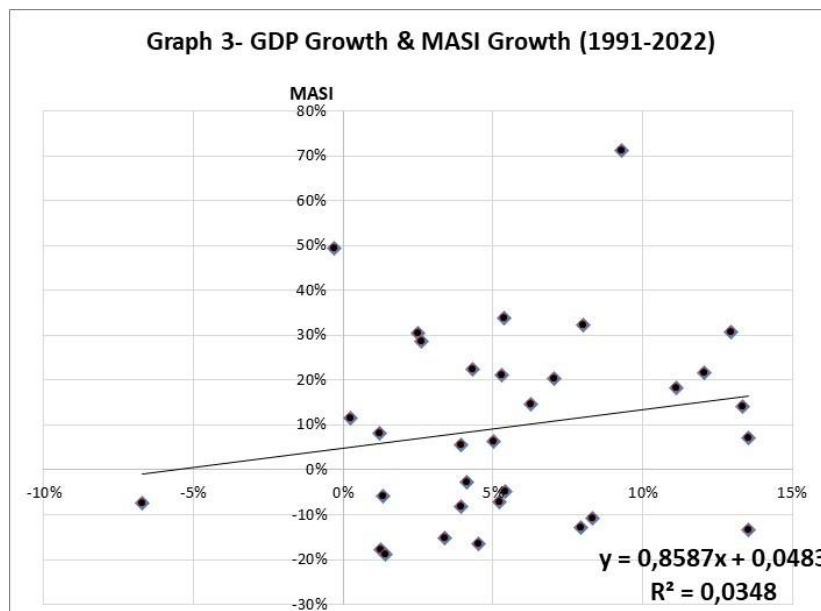
Graph 3: GDP Growth & MASI Growth (1991-2022)
(Source: Graph established by ourselves from the database)

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[10] EViews, version 9

From these results, two questions arise:
- What is the logic behind the evolution of the two variables studied?
- Does not the absence of a relationship between the two variables finally explain the very weak integration, if not the non-integration, of the Casablanca stock exchange in the Moroccan economy ?

4. ELEMENTS OF EXPLANATION OF THE RESULTS
In an attempt to explain the very weak relationship between the two variables studied, five ways of research were explored:
- The return and risk of the Casablanca stock exchange;
- The level of concentration of the Moroccan stock market;
- The weight of the agricultural sector in the economic dynamics of the country;
- The weight of the sectors dominating the Casablanca stock exchange in the national economy;
- The weight of the stock exchange in the economy.

The case of the 2019-2022 period, marked by the Covid-19 pandemic, is indicative of the special nature of this relationship.

4.1. The return and risk of the Casablanca stock exchange
Financial theory teaches that the more a market (or a security) is profitable, the more it is risky (COBBAUT R., 1997). Econometric studies on emerging markets have shown that when there is a very weak relationship between economic growth and stock exchange profitability or when it is negative (if it exists), a significant relationship appears, but in the opposite direction, between the level of risk and economic growth (Laroche E. and others, 1995). Indeed, the more volatile the market becomes, the more it creates a climate of uncertainty which, in turn, can harm the dynamics of economic growth by limiting investment and consumption. During the period analyzed, the Moroccan was marked by very high average return (9.59%) accompanied by very high volatility (21%). Market concentration may explain this level of risk and return.

4.2. The level of concentration of the Moroccan stock market
Considered as a highly concentrated market, the Casablanca Stock Exchange is a market that is dominated, during the study period, by banks, holding companies, holding companies and a telecommunication company. Three banks[11] represent, on average, more than 30% of the total market capitalization (during the period 1991-2022) in a market where, on average, 65 companies have been listed during the same period. This ratio increases to more than 47% by adding a holding company[12] and an investment company[13] until 2010 and a telecommunication operator[14] from 2004. Contrary to stock exchange data, national accounts data tell us that the banking sector, as a whole, has created only 5% of the GDP, on average from 1991 to 2022. While the telecommunications sector has created, on average, 3% of GDP. Thus, during the period 1991-2022, the five major capitalizations, which represent almost half of the total market capitalization, determine the stock exchange performance. While all companies in these sectors (listed and or not on the CSE) have created, less than 10% of the GDP.

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[11] ATTIJARIWAFA BANK, BCP, BANK OF AFRICA,
[12] ONA
[13] SNI
[14] ITISSALAT AL-MAGHRIB

Graph 4 shows that the performance of banks listed on the CSE (MASI-Bank[15]) is strongly correlated with that of the market as a whole (MASI). In terms of growth rate, the simple linear regression gives a straight line with a significant R^2 of 89.62% as shown in Graph 5.
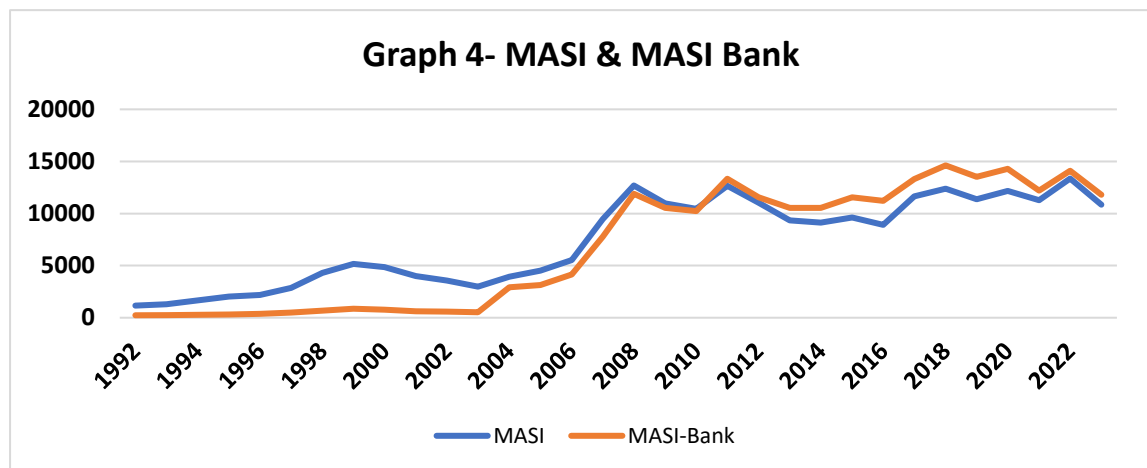
Graph 4: MASI & MASI Bank
(Source: Graph established by ourselves from the database)
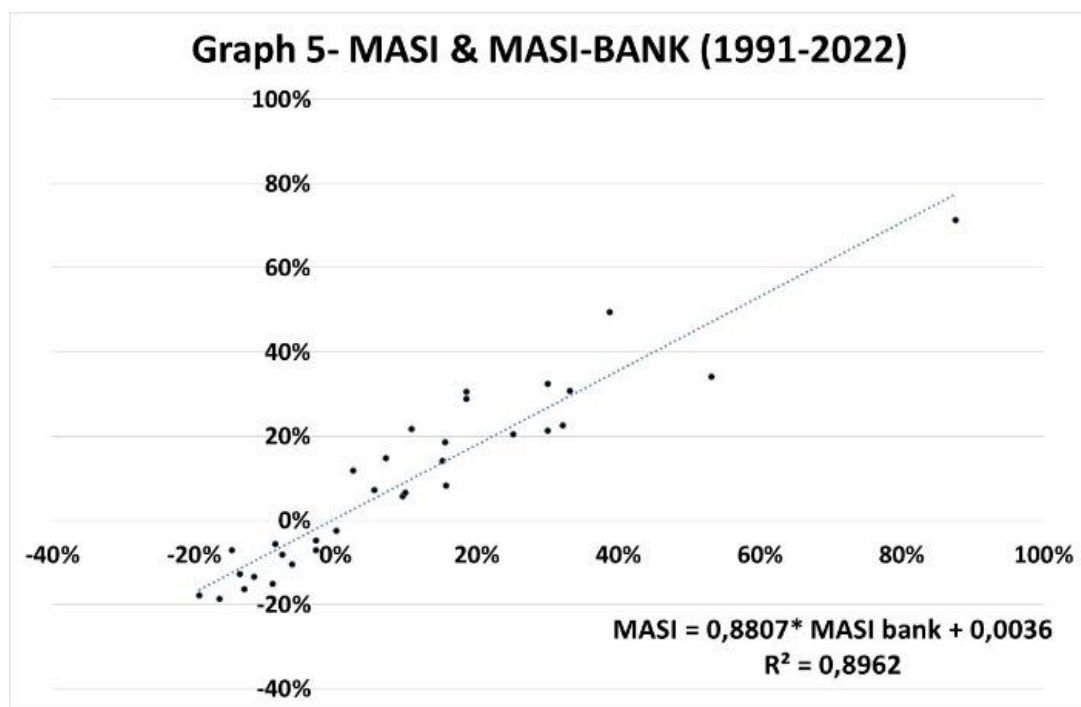
Graph 5: MASI & MASI Bank (1991-2022)
(Source: Graph established by ourselves from the database)

4.3. The weight of the agricultural sector in the national economic dynamics

As the agricultural sector is still dependent on rainfall, which is not regular in Morocco, economic growth is moving up and down as shown in graph 2 above. The Moroccan economy is also marked by the significant weight of the agricultural sector which determines the dynamics of national economic growth as shown in graph 6.

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[15] Banking sertor Index
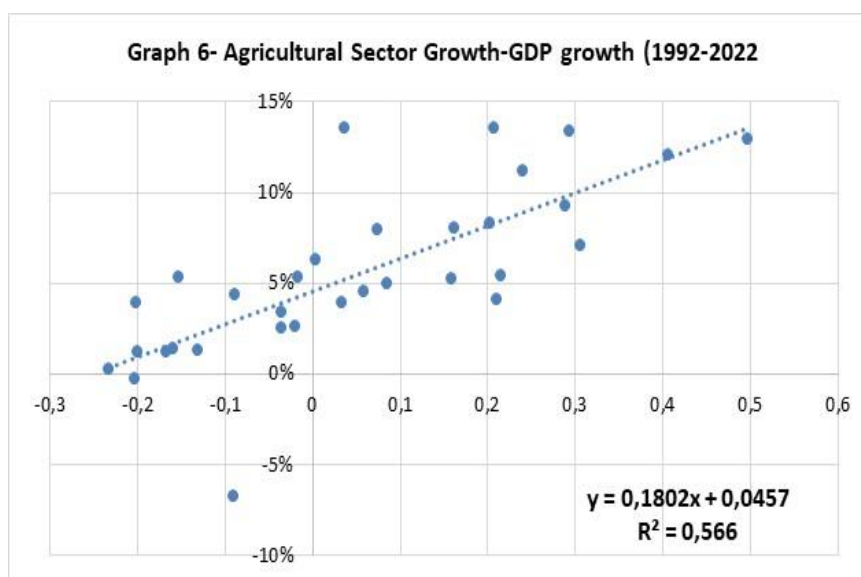
Graph 6: Agricultural growth – GDP growth (1992-2022)
(Source: Graph established by ourselves from the database)
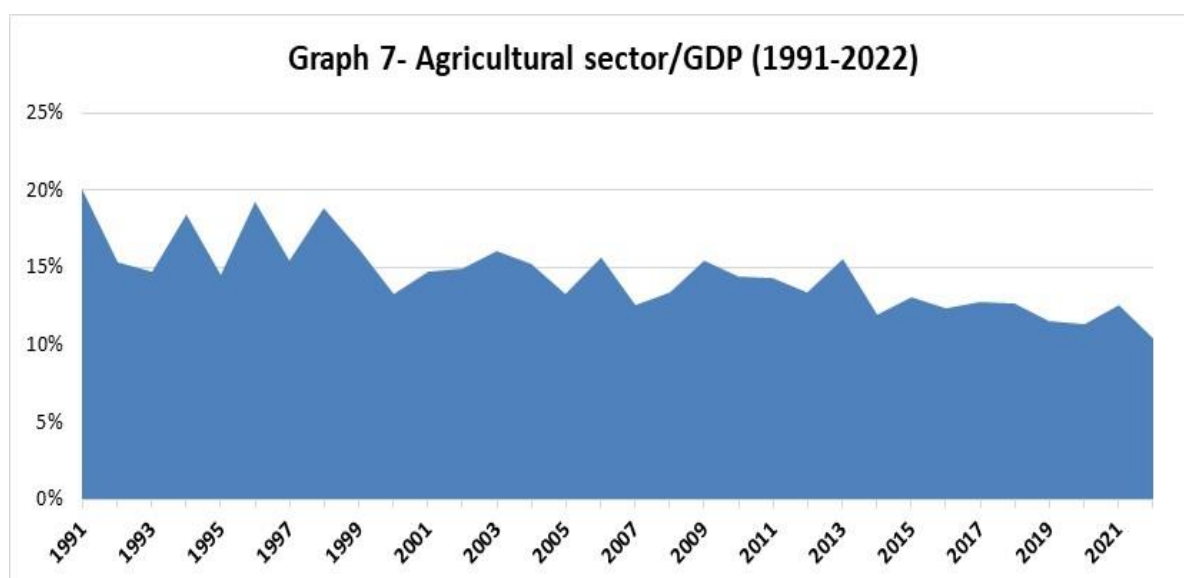
Graph 7: Agricultural sector/GDP (1991-2022)
(Source: Graph established by ourselves from the database)

With a coefficient of determination of 56.6%, it is clear that the agricultural sector continues to largely influence the country's economic dynamics even if its weight only represents less than 15% of GDP, on average, during the period of analysis as shown in graph 7. Moreover, the absence of agricultural companies in the list of companies listed on the CSE raises questions about the relationship that may exist between market exchange growth and GDP growth and the degree of integration of the stock exchange into the national economy.

4.4. The weight of the sectors dominating the CSE in the national economy

Sectoral data from national accounts, from 1991 to 2022, show that the added value created by all financial and telecommunications companies, listed or not on the CSE, represents, on average, less than 7% of GDP. But, the market capitalization of the 6 large companies in these sectors listed on the CSE exceeds 59% of the total market capitalization during the same period as shown in the following graph.

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Graph 8- Sectors/GDP & Stock Market Sectors/Market capitalisation
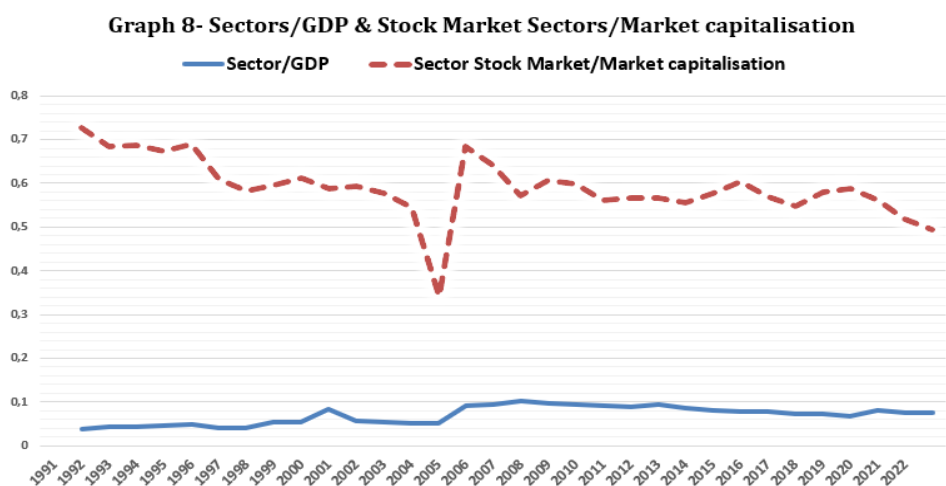
Graph 8: Sectors / GDP & and stock market sectors / Market capitalisation
(Source: Graph established by ourselves from the database)

This can further explain the disconnection between the real sphere and the Moroccan financial sphere. Other stock exchange data may support this explanation.

4.5. The weight of the stock exchange in the economy
Two main indicators have been used to measure the weight of the stock exchange in the economy: the market capitalization ratio (Buffett Indicator) and the number of listed companies. By definition, "the market capitalization of a company represents the sum of the market capitalizations of all the securities representing its capital" (F.Rosenfeld, R.Hannoset, R.Sabotier, 1992, p162). It is the product of the number of companies shares multiplied by the stock exchange price of the share (Jaffeux C., 1994, p29). Extended to a financial market, market capitalization is obtained by aggregating individual market capitalizations (Jaffeux C., 1994, p29). Market capitalization is meaningful in an international comparison only when related to GDP. This ratio is the market capitalization ratio or Buffett Indicator. Despite its limitations, it is often used as an indicator of market size.

In Morocco, market capitalization increased from 12 to 561 billion MAD between 1991 and 2022 (with a peak of 690 billion MAD in 2021). Buffett Indicator averaged 48% (with a peak of 107% in 2007). As the following graph shows.

Graph 9: Market capitalization / GDP (1991-2022)
(Source: Graph established by ourselves from the database)

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This level of Buffett Indicator is close to that of many emerging markets (Brazil, Iran, Peru, Greece, Poland). However, it is difficult to rely solely on this indicator to explain the degree of integration of the Moroccan stock exchange into the Moroccan economy. Because it puts in the same basket markets with rather disparate evolution and opening dynamics, such as the case of Brazil and that of Morocco. Hence the interest of integrating other indicators such as the number of listed companies into the analysis. The table below shows the number of companies listed on the stock exchanges of countries with Buffett Indicator close to that of Morocco during the same study period.

Brésil	Egypte	Grèce	Iran	Maroc	Pérou	Pologne	Tunisie
385	242	160	377	76	204	799	80

Table 1: Number of listed companies in 2022
(Source: WFE (http://www.world-exchanges.org))

From the data in the table, it is clear that the number of companies listed on the Casablanca Stock Exchange is very low. This weakness increases if we eliminate the first six values of the stock exchangebecause the market is concentrated. This keeps Morocco away from these countries.

4.6. Case of the period 2019-2022 (Covid-19)

Like all countries in the world, the Moroccan economy has suffered the negative effects of the Codid-19 pandemic. The following graph 10 shows that the growth of its GDP and that of the MASI between 2019 and 2022.
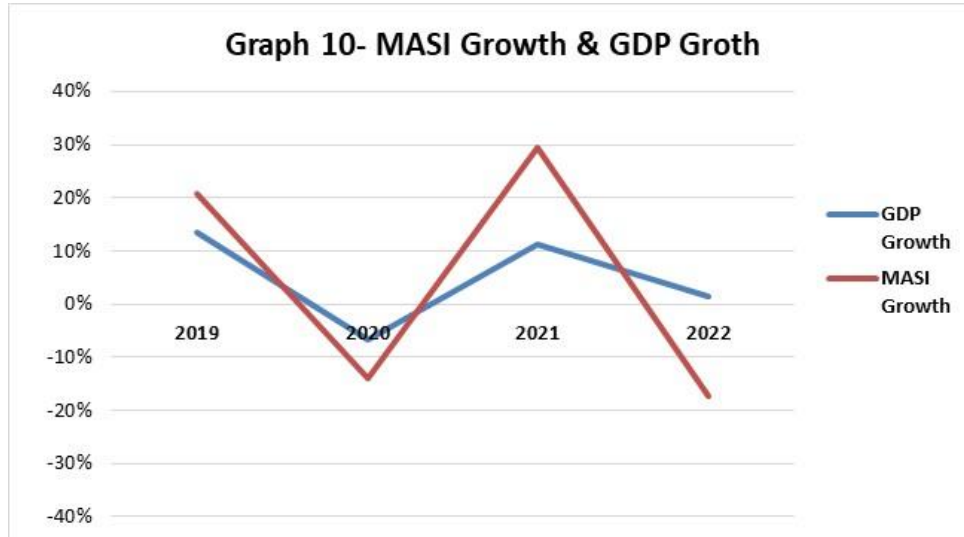
Graph 10: MASI Growth & GDP Growth
(Source: Graph established by ourselves from the database)

The graph shows that the two curves follow the same evolution but with different degrees. The variability of MASI is greater than that of GDP. In 2020 the fall of the MASI is stronger than that of the Moroccan economy because the stock prices of banks and the telecommunications company have fallen very sharply. With the measures taken by the public authorities to support the national economy and emerge from the crisis in 2021, these companies have benefited more from this policy and have shown remarkable growth which has increased the MASI by almost 3 times that of the GDP.

The rise in non-performing bank loans in 2022 and negative anticipations regarding the performance of the telecommunications company have resulted in lower stock prices. This drop caused the MASI to fall by 19% while the GDP increased by 1.4% in 2022. The following two graphs show the influence of these companies on the MASI.
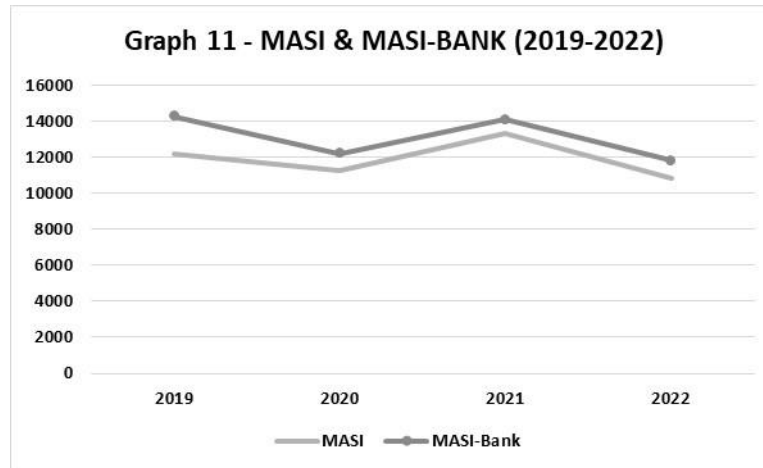
Graph 11: MASI & MASI Bank (2019-2022)
Source: Graph established by ourselves from the database
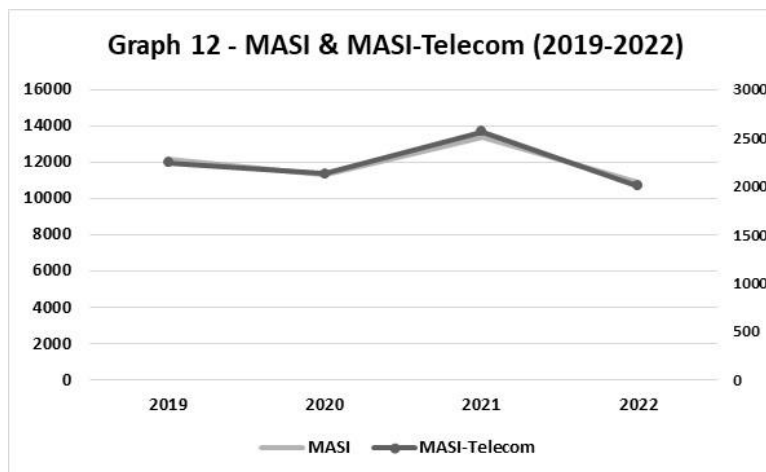
Graph 12: MASI & MASI Telecom (2019-2022)
Source: Graph established by ourselves from the database

5. CONCLUSION

The study of the relationship between stock exchange growth and economic growth in Morocco during the period 1991-2022 has shown a disconnection between the two spheres. This result can be explained by the following three elements:

- The agricultural sector continues to determine the dynamics and economic growth in Morocco. However, agricultural companies are not listed on CSE. In addition, this sector depends on an uncontrollable variable: rainfall.
- The very high concentration of the Moroccan stock exchange determines its performance. While the added value created by the sectors concerned by this concentration is less than 7% of the GDP.
- The few companies listed on CSE.
- During the Covid-19 pandemic, the stock exchange has shown that it is more volatile than the Moroccan economy.

So, it's possible to argue that the very low representativeness of CSE in Moroccan economy explains its low level of integration and, consequently, the disconnection between stock exchange growth and economy growth.

LITERATURE:
1. ALTMAN E., JACQUILLAT B., LAVASSEUR M. & REAUD M. (1972), «Le modèle de marché aide-t-il à la prévision des cours? Quelques études empiriques», Analyse financière, 2er trim., p. 1-11.
2. Berthélémy & A. Varoudakis (1994) :"Intermédiation financière et croissance endogène", Revue économique, 3, pp. 737-750, presses de la FNSP.
3. Berthélémy & A. Varoudakis (1995) :"Clubs de convergence et croissance : le rôle du développent financier et du capital humain", Revue économique, 2, pp. 217-235, presses de la FNSP.
4. COBBAUT R. (1997), Théorie financière, ECONOMICA, Paris, 4ème Ed, Paris.
5. Greenwood J. & Jovanovic B. (1990) : "Financial Developpement, Growth and the distribution on incom", Journal of Political Economy, 98 (5), PP. 1076-1107
6. Hammes Kh. (2001), L'applicabilité du modèle de marché à la Bourse des valeurs de Casablanca (1992-1998), Thèse de doctorat, Université Mohammed V-Agdal, juin.
7. Haut-commissariat au Plan (HCP), Annuaire statistique du Maroc, 1991-2021, (hcp.ma).
8. Jaffeux C. (1994), Bourse et financement des entreprises, Précis Dalloz.
9. LARDIC S. (1996), « Non-stationnarité, mémoire des séries et hystérésis», Revue d'économie politique, N°106, mai - juin, p. 417-449.
10. Laroche A., Lemoine E., Millien A., Prats F. et Zhang Y.J. (1995): "Croissance et marchés financiers : Une approche empirique", Revue d'économie internationale, N°64, 4ème trimestre, P.39-59.
11. R. Levine, "Finance and Growth : Theory an Evidence", Working Paper 10766, NATIONAL BUREAU OF ECONOMIC RESEARCH 1050 Massachusetts Avenue Cambridge, MA 02138 September 2004, (http://www.nber.org/papers/w10766).
12. Rosenfeld F., Hannoset R., Sabotier R.(1992), Analyse financière et gestion des valeurs mobilières, 2ème édition, DUNOD.
13. SHARPE W.F. (1991) : « A Simplified Model for Portfolio Analysis », Management Science, Vol. 37, N°5, March, p. 277-293.
14. World Federation of Exchanges (WFE), http://www.world-exchanges.org

APPENDIX

Appendix 1: MASI Growth Unit Root Test

Null Hypothesis: MASI_GROWTH has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.713403	0.0088
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MASI_GROWTH)
Method: Least Squares
Date: 02/01/23   Time: 17:14
Sample (adjusted): 1992 2022
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MASI_GROWTH(-1)	-0.673386	0.181339	-3.713403	0.0009
C	0.060145	0.042243	1.423796	0.1652
R-squared	0.322261	Mean dependent var		-0.010604
Adjusted R-squared	0.298891	S.D. dependent var		0.250699
S.E. of regression	0.209916	Akaike info criterion		-0.221879
Sum squared resid	1.277875	Schwarz criterion		-0.129364
Log likelihood	5.439124	Hannan-Quinn criter.		-0.191721

Appendix 2: GDP_GROWTH Unit Root Test

Null Hypothesis: GDP_GROWTH has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.73236	0.0000
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP_GROWTH)
Method: Least Squares
Date: 02/01/23   Time: 17:13
Sample (adjusted): 1992 2022
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP_GROWTH(-1)	-1.562415	0.145580	-10.73236	0.0000
C	0.084922	0.010637	7.983735	0.0000

R-squared	0.798867	Mean dependent var	-0.003857
Adjusted R-squared	0.791932	S.D. dependent var	0.081622
S.E. of regression	0.037231	Akaike info criterion	-3.680988
Sum squared resid	0.040199	Schwarz criterion	-3.588472
Log likelihood	59.05531	Hannan-Quinn criter.	-3.650830

INFLUENCE OF CONSTRUCTION COST INCREASE ON REAL ESTATE PRICE INCREASE – FOCUS ON ZAGREB IN 2022

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ABSTRACT

During last decade there is a constant increase in number of new properties built in Zagreb. There is a large number of new residences, as well as business buildings constructed, with a direct impact on revenue increase of construction companies working in Zagreb area. Regardless of the fact that number of Zagreb population has not changed significantly in last decade, there is an increase of new buildings followed by significant price increase of real estate, especially during last five years. Lack of commercial, or business buildings in Zagreb, as well as workplace deficit in Slavonia have an impact on demand growth in Zagreb real estate sector. With additional flow of Croatian students to Zagreb, demand for quality accommodation has a direct impact on real estate selling price. Recently there was a significant price increase of material and labor, which had additional impact of real estate price increase. Goal of this paper is to analyze available public data that represents material price change, as well as to analyze financial reports of biggest construction companies from Zagreb area. Analyzed data should display impact of material and labor price increase on real estate price increase, and what could be anticipated in following years.
Keywords: real estate, construction sector, financial analysis

1. INTRODUCTION

Zagreb is not only the capital city of Croatia, but a center of business investments as well. Most of business companies, local and international, have a central headquarter in Zagreb, which usually means that the production, warehouse, and most of the employees are set in Zagreb area. On top of that Zagreb has the biggest selection of universities, polytechnics and other technical schools that attracts students, not only from all over Croatia, but from the region as well. Those are some of the factors which have an impact on real estate demand in Zagreb. Additional impact on real estate growth comes from tourism. Revenue from tourism, as well as the number of tourists visiting Zagreb is increasing each year, and Zagreb has the biggest number of tourist visits per year. Zagreb had 634.000 tourists in 2021 which is a significant growth compared to 342.000 tourists in 2020, a COVID-19 affected year (DZS, 2022). The number of overnight stays is lesser than the overnight stay in popular coast cities, such as Rovinj, Poreč, Dubrovnik or Split, where tourists stay for longer period, mainly during the summer (DZS, 2022). Increase in tourism leads to increase of daily rent accommodation, therefore numerous apartment owners transferred from long-term rent to daily rent, increasing personal revenue. Due to mentioned reasons there is an increase of new buildings in Zagreb in last decade, which helps construction sector to grow. Taking in consideration that renovation after Zagreb earthquake in 2020 is still not complete, construction companies will continue to work on renovation of damaged buildings in 2023. There are already new resident construction projects and sites in 2023, and since Croatia is part of Schengen from January 1st, 2023, EU citizens consider Zagreb real estate market as a good investment.

2. CONSTRUCTION SECTOR IMPORTANCE

Construction work increase was visible during the last decade, with a drop in 2020, mainly due to COVID-19. Regardless of the drop there was an increase in 2020 compared to 2019 by 3,4% (DZS, 2021). The growth continued in 2021, with an increase compared to 2020 at 7,7% (DZS, 2022), as well as in 2022 with an increase compared 2021 at 5,7% (DZS, 2023). Construction sector makes more than 5% of Croatian GDP, with 5,1% in 2022 and a small increase compared to 2021 (Ekonomski institut, 2022). On the other hand, 8,5% of all Croatian employees are employed in construction sector, with almost 131.500 employees in June 2022 (Ekonomski institut, 2022). Construction sector includes all the construction work, such as resident buildings, office buildings, warehouse, as well as infrastructure, marines, bridges, etc. Kamgrad is one of the leading companies for years, and only Dalekovod and Strabag could be considered as market competitors by revenue in 2021, which is presented in Figure 1.

COMPANY NAME	Total revenue (in 000 HRK)
	2021
Kamgrad	1.752.499
Dalekovod	1.025.583
Strabag	1.008.753
CRBC	698.766
GP Krk	692.446
GIP Pionir	637.892
Radnik	600.035
Osijek-Koteks	522.883
Ing-grad	442.588
Strabag-Zagreb	374.004

Figure 1: Top 10 construction companies by revenue in 2021
(Source: Authors work)

Kamgrad had a 62,16% revenue increase compared to 2020 and continues to be the market leader in construction sector (Filipović, 2022), making the revenue across Croatia, but in Europe as well. The rest of top 10 companies work in Croatia, and in region as well, and since the focus of the paper is to review market in Zagreb area, there will be other, smaller companies, with focus on Zagreb mentioned as well.

2.1. Construction companies from Zagreb area

In addition to Kamgrad, GIP Pionir, Strabag-Zagreb there are several companies that represent the construction sector in Zagreb, such as Begamont građenje, Terra plant, Mešić Com, Nivogradnja, or C.S.P. Some of them work as investors, hiring a lot of subcontractors, and some use their own resources. Figure 2 presents their revenue for 2021.

COMPANY	Total revenue (in 000 HRK)
	2021
Mešić Com	131.373
Terra plant	115.970
Begamont građenje	60.270
Nivogradnja	52.000
C.S.P.	44.784

Figure 2: Constructions companies with projects in Zagreb area, 2021
(Source: Authors work)

From the list of top 10 construction companies, only Strabag-Zagreb and GIP Pionir generate most of the profit working in Zagreb area. Kamgrad generates large revenue in Zagreb, as well as Ing-grad, but they are involved in numerous construction projects, such as historical building reconstruction, windmills, or hotels. Mešić Com, Terra plant, Begamont građenje, Nivogradnja and C.S.P. focus mainly on Zagreb, and are a well-known construction companies in the area. All of them already have projects in 2023, which will add several hundred new apartments in Zagreb.

3. REAL ESTATE MARKET IN ZAGREB AREA

Based on last census from 2021, Croatia lost 9,6% of population compared to the census from 2011. Zagreb population in the same period decreased by 2,9% as well (Zagreb, 2022). Taking only population census in consideration, construction business would stagnate. Old buildings would be replaced by new ones, and older apartments would be renovated bit by bit. However, there are additional impacts on real estate market, and the increase of new residential buildings in Zagreb. Tourism is one of the factors, increasing number of renovations of older apartments in city core, where most of tourist want to stay. Apartment owners in area close to city center choose to transfer from long-term rent to daily rent, and the long-term lessees must search for the new accommodation, which leads to increase of demand. Additional factor is that tourism during the summer generates a large profit for apartment owners on the Croatian coast. Number of tourists in 2022 was larger by 35% compared to 2021, with a 25% increase of overnight stay (Croatia, 2023), leading to increased revenue. Most of those owners live on the coast as well, but they choose to invest in Zagreb real estate market. Zagreb is the capital city, and due to constant progress and investments it is always an attractive market for investments. Croatian population always considered investment in real estate as most important, since 91% of population lives in their own property (Poslovni.hr, 2021). That is why once people in Croatia make a profit first investment idea comes in a form of real estate investment, and a purchase of property. Most people consider it a safe investment, which on the other hand provide an additional business and revenue increase for construction companies, as well.

3.1. Property price increase in Zagreb during last decade

Price of property has been increasing in Zagreb, as well as in Croatia for years, and it is the trend in most of the EU countries. Price increase is especially visible during last several years. Eurostat statistics provide information that apartment price in Croatia has increased by 50% in the last decade, while the rental price increased by less than 20% (Knežević, 2023), and Zagreb is in center of that.

Data provided by countries is questionable, especially while looking at official data from Zagreb city made in 2021. The report claims that the average apartment price in Zagreb during 2021 was at 1748€ (Zagreb, 2022). That is an increase by more than 42% compared to 2017. However, while looking at the property offer in Zagreb, the prices are significantly higher. One of the reasons is that prices in the contracts are decreased, so the tax would be lower, providing the data with prices below the market ones. Price of apartments in Zagreb has increased in 2021 by 15,88% compared to 2020 (Zagreb, 2022), and again by 17,9% in 2022 compared to 2021 (Mahlović, 2023). Regardless of the price increase in 2021 compared to 2020, sales of apartments increased by more than 15% (Zagreb, 2022).

3.2. Construction costs increase during last several years

Price of construction material has increased by 9,5% in 2022 compared to 2021 and by 20,3% compared to 2015 (DZS, 2023), and has impacted the price of new buildings and apartments in Zagreb, as well as in Croatia. Since there was a significant number of contracts with public procurement already concluded, the material price increase could have postponed certain earthquake renovation projects, because it was difficult to ensure the agreed prices. Croatian government made a conclusion which provided an option for construction companies with public procurement contracts a possibility to ask for payment of additional price difference impacted by cost increase (Government, 2022). Material cost increase has been transferred to production price increase, and apartment price increase, and it seems that the price stabilization in next few years is not certain. According to Kamgrad owner, Mr. Kamenski, it is difficult to determine the price change until world political situation stabilizes (Felić, 2022). Regardless of the material price increase, real estate market in Zagreb is expected to continue growth in 2023.

4. CONCLUSION

While reviewing market data for last decade, and especially last several years, it seems that construction sector in Croatia, and Zagreb as well continues to grow despite the challenges. The population of Zagreb has not increased during last decade, at least based on census from 2021 setting the question: How long could the real estate market grow? Is was clear that due to the constant growth in tourism, construction sector in Croatia will grow due to new projects in form of hotels, apartment settlements and camps. It seems that Zagreb found a way to attract new investments and increase number of new apartment buildings. One of the reasons it increased tourist arrivals in Zagreb, which led to renovation of old center apartments. The other reason is private purchase made by residents from other parts of Croatia, who decided to invest in Zagreb properties, which are rented thru the year, and by looking at rental price increase in last seven years, it seems as a good investment. Another reason is that Croatia is now a part of Schengen, and there are more and more foreign investors. Even before the Schengen, 36% of apartment buyers were foreign citizens, and with Schengen that number could be increased (Filipović, 2022). Construction cost increase has impacted the price of new apartments and buildings in Zagreb, but it seems that only a portion of the selling price is impacted by material price cost increase. The expectation for the 2023 is that the selling price will stagnate, or slightly increase, and the quantity of sold properties will stagnate due to already high price. Construction companies already have agreed projects in Zagreb, that will ensure similar revenue as previous year, and companies such as Begamont građenje, Terra plant, Mešić Com, or JG-projekti are already working on new apartment construction sites, that will provide several hundred additional apartments in Zagreb.

LITERATURE:

1. Croatia, G. o. t. R. o., 2023. *Government of the Republic of Croatia.* [Mrežno] Available at: https://vlada.gov.hr/vijesti/brnjac-u-prvih-devet-mjeseci-2022-prihodi-stranih-turista-premasili-11-6-milijardi-eura/37603

2. DZS, 2021. *Croatian bureau of statistics.* [Mrežno] Available at: https://web.dzs.hr/Hrv_Eng/publication/2020/03-01-01_12_2020.htm

3. DZS, 2022. *Croatian bureau of statistics.* [Mrežno] Available at: https://web.dzs.hr/Hrv_Eng/publication/2021/03-01-01_12_2021.htm

4. DZS, 2022. *Turizam u brojkama 2021.,* Zagreb: Ministarstvo turizma Republike Hrvatske.

5. DZS, 2023. *Croatian bureau of statistics.* [Mrežno] Available at: https://podaci.dzs.hr/2022/hr/29558

6. DZS, 2023. *Croatian Bureau of statistics.* [Mrežno] Available at: https://podaci.dzs.hr/2022/hr/29280

7. Ekonomski institut, Z., 2022. *Sektorske analize.* [Mrežno] Available at: https://www.eizg.hr/userdocsimages/publikacije/serijske-publikacije/sektorske-analize/SA_gradevinarstvo_listopad_2022.pdf

8. Felić, E., 2022. *Cijena željeza je pala, ali pad cijena ostalog građevinskog materijala nije na vidiku.* [Mrežno] Available at: https://lidermedia.hr/aktualno/cijena-zeljeza-je-pala-ali-pad-cijena-ostalog-gradevinskog-materijala-nije-na-vidiku-144478

9. Filipović, L., 2022. *tportal.hr.* [Mrežno] Available at: https://www.tportal.hr/biznis/clanak/poslovni-rezultati-gradevinske-tvrtke-2021-foto-20220615

10. Filipović, L., 2022. *Vlasnik najveće nekretninske agencije u Zagrebu ne pamti ovakvu godinu: 'Cijene su poludjele. Netko je dao 10.000 eura po kvadratu za stan u centru!'.* [Mrežno] Available at: https://www.tportal.hr/biznis/clanak/boro-vujovic-nekretnine-cijene-stanova-foto-20221224

11. Government, C., 2022. *Zaključak o ublažavanju posljedica globalnog poremećaja na tržištima građevinskih materijala i proizvoda,* 21: June.

12. Hrvatska, R., 2020. *Zakon.hr.* [Mrežno] Available at: https://www.zakon.hr/z/118/Zakon-o-računovodstvu

13. Knežević, A., 2023. *Lidermedia.hr.* [Mrežno] Available at: https://lidermedia.hr/biznis-i-politika/cijene-nekretnina-rasle-2-5-puta-brze-od-najma-148017

14. Mahlović, M., 2023. *net.hr.* [Mrežno] Available at: https://net.hr/danas/hrvatska/ogroman-rast-cijena-nekretnina-nastavlja-se-i-ove-godine-agent-otkrio-koje-su-nove-hit-lokacije-u-zagrebu-21719eb4-90e5-11ed-9dff-3ab8d9806a8e

15. Poslovni.hr, 2021. *Poslovni.hr.* [Mrežno] Available at: https://www.poslovni.hr/hrvatska/u-cijeloj-europi-vise-vlasnika-kuca-od-nas-imaju-samo-u-jednoj-drzavi-4319310

16. Zagreb, C., 2022. *zagreb.hr.* [Mrežno] Available at: https://www.zagreb.hr/UserDocsImages/segi/Izvjesce%20za%202021.%20godinu.pdf

17. Zagreb, G., 2022. *Grad Zagreb.* [Mrežno] Available at: https://www.zagreb.hr/userdocsimages/arhiva/statistika/popis%202021%20kona%C4%8Dni%20rezultati/Popis%202021._kona%C4%8Dni%20rezultati_Grad%20Zagreb_web.pdf

METHODOLOGICAL POSITIONING OF STAKEHOLDER ANALYSIS WITHIN THE METHODOLOGY OF DETERMINING THE CONTEXT OF THE ORGANIZATION

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ABSTRACT
Modern business is largely influenced by a very complex and turbulent environment. Therefore, when making a decision, especially a strategic one, it is necessary to analyse the context of the organization's operations. Within the context assessment, which means the important influencing factors of the external and internal business environment, stakeholders also play an important role. This paper analyses and provides an overview of previous research related to the analysis of the stakeholders requirements and perceptions, especially when defining and determining the context of the organization in the strategic positioning of the organization.
Keywords: *bibliometrix, context of the organization, stakeholders*

1. INTRODUCTION
The satisfaction of interested parties has been highlighted as a significant factor of the success and quality of management of the organization since the revision of the ISO 9001:2000 standard, when it was pointed out to 5 groups of interested parties. The last revision of the ISO 9001:2015 norm recognizes 15 interested parties which increases their influence. Taking into account the amount of requests arising from such a large number of interested parties, it becomes a growing problem how and in what way to perceive all requests, and how to prioritize and optimization of all requirements. For this reason, a search of previous works published in publications indexed in the Scopus database was carried out, using keywords, in order to analyse previous research in the field of applying the analysis of the stakeholder requirements in business with a special emphasis on determining the context of the organization as well as the application of certain tools in analysis key requirements of interested parties.

2. STAKEHOLDERS AND THEIR ROLE IN THE STRATEGIC POSITIONING OF THE ORGANIZATION
The modern business environment, as well as the development of new concepts, puts sustainability as a key characteristic more and more in the foreground. Business sustainability contains three key domains: economic, ecological and social (sociological), which means a different view of business and management of organizations, which, in addition to the classic focus on the customer, aims to analyse the needs, wishes and demands of all interested parties in all areas, segments and business levels. This means that when making decisions, management must take into account the requirements of all interested parties, especially those who have a great influence on the business and positioning of the organization, starting from the development and management of products, through the development and management of

organizational processes, to the determination of the context of the organization as an important stage in the process strategic management. Accordingly, it is necessary in the methodology of defining the context of the organization as well as recognizing the opportunities and directions of the development of the organization in the context determination phase to applying SWOT/TOWS analysis to take into account all key interested parties as well as their needs and demands. This ultimately means that it is necessary to expand the methodology of determining the context of the organization by analysing the requirements of interested parties as a significant phase before defining strategic directions and determining key business strategies.

3. RESEARCH METHODOLOGY

Paper reviews contemporary studies in literature related to context of the organization using bibliometric techniques of 151 articles in English language published in the journals indexed in Scopus from 1967 until April 2022. Research were focused on the peer-review journals that are cited in Scopus. Table 1 present research strategy. Search was conducted using the scientific database Scopus in April 2022. Through the first part of the search Scopus was checked using keywords "context of the organization". This approach resulted in 252 hits. In the next step, research was limited to the articles. This approach resulted in 165 hits. Finally, in the last step non-English language articles were thrown out and that limitation gives 151 scientific articles. Bibliometric analysis was done by biblioshiny, web-based application included in Bibliometrix package developed in R-language.

Search strategy	Hits	Time span	Indexes
(TITLE-ABS-KEY ("context of the organization")	252	1967 - April, 2022	Scopus
AND (LIMIT-TO (DOCTYPE, "ar"))	165	1967 - April, 2022	Scopus
AND (LIMIT-TO (LANGUAGE , "English"))	151	1967 - April, 2022	Scopus

Table 1: Scopus search strategy
(Source: authors' work)

4. RESULTS AND DISCUSSION

Analysing the graph of publication of works over the years (Figure 1), from 1967 to 2022, it can be seen that interest has been growing since 1997 with more significant publications in 2000 as well as 2010 and 2015. This can be connected to the years in which new revisions were published standards of class ISO 9000ff related to quality management systems, which with each new revision, indicate the importance of interested parties. In the 2015 revision, 15 interested parties are defined for whom the organization must think about their requirements and possible positive and negative influence on the success of their management.

Figure following on the next page
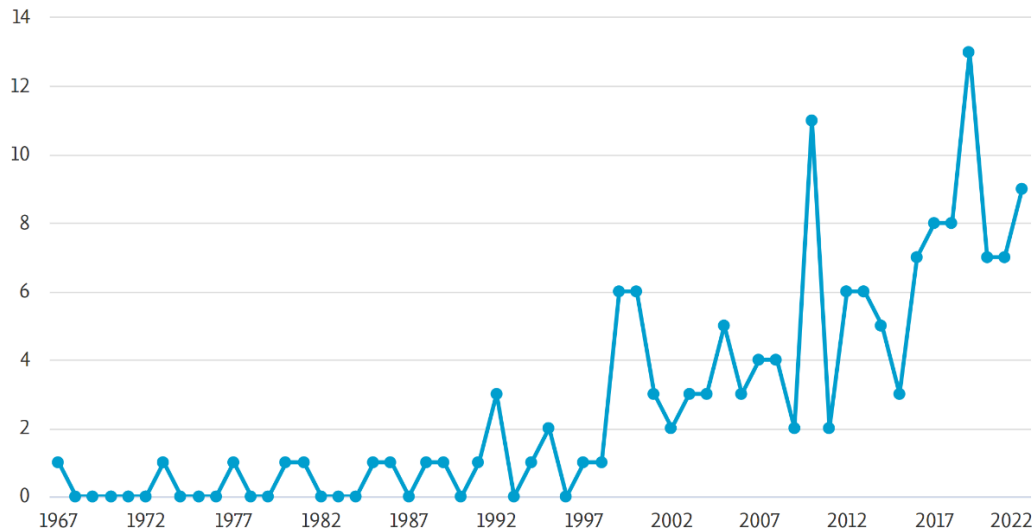
Figure 1: Documents by year
(Source: authors' work, Scopus)

Figure 2, which shows the shares of published works with regard to the scientific and professional field, confirms the previous statement considering the field of business, management and accounting, social sciences (which includes the field of economics), and economics, econometrics and finance and the science of waste decision-making 56, 2% of the total published works. Namely, the area of quality management is the area of management and deals with one of the very successful concepts of modern management. Number of studies by subject area: Business, Management and Accounting 75, Social Sciences 56, Engineering 22, Computer Science 20, Economics, Econometrics and Finance 16, Decision Sciences 15, Arts and Humanities 14, Medicine 13, Environmental Science 8, Biochemistry, Genetics and Molecular 7, Biology 7, Energy 5, Nursing 5, Psychology 5, Agricultural and Biological Sciences 4, Earth and Planetary Sciences 4, Materials Science 3, Physics and Astronomy 3, Chemical Engineering 2, Health Professions 2, Mathematics 2, Neuroscience 2, Pharmacology, Toxicology and Pharmaceutics 2, Chemistry 1, Immunology and Microbiology 1, Undefined 1.
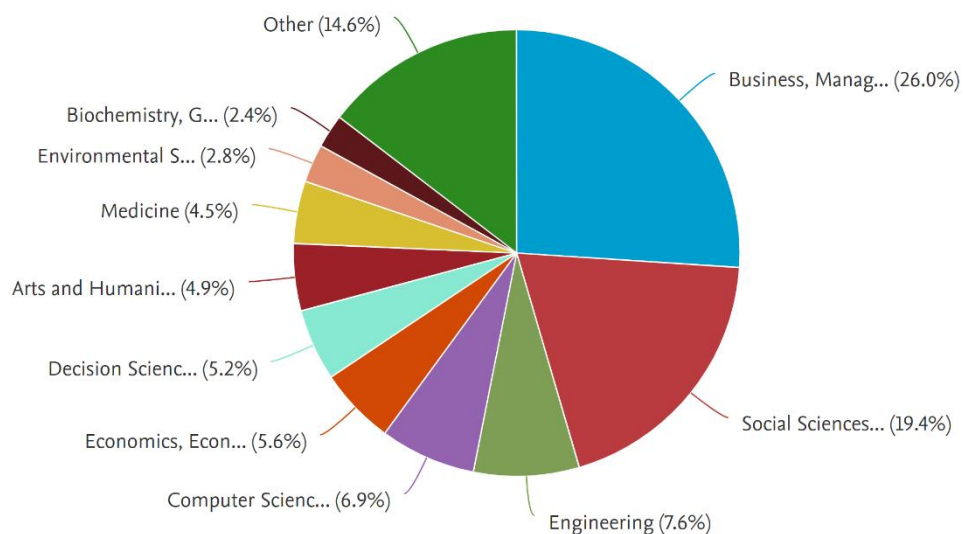
Figure 2: Documents by subject area
(Source: authors' work, Scopus)

Figure 3. illustrates corresponding author's country and collaboration between authors from different countries. MCP measure the international collaboration intensity of a country. For each country, MCP indicates the number of documents in which there is at least one co-author from different country. SCP indicates, for each country, the number of single country publications.
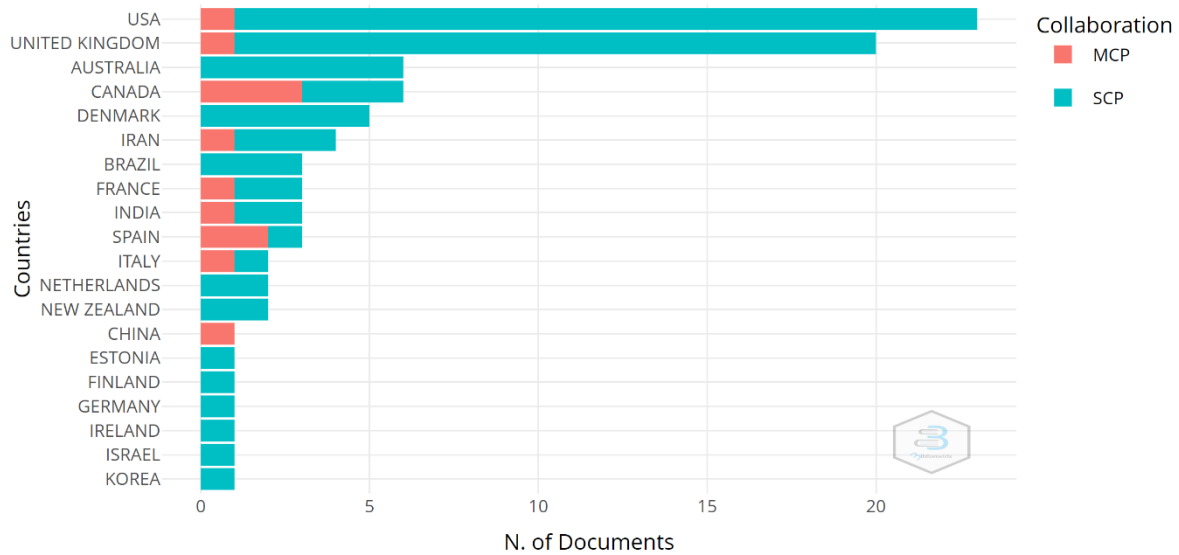
Figure 3: Corresponding author's country
(Source: authors' work using bibliometrix in R software)

The top five countries in terms of publications in the field of context of the organization are USA, United Kingdom, Australia, Canada and Denmark while the most important countries for international cooperation in the field of context of the organization is Spain with MCP ratio 0,6667 while Australia, Denmark, Brazil, Netherlands and New Zealand has no international collaboration.

Country	Articles	SCP	MCP	MCP_Ratio
USA	23	22	1	0,0435
UNITED KINGDOM	20	19	1	0,0500
AUSTRALIA	6	6	0	0
CANADA	6	3	3	0,5000
DENMARK	5	5	0	0
IRAN	4	3	1	0,25
BRAZIL	3	3	0	0
FRANCE	3	2	1	0,3333
INDIA	3	2	1	0,3333
SPAIN	3	1	2	0,6667
ITALY	2	1	1	0,5
NETHERLANDS	2	2	0	0
NEW ZEALAND	2	2	0	0
CHINA	1	0	1	1

Table 2: Most relevant countries by corresponding author
(Source: authors' work using bibliometrix in R software)
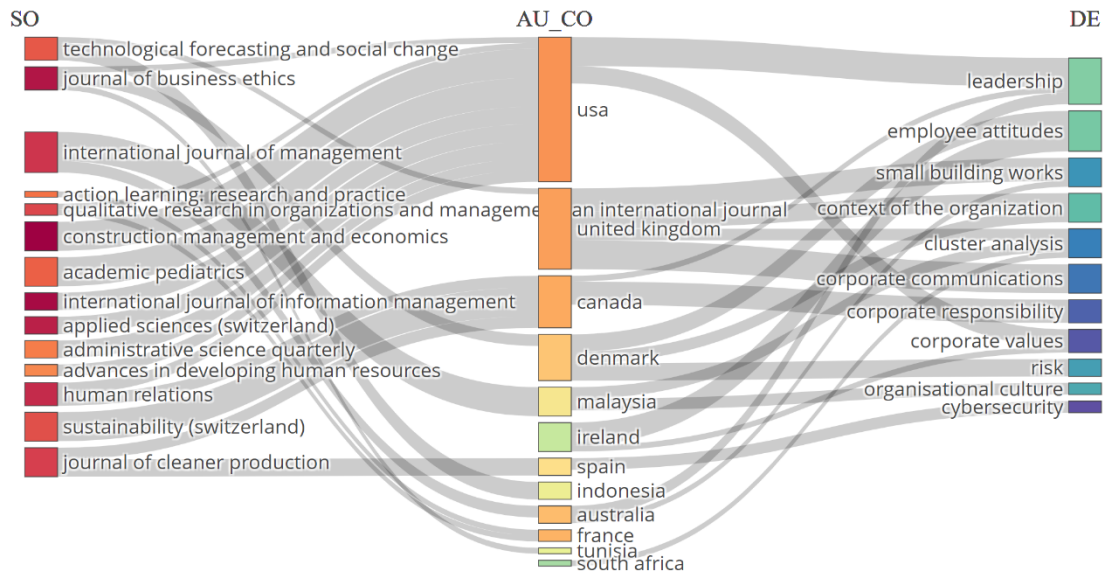
*Figure 4: Three-fields plot according to the most frequent countries by corresponding author,
sources and keywords
(Source: authors' work using bibliometrix in R software)*

Figures 4 are showing analysis of most frequent keywords, countries from which the corresponding author came and the sources. From the results, it can be concluded that the vast majority of the authors involved in the of context of the organization are related to the USA, United Kingdom and Canada, and the most frequently published magazines are related to business and management. In the second part of this research, the previous 151 articles were limited using keyword "stakeholder". This approach resulted in 22 hits. With more detailed analysis, it was concluded that in one paper the word stakeholder is mentioned only in the literature, so that article was excluded from further analysis.

Search strategy	Hits	Time span	Indexes
(TITLE-ABS-KEY ("context of the organization")	252	1967 - April, 2022	Scopus
AND (LIMIT-TO (DOCTYPE, "ar"))	165	1967 - April, 2022	Scopus
AND (LIMIT-TO (LANGUAGE , "English"))	151	1967 - April, 2022	Scopus
AND (LIMIT-TO ("stakeholder"))	22	1967 - April, 2022	Scopus

Table 3: Scopus search strategy

Country	Total Citations	Average Article Citations
SPAIN	346	115.3
CANADA	220	110.0
USA	123	61.5
UNITED KINGDOM	115	28.8
MEXICO	17	17.0
NEW ZEALAND	14	14.0
CHINA	4	4.0
DENMARK	4	4.0
TUNISIA	4	4.0
INDIA	3	3.0
IRAN	3	3.0
FRANCE	2	2.0

*Table 4: Average article citations by country
(Source: authors' work)*

If the significance and value of the works are analysed according to their citations, it can be concluded that the largest number of citations is related to authors from Spain, Canada, USA and the United Kingdom, i.e. 94.24%. Although, it can be concluded that the number of works and citations is still small, which indicates a high probability of expansion in research in that area, especially with the development of concepts of sustainability in business and society.

Figure 5: Three-fields plot according to the most frequent countries by corresponding author, sources and keywords
(Source: authors' work using bibliometrix in R software)

Table following on the next page

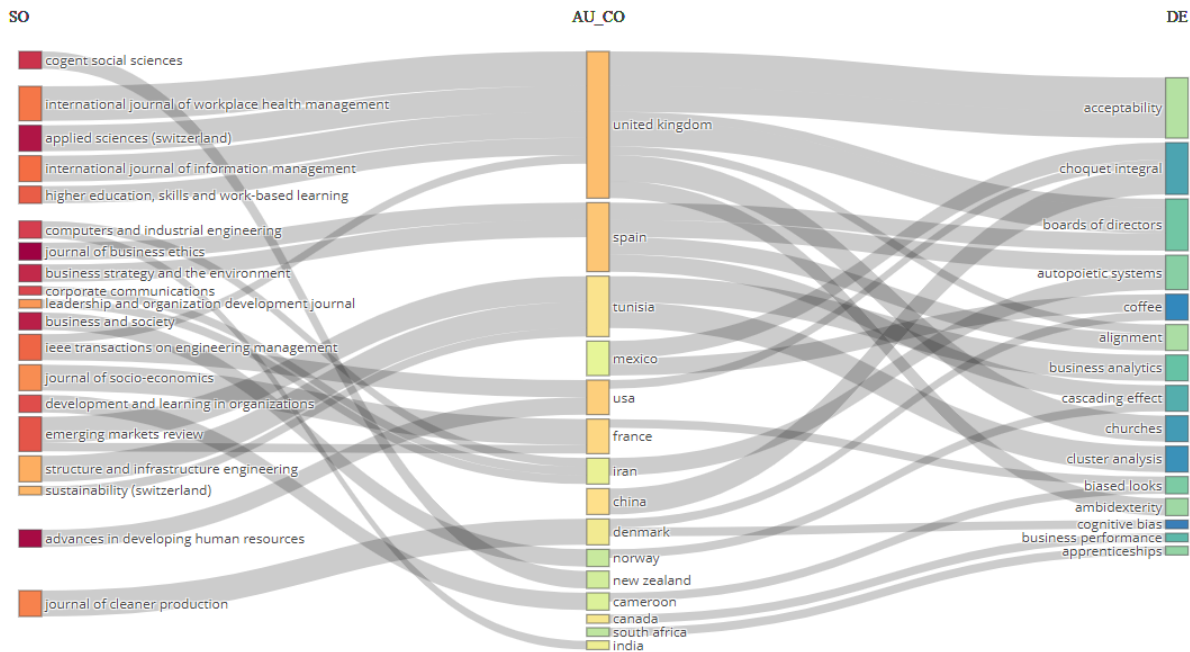|	Authors	Title	Year	Country	number of citations	key conclusions related to stakeholders or stakeholder theory
1.	Prado-Lorenzo, J.-M., Garcia-Sanchez, I.-M.	The Role of the Board of Directors in Disseminating Relevant Information on Greenhouse Gases	2010	Spain	301	stakeholder theory
2.	Awasthi, A., Kannan, G.	Green supplier development program selection using NGT and VIKOR under fuzzy environment	2016	Canada, Denmark	185	using stakeholders to generate qualitative (or linguistic) ratings for criteria and alternatives
3.	Wright, P., Mukherji, A., Kroll, M.J.	A reexamination of agency theory assumptions: Extensions and extrapolations	2001	USA	96	difference between agency theory and stakeholder theory
4.	Coughlan, J., Lycett, M., Macredie, R.D.	Understanding the business-IT relationship	2005	UK	49	finding stakeholders within the organization because of the connecting through BIT
5.	Kure, H.I., Islam, S., Razzaque, M.A.	An integrated cyber security risk management approach for a cyber-physical system	2018	UK	37	Integration of stakeholder's model for risk management
6.	Andrade, J.A.	Reconceptualising Whistleblowing in a Complex World	2015	South Africa	36	organisational social responsibility–stakeholder legitimisation of whistleblowing
7.	Chalofsky, N., Cavallaro, L.	A Good Living Versus A Good Life: Meaning, Purpose, and HRD	2013	USA	26	Stakeholders in context of intended audience for this article
8.	Davila, A., Molina, C.	From Silent to Salient Stakeholders: A Study of a Coffee Cooperative and the Dynamic of Social Relationships	2017	Mexico	15	organization–stakeholder relationship
9.	Marshall, S.	Quality as sense-making	2016	New Zealand	11	stakeholders of educational systems
10.	Minton, A., Lowe, J.	How are universities supporting employers to facilitate effective "on the job" learning for apprentices?	2019	UK	9	stakeholders in higher education
11.	Grandy, G.	An exploratory study of strategic leadership in churches	2013	Canada	9	stakeholders in non-profit organizations
12.	Cegarra-Navarro, J.-G., Jimenez-Jimenez, D., Garcia-Perez, A.	An Integrative View of Knowledge Processes and a Learning Culture for Ambidexterity: Toward Improved Organizational Performance in the Banking Sector	2021	Spain, UK	4	stakeholders and its importance in business
13.	Andersen, M.A.	Creating esprit de corps in times of crisis: Employee identification with values in a Danish windmill company	2010	Denmark	4	the importance of effective leadership communication, both before and after a crisis, between a company and its stakeholders
14.	You, X., Jia, S., Dou, J., Su, E.	Is organizational slack honey or poison? Experimental research based on external investors' perception	2020	China, USA	3	the effect of organizational slack on various stakeholders' decision making
15.	Sansa, M., Badreddine, A., Ben Romdhane, T.	A new approach for sustainable design scenarios selection: A case study in a tunisian company	2019	Tunisia	3	analysis of the stakeholders' needs and expectations
16.	Tohidian, I., Rahimian, H.	Reflection on working culture in public organizations: The case of three Iranian Higher Education Institutions	2019	Iran	3	impact of stakeholders on facilitative working atmosphere in the organization
17.	Hall, J., Kay, T., McConnell, A.K., Mansfield, L.	Implementation of sit-stand desks as a workplace health initiative: stakeholder views	2019	UK	2	importance of stakeholder employees in understanding issues related to feasibility and acceptability of the sit-stand desk
18.	Maheshwari, S.K., Yadav, J.	Leadership development strategy: the missing links	2018	India	2	impact of stakeholders at leadership development strategies
19.	Piot-Lepetit, I., Nzongang, J.	Business analytics for managing performance of microfinance institutions: A flexible management of the implementation process	2021	France, Cameroon	1	stakeholders in business analysis
20.	Bonilla-Priego, M.J., Nájera-Sánchez, J.-J., Font, X.	Beyond ethics: The transformational power of overlapping motivations in implementing strategic sustainability actions	2022	Spain, UK, Norway	0	importance of integration of profitability and stakeholder oriented in small and medium enterprises
21.	Kamissoko, D., Nastov, B., Allon, M.	Improved model for continuous, real-time assessment and monitoring of the resilience of systems based on multiple data sources and stakeholders	2021	France	0	importance of a stakeholder determined by using the AHP or ANP method

Table 5: Most relevant articles (Source: authors' work)

The aim of article "The Role of the Board of Directors in Disseminating Relevant Information on Greenhouse Gases" is to show the role that companies' Boards of Directors play in the accountability process vis-a`-vis stakeholders in relation to one specific aspect which has enormous significance in environmental information: practices used to monitor greenhouse gas emissions. To this end, the index drawn up by the Carbon Disclosure Project is used, which is characterized by quantitatively describing internal behaviours which can potentially be used in litigation against companies. The information provided by the Carbon Disclosure Leadership Index (CDLI) enables stakeholders to reach important decisions about companies' behaviour within the realm of greenhouse gas emissions (GHGE), which can be translated into ensuring that the company is subjected to critical analysis in the media, or can even lead to the company encountering legal problems if it becomes involved in lawsuits filed on account of its inappropriate behaviour. Results suggest that information on sustainability has been used as a mechanism geared toward increasing the legitimacy of companies with poorer social and/ or environmental practices, or as a means to seek economic benefits compared to the objective desire to publicize a fact to different users. The results found are evidence that this mechanism of internal control, originally designed to safeguard the interests of shareholders over those of executives, does not assume as its own essential role that of monitoring companies' environmental reporting, unless its divulgation leads to economic harm to investors, in which case it will display total opposition to the publication of that information. Similarly, it has been observed that it is necessary to include the protection of other stakeholders' interests in codes of good governance in order to achieve a certain level of involvement in these new obligations. (Prado-Lorenzo and Garcia-Sanchez, 2010)

Article "Green supplier development program selection using NGT and VIKOR under fuzzy environment" presents the commonly used approaches in green supplier performance evaluation and development. Authors were using NGT (Nominal Group Technique) to identify criteria for evaluating green supplier development programs. Fuzzy theory was used to address qualitative (linguistic) ratings for the alternatives and the selected criteria used under lack of quantitative information. VIKOR was used to generate green supplier development program rankings and recommend the best program(s) for implementation. Sensitivity analysis was performed to determine the influence of modelling parameters on ranking results of alternatives. (Awasthi and Kannan, 2016)

In paper "A reexamination of agency theory assumptions: Extensions and extrapolations" authors discuss agency theory in the context of the individual principal and agent, and also in the context of the organization and its groups. Agency theory is examined in the context of goal orientation, obligation and reciprocity, risk, and self-interest. Furthermore, they extend agency theory and offer alternative propositions based on a relaxing of agency theory's assumptions. In relaxing the assumptions of agency theory, insights from outside the agency literature, specifically from behavioural theories are used. Implications of agency theory and the extension of this theory are also discussed in relation to outcomes associated with economic exchanges. In addition, authors point out the difference between agency theory and stakeholder theory as well as the importance of including stakeholders in to the agency theory. (Wright, Mukherji and Kroll, 2001)

Study "Understanding the business-IT relationship" takes a communication-based view on the concept of alignment, in terms of the relationship between the retail business and IT within a major high street UK bank. A research framework is used to provide insight into this relationship and guide the analysis of interviews with 29 individuals on mid-high management level for their thematic content.

The paper highlights the lessons that can be derived from the study of the Business and IT relationship and how possible improvements could be made. A person or group can act as both the information source and destination of a message, so knowing, understanding and even choosing appropriate stakeholders or BIT representatives and the interfaces within and between divisional departments need to be clear for communication to flow freely. (Coughlan, Lycett and Macredie, 2005)

Research paper "An Integrated Cyber Security Risk Management Approach for a Cyber-Physical System" follows the existing risk management practice and standard and considers risks from the stakeholder model, cyber, and physical system components along with their dependencies. The approach enables identification of critical CPS assets and assesses the impact of vulnerabilities that affect the assets. It also presents a cybersecurity attack scenario that incorporates a cascading effect of threats and vulnerabilities to the assets. The attack model helps to determine the appropriate risk levels and their corresponding mitigation process. The integration of the stakeholder's model for risk management is a means of achieving greater inclusivity in an organization, and it is important for an organization to understand its own security risk management practices. (Kure, Islam and Razzaque, 2018)

Paper "Reconceptualising Whistleblowing in a Complex World" explores the ethical dilemma of conflicting loyalties found in whistleblowing. Central to this dilemma is the internal/external disclosure dichotomy; disclosure of organisational wrongdoing to an external recipient is seen as disloyal, whilst disclosure to an internal recipient is seen as loyal. Understanding how the organisation and society have dealt with these problems over the last 30 years is undertaken through an analysis of Vandekerckhove's project, which seeks to place the normative legitimisations of whistleblowing legislation and organisational whistleblowing policies within a globalisation semantic able to contain this conflict between society and the organisation. (Andrade, 2015)

Article "A Good Living Versus A Good Life: Meaning, Purpose, and HRD" provides a sketch of the current research and thinking about meaningful work and a basis for the rest of the articles in this issue. The relevance of this updated meaningful work construct is that it raises questions that are valuable for individuals and human resource development (HRD) practitioners to consider. HRD practitioners can help employees proactively increase the "fit" between the self and the work and provide the proper organizational environment by creating and maintaining a culture that supports the total self, in and out of the workplace. Having a frame of reference for the facets of meaning being discussed in research and practice prompts HRD to think about meaningful work and link it to the reality of the organization. Approaches, such as authentic and distributed leadership, and appreciative inquiry and dialogic organization development are gaining acceptance in the workplace that is becoming more attuned to employees' needs. (Chalofsky and Cavallaro, 2013)

Article "From Silent to Salient Stakeholders: A Study of a Coffee Cooperative and the Dynamic of Social Relationships" examines the formation and evolution of cooperative "Union de Comunidades Indigenas de la Region del ISTMO - UCIRI" coffee-growing peasants in rural Mexico since 1940 from the stakeholder approach. The aim of this article was to examine how stakeholders evolve over time. Specifically, the intent of this research was to advance our understanding of what makes stakeholder groups transform from being silent actors to salient players in their stakeholder network. The study tracks the development and changes of the relationships in the salience of this cooperative as a stakeholder group of government agencies and fair trade organizations.

Evidence from the UCIRI case study illustrates how societal norms shaped the process by which "silent" independent and marginalized individuals became a "salient" organization. The findings suggest that the replacement of bureaucratic stakeholder relationships (i.e., those based on inequality, transactions, and hierarchy) with relationships characterized by strong moral commitment to stakeholders' claims (in this case, the improvement of the community's economic and social welfare) enabled independent farmers to transform into an integrated, solid, and worldwide competitive group of coffee producers. (Davila and Molina, 2017)

Paper "Quality as sense-making" describes the sense-making conception and explores the possible insights and guidance it can provide to leaders and others seeking a model aligning quality with forward looking organisational change and capable of reflecting the complex relationships between educational organisations and their diverse stakeholders. A key feature of a future focused quality system is its ability to provide guidance and support in real time to the stakeholders of educational systems (students, teachers, employers, educational leaders, government agencies and others) formatively allowing agility, choice and responsiveness in the face of changes in the educational environment, rather than reporting summatively after the moment to act has passed. In this paper, authors provide the questions that illustrate the range of interfaces between stakeholders that a quality system for education needs to consider. Quality as sense-making flows from a recognition that education is too complex and too important to be defined by a small number of qualities relevant to a privileged group of stakeholders, or by limited performance indicators, such as financial efficiency or direct employment outcomes, instead it is experienced through an on-going conversation challenging complacency and the status quo. (Marshall, 2016)

The purpose of paper "How are universities supporting employers to facilitate effective "on the job" learning for apprentices?" is to review a range of mechanisms used by universities to support employers to facilitate effective "on the job learning" for apprentices. It reflects on how these mechanisms can be used to address some of the challenges, reported in the literature that employers face to in supporting apprentices in the workplace. High levels of collaboration between universities and employers are needed for high level skills development. Stakeholder event at the university were organized where employers attend to discuss a range of apprenticeships, with programme teams available to discuss each one in some depth. (Minton and Lowe, 2019)

Research "An exploratory study of strategic leadership in churches" set out to explore the transferability of strategic leadership in a nonprofit, specifically church, setting. One of the contributions of this research is that it provides case study evidence of the applicability of strategic leadership in the nonprofit sector. (Grandy, 2013)

Paper "An Integrative View of Knowledge Processes and a Learning Culture for Ambidexterity: Toward Improved Organizational Performance in the Banking Sector" has examined the significance of individuals' knowledge exploration and exploitation processes, along with their effect on the banks performance. One important contribution of this paper has been an extension of the existing organizational learning models to include the ambidexterity challenge currently being faced by organizations. In order to succeed in the current environment, bank branches are expected to support a culture that places the profitable creation and maintenance of value for customers at the top of their agenda, while also considering the interests of all other stakeholders. If employees do not exploit the knowledge acquired by the organization, other potential stakeholders would not be able to benefit from it, and this would

have a negative effect for the organization and its competitiveness. (Cegarra-Navarro, Jimenez-Jimenez and Garcia-Perez, 2021)

Paper "Creating esprit de corps in times of crisis: Employee identification with values in a Danish windmill company" aims to analyse the communication processes from both a management and an employee view during a corporate value implementation process within a Danish windmill company. The purpose of this paper is to develop further understanding of the potential problems that may occur during such a process within an organization. The study shows that the distance between top management's views on the values and employees' perceptions is noteworthy. This distance is primarily caused by circumstances in the case company's historical and situational context. One of the questions this paper raises is whether values are an ideal management tool in times of an organizational financial crisis. (Andersen, 2010)

In paper "Is organizational slack honey or poison? Experimental research based on external investors' perception" the review of the current literature on organizational slack and its implications for stakeholders' decision making was done. By focusing on examining the effect of organizational slack on stakeholders' perceptions and their strategic decisions, this paper extends knowledge of the effects of organizational slack, particularly their implications for external stakeholders and their investment decisions. Furthermore, by analysing the effect of slack on stakeholders' decision making from a cognitive bias perspective, this study extends the application of cognitive bias in the strategic management literature. Findings confirms the importance of stakeholders' cognition in influencing their decision making in a firm. (You *et al.*, 2020)

The purpose of paper "A new approach for sustainable design scenarios selection: A case study in a tunisian company" is to improve the design approaches in a critical stage from an environmental, economic and social perspective. It deals with two main challenges, the first one is the identification of product design scenarios that are coherent with the organization's context, in terms of internal and external issues along with requirements of the stakeholders. The second challenge is the selection of the optimal option from a high number of identified scenarios. To this end, a new model with two main steps is proposed to deal with both challenges. The methodology is based on two steps. The first depends on a trilogy (i.e. Strategic, tactical, and operational). It generates operational scenarios on the basis of value chain-driven sustainable design strategies using SWOT, PESTEL, 7S to identify a multitude of scenarios. The second step is the choice of the optimal scenario that satisfies interdependent criteria using simplified life cycle assessment tools to compute sustainability impacts' indicators, the Choquet integral to minimize the number of scenarios, and the fuzzy analytic network process to select the optimal operational scenario. The results proved the influence of the organization's context on the choice of the optimal sustainable design scenario. (Sansa, Badreddine and Ben Romdhane, 2019)

In "Reflection on working culture in public organizations: The case of three Iranian Higher Education Institutions" authors talking about working culture in organizations and how it reminds us that there should be facilitative atmosphere in an organization if the main goal is to achieve optimum efficiency which happens if all the stakeholders' rights are taken into account without deviation of their rights, roles, values, and voices. In this paper, 67 male employees from three Iranian higher education institutions were purposefully selected to participate in the study as the aim was to identify the employees' views on and reactions towards working culture at their universities.

Data analysis through Strauss and Corbin's Constant Comparative method illuminated the employees' total dissatisfaction specifically concerning colleagues' mutual relationships, biased and unfair managers' looks towards some employees, and their fear of being kicked out of the organization if their ideas are expressed within the context of the organization. (Tohidian and Rahimian, 2019)

"Implementation of sit-stand desks as a workplace health initiative: stakeholder views" sought stakeholder employee views of sit-stand desks as a workplace health initiative alongside the implementation of a sit-stand desk intervention within two UK-based non-profit organisations with open-plan offices. This approach permitted the examination of organisational contextual and structural factors that influence sit-stand desk implementation feasibility and acceptability, which may assist organisations in selecting appropriate workplace health interventions and improve the ease and acceptability of sit-stand desk provision. Paper draws on qualitative semi-structured interviews with 26 stakeholder employees and 65 days of participant observations. Data were analysed using thematic analysis, and organisational cultural theory framed the study. Identified modifiable factors influencing feasibility and acceptability – such as developing an appropriate communication strategy – can assist organisations in improving the process of implementing sit-stand desks. Various factors related to the organisational culture and context were found to moderate attitudes related to the sit-stand desk provision and implementation. The feasibility and acceptability of workplace sit-stand desk provision is largely influenced by the views of the employer and key stakeholders. (Hall *et al.*, 2019)

Paper "Leadership development strategy: the missing links" attempts to identify the gaps and recommends a framework for effective leadership development strategy. The study uses a qualitative approach to examine leadership development strategies in India. In total, 127 leadership development participants and stakeholders from 17 organizations participated in the study. Based on the literature review and participant experiences, conclusion was that the best leadership development strategy aligns to business demands, engages stakeholders, defines leadership in context, supports participant aspirations, and integrates HR processes. In answer to this call, this study proposes a six-step integrated approach to leadership development based on key constructs. From the practitioner's perspective, this study contributes to the field of leadership development by challenging the relevance of current approaches. It also adds to the scholarly literature on leadership development in the context of the organization and the individual. (Maheshwari and Yadav, 2018)

The objective of paper "Business analytics for managing performance of microfinance institutions: A flexible management of the implementation process" is to describe the basis for the development of a business analytics solution in the context of Microfinance as well as main elements to be considered when dealing with social enterprises in a context of poverty. Details regarding the organizational context, the development process, and implementation issues that could facilitate as well as impede the deployment of the solution in practice are described and discussed. (Piot-Lepetit and Nzongang, 2021)

In article "Beyond ethics: The transformational power of overlapping motivations in implementing strategic sustainability actions" authors developed a methodology to identify patterns between sustainability motivations, actions and engagement. These patterns demonstrate how ethical motivations are common and a precondition to acting sustainably, but, in themselves, these motivations are not sufficient to integrate sustainability practices into the core business or to maintain commitment over time. It is the combination of a high ethical commitment with clear strategic intent, materialised in commercial and operational

motivations, that increases the connectedness, and intensity, of sustainability actions amongst ethically committed firms. Authors designed a measurement system that classifies sustainability actions according to six business areas and labels them as being connected, or not, with the purpose of the business. Although previous sustainability literature mostly classifies SMEs according to their dominant motivations, that is, whether they are profitability or stakeholder oriented results of this article tell a story of integration of these two options instead of the prevalence of a strategic orientation over management values. (Bonilla-Priego, Nájera-Sánchez and Font, 2022)

Paper "Improved model for continuous, real-time assessment and monitoring of the resilience of systems based on multiple data sources and stakeholders" enhances previous works on resilience assessment. The result is a complementary methodology for continuous, real-time resilience assessment and monitoring based on multiple data-sources and stakeholders. The novelty is in the context of use of the methodology, in the way the functionality analysis model is obtained and in the way the resilience is continuously assessed. The drawback of most previously discussed approaches is the lack of a stakeholder-dedicated view for stakeholder needs, making implementation difficult in a real-life operational context. The importance of a stakeholder is determined by using the AHP method if the indicators are independent, or the ANP method if they are dependent. The result is a qualification of each stakeholder by a weight (or relative importance) in a hierarchy table. (Kamissoko, Nastov and Allon, 2021)

5. CONCLUSION

The analysis of available relevant literature indicates a general acceptance of the need to respect the opinions, needs and requests of interested parties. However, all this still remains at the level of perception and knowledge and leaves open questions regarding the requests of interested parties with special questions related to the importance and weight of each as well as decisions on the priorities of each of the defined requests in relation to others. Since we are talking about a large number of interested parties, as well as their requirements, the optimization of the requirements of interested parties will be of particular importance when determining the context of the organization. Accordingly, previous research points to the need to quantify and evaluate the importance of the requests of interested parties, which opens up space for a large number of new researches in the application of tools, methods and methodologies for evaluation, analytics and optimization of all requests from interested parties in order to ensure sustainable management and business operations of the organization.

LITERATURE:
1. Andersen, Mona Agerholm. 2010. *"Creating Esprit de Corps in Times of Crisis: Employee Identification with Values in a Danish Windmill Company."* Corporate Communications 15(1): 102–23.
2. Andrade, Julio A. 2015. *"Reconceptualising Whistleblowing in a Complex World."* Journal of Business Ethics 128(2): 321–35.
3. Awasthi, Anjali, and Govindan Kannan. 2016. *"Green Supplier Development Program Selection Using NGT and VIKOR under Fuzzy Environment."* Computers and Industrial Engineering 91: 100–108. http://dx.doi.org/10.1016/j.cie.2015.11.011.
4. Bonilla-Priego, Maria Jesus, Juan José Nájera-Sánchez, and Xavier Font. 2022. *"Beyond Ethics: The Transformational Power of Overlapping Motivations in Implementing Strategic Sustainability Actions."* Business Strategy and the Environment 31(3): 685–97. https://doi.org/10.1002/bse.2912.

5. Cegarra-Navarro, Juan Gabriel, Daniel Jimenez-Jimenez, and Alexeis Garcia-Perez. 2021. *"An Integrative View of Knowledge Processes and a Learning Culture for Ambidexterity: Toward Improved Organizational Performance in the Banking Sector."* IEEE Transactions on Engineering Management 68(2): 408–17.

6. Chalofsky, Neal, and Liz Cavallaro. 2013. *"A Good Living Versus A Good Life: Meaning, Purpose, and HRD."* Advances in Developing Human Resources 15(4): 331–40.

7. Coughlan, Jane, Mark Lycett, and Robert D. Macredie. 2005. *"Understanding the Business-IT Relationship."* International Journal of Information Management 25(4): 303–19.

8. Davila, Anabella, and Christiane Molina. 2017. *"From Silent to Salient Stakeholders: A Study of a Coffee Cooperative and the Dynamic of Social Relationships."* Business and Society 56(8): 1195–1224.

9. Grandy, Gina. 2013. *"An Exploratory Study of Strategic Leadership in Churches."* Leadership and Organization Development Journal 34(7): 616–38.

10. Hall, Jennifer, Tess Kay, Alison K. McConnell, and Louise Mansfield. 2019. *"Implementation of Sit-Stand Desks as a Workplace Health Initiative: Stakeholder Views."* International Journal of Workplace Health Management 12(5): 369–86.

11. Kamissoko, Daouda, Blazho Nastov, and Matthieu Allon. 2021. *"Improved Model for Continuous, Real-Time Assessment and Monitoring of the Resilience of Systems Based on Multiple Data Sources and Stakeholders."* Structure and Infrastructure Engineering.

12. Kure, Halima Ibrahim, Shareeful Islam, and Mohammad Abdur Razzaque. 2018. *"An Integrated Cyber Security Risk Management Approach for a Cyber-Physical System."* Applied Sciences (Switzerland) 8(6).

13. Maheshwari, Shilpa Kabra, and Jaya Yadav. 2018. *"Leadership Development Strategy: The Missing Links."* Development and Learning in Organizations 32(1): 11–14.

14. Marshall, Stephen. 2016. *"Quality as Sense-Making."* Quality in Higher Education 22(3): 213–27. http://dx.doi.org/10.1080/13538322.2016.1263924.

15. Minton, Ann, and Jane Lowe. 2019. *"How Are Universities Supporting Employers to Facilitate Effective 'on the Job' Learning for Apprentices?"* Higher Education, Skills and Work-based Learning 9(2): 200–210.

16. Piot-Lepetit, Isabelle, and Joseph Nzongang. 2021. *"Business Analytics for Managing Performance of Microfinance Institutions: A Flexible Management of the Implementation Process."* Sustainability (Switzerland) 13(9): 1–22.

17. Prado-Lorenzo, Jose Manuel, and Isabel Maria Garcia-Sanchez. 2010. *"The Role of the Board of Directors in Disseminating Relevant Information on Greenhouse Gases."* Journal of Business Ethics 97(3): 391–424.

18. Sansa, Manel, Ahmed Badreddine, and Taieb Ben Romdhane. 2019. *"A New Approach for Sustainable Design Scenarios Selection: A Case Study in a Tunisian Company."* Journal of Cleaner Production 232: 587–607. https://doi.org/10.1016/j.jclepro.2019.05.299.

19. Tohidian, Iman, and Hamid Rahimian. 2019. *"Reflection on Working Culture in Public Organizations: The Case of Three Iranian Higher Education Institutions."* Cogent Social Sciences 5(1): 1–13. https://doi.org/10.1080/23311886.2019.1630932.

20. Wright, Peter, Ananda Mukherji, and Mark J. Kroll. 2001. *"A Reexamination of Agency Theory Assumptions: Extensions and Extrapolations."* Journal of Socio-Economics 30(5): 413–29.

21. You, Xialei, Shenghua Jia, Junsheng Dou, and Emma Su. 2020. *"Is Organizational Slack Honey or Poison? Experimental Research Based on External Investors' Perception."* Emerging Markets Review 44(May): 100698. https://doi.org/10.1016/j.ememar.2020.100698.

HOLLYWOOD AND BOLLYWOOD – AN INTERCULTURAL STUDY OF THE TWO LARGEST FILM INDUSTRIES

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ABSTRACT

This paper presents an intercultural study of the two largest film industries: Hollywood (American) and Bollywood (Indian) films. The analysis will be accompanied by the results of a survey conducted on a sample of about a hundred respondents as an addition to the research. The research encompasses a brief historical development of both productions, specific cultural, dramaturgical, and related production determinants, as well as the differences that may affect the reception of films that were created at the time and after the expansion of American and Indian film production. The examples will be limited to popular, high-budget and easily available films from both productions. The hypotheses of this paper are: (H1) films from Bollywood production are not attractive to the audience of the western cultural circle since they are primarily exposed to Hollywood films that are available for viewing via various media platforms, and (H2) the same audience is subconsciously or consciously attracted to Hollywood films more than Bollywood movies because of the cultural similarity. With that in mind, the question of the sociology of taste arises, considering that the emergence of platforms like Netflix, affects the content and way of satisfying the audience. Globalization processes caused by the development of the media also reflect on the media themselves. This is also evident in (primarily commercial) films, which are a product of the film industry, and we can see the film as an export product. The film itself is more than that, because it can also propagate national interests and spread (or even impose) its own political views and social influence. At the same time, the industries themselves, wanting to meet the needs of the ever-increasing possible market, reduce the emphasis on the national and cultural determinants of the society and try to meet the needs of a multicultural global society.
Keywords: *audience, Bollywood, culture, Hollywood, reception*

1. INTRODUCTION

Hollywood and Bollywood are the two largest film industries in the world, even though culturally very different - the original Bollywood film reflects the Indian culture and Hollywood the American. The industries themselves developed in different circumstances, whereas they are imbued with opposite values. Notably, in the last 20 years, Bollywood and Hollywood started to collaborate, bearing a change in the audience, narrative, and genre of the original Bollywood film. Similarly, an audience of the western cultural circle gets the opportunity to watch Bollywood films, especially since there are platforms like Netflix. Hollywoodized films are starting to be produced. Indian films comprehensible to the Western market are devoid of Indian cultural specificity.

To investigate the differences in the reception of Bollywood and Hollywood films, a survey was conducted in which 94 respondents were questioned, the sample was comprised of Croatian students, with an aim to investigate whether respondents belonging to the Croatian cultural circle understand cultural specificity of Bollywood films.

2. HISTORICAL OVERVIEW OF THE DEVELOPMENT OF INDIAN CINEMATOGRAPHY

For a long time, India struggled to develop its own film since it was a British colony. The first film projection in India took place in 1896 with the arrival of the Lumier brothers silent short films in Bombay. Shortly after that, the first film produced in India was made in 1913 when Dada Saheb Phalke made the silent feature film Raja Harishchandra (Bose, 2006). With the expansion of the film industry in Hollywood in the 1920s, 85% of screenings in India were American films, until the arrival of sound film in the 1930s, when Indian cinema moved away from foreign influence and began producing domestic films related to the Indian cultural and social system (Nayar, 1996). The first Indian sound film Alam Ara in 1931 marked the beginning of the development of the Indian film industry (Bose, 2006). Since then, the need for decolonization began to be expressed in the form of film. Consequently, the tensions between the modern and the traditional, the western and the autochthonous, now took place in cinematography (Rao, 2007). These films helped create an Indian identity that has persisted to this day in contemporary Indian cinema. After the withdrawal of British occupation in 1947, Indian cinema finally got means for unification with a focus on reality and aesthetics (Kalkar, 1980). The turning point occurred in 1955 when the director Satayajit Ray positioned himself on the world level with his film Pather Panchali. Since the First International Film Festival held in Bombay in 1953, Indians have been encouraged to create layered artistic films with social themes (Jaikumar, 2003). In the 1950s, the production wave of similar films continued, and the first Indian film nominated for an Oscar was Mother India from 1957, directed by Mehnoob Khan (Chopra, 2007). It can be said that in the 50s the name Bollywood became known beyond the borders of its country of origin. Furthermore, during the 1960s, Bollywood turned to romantic genres, and in the 1970s and the 1980s, it returned to socially important themes due to the political-economic situation that mostly affected the poor members of the society (Iordanova, 2006). The audience was young activists who fought against the powerful and corrupted (Rao, 2007). In the late 1980s and early 1990s, there was a rise of the new genre - romantical musicals. The reason for the beforementioned arrival was the liberalization of the Indian economy in the 1990s, so Hindi films could have been distributed internationally. The need for movie production increased. Moreover, cable television was also created, and films became accessible to watch from home. Rajadhyaksha (2003) called that time the "Hollywoodization of Indian cinema" because Bollywood became part of the cultural industry - a phenomenon coined by Theodor Adorno and Max Horkheimer (1976), according to which, popular culture is a mirror of the society. Various media content is satisfying the audience's needs for entertainment whilst also manipulating them to like the produced content (Adorno, 1975). In the early 2000s, Indian filmmakers began shooting dance sequences on locations in the USA, such as the films Kaante (2002), Kal Ho Naa Ho (2003), and Chocolate (2005). This rapidly increased the popularity of Bollywood films. Afterward, the Bollywood On Demand platform was created as a part of cable television. (Sikka, 2005). Even then, when Netflix was a video store, it started buying Bollywood movies and renting them through an online store. Beyond a doubt, Bollywood produced and distributed more and more films in that period. If we accept the statement that Bollywood is a cultural industry, then it also affects society. It manipulates the desire of the viewers and produces films to which the viewers gradually adapt because it also changes their habits in relation to their horizon of expectations.

Bollywood, due to its understanding of the needs of the audience and as a cultural industry, influences the way of dressing, hairstyles, and even manners. Baym and Punathambekar (2005) Srinivas (2002) notes that Indians are very happy to identify with actors in a film and copy their behavior in real life, and also that the presence of fan clubs in India is common. It is interesting to mention that this is starting to happen at a time when Bollywood films introduce western elements into the subject matter, such as "Hinglish", a mixture of Hindi and English. Ganti (2002) calls this adaptation glocalization. Viewership has increased mostly in the USA, where Bollywood films earn an average of $100 million a year from screenings, DVD sales, and soundtrack sales (Overdorf, 2007).According to Stuart Hall (1997), mass media play an important role in presenting and forming the culture of a certain society, especially in the digital age. Thus, the film serves to shape and transmit socio-cultural ideologies, regardless of whether the viewers experience it consciously or unconsciously.

3. HISTORICAL OVERVIEW OF THE DEVELOPMENT OF THE HOLLYWOOD FILM

Hollywood as we know it, initiated in the second half of the 20th century after the construction of several new production buildings. Filmmakers from other USA countries were looking for a location where they could shoot in all seasons, so Los Angeles, California began to attract many authors. In the beginning, Hollywood production was limited to eight major studios owned by the Warner brothers, Samuel Goldwyn, Carl Laemmle, William Fox, and Luis B. Mayer. Moreover, to gain complete control over the finances and production assets, they were also involved in the distribution of films from the 1920s to the late 1950s. Hollywood in the 20s began to be recognizable by its name, directors, and film stars, and finally, the Hollywood culture that promotes luxury and the American entertainment industry started to flourish. In the early 1940s, the American film industry was going through a difficult period, especially after the attack on Pearl Harbour. Nevertheless, technology has developed, the sound was getting better, films are being made in colour with the addition of special effects, and Hollywood is starting to make propaganda films regarding World War II. In other words, the American culture was propagated in a different manner and distributed around the world. The golden age ended after the World War II when audiences began to be entertained by television, and they were forced to change their approach and turn to popular culture, in order to meet the audience needs. In the late 50s and early 60s, they started producing films aimed at American youth. Since Hollywood at that time lost a lot of money from ticket sales, they started making films and first series for television. Therefore, in the 60s, Hollywood was forced to do everything in their power to survive in an era of social change, protests, and the Vietnam War, which forced them to promote its culture under a different spotlight. The problem of revenue extended into the 70s, when they built a Disney theme park in Florida, searching for new sources of earnings. Censorships and bans on sex, violence, and inappropriate language experienced changes at that time, and thus new action films and innovative themes that could not be shown before were now created. Hollywood, then had to let alternative authors operate, even though it deviates from the promotion of traditional values. Many films for younger audiences were made during this time, using special effects for science fiction films such as *Jaws* and *Star Trek*, which are still very popular today. With the further advancement of technology, they were able to distribute films via video cassettes, managing to expand the audience beyond the ones that visits the cinema, thus in the 80s the Hollywood film again becomes culturally recognizable and easily monetized. Thematically, it becomes homogenous and insufficiently adapted for a new audience, and with the increasing use of special effects, the production became more expensive. In order to save money, they start with foreign production. During the 90s and early 2000s, they used technology that enables the easier distribution of films via Blu-ray and cinema screenings in various locations around the world.

Today, Hollywood is known as the global conglomerate of the American film industry. Hollywood movies can be watched through various platforms such as Netflix, and the trend that has emerged in the last 20 years or so involves Hollywood collaborating with other film industries in order to continue enlarging the audience, profit, and culture through liberalism and apparently cultural pluralism (Maisuwong, 2012). The possibility of the promotion of American culture through Hollywood was a subject of several studies, especially since today's world supports liberalization and freedom of thought, and Hollywood recognizes this as a tool for market expansion.

4. DIFFERENCES AND COLLABORATION OF BOLLYWOOD WITH HOLLYWOOD

Indian films were primarily a reflection of Indian culture, and they were mostly enjoyed by Indian audiences. Rampal (2012) states that India produces more than 800 films annually in various languages. Entering this century, Bollywood films began to show explicit romantic scenes that are not part of traditional Indian cinema. Under the influence of Hollywoodization came other changes that affected the costuming, narration, and duration of the film Maisuwong (2012). Some theorists stated that Hollywood is a threat to Bollywood and its cultural values due to the scenes of violence, theft, divorce, fights, use of opiates, stimulants, and other topics that are inappropriate in Indian culture (McDonald and Wasko 2008). In 2010, Hollywood and Bollywood signed a cooperation agreement after a great success achieved by the film Slumdog Millionaire in 2008., and then a new wave of films came that visibly influenced Indian cinema. What has happened is that Indian actors went to act in the movies made in Hollywood, and there is not much growth in the local audience in India if you don't count the rich and the diaspora. Indian film, which served as a tool for social change, begins to deal with themes that are recognizable to the western world and encourage the stereotyping of the Indian population. The specific aesthetics of Indian cinema, where the emphasis was on the traditional costumes and cheerful colours, begins to take on the aesthetics of contemporary western minimalism. The narrative has also changed as it is being adapted from a simple culturally marked Bollywood film to distribution in the Western market. The Indian film is simple, but due to the cultural characteristics, it is hardly understandable to the west. When the cultural characteristics that are understandable to the western population are applied, the film becomes comprehensible to the Western audience as well. In today's era of liberalization and attention given to human rights, it has brought the need for Hollywood to include actors of other ethnic groups in its production. Hollywoodization and meeting the needs of digital generations have almost halved the original Indian film, some of which were almost 300 minutes long. Their cooperation has mainly financial benefits but also disrupts the specificity of Bollywood, which is currently experiencing expansion into the western market but is renouncing its culture.

5. RESEARCH RESULTS

Target group of this survey were students in the Republic of Croatia. The topic of the survey is the difference in the reception of Bollywood and Hollywood films, considering the initial hypothesis that those from the Croatian cultural circle are more attracted to films from their own cultural circle than from others, in this case Indian. The survey was conducted from April 25 to May 25, 2022 via Google forms and was dispatched to students of the University North and the University of Zagreb with a request to forward it to other students. At the beginning of the survey, respondents were given the opportunity to give their consent to be called by phone if it is not convenient for them to fill out the survey in writing. This was then done in the last week of the survey. Respondents were deliberately not asked about gender. The survey was conducted on a sample of 94 respondents and consists of 28 open and closed questions. All respondents could participate only once.

The first question relates to belonging to an age group. The largest number of respondents belongs to the age group 25 to 34, more precisely 44, which is 46.8%, then the age group 18 to 24, which is 38 respondents or 40.4% and the age group older than 34 is 12.8%, which is 12 respondents.
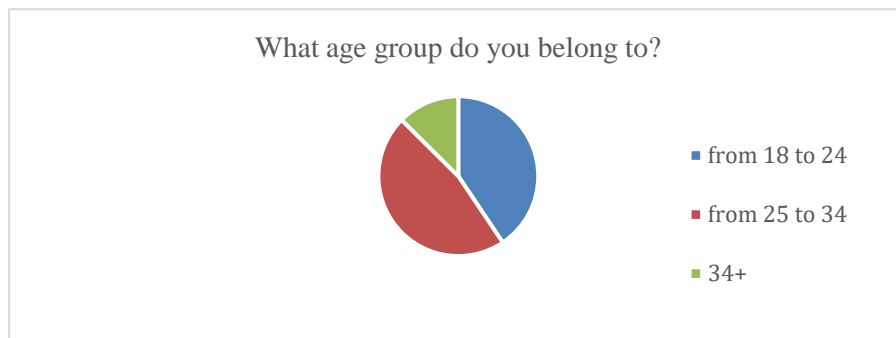
Chart 1: Age froup

The following question was aiming to investigate how many respondents are even familiar with the name Bollywood and films from Bollywood production. We start with the assumption that students from the Croatian cultural circle are primarily exposed to Hollywood films. Regarding the question, *have you heard of Bollywood*? 89.4% of the respondents answered yes, and 10.6% of the 10 respondents had not heard of Bollywood.
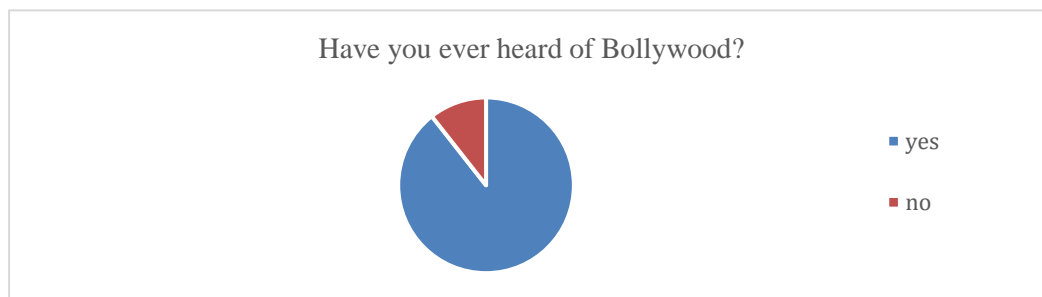
Chart 2: The attention of Bollywood

To the question *Have you ever heard of a film from a Bollywood production?* 72.3% of respondents answered yes, while 27.7% of respondents answered that they had never heard of a film from a Bollywood production.
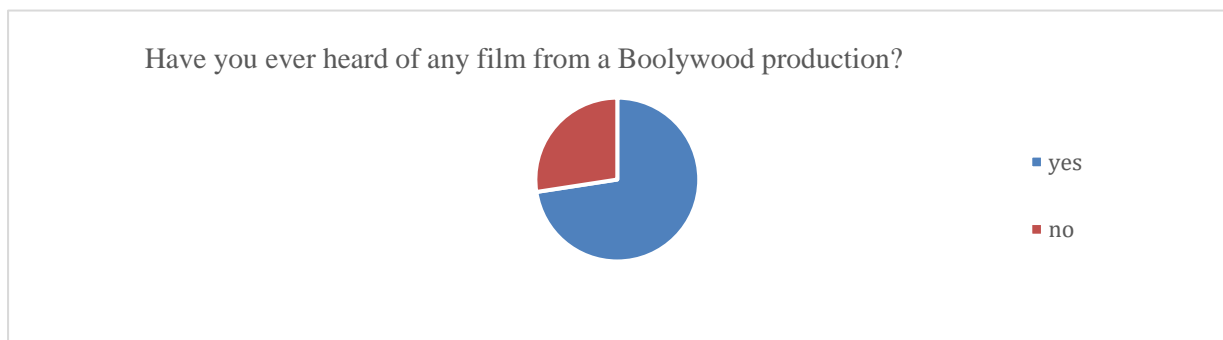
Chart 3: The attention of any Boolywood film

The following question: *Have you ever watched a Bollywood movie?* had 76.6% of respondents answered negatively, and 23.4% positively.
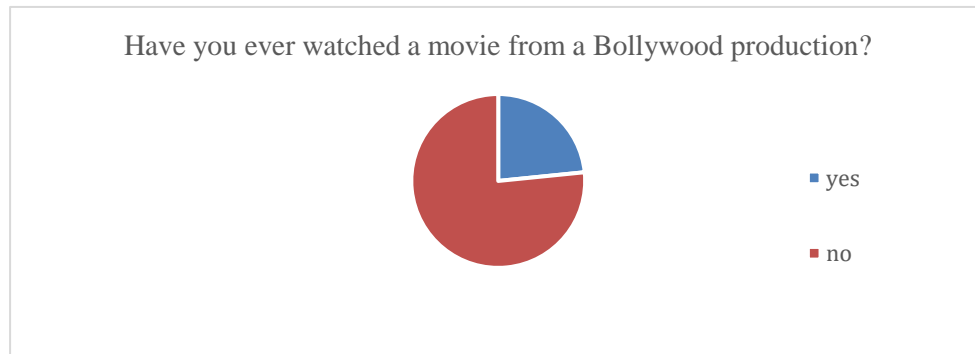
Chart 4: Watching some Bollywood movie

This was followed by an open-ended question to examine how many respondents had seen a film from a Bollywood production without mistaking it for another because it featured Indian actors. 26 respondents were able to answer this question, that is, a share of 23.4% of respondents who answered yes to the previous question:

If you watched, write the name of the movie (the best or the one you watched if only one) Out of 26 respondents, five, or more precisely 23.8% remember the exact name of the movie and they mentioned the movies: *Om Shanti Om, 3 Idiots, Bride and Prejudice, Devdas, Minal Murali, Stras on earth, Joker, Made in China, White Tiger,* the other 76.2% said that they did not remember the name or that the name was difficult to remember.

Follow-up to the previous question, which could be answered by respondents who watched the movie, is the question *Name the genre and year of production of the Bollywood movie you watched*? The respondents list several genres because it is difficult for them to categorize the films they have watched under one category. Out of 26 answers, the most common answer is action, romantic, comedy, musical, and 19 respondents wrote a similar combination with a variation, and 5 of them (23.8%) declared that they did not know what genre the movie they watched was, two respondents classified as having watched movie under horror or science fiction, but they belong to the group of those who do not remember the name of the movie.

To the question *On which platform did you watch the movie*, 38.4% of respondents answered Netflix, and 61.6% answered that they downloaded the movie via torrent and similar websites.
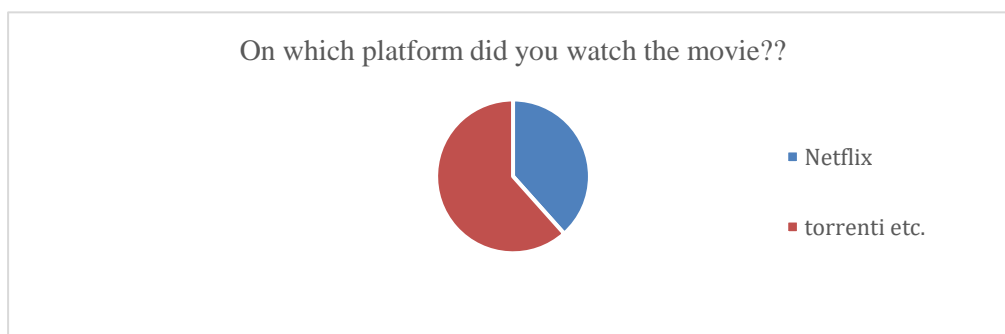
Chart 5: Platform

All respondents were able to answer the following question: *Are Bollywood movies easily available for viewing?* 57.1% of respondents answered that the film is not easily available, and 42.9% of respondents answered in the affirmative way.
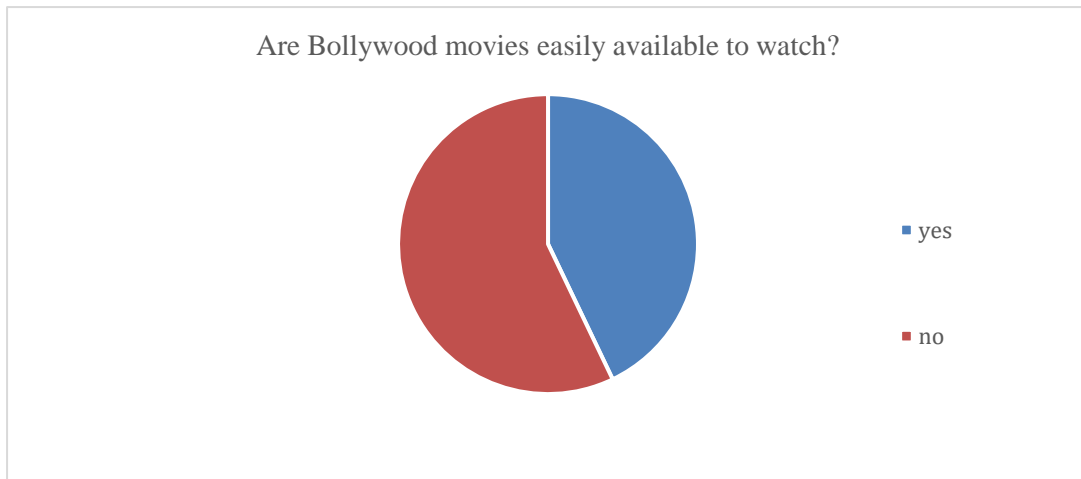
Chart 6: Availability of Bollywod movies

Question *On which language was the Bollywood movie you watched*? 26 respondents answered, 15.38% of them answered English, 23.07% answered Hindi, and 61.55% English and Hindi.
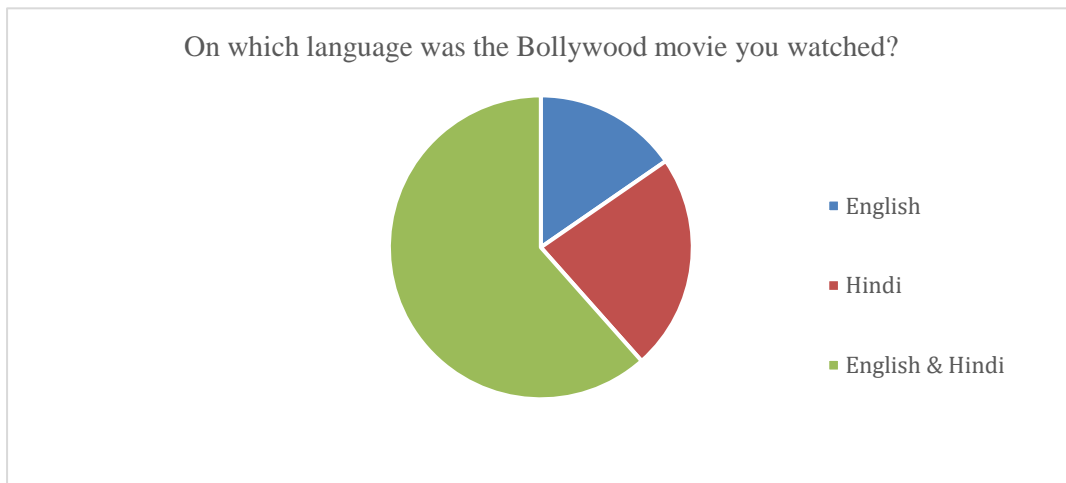
Chart 7: Language

The next question *I liked the Bollywood movie I watched* was answered by 26 respondents, of which 23% answered no and 77% yes.
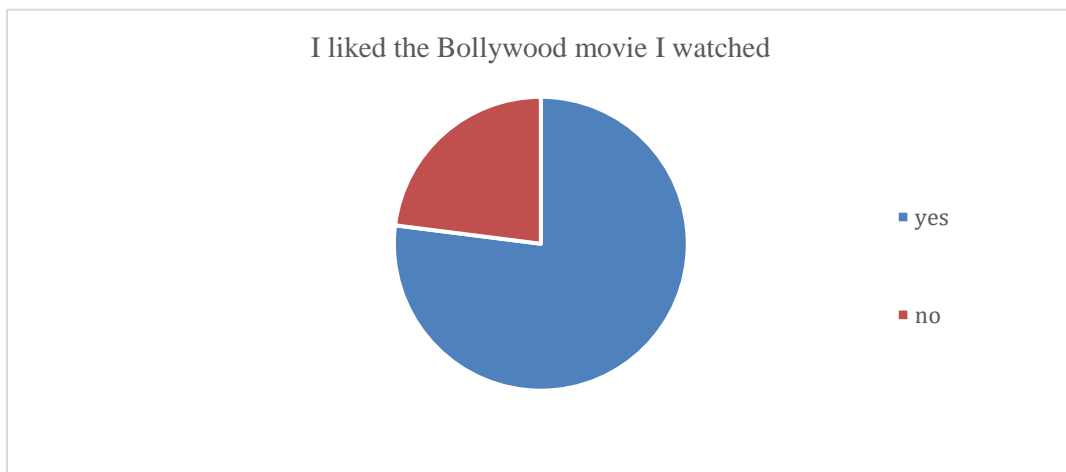
Chart 8: Attitude

An open-ended question for those who watched it: *What did you like about the movie you watched*? brought a variety of responses such as the examples below

1) *I liked the fact that you can find many genres in one movie, and that they are fun and have a lot of music and dancing.*
2) *Excessive dramatization, dance, music*
3) *Creativity; from the costumes, the scenography, the reinterpretation of the story, the way of shooting, the techniques used... a different cultural background*
4) *It was decent, no sex, even children can watch*
5) *I liked the costumes and that's it, I'm familiar with him, but I'm just not attracted to their films*
6) *Lessons, acting, dramaturgy, direction mostly very entertaining, it had a positive effect on my mood like a musical in a theater*
7) *The way they worked out the action scenes, but in general Bollywood has that touch that makes serious moments quite comical.*
8) *I didn't like anything in particular. A parade of kitsch.*
9) *Difference in culture and different media formatting versus learned*

If you haven't watched a movie from a Bollywood production, choose one of the answers that best describes the reason why you haven't watched it, 14% of respondents answered that they hadn't thought about it, 35% that they weren't attracted to it, and 51% I haven't gotten there yet.
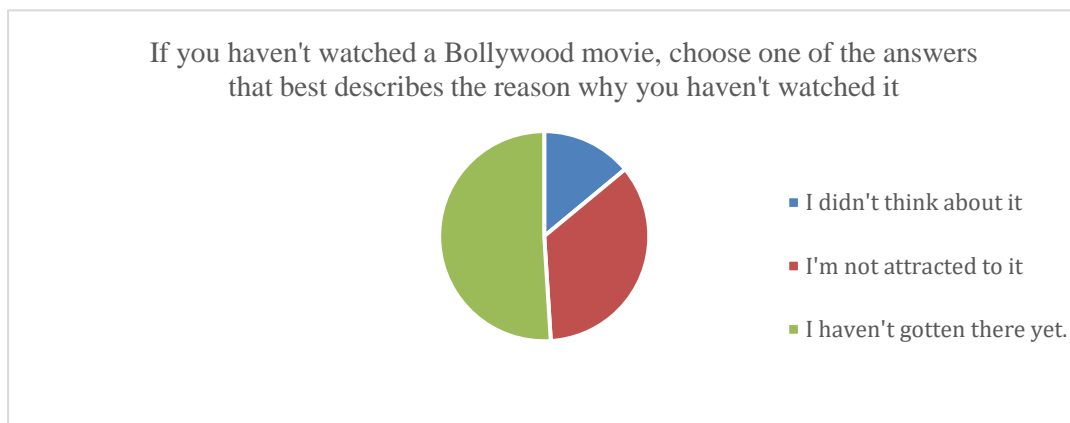
Chart 9: Reason for not watching

I consciously notice the specific dramaturgy of a Bollywood film. 65% of respondents answered yes, and 35% of respondents answered no.
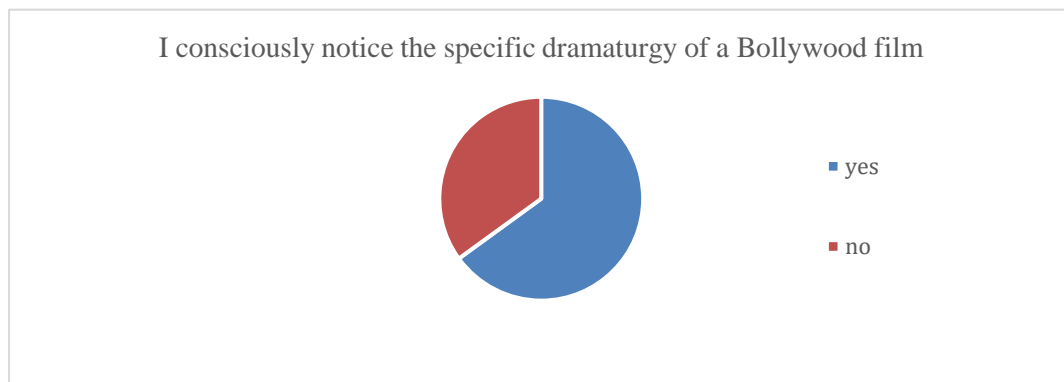
Chart 10: Noticing dramaturgy

To the question, *I realize that to understand a Bollywood movie, an understanding of Hindu culture, religion, etc. was required* by all respondents, and 51% answered affirmatively, while 49% agreed that they do not think that understanding a Bollywood movie requires an understanding of Hindu culture, religion, etc.
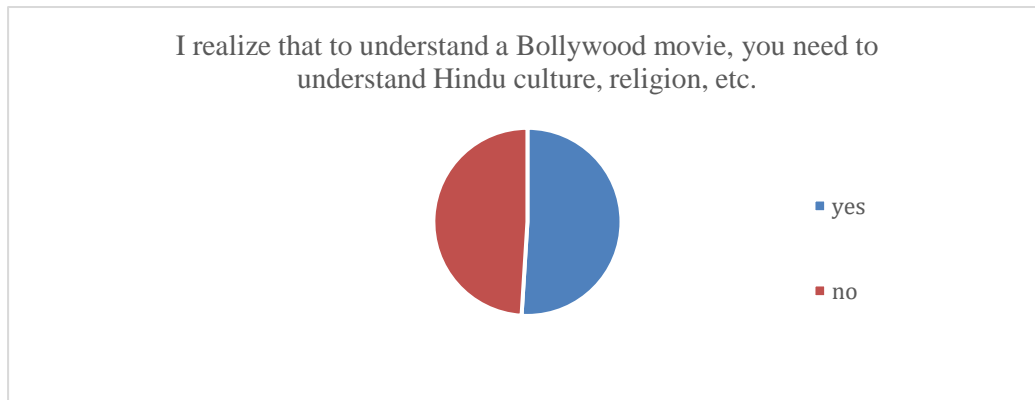
Chart 11: Understanding of culture

The next question to the respondents who watched the Bollywood movie: *Rate from 1 to 5 (with 1 being the lowest and 5 being the highest) the overall quality of the watched Bollywood movie.* 7% of the respondents rated the watched movie with a rating of 1, 14% of the respondents rated the movie with a rating of 2, 29% of the respondents rated the movie with a rating of 3, and 21% of the respondents rated the movie with a rating of 4, while 29% of the respondents rated the movie with a rating of 5.
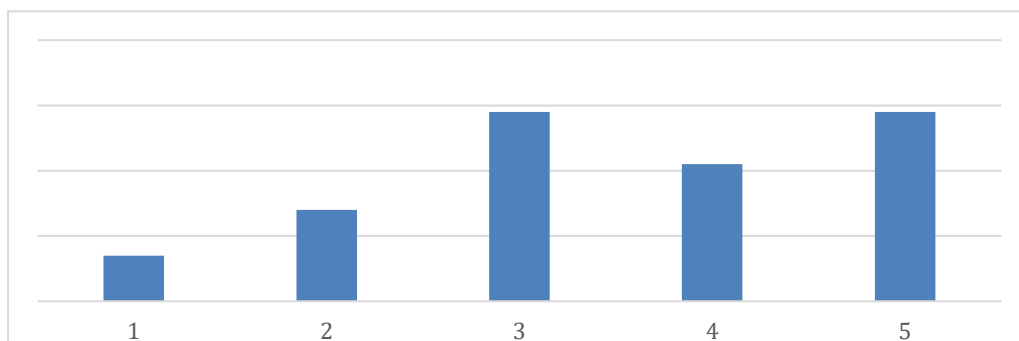
Chart 12: Rating

To the question, *Will you watch a Bollywood movie after this survey?* could answered all respondents, 55% of them answered negatively, and 45% answered positively.
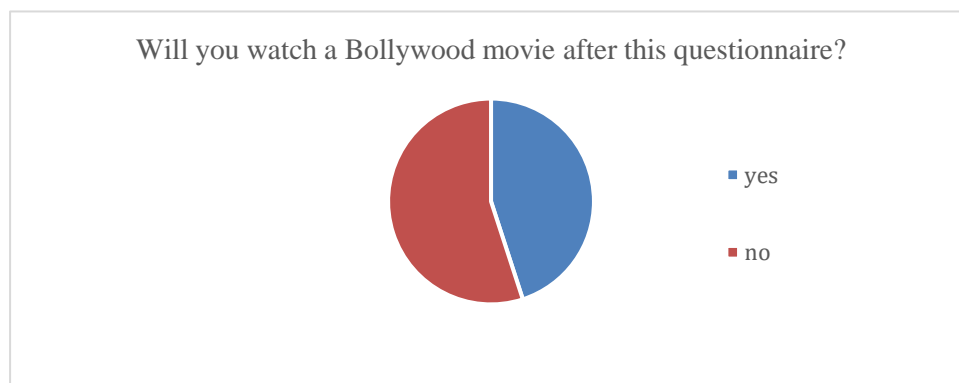
Chart 13: Intention

The next few questions are related to Hollywood, and the first question in the series is *Do you know what Hollywood is?* To which 100% of respondents answered yes.

On the statement *I generally like movies from Hollywood production more than others*. 45% of respondents answered yes, and 55% answered no.

I generally like movies from Hollywood productions more than others

- yes
- no
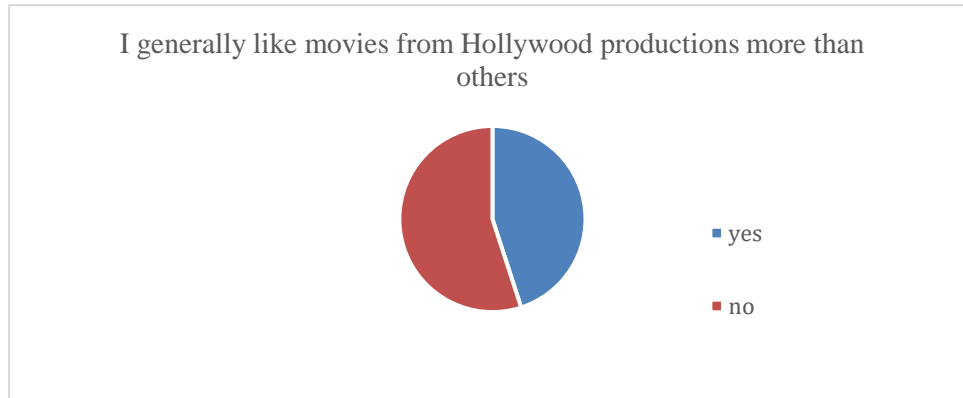
Chart 14: Preferences

Hollywood movies are easily available, so I usually choose to watch them instead of others. 77% of respondents answered yes to this statement, and 23% answered no.

Hollywood movies are easily available, so I usually choose to watch them instead of others.

- yes
- no
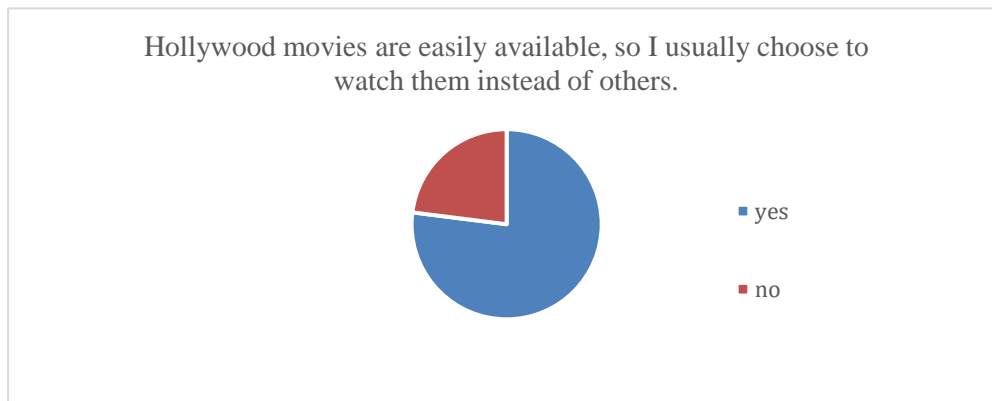
Chart 15: Availability of Hollywod movies

I believe that a Hollywood film does not have specific cultural characteristics. 70% of respondents answered yes to this statement, and 30% answered no.

I believe that a Hollywood film does not have specific cultural characteristics

- yes
- no
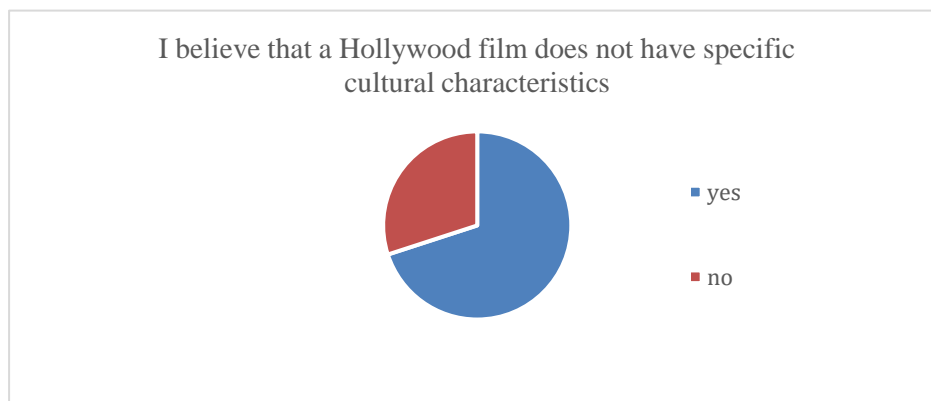
Chart 16: Cultural characteristic of Hollywod movies

The last question was unrelated to Hollywood and Bollywood. The aim was to investigate whether the respondents know the origin of the film production they are watching, so the question *Do you know from whose production (country) the film you are watching comes from*? 88% of respondents answered in the affirmative, and 12% answered that they did not know.
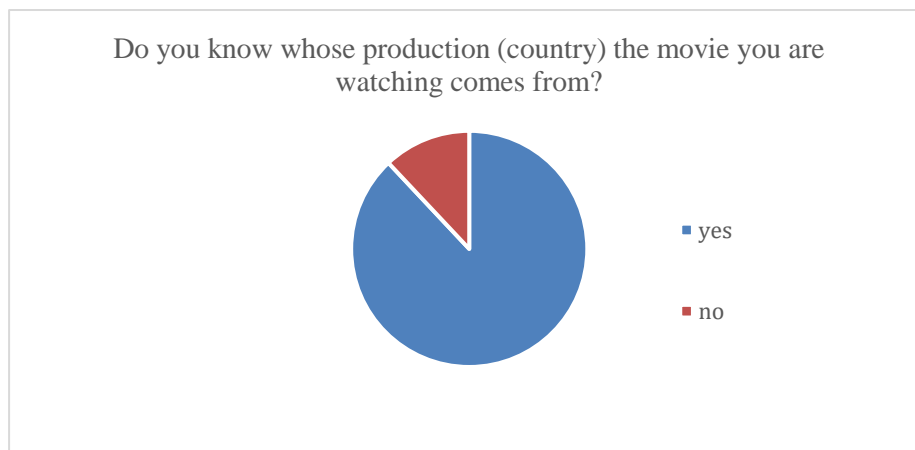
Chart 17: Awareness of production country

6. CONCLUSION

From the available literature and research review, it can be concluded that Bollywood film is a mirror of Hindu culture. In our research conducted on the student population, it was revealed that a larger percentage of respondents are not attracted to Bollywood films. Croatian students belong to a different cultural circle, and also a larger percentage claim that they choose Hollywood films because they are easily available, but not necessarily better than films from other productions. Half of the respondents stated that they believe that an understanding of Hindu culture is necessary to understand a Bollywood film. 70% of the respondents stated that they believe that a Hollywood film has no specific cultural significance, considering that a Hollywood film is part of the so-called Western culture. We can conclude that the respondents are unconsciously attracted to the film from their own cultural circle because it makes it easier for them to understand, unlike Bollywood production films which require an understanding of Hindu culture. Globalization processes caused by the development of the media also reflect on the media themselves. This is also evident in (primarily commercial) films, which are a product of the film industry, and we can see the film as an export product. The film itself is more than that, because it can also propagate national interests and spread (or even impose) its own political views and social influence. At the same time, the industries themselves, wanting to meet the needs of the ever-increasing possible market, reduce the emphasis on the national and cultural determinants of the society and try to meet the needs of a multicultural global society.

LITERATURE:
1. Adorno, T. W. (1975*). Cultural industry reconsidered*. New German Critique, Vol. 6, 12
2. Bose, D. (2006). *Brand Bollywood: A new global entertainment order*. Thousand Oaks, CA: Sage
3. Chopra, A. (2007). *King of Bollywood: Sharukhkhan and the seductive world of Indian Cinema*. New York, NY: Warner Books
4. Ganti, T. (2002). *And yet my heart is Indian: The Bombay film industry and the Hindianization of Bollywood*. Media Worlds: Anthropology on New Terrains. Berkeley, CA: University of California press.

5. Hall, S. (1982). *The rediscovery of "ideology": Return of the repressed in media studies.* In. M. Gurevitch, et al. (Eds.), Culture, society and the media (pp. 56-90). London:
6. Horkheimer, M., & Adorno, T. W. (1976). *Dialectic of Enlightenment*. Continuum International Publication Group.
7. Iordanova, D. (2006). *Indian cinema's global reach: Historiography through testimonies.* South Asian Popular Culture, Vol. 4(2), 113-140.
8. Jaikumar, P. (2003). *Bollywood Spectaculars*. World Literature today. Retrieved Jan 10, 2008, from http://findarticles.com/p/articles/mi_hb5270/is_3- 4_77/ai_n29059774/.
9. Kalkar, S. (1980). *The ties that bind: Family relationships in the mythology of hindi cinema.* India International Centre Quarterly, Vol. 8(1), 11-21.
10. Maisuwong, W(2012) ,*The Promotion of American Culture through Hollywood Movies to the World*, International Journal of Engineering Research & Technology (IJERT) Vol. 1 Issue 4,Thammasat University,
11. McDonald, P., Wasko Janet (2008.) *The contemporary Hollywood film industry*, Malden, Mass. ; Oxford : Blackwell Publishing
12. Nayar, S. J. (1996). *The values of fantasy: Indian popular cinema through Western scripts.* Journal of Popular Culture, Vol. 1, 73-89.
13. Overdorf, J. (2007). *Hooray for Bollywood*. Retrieved Jan 20, 2008, from http://www.newsweek.com/id/72719/page/1.
14. Punathambekar, A. (2005). *Bollywood in the Indian-American Diaspora: Mediating a transitive logic of cultural citizenship*. International Journal of Cultural Studies, Vol. 8(2), 151-173.
15. Rajadhyaksha, A. (2003). *The Bollywoodization of the Indian cinema: Cultural nationalism in a global arena.* Inter-Asian Cultural Studies, Vol. 4(1), 25-39.
16. Rampal, P.K(2012) *Cultural Imperialism or Economic Neccessity?: The Hollywood Factor in the Reshaping of the Asian Film Industry.* http://www.razonypalabra.org.mx/ anteriores/n43/krampal.html
17. Rao, S. (2007). *The globalization of Bollywood: An ethnography of non-elite audiences in India.* The Communication Review, Vol. 10, 57-76.
18. Sikka, M. (2005). *Bollywood gets ready to take on Hollywood*. Retrieved Jan18, 2008, from http://abcnews.go.com/Nightline/Story?id=410630&page=1.
19. Srinivas, L. (2002). *The active audience: Spectatorship, social relations and the experience of cinema in India*. Media, Culture & Society, Vol. 24, 155-173.

ENTREPRENEURSHIP IN THE REPUBLIC OF CROATIA - ANALYSIS FOR THE PERIOD FROM 2017-2021

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ABSTRACT
Entrepreneurship is characterized by great uncertainty and great risk in business, and entrepreneurs are personally ready to take risks in their business at any moment, predict future events and adapt to constant changes and to the dynamic market. The aim of this work is to analyze business entities in the Republic of Croatia from 2017-2021. who are obliged to submit annual financial statements, in order to draw conclusions about the decline or increase in business activities during the observed period and whether revenues increased or decreased during the observed period from 2017 to 2021, whether the number of entrepreneurs increased, such as is the trend of net salaries and analysis of all other business indicators. The paper analyzes the data of companies that are obliged to submit annual financial statements to the Financial Agency. Three hypotheses are presented in the paper, H1: business entities in the observed period from 2017-2021 show a decline in all business activities and this hypothesis is accepted, H2: during the COVID-19 pandemic, the number of business entities and the number of employees decreased and this hypothesis is not accepted, H3: during the COVID-19 pandemic, the profits and revenues of companies are lower and this hypothesis is accepted. The research is based on up-to-date and accurate data from info.Biz, the e-service of the Financial Agency. Info.Biz collects accurate and up-to-date data from the financial reports of business entities, which business entities in the Republic of Croatia are obliged to submit to the Financial Agency every business year, according to the Accounting Act. On the basis of data from the info.Biz e-service, numerous conclusions can be drawn about economic indicators and business operations in the Republic of Croatia. Business entities obliged to submit annual financial reports in 2020 record a decline in all business activities and business results, while in 2021 they show a trend of growth in business indicators.
Keywords: *entrepreneurship, entrepreneurs, business results, e-service info.BIZ, Republic of Croatia*

1. INTRODUCTION

Entrepreneurship is an activity, the activity of entrepreneurs without which the existence of a large number of companies is unthinkable, it is the basis for reducing unemployment and generating positive economic values and indicators. It is characterized by uncertainty, creativity and willingness to take risks in business. Entrepreneurs are people who are ready to take risks, they cope well with daily and frequent changes in business, they are visionaries who have the courage to face numerous challenges in their daily work. Managers today should also have the characteristics of entrepreneurs, they should be fearless in their business ventures, just like entrepreneurs.

Then they should have the ability to lead teams and the courage to found new companies, encourage new business ideas of their employees, adapt to new markets and different needs of clients or customers. Successful forecasting of future events by managers and their business associates can help companies achieve competitive advantage. Leaders, managers and bosses in companies can collect information in a legal and accessible way by analyzing the financial reports and media announcements of their competitors, the so-called Business Intelligence in business. Information at the right time and accurate information helps managers in their business decisions. Entrepreneurs invest a lot of energy and time in their business and the activities of their company in order to survive on the market and achieve a positive business result, their working hours are constant, their efforts do not stop at a certain time of the day, they are always firmly attached to their company, which founded and for whose success they are responsible. Therefore, entrepreneurship is a very difficult job that contains a lot of challenges in daily planning, organizing and executing all the set goals and activities of the company. The e-service info.BIZ, an e-service owned by the Financial Agency (FINA), can greatly help entrepreneurs in their business. Annual financial statements are submitted to the Financial Agency in person at any business unit of the Financial Agency or to the address of the branch where oblige is headquartered. (Financial Agency, 2023). The Accounting Act defines two categories of obliges who are obliged to submit annual financial statements: obliges of public announcement and obliges of submitting annual financial statements for statistical and other purposes. Business entities submit standard and non-standard documentation. Standard documentation is: balance sheet, profit and loss account, with statement of other comprehensive income, statement of cash flows, statement of capital changes and additional data for statistical and other needs. Non-standard documentation is: notes to the financial statements, auditor's report, annual report, and decision on the establishment of the annual financial statement, decision on the proposal for profit distribution or loss coverage and declaration of inactivity. Income tax payers are required to submit annual financial reports for each business year during which they were commercially active or had assets and/or liabilities recorded in the business books. Entrepreneurs (trading companies) have the obligation to compile and submit the GFI in cases of status changes, opening of bankruptcy proceedings or initiation of liquidation proceedings within 90 days from the date of status change, initiation of liquidation proceedings or opening of bankruptcy proceedings. An entrepreneur who has had no business events during the business year, has no information on assets and liabilities in the business books, is obliged to submit a declaration of inactivity for the previous business year to Fina by April 30 of the current year. From 2022, the Financial Agency will no longer collect financial statements of the budget and budget beneficiaries. (Financial Agency, 2023). The data on which the research in this work is based was collected in info.Biz, the e-service of the Financial Agency, the largest and most up-to-date database of business information for more than 800.000 business entities from more than 30 sources. Info.BIZ displays financial and address data, ratings and business indicators of entrepreneurs (legal entities and tradesmen, income tax payers), financial institutions, non-profit organizations and budgets and budget users and address data of tradesmen, payers of income tax for the last five years (Financial Agency, 2023). The Financial Agency (2023) lists the following advantages of using the info.BIZ e-service:

- Facilitated creation of business analyses and reports
- Access to a large number of business entities and information in real time / insight into key information essential for business
- Faster, simpler and safer business decision-making
- Systematic monitoring of clients and business partners
- Business growth and progress thanks to the availability of the right data at the right time
- Timely recognition of business potential and new opportunities
- Monitoring trends

According to the e-service info.Biz, 414.698 active entities operate in the Republic of Croatia in 2021, and 2.559 business entities are currently blocked, which is an increase of 29.90% compared to 30 days ago. In the last 30 days, 2.470 new business entities were founded, which is an increase of 38.22% compared to the period 30 days ago. The total revenues of business entities in the Republic of Croatia in 2021 (data for 2022 are not yet available on the info.BIZ e-service) amount to EUR 117.78 billion, the realized profit is EUR 6.0 billion, and the number of employees in 2021 is 963.365 (Financial Agency, 2023). Furthermore, the paper analyzes the operations of business entities in the Republic of Croatia from 2017 to 2021, obliged to submit annual financial statements, downloaded and analyzed from the e-service of the Financial Agency, info.Biz.

2. CHARACTERISTICS OF ENTREPRENEURS AND ENTREPRENEURSHIP

Entrepreneurship is as old as human society and the term entrepreneurship is used every day for different purposes. From the aspect of lifelong learning, entrepreneurship is understood as a system of skills, knowledge and attitudes that go beyond economic frameworks. (Tkalec, 2011). According to Bahtijarević-Šiber (1990: 538-539), an entrepreneurial manager creates new visions and opportunities, combines and changes resources, sees change and uncertainty as opportunities, is future-oriented and long-term perspective-oriented, innovation-oriented, goal-oriented, predicts future events, takes the risk, results-oriented and encourages diversity of opinion. Drucker (1986) defines entrepreneurship as the maximization of opportunities, which has become the standard job of management whose task is to direct business towards new opportunities. Entrepreneurs and entrepreneurship are characterized by courage, innovation and they cope well with daily changes in business. The organization managed by the entrepreneur consists of daily changes and an agile approach to problem solving. Innovation consists in an organized search for change (Drucker, 1985: 5). Jašaravić and Kuka (2015) state that entrepreneurship is becoming a global process and almost all underdeveloped countries and countries in transition expect to solve the problem of unemployment through entrepreneurship. Sudarić (2012) emphasizes the importance of knowledge and lifelong learning as an increase in self-employment. Knowledge, education and people become the strongest productive forces in societies, and it is necessary to renew knowledge quickly, because knowledge becomes obsolete. Klepić Novalija, M. (2012) in his research comes to the conclusion that young people are self-aware, creative, persistent and that they are ready to learn, even though entrepreneurship is not their desired place of work and entrepreneurship was not known to primary and secondary school students. According to the author's experience, daily education is necessary for success in the market. Knowledge is intertwined in all spheres of life and work. "In the European Union, social entrepreneurship has a significant impact on overall social and economic conditions, employs more than 14.5 million people or 6.5% of the total population and represents a development priority and a significant lever for stimulating economic and social growth and development." (Cvitanović, 2018: 120). McMillan and Woodruff (2002) state that the success, or failure of a transition economy can largely be traced to the performance of its entrepreneurs. Back in 1995, the authors McGoldrick and Davies said that in the EU there are trends of new growth strategies that include more segmentation, less national and more international entrepreneurship, more customer service and more integration. Entrepreneurs need the help of institutions to support entrepreneurship, and real-time information and lifelong learning will be crucial for successful entrepreneurship (Ravlić and Zelenko, 2011: 663). "However, in 2021, with the sharp recovery of economic activities, the escalation of the conflict in Ukraine, among other factors, there was a sharp increase in gas demand, accompanied by rising gas prices. Contracted variable prices have affected the multiple growths of gas costs for entrepreneurs, causing problems in their business with a strong inflationary impact." (Miklošević et al, 2022: 308).

The success of EU businesses and industry is vital to increase employment and create new and better jobs In Europe, there are some 23 million businesses and 99% of these are small businesses which account for two out of three private sector jobs. (European Commission, European Social Fund, 2023).

3. HUMAN POTENTIAL AS INITIATOR OF BUSINESS ACTIVITIES IN COMPANIES

Miklošević and Turić (2012: 625) conclude that human resources in companies must act proactively themselves, and not just execute the orders of their superiors. In their research, Miklošević et al (2022) conducted interviews with managers who stated that during the pandemic they had problems in the managerial function of planning and organizing due to frequent illnesses of employees and due to the instructions of epidemiologists, and they often had to cancel planned activities, seminars and trainings. Pandemic years 2020 and 2021 were challenging years for health reasons for everyone, including entrepreneurs. In the paper, special attention is given to the year 2020 when analyzing business results. In addition to achieving good business results, entrepreneurs should also take care of the satisfaction of their employees at work. Based on research results, Miklošević et al (2022: 185-186) conclude that the most important non-material satisfaction factor for employees is a good working atmosphere and employees declare that they would rather work for a lower salary with a good working atmosphere than for a high salary and a bad working atmosphere. Most managers delegate work tasks almost daily to their co-workers, and the most important thing for them is trust in co-workers (Miklošević et al, 2022: 367). Turkalj et al (2016: 27) favor the implementation of business intelligence in companies because it enables a fact-based decision-making process, increases the overall level of knowledge in companies and improves the competitive advantage of companies. According to Stanić et al (2017: 138), teamwork increases the level of trust in companies and teamwork can positively affect the company's business results. According to Miklošević et al (2022: 33), 85.8% of respondents choose a good working atmosphere as an intangible factor of employee satisfaction at their workplaces, and workplace safety is second to employees, right after a good working atmosphere. A high percentage of respondents (71.7%) want a higher salary in their workplace. A high percentage (78.7%) of employees at their workplaces wish for two-way communication, and the leading problem in communication according to employees' attitudes is the lack of time of superiors (Miklošević et al, 2022: 316). Miklošević's research (2022: 83) says that employees are ready to study all their life (80.2%), are ready to enroll in additional school or college (70%) and like to attend seminars and education (75%). Turkalj and Miklošević (2017: 34) conclude in their research that 64% of managers and leaders think that delegation of work tasks contributes to achieving better business results of the company, while 56% of managers think that delegation of work tasks increases employee motivation. The entrepreneur performs all business activities in his company with the help of his associates and work colleagues. At the same time, it is desirable that entrepreneurs take care of the satisfaction of their employees, because only satisfied employees will be ready to complete all the assigned tasks for the benefit of achieving positive business results.

4. ANALYSIS OF ENTREPRENEURSHIP IN THE REPUBLIC OF CROATIA IN THE PERIOD FROM 2017 TO 2021 OF BUSINESS ENTITIES OBLIGED TO SUBMIT ANNUAL FINANCIAL STATEMENTS

The analysis of entrepreneurship in the Republic of Croatia for the period from 2017 to 2021 is carried out on the basis of accurate and up-to-date data from Fina's e-service info.Biz, which is obliged to submit annual financial reports to the Financial Agency.

The paper analyzes only the business of entities that are required to submit annual financial statements to the Financial Agency (FINA).

The following hypotheses were presented in the paper:
- **H1: business entities in the observed period from 2017-2021 show a decline in all business activities**
- **H2: during the COVID-19 pandemic, the number of business entities and the number of employees decreased**
- **H3: during the COVID-19 pandemic, the profits and revenues of companies are lower**

Below is table 1, basic data on the number of entrepreneurs and trends by year, in the period from 2017 to 2021, which are required to submit annual financial statements to the Financial Agency. A limitation of this research is the available financial data on the info.BIZ e-service of those business entities that are required to submit annual financial statements. The table shows the numbers of entrepreneurs by year, and the biggest comparison in the author's comments follows for the beginning of 2017 in relation to the year of the COVID-19 pandemic, 2020 and then the year of slow recovery of economic activities, 2021. For 2022 there are no business data in the e-service info.BIZ, e-service of the Financial Agency.

	2017	2018	2019	2020	2021
Number of entrepreneurs	124.842	133.976	139.103	141.852	146.150
Number of employees	921.625	948.586	976.363	956.416	973.562
Number of companies making profits	83.659	90.234	92.321	83.681	95.063
Number of loss-making companies	41.183	43.742	46.782	58.171	51.087
Number of investors	12.202	12.819	13.070	12.948	13.765
Number of importers	16.545	18.305	19.656	20.572	22.444
Number of exporters	18.566	19.612	20.441	20.714	22.482
Trade balance	€2.611.992.010	€1.956.116.453	€1.793.099.980	€1.943.707.466	€3.867.758.201

Table 1: Number of entrepreneurs – trends
(Source: e-service info.BIZ)

The number of entrepreneurs in the Republic of Croatia in the observed period is the highest in 2021 (146.150 entrepreneurs). The number of entrepreneurs systematically increased from 2017 to 2019, until 2021, when the trend of growth in the number of entrepreneurs continued. Accordingly, the number of employees also increased, from 921.625 employees in 2017 to 146.150 employees in 2021. Given the observed and accurate data, hypothesis H2: *during the COVID-19 pandemic, the number of business entities and the number of employees decreased* is not accepted, and it can be concluded that the entrepreneurs did not fire their workers, but they used the support of the Government of the Republic of Croatia to help their business. During 2021 and until June 30, 2022, the Government of the Republic of Croatia provided state grants to support the economy during the COVID-19 pandemic for the following purposes: grants in the total amount of up to EUR 2.300.000 per entrepreneur, short-term loan insurance,

grants for research, grants in the form of deferred tax payments and/or social security contributions, support in the form of subsidies for employee wages, recapitalization measures for non-financial entrepreneurs, support in the form of support for uncovered fixed costs and support for investments in sustainable recovery, support for solvency (Republic of Croatia, Ministry of finance, 2023). As shown in table 1, the pandemic affected the reduction of the income of entrepreneurs, the number of entrepreneurs making a profit decreased from 92.321 entrepreneurs in 2019 to 83.681 entrepreneurs making a profit in 2020, the year when the pandemic started and lasted the whole year COVID-19. It is noticeable from table 1 that the further decline of companies making a profit did not continue, in 2021 there are 95.063 companies making a profit. The number of companies making losses is also noticeable, in 2017 there were 41.183 such companies, and in 2020 there were 58.171, so there is an evident increase in the number of companies making losses in the pandemic year, while in 2020 the number of such companies was reduced to 51.087, in which the COVID-19 pandemic and restrictions according to the epidemiologist's instructions are still ongoing. The conclusion of the analysis of table 1 is that the companies worked and that the number of workers did not decrease, but the number of companies operating at a loss during 2020 and 2021 increased. The number of investors is lower in 2020 than in 2019, and in 2021 it is growing. The number of importers in 2020 compared to 2019 is increasing, and in 2021 the growth is even greater. The same situation is with the number of exporters. The trade balance is also smaller in 2020 (but higher than in previous years), while the trade balance records a significant increase in 2021 (€3.867.758.201). Table 2 shows the business trends during the period from 2017 to 2021. Some business indicators are presented in the paper, it is not possible to show all indicators. The indebtedness factor was the highest in 2017 (4.61 years), while it dropped significantly during 2020 and 2021. During 2020, the collection time of short-term receivables in days increased, almost reaching the level of 2017, while in 2021 it recorded a decline and collection days are the same as in 2019. The days of collection of receivables from customers did not change significantly, in 2020 they remain approximately the same as in previous years, in 2021 the days of collection of receivables from customers recorded a drop to 49.86 days. Payment days to suppliers remain approximately the same for all five observed years. It can be seen that the profitability of total assets in the pandemic year of 2020 dropped significantly, to 1.69%, compared to previous years, while in 2021 it increased significantly, to 3.39%. It is certainly recommended to compare all these years with 2022, when data is available for 2022, in order to analyze that year in relation to 2021 and 2020. Info.BIZ shows the latest data for 2021. Furthermore, the profitability of own capital increased significantly in 2021 (8.41%), while in 2020 it recorded a stronger decline (4.26%). The EBIT margin recorded a decline during 2020 (€4.322.023.960), and an increase in 2021 (€7.156.035.103). EBITDA records growth in 2021 (€13.205.965.749).

Table following on the next page

	2017	2018	2019	2020	2021
Indebtedness factor (number of years)	4.61	4.55	4.02	3.53	3.35
Time of collection of short-term receivables	84.02	78.62	76.68	81.95	76.65
Time of collection of receivables from customers	56.83	53.22	51.50	54.84	49.86
Payment days to suppliers	56.36	54.71	53.36	54.64	51.40
Return on Total Assets - Net (ROA)	2.03%	2.47%	2.57%	1.69%	3.39%
Return on equity (ROE)	5.08%	6.96%	6.57%	4.26%	8.41%
Newly created value	€24.988,039.106	€27.630.066.427	€29.736.322.103	€29.090.944.956	€33.344.272.311
EBIT	€4.468.364.217	€5.101.180.215	€5.789.796,321	€4.322.023.960	€7.156.035.103
EBITDA	€9.070.505.109	€10.040.031.347	€11.372.611.030	€10.037.955.076	€13.205.965.749
Total income per employee	€101.982	€106.065	€108.958	€104.154	€121.855
Total expenses per employee	€97.679	€101.018	€103.534	€100.386	€114.448
Profit or loss for the period per employee	€3.290	€3.989	€4.281	€2.936	€6.168
Average monthly net salary per employee	€713	€741	€772	€792	€843
Average monthly gross 1 salary per employee	€971	€1.014	€1.057	€1.077	€1.135
Average monthly gross 2 salaries per employee	€1.128	€1.172	€1.213	€1.233	€1.300

Table 2: Business indicators - trends
(Source: e-service info.BIZ)

The trends in total income per employee in 2020 are approximately the same as in the previous two years, but in 2021 they recorded growth, while the period's profit per employee was the lowest in 2020 (2.936 €) and the highest in 2021 (6.168 €). The average monthly net salary per employee was approximately the same from 2017 to 2020 (average 754.50 EUR), but in 2021 it recorded an increase to 843 EUR. Of course, gross salary I and gross II per employee are of similar proportions. The profit and loss account is extensive, and the paper presents only some items of the profit and loss account (Table 3), which the authors considered the most important. Total business revenues are higher in 2019 (€104.547.546.693), compared to the previous two years, in 2020 they show a decrease (€97.472.740.329), while the biggest increase in these five observed years is in 2021 (€116.181.929.594). All types of income follow the trend that 2021 is the most successful year. In line with income, business expenses of all types have the highest increase in 2021. Provisions for tax liabilities and initiated court cases are the highest in 2021 and 2019, while in 2020 they show a sharp decline (€82.781.048). Financial income shown in the profit and loss account also shows an increase in 2021 (€2.245.894.315), while it is lower in 2019 and 2020. Income from investments in shares shows growth since 2017, and the best year is again 2021, year 2020 records a slight decline in income from investments in shares.

Opis	2017	2018	2019	2020	2021
BUSINESS INCOME	€92.444.018.283	€98.804.692.055	€104.547.546.693	€97.472.740.329	€116.181.929.594
Sales revenue	€87.374.444.009	€93.280.648.970	€98.893.722.365	€91.296.755.589	€109.571.803.811
Income based on the use of own products, goods and services	€442.132.610	€463.155.721	€453.333.264	€415.647.978	€560.660.234
Other business income	€4.627.441.664	€5.060.887.364	€5.200.491.063	€5.760.336.762	€6.049.465.553
BUSINESS EXPENSES	€89.658.459.158	€93.886.829.051	€98.753.408.814	€93.214.905.937	€108.944.347.158
Changes in the value of inventories of work in progress and finished goods	€-207.214.310	€-201.536.094	€-86.003.700	€-34.721.646	€-188.082.265
Material costs	€63.187.935.425	€67.408.156.963	€70.482.439.066	€65.373.267.554	€79.172.926.156
Costs of raw materials and materials	€16.486.070.444	€17.822.745.199	€17.972.136.284	€16.384.099.350	€20.045.010.483
Cost of goods sold	€32.333.340.732	€34.257.604.491	€36.299.331.986	€34.231.140.883	€42.265.815.110
Other costs	€14.368.524.248	€15.327.807.272	€16.210.970.796	€14.758.027.321	€16.862.100.563
Personnel costs	€12.451.391.206	€13.362.498.828	€14.216.308.252	€14.117.787.311	€15.157.985.714
Net salaries and wages	€7.869.139.036	€8.441.300.144	€9.048.416.385	€9.076.823.490	€9.837.054.040
Costs of taxes and contributions from salaries	€2.848.566.133	€3.110.320.532	€3.344.957.006	€3.251.638.878	€3.397.580.496
Salary contributions	€1.733.686.037	€1.810.878.151	€1.822.934.861	€1.789.324.944	€1.923.351.184
Amortization	€4.764.016.128	€4.959.401.135	€5.636.820.207	€5.793.396.472	€6.074.868.595
Other costs	€4.241.450.375	€4.652.227.317	€4.956.393.305	€4.661.973.809	€5.139.907.761
Provisions for tax liabilities	€4.368.456	€3.675.271	€1.712.882	€904.255	€6.233.581
Reservations for initiated court cases	€94.128.319	€108.145.439	€124.363.432	€82.781.048	€117.326.267
Reserves for the costs of restoration of natural resources	€4.814.847	€-2.734.891	€-2.478.050	€-921.199	€44.299.906
FINANCIAL REVENUE	€2.187.189.446	€2.111.220.236	€1.755.450.787	€1.823.915.078	€2.245.894.315
Income from investments in shares of entrepreneurs within the group	€444.870.127	€402.772.093	€386.158.274	€384.318.776	€614.565.088
Income from investments in shares of companies connected by participating interests	€40.869.163	€68.794.882	€84.625.419	€73.379.056	€80.622.675
FINANCIAL EXPENSES	€4.660.862.580	€2.658.417.242	€2.383.435.234	€2.579.947.689	€2.238.620.980
Expenses based on interest and similar expenses with entrepreneurs within the group	€303.181.680	€289.366.546	€295.253.614	€378.409.147	€256.358.466
Expenses based on interest and similar expenses	€1.255.737.922	€1.052.390.139	€1.075.738.076	€940.055.020	€980.327.618
TOTAL INCOME	€94.643.369.622	€100.925.137.077	€106.318.384.343	€99.321.570.551	€118.440.544.954
TOTAL EXPENDITURES	€94.326.470.233	€96.546.697.375	€101.139.558.100	€95.800.585.642	€111.193.738.884
PROFIT OR LOSS BEFORE TAX	€316.899.389	€4.378.439.702	€5.178.826.243	€3.520.984.908	€7.246.806.068

Table 3: Profit and loss account – trends
(Source: e-service info.BIZ)

The trend of the total income of entrepreneurs from 2017 to 2021 shows an increase in total income, except in 2020 it shows a decrease in income compared to 2018 and 2019, while 2021 records the highest increase in total income in the observed period (€118.440.544.954). From all these parameters, it can be concluded that in 2021, the best financial indicators are for entrepreneurs, while 2020, due to the COVID-19 pandemic, recorded lower incomes for all items. Business organizations and humanity are dependent on each other and if there is less trade between them, less movement of people and capital, this fact will have a negative impact on all participants in the mentioned processes.

According to the above, profit before taxation shows a growth trend since 2017, and in 2020 the growth trend is lower than in the two previous years, but higher than in 2017. In 2021, the profit before taxation is the highest, (€7.246.806.068), which is a good indicator of the direction entrepreneurs are heading after the difficult and challenging pandemic year 2020. With regard to the data of the e-service info.BIZ, the third hypothesis H3: *during the COVID-19 pandemic, the profits and revenues of companies are lower* is accepted. Table 4 also shows additional business data of entrepreneurs, for example sales revenues in the country and abroad, which are systematically increasing in the observed years, only in 2020 they are in decline compared to the previous two years, and in 2021 the total revenues record the highest growth (€83.688.654.543). The same situation is with the income from sales abroad, since 2017 they show a growth trend, and in 2020 they record a decline, while in 2021 they realize a significant growth (€25.106.784.506).

Opis	2017	2018	2019	2020	2021
Revenues from sales in the country	€65.098.516.858	€72.866.617.595	€78.257.643.500	€72.199.652.925	€83.688.654.543
Income from sales abroad	€18.311.954.053	€19.546.158.442	€20.115.553.447	€18.724.208.473	€25.106.784.506
Reimbursement of expenses, gifts and support to employees and receipt in kind	€854.503.918	€1.064.976.958	€1.247.831.709	€1.309.056.244	€1.738.972.404
Import	€15.699.962.043	€17.590.041.990	€18.322.453.468	€16.780.501.006	€21.239.026.304
Gross investments in long-term tangible and intangible assets	€10.822.242.688	€9.963.421.341	€10.459.093.284	€9.103.064.152	€9.527.645.760
The average number of employees according to the situation at the end of each quarter	960.554	993.042	1.019.800	1.012.378	1.032.514
Number of employees according to working hours	921.625	948.586	976.363	956.416	973.562

Table 4: Additional business data of the entrepreneur
(Source: e-service info.BIZ)

In 2021, entrepreneurs paid more compensation for expenses, gifts and support to employees than in previous years (€1.738.972.404), due to new decisions of the Government of the Republic of Croatia on the reduction or abolition of taxes on such support, depending on the amount of such gifts and support. Gross investments of entrepreneurs in long-term tangible and intangible assets in 2021 did not reach the level of 2017. The biggest drop in gross investments in long-term tangible and intangible assets was precisely in the pandemic year, 2020. The average number of employees at the end of each quarter in the observed years has a systematic increase, even in 2020 (1.012.378). Due to the support of the Government of the Republic of Croatia, there were no layoffs during the COVID-19 pandemic, which is evident from table 4 and table 1. Hypothesis H1: *business entities in the observed period from 2017-2021 show a decline in all business activities* is accepted, because all business parameters are in decline compared to previous years. The year 2021 will see growth in all business parameters of entrepreneurs who are required to submit annual financial statements in the Republic of Croatia.

5. CONCLUSION
The number of entrepreneurs who are obliged to submit annual financial statements in the Republic of Croatia in the observed period is the highest in 2021 (146.150 entrepreneurs). The number of entrepreneurs systematically increased from 2017 to 2019 until 2021, when the trend of growth in the number of entrepreneurs continued.

Accordingly, the number of employees also increased, from 921.625 employees in 2017 to 146.150 employees in 2021. During the COVID-19 pandemic, the number of employees did not decrease, entrepreneurs did not lay off employees due to support from the Government of the Republic of Croatia in order to overcome the negative consequences of the pandemic on the company's operations as easily as possible. The trade balance is also smaller in 2020 (but higher than in previous years), while the trade balance records significant growth in 2021. The number of investors is lower in 2020 than in 2019, and in 2021 it is growing. COVID-19 affected the reduction of the income of entrepreneurs and the number of entrepreneurs making a profit in 2020 is smaller. In the same year, the number of loss-making companies also increased, while the number of such companies in 2021 is lower. The number of investors is lower in 2020, and in 2021 it is growing. During 2021, the collection time of short-term receivables increased in days, while in 2021 it recorded a decrease. The profitability of total assets dropped significantly in 2020, while in 2021 it increased significantly. The profitability of own capital increased significantly in 2021, and in 2020 it shows a stronger decline. The period's profit per employee was the lowest in 2020, and the highest in 2021. The average monthly net salary per employee was approximately the same from 2017 to 2020 (EUR 754.50), but in 2021 it increased to EUR 843. All types of income follow the trend that 2021 is the most successful year. In accordance with the trend of income growth, business expenses of all types have the highest increase in 2021. The trend of the total income of entrepreneurs from 2017 to 2021 shows growth, and in 2020 there was a decrease in total income, and the year 2021 recorded the highest increase in total income. In 2021, the profit before taxation is the highest, which is a good indicator of the direction in which entrepreneurs are heading after the difficult and challenging pandemic year 2020. Due to support from the Government of the Republic of Croatia and tax benefits, the number of employees was not reduced during the pandemic in 2020 and entrepreneurs paid higher amounts for gifts and support in 2021. Business entities in the observed period from 2017-2021 in 2020, they record a decline in all business activities, while in 2021, they record growth.

LITERATURE:
1. Bahtijarević-Šiber, F. (1990). Poduzetništvo – način ponašanja organizacije i menedžmenta. *Rev. za soc.,* Zagreb, Vol. XXI, No 3, pp. 529—541.
2. Cvitanović, V. (2018). Društveno poduzetništvo kao izravni doprinos ekonomskom razvoju. *Obrazovanje za poduzetništvo - E4E: Znanstveno-stručni časopis o obrazovanju za poduzetništvo,* Vol. 8 (Special issue/Posebn), pp. 109-126. Retrieved 15.01.2023 from https://hrcak.srce.hr/file/290127
3. Drucker, P. (1986), *Managigng for results*, Perennial library edition, Harper&Row, New York.
4. Drucker, P. (1985), *Innovation and enterpreneurship: Practice and principles*, Harper&Row, New York.
5. Info.BIZ, e-servis Financijske agencije, Retrieved 08.02.2023 from https://infobiz.fina.hr/serviceinfo
6. European Commission, European Social Fund. (2023) *Boosting Business*. Retrieved 26.01.2023. from https://ec.europa.eu/esf/main.jsp?catId=457&langId=en
7. Financijska agencija, e-servis info.BIZ. (2023). Retrieved 02.01.2023 from https://www.fina.hr/poduzetnici, https://infobiz.fina.hr/dashboard/entrepreneurs/trends
8. Financijska agencija. (2023). Retrieved 07.01.2022. from https://www.fina.hr/e-servisi
9. Financijska agencija, *e-servis info.BIZ*. (2023). Retrieved 07.01.2022 from https://infobiz.fina.hr/dashboard/entrepreneurs/dynamicreports/58f2894f-f6a2-4273-a578-a0651edea1b1).

10. Jašarević, F. and Kuka, E. (2015). Poduzetništvo i ekonomski razvoj države. *Zbornik radova Međimurskog Veleučilišta u Čakovcu.* Vol. 6, No. 2, pp. 73-79. Retrieved 27.01.2023 from https://hrcak.srce.hr/file/222275

11. Klepić Novalija, M. (2012). Mladi, poduzetništvo i Alisa u zemlji čudesa. *Učenje za poduzetništvo.* Vol 2. No 2, pp. 51-62. Retrieved 20.01.2023 from https://hrcak.srce.hr/file/192390

12. McGoldrick Peter J. and Davies G. (1995). *International Retailing: Trends and Strategies*, Financial Times, London

13. McMillan, J., Woodruff, C. (2002). The Central Role of Entrepreneurs in Transition Economies, Journal of Economic Perspectives, Vol. 16, No. 3, pp. 153-170. Retrieved 20.01.2023 from https://www.aeaweb.org/articles?id=10.1257/089533002760278767

14. Miklošević I., and Turić, P. (2012). Utjecaj Business Intelligence na ljudske potencijale u poduzećima. *Proceedings of the 3rd International Conference "Vallis Aurea" Focus on: Regional Development*, Katalinić, B. (ed.), Požega – Vienna, Croatia – Austria, Polytechnic of Požega, Croatia, DAAAM International Vienna, Austria. pp. 625-631.

15. Miklošević, I., Vretenar Cobović, M., Markuz, A,. (2022), Comparison of employee salary as a material factor of workplace satisfaction with other intangible factors of workplace satisfaction, *79th International Scientific Conference on Economic and Social Development*, Machrafi, M., Učkar, D., Šušak, T. (eds.), Rabat, 25-26 March, 2022, pp. 25-34.

16. Miklošević, I., Vretenar Cobović, M., Markuz, A. (2022). Reasons for one-way communication and possible ways to improve communication in companies from employees' point of view. *Proceedings of International conference Interdisciplinary Management Research XVIII.* Erceg, A., Požega, Ž. (eds.), Opatija: Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Postgraduate Studies Management and Hochschule Pforzheim University, pp. 298-318.

17. Miklošević, I., Markuz, A., Sigurnjak, L. (2022). Basic management functions - challenges during the covid-19 pandemic, *Economic and Social Development*, *78th International Scientific Conference on Economic and Social Development,* Ribeiro, H., Šušak, T., Haluga, V., (eds.), Aveiro, 24-25 February, 2022, pp. 104-113.

18. Miklošević, I., Markuz, A, Hrvatin, S. (2022). Comparison of intangible factors of employee satisfaction in private and state-owned enterprises in the Republic of Croatia with material factors of employee satisfaction in workplaces - high salary. *88th International Scientific Conference on Economic and Social Development – "Roadmap to NetZero Economies and Businesses",* Janjušević, J., Hopkinson, P., Pandža Bajs, I. (eds.), Dubai, 19-20 October, 2022, pp. 178-188.

19. Miklošević, I., Stanić, I., Knežević Kušljić, S. (2022). Managers factors in delegating work tasks to associates. *88th International Scientific Conference on Economic and Social Development – "Roadmap to NetZero Economies and Businesses",* Janjušević, J., Hopkinson, P., Pandža Bajs, I. (eds.), Dubai, 19-20 October, 2022, pp. 361-368.

20. Miklošević, I. (2022). Lifelong learning, additional education and attendance of seminars and education of employees in private and state-owned enterprises in the Republic of Croatia. *82nd International Scientific Conference on Economic and Social Development - "Post-Covid Economy in Africa and emerging countries"*. Maghni, A. (ed.), Tangier, 23-24 May, 2022, pp. 75-85.

21. Miklošević, I., Sigurnjak, L., Markuz, A. (2022). Entrepreneurial risks of the free natural gas market in the Republic of Croatia. *FEB Zagreb 13th International Odyssey Conference on Economics and Business*. Sever Mališ, S., Jaković, B., Načinović Braje, I. (eds.). Dubrovnik, Croatia & online, Faculty of Economics & Business University of Zagreb, Croatia, June 1-4, 2022, pp. 297-309.

22. Ravlić, S., Zelenko, I. (2011). *Importance of human resources in entrepreneurial support institutions for adaptation of smes to business environment in the Eu.* Proceedings of International conference Interdisciplinary Management Research VII. Bacher et al (ed.), Osijek - Poreč: Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Postgraduate Studies Management and Hochschule Pforzheim University, pp. 663-671.

23. Republika Hrvatska, Ministarstvo financija, (2023). *Državne potpore za podršku gospodarstvu tijekom pandemije COVID-a 1*9. Retrieved 20.01.2023. from https://mfin.gov.hr/istaknute-teme/koncesije-i-drzavne-potpore/drzavne-potpore/drzavne-potpore-za-podrsku-gospodarstvu-tijekom-pandemije-covid-a-19/3044

24. Stanić, L., Miklošević, I. and Glavaš, J. (2017). Analiza zastupljenosti timskog rada u osiguravajućim društvima, *Ekonomski vjesnik: časopis Ekonomskog fakulteta u Osijeku*, Osijek, 1, Vol. XXX, No. 1, pp. 129-140.

25. Sudarić, Ž. (2012). Obrazovanje + cjeloživotno učenje za poduzetništvo = zapošljivost, *Učenje za poduzetništvo*, Vol. 2, No. 1, pp. 71-75.

26. Tkalec, Z. (2011). Definicija i karakteristike poduzetništva kao ključne kompetencije cjeloživotnog učenja. *Učenje za porduzetništvo.* Retrieved 08.01.2023 from https://hrcak.srce.hr/file/192156

27. Turkalj, Ž., Miklošević, I. and Stanić, L. (2016). Business intelligence as support to management and management system. Barković, D. and Bacher, U. (eds.). *Interdisciplinary management research XII*. Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Opatija, pp. 17-28.

28. Turkalj, Ž. and Miklošević, I. (2017). Factors which affect managers' decisions on delegation in companies. Barković, D. and Bacher, U. (eds.). *Interdisciplinary management research XIII*. Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Opatija, pp. 17-35.

29. Zakon o računovodstvu (Narodne novine broj 78/15, 134/15, 120/16, 116/18, 42/20, 47/20,114/22, Retrieved 03.01.2023 from https://www.zakon.hr/z/118/Zakon-o-ra%C4%8 Dunovodstvu

OPEN GEOSPATIAL DATA IN THE EUROPEAN UNION – CASE STUDY CROATIA

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ABSTRACT
The issue of open data, access, pricing and sharing has been on the "open table" for years. The business process of open data is not simple. There are pros and cons for companies, public institutions and citizens in general. On the European Union (EU) level, the Directive on open data and the re-use of public sector information, also known as the Open Data Directive, replaced the Public Sector Information (PSI) Directive. The Open Data Directive introduces the concept of six high-value datasets. One of them is geospatial data. This directive gives additional incentives to EU countries for faster implementation of open geospatial data, both in the legal and implementation frameworks. A special part of the implementation of the Open Data Directive refers to the sharing of geospatial data primarily using Geoportal's responsible institutions. It is also worth to mention that the concept of the high-value datasets is closely related with EU INSPIRE Directive which aims to establish Spatial Data Infrastructure in the EU.
Keywords: Open data, Open Data Directive, INSPIRE, Geoportal

1. INTRODUCTION
Open data is data that is publicly and freely available, and is intended for reuse for a commercial and/or non-commercial purpose that is different from the purpose for which it was originally created or collected. With wide application in the public, non-profit and business sectors, open data is the key to the development of society, raising the quality of life, economy and overall growth and development. As part of the European strategy for data, the EU pursues an open data policy. This policy concerns EU institutions, agencies and bodies, as well as the Member States, which are encouraged to make as much data available for reuse as possible.

The Open Data Directive sets the framework and directs Member States towards establishing their national open data online portals (7). As part of the European strategy for data, the EU pursues an open data policy. The Open Data Directive sets the framework and directs Member States towards establishing their national open data online portals. Many EU countries have already established their own central open data points for finding, using and distributing open data. One of the main problems is awareness of the need for open data, i.e. their collection and maintenance as well as updating. The use of open data should be defined by the strategic documents of each country, as well as by legal regulations that clearly define all steps of using open data (2). Open data can help bring diverse benefits to governments in terms of better decisions and strategies, businesses in terms for open new firms and jobs and civil society in terms of better and and pleasant life. In the geospatial data domain, INSPIRE Directive made a tremendeous push towards open geospatial data. With the entry into force in May 2007 of the INSPIRE Directive, the EU embarked on an ambitious initiative for enabling access and reuse of geospatial data and information across all levels of government and borders. INSPIRE quickly proved itself to be a de facto pioneer and innovator of a European Interoperability Framework and the Digital Single Market priority initiative for building a European data economy benefiting the overall economy and society (1).

2. EU POLICY AND REGULATION OPEN DATA
The legal and implementation framework, in the form of directives, is extremely important for all levels of open data implementation. Since, one of the fundamental guidelines of EU development is the free use of open data thre creation of legal fasmework for open acces data is on highlist of priorities of EU policies. In the EU, the public sector is one of the most data-intensive sectors. Public sector bodies produce, collect and pay for vast amounts of data, known as public sector information (PSI), or government data. Examples include geographical information, statistics, weather data, data from publicly funded researched projects, and digitised books from libraries. 'Open' public data refers to PSI that can be readily and widely accessed and reused, sometimes under non-restrictive conditions. The EU open data market is a key building block of the overall EU data economy. According to the study supporting the impact assessment carried out to provide input to the review of the PSI Directive, the total direct economic value of PSI is expected to increase from a baseline of €52 billion in 2018 for the EU27 + UK, to €194 billion in 2030 (5). In 2003, the European Commission set up a legal framework to allow the reuse of public sector information through the 'PSI Directive' (Directive 2003/98/EC), subsequently revised by Directive 2013/37/EU. This Directive is built around two pillars of the internal market: transparency and fair competition. It focuses on the economic aspects of the re-use of information. After revision of the last Directive the new Directive (EU) 2019/1024 on open data and the reuse of PSI was adopted and published on 20 June 2019. Deadline for the implementation for each Member States was 16 July 2021 (4). The new Directive introduces the concept of high-value datasets, defined as data that is associated with important benefits for the society and economy when reused. High-value data sets are subject to a separate set of rules ensuring their availability free of charge, in machine readable formats, provided via application programming interfaces (APIs) and, where relevant, as bulk download. Thematic categories of high-value datasets is given in Figure 1. One of the main thematic categories of high-value datasets is geospatial data. Geospatial data is data about points, objects, events, or phenomena that have a location on the surface of the earth. The location may be static or dinamic. Geospatial data combines location information, associated attributes, and sometimes temporal information. Much geospatial data is of general interest to a wide range of users. Given the importance of geospatial data, special attention should be paid to their quality.
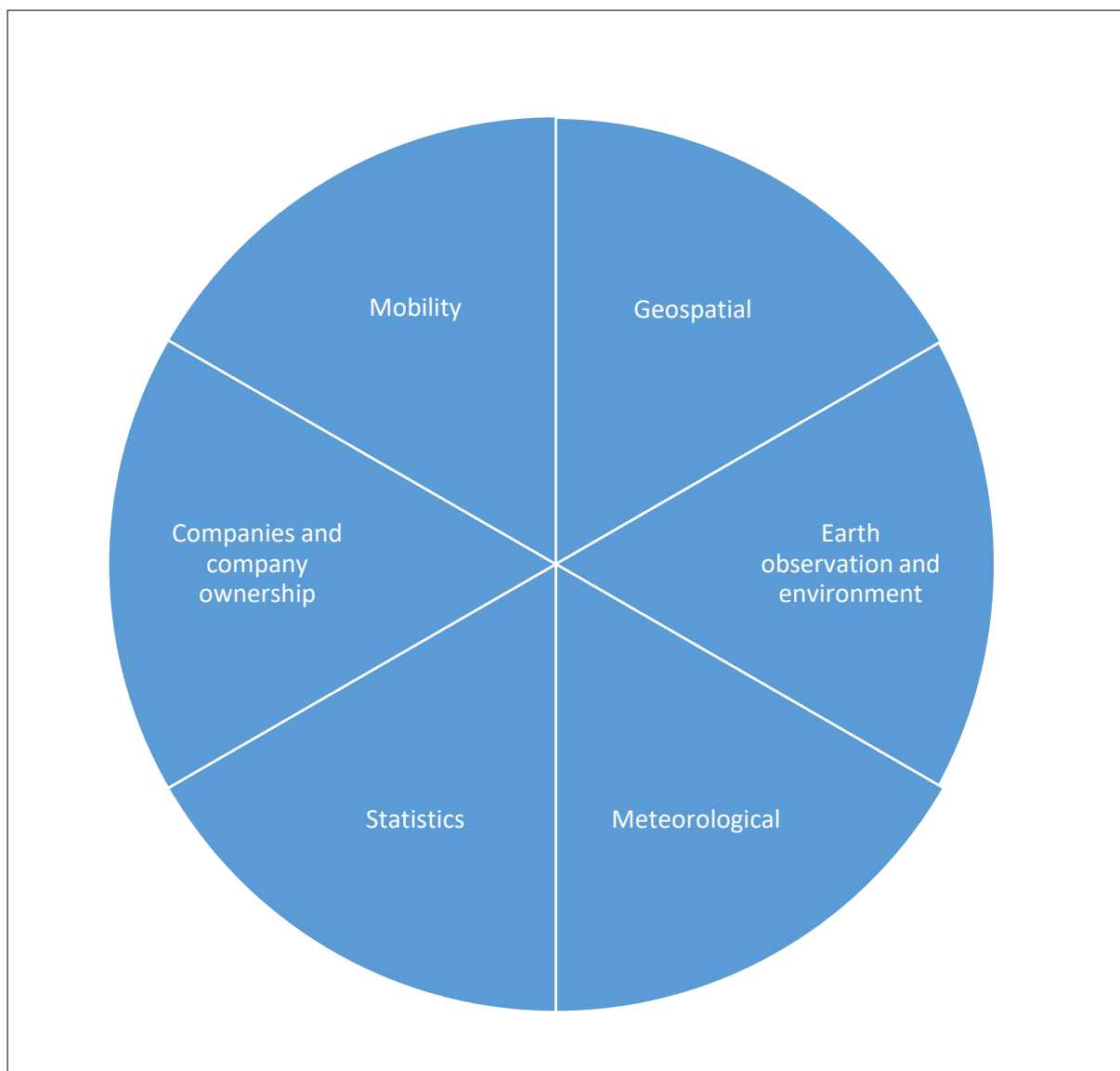
Figure 1: Six thematic categories of high-value datasets

Data is of high quality if they are fit for their intended uses in operations, decision making and planning. If we work with bad and inaccurate data, the results can be immeasurable losses. Today we cannot imagine a comfortable life without geospatial data. Sometimes we are not even aware of how and in what way geospatial data is included in daily life.

2.1. The official portal for European data
The central point to access European open data from international, , national, regional, and local level is data.europa.eu. Data.europa.eu is the official portal for the European open data. The portal was launched in the spring of 2021, integrating the pre-existing European Data Portal and European Union Open Data Portal into a single, coherent core component of the public sector data infrastructure that has been set up by the European Union, its institutions and Member States. The portal merges the activities of the European Data Portal (which focused exclusively on EU Member States and other European countries) and of the EU Open Data Portal (which served data from the EU institutions, agencies, and bodies) into one. Also, the portal is aimed at improving the accessibility to open data and promoting its use by public administrations, research centres, citizens, businesses, and any other interested organisation.

Policy - focusing on countries' open data policies and strategies
Impact - looking into the activities to monitor and measure open data reuse and its impact
Portal - assessing portal functions and features that enable users to access open data via the national portal and support interaction within the open data community
Quality - focusing on mechanisms that ensure the quality of the (meta)data

Table 1: The assessment measures maturity against four open data dimensions

It enhances the transparency of European administrations and educates about the opportunities arising from open data. Services are focused around three main spheres. Main services in portal have a three guidelines: data publishers - any person or entity that gives access and distributes data to the public, data users - any person or entity who accesses and consumes data for any purpose and data literacy - the ability to read, understand, create, and communicate data as information. The Open Data Maturity assessment 2022 benchmarks the development of European countries in the field of open data. The last eight years consecutive data.europa.eu produce report for 35 countries, including the 27 EU Member States, 3 European Free Trade Association (EFTA) countries (Iceland, Norway, Switzerland), 4 candidate countries (Albania, Montenegro, Serbia, Ukraine) and Bosnia and Herzegovina (5). This report aims to help participating countries to better understand their level of maturity, to capture their progress over time, to find areas for improvement and benchmark their maturity against other countries. Additionally, the study provides an overview of best practices implemented across Europe that could be transferred to other national and local contexts. The assessment measures maturity against four open data dimensions (Table 1).
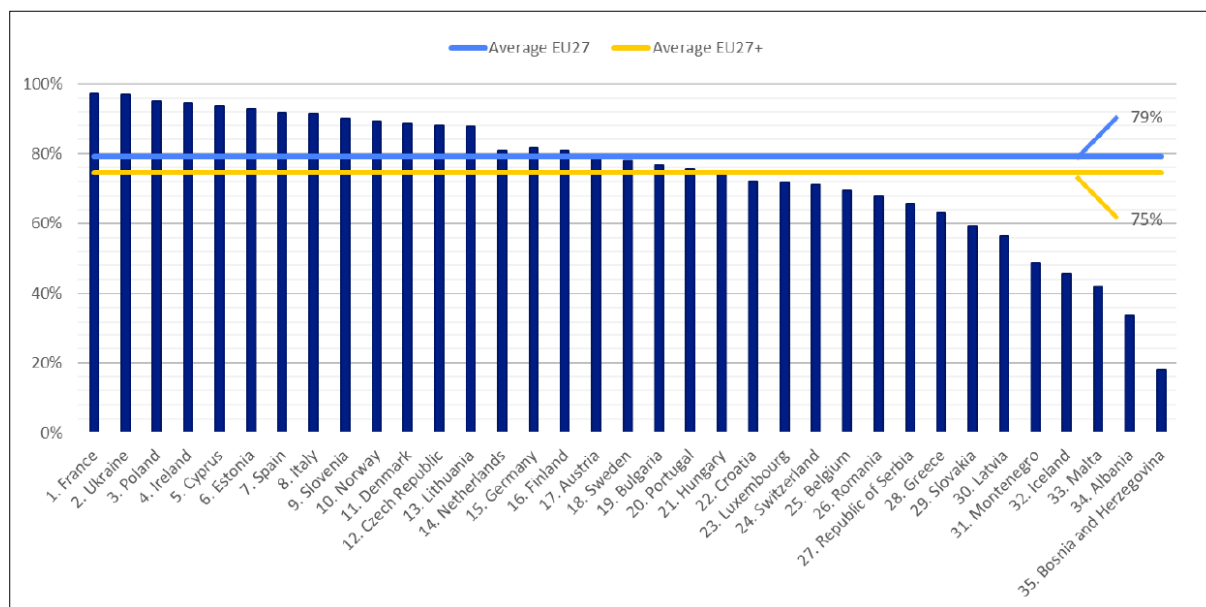
Figure 2: The overall Open Data Maturity scores of the 2022 assessment

Figure 2. illustrates the overall open data maturity scores of all 35 participating European countries in 2022. European countries are investing resources to increase their maturity across the board. In this year's landscaping exercise, several of the dimensions were updated to reflect the current open data setting and to more accurately reflect countries' progress since last year.

This is reflected in the slight decrease of the overall EU27 and EU27+ average. In 2022, the average open data maturity score of the EU27 countries is 79%, a decrease of 2 percentage points compared to 2021 (4).

2.2. Croatian Open data portal

Digitization of society and its transformation through the development of the digital economy and digitization of public administration is crucial (3). It is achieved through the orientation towards the development of innovations and the creation of new jobs and efficiency, availability and user satisfaction are key levers for increasing competitiveness economy and efficiency of public administration. In Croatia, the Central State Office for the Development of the Digital Society is a state administrative organization with the task of monitoring and improving the development of the digital society and harmonizing it with the guidelines and regulations of the European Union in the field of the digital society and economy. The open data portal of the Republic of Croatia (https://data.gov.hr/) is a data node that serves to collect, categorize and distribute open data of the public sector. The goal is to improve the dissemination of public and open data through a single and central place and enable the creation of innovative non-commercial and commercial applications that would use this data. It is also intended to encourage more intensive cooperation with the private sector, especially in the field of information technologies, and to encourage the improvement of electronic public services as well as to increase the transparency of public administration (6). The open data portal of the Republic of Croatia is used for the collection, categorization and distribution of open data of the public sector, which is published in a form that is computer readable and open, which means that a machine or computer can independently read and interpret it independently of the platform used. Public authorities, in accordance with the Law on the right to access to information ("Official Gazette", number 25/2013, 85/2015, 69/2022), are required to be in machine-readable form (CSV, XLS, XML, JSON, HTML, etc. format) to publish registers and databases that they created within their jurisdiction, for which there are no legal restrictions.

3. GEOSPATIAL DATA IN CROATIA

There are several geoportals that support geospatial data in Croatia. The three main ones are: Joint Information System of Cadastre and Land Registry, Geoportal of the State Geodetic Administration and Geoportal of NSDI.

3.1. Joint Information System of Cadastre and Land Registry

The main place where cadastre and land register data can be downloaded digitally is the Joint information system. The system was fully established in October 2016. The result is the migration and arrangement of a total of 14.5 million cadastral parcels into a common system. The JIS establishment has led to the creation of a unified register for the cadastre and land registers in which the systems are interlinked and exchange real property data. In simplified terms, a unified database and application bringing numerous benefits to the users have been established to keep and maintain the cadastre and land registry data (11). Apart from the time, needed to access the data and make a registration, being significantly reduced, the citizens are today able to see at one place the ownership structure of a real property and its location in space as well as numerous other functionalities. Another part of the Real Property Registration and Cadastre Joint Information System is „One-Stop-Shop" (OSS). This is a single service point for accessing land registry and cadastre data (Picture 1).

Picture following on the next page

Picture 1: Main part of Joint Information System - OSS

The OSS includes two components: OSS public application is accessible to all users, regardless of the registration, and allows for searching and viewing the basic land registry data and the basic cadastral alphanumerical and graphic data, and OSS for registered users is available to registered users only and enables data viewing, filing applications for obtaining public deeds and solving at land registry and cadastral offices as well as receiving officially composed documents. The users can use the OSS and e-Citizens systems to electronically file applications, without going to a cadastral or land registry office to be handed a cadastral map copy, possessory sheet transcript/extract, land registry extract and Land Database extract. Additionally, they can view the status of a land registration (LR) case, main register, book of deposited contracts (BDC), data on LR case status, BDC sub-file and LR file. On behalf of users, authorised public notaries or lawyers can send e-applications for registering in the land register and book of deposited contracts.

3.2. Geoportal of State Geodetic Administration

Picture 2: Geoportal of State Geodetic Administration

The State Geodetic Administration Geoportal is the central place to access spatial data and one of the basic elements of National Spatial Data Infrastructure (9). State Geodetic Administration (SGA) is a public administration organisation performing administrative and expert tasks in the fields of geodesy, cartography, cadastre and photogrammetry, and is concerned with the establishment of a national spatial data infrastructure, digitisation of cadastre and geodetic-spatial system, official state mapping (1:5 000, 1:25 000, 1:100 000, 1:200 000), geodetic documentation, statistical data about real property cadastre, spatial units and utilities, and geodetic-cadastral activities related to the state border (Picture 2). National Spatial Data Infrastructure (NSDI) is defined as a set of technologies, measures, standards, implementation rules, services, human resources and other factors enabling the efficient integration, management and maintenance of the sharing of spatial data for the purpose of meeting national and European-level needs, which will be an integral part of the European Spatial Data Infrastructure defined by the INSPIRE Directive.

3.3. Geoportal of National Spatial Data Infrastructure and GeoCroatia

The Geoportal of the National Infrastructure for Spatial Data (NSDI) represents a central point for publishing metadata and finding spatial data that are part of the NSDI (Picture 3). It consists of the Metadata Catalog and the Spatial Data Browser. The national contact point is responsible for its establishment, and it is also one of the direct obligations of the member states, determined by the INSPIRE Directive. Spatial data sources are described in the Metadata Catalog in a standardized manner, in accordance with the NSDI metadata profile. Spatial data viewer enables the viewing of spatial data that is available through the online viewing service. The NSDI Geoportal has a threefold role: it enables professional users, as well as everyone else, to find spatial data as easily as possible, it helps NSDI entities to present spatial data from their jurisdiction through metadata in a standardized, correct and understandable way and through the Discovery Service, it presents spatial data of the Republic of Croatia on the central INSPIRE Geoportal, but also on all other portals that download metadata records from the NSDI Metadata Catalog. The ultimate goal of the NSDI Geoportal is to unify descriptive information about all spatial data that is part of the NSDI through a catalog service and make it available in a simple and efficient way, enabling easy retrieval and sharing. In addition to subjects directly entering their metadata through the user interface, it is also possible to directly download records from their internal metadata catalog directly into the NSDI metadata catalog. In the same way, the data from the NSDI Catalog is harvested into the INSPIRE catalog. It is to be expected that the number of institutions whose catalogs are directly downloaded into the NSDI catalog will increase (10).
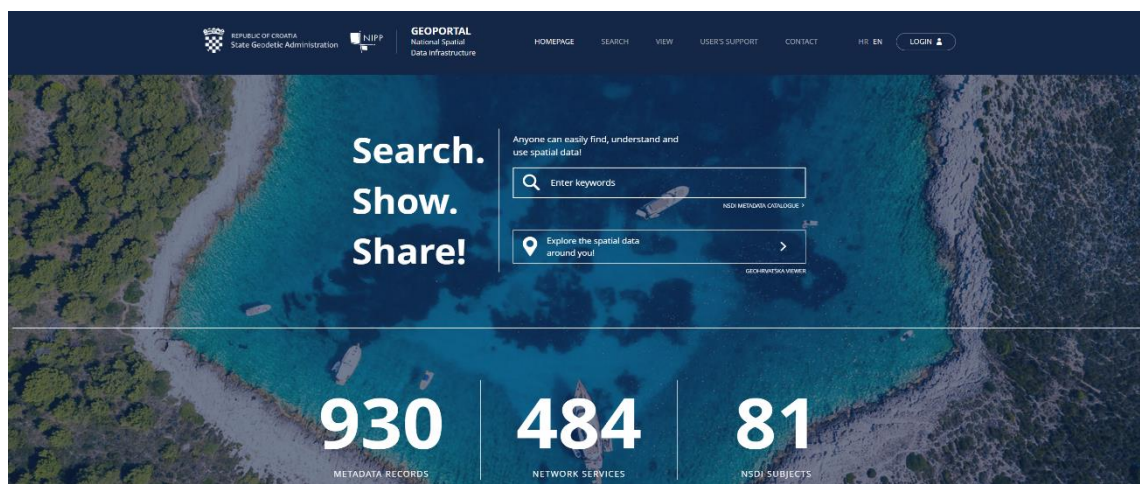
Picture 3: Main page of NSDI Geoportal

The GeoCroatia portal is intended for citizens, that is, for all users who want to use the official spatial data of the public authorities of the Republic of Croatia to get to know and explore the space that surrounds us (Picture 4). The development of the portal will increase the availability of spatial data of public authorities, and the level of transparency will increase by sharing and using them.
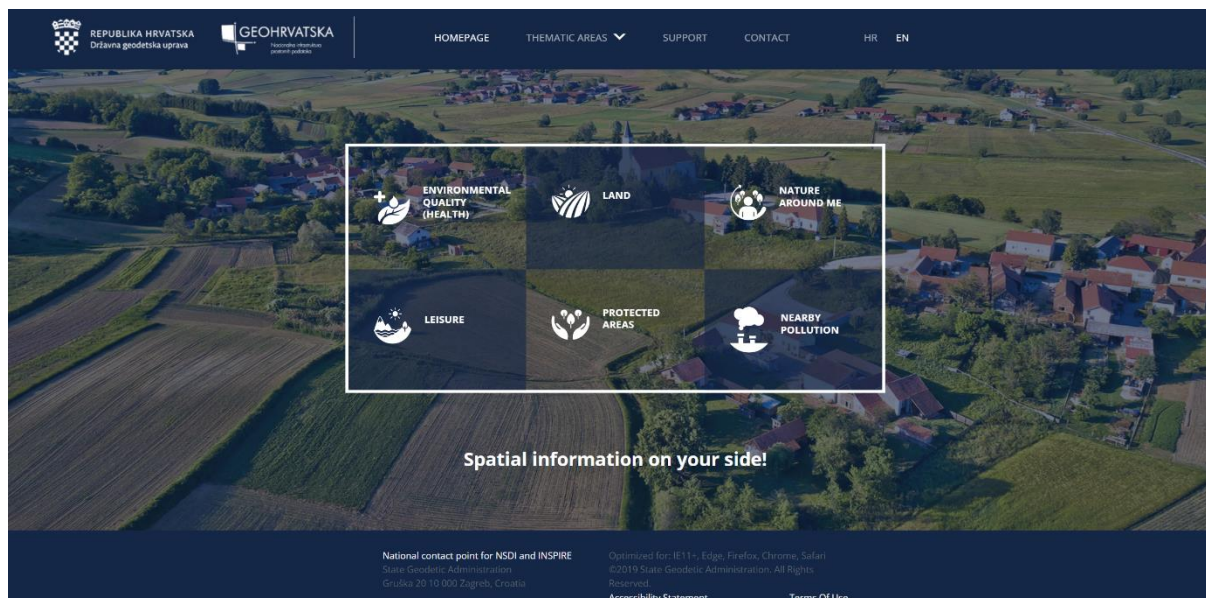
Picture 4: Main page of GeoCroatia portal

This portal brings together selected spatial data of NSDI subjects, available through online viewing and download services, and connects them in an interoperable way, which is the ultimate goal of NSDI and INSPIRE. Many of the available spatial data have a direct impact on the quality of life of each of us: air quality, noise levels, information on different landfills or the layout of mobile repeaters are just some of them. By locating the user and displaying the spatial data of a certain thematic category in his vicinity, citizens are enabled to gain insight into the data that surrounds them. The construction of the system is fully adapted to access from mobile devices, that is, it has a responsive design with an emphasis on the cartographic representation of the user's environment (8).

4. CONCLUSION
The strategy of open data and, in particular, open geospatial data play a key role in the development of modern society. Nevertheless, the question arises: can we even imagine life today without high-quality and reliable spatial data? That is almost impossible! The EU closely monitors the situation in the EU as well as in other countries. The indicators defined for open data policy, impact, portal and quality provide clear state of open data policy by countries and are an excellent basis for creating short- and medium-term strategies. Geospatial data is the basic pillar of the development of every country, both economically and in terms of a more comfortable life in a developed society. Therefore, institutions that create geospatial data have an extremely important role in collecting, updating and sharing quality data in terms of the application and implementation of the open data strategy. Each country should provide the main or main central points (Geoportals) where geospatial data will be found and used according to clear rules and information. With the establishment of the Geoportal State Geodetic Administration in 2012 and the NSDI Geoportal in 2013, Croatia clearly established a path towards the strategy of open data.

A special contribution to the digital transformation of society was the full implementation of the common cadastre and land registry information system in October 2016 with the implementation of the OSS - One Stop Shop submodule, which enabled digital interaction between citizens and institutions regarding the use of cadastre and land registry data. It should be emphasized that the Republic of Croatia should continue to work on the quality of geospatial data based on the strategy, but also through the analysis of the EU Commission via the open data portal. Also, special attention should be paid to the need for licensing of geospatial data and contractual obligations when downloading and sharing them.

LITERATURE:
1. Arnold, S., Chen, J., Eggers, O. (2019): Global and Complementary (Non-authoritative) Geospatial Data for SDGs: Role and Utilisation. Report. UNGGIM 2019. Retrieved 01.02.20203. from https://ggim.un.org/documents/Report_Global_and_Complementary_Geospatial_Data_for_SDGs.pdf
2. Davies, T., Walker, S., Rubinstein, M., Perini, F. (2019): The State of Open Data - Histories and Horizons. Cape Town and Ottawa: African Minds and International Development Research Centre (IDRSC). Retrieved 05.02.2023. from https://stateofopendata.od4d.net/
3. Vlada Republike Hrvatske (2022): Nacionalna razvojna strategija Republike Hrvatske do 2030. Retrieved 20.01.2023. from https://hrvatska2030.hr/
4. European Commission (2022): Documentation of data.europa.eu. Retrieved 27.01.2023. from https://dataeuropa.gitlab.io/data-provider-manual/pdf/documentation_data-europa-eu_V1.0.pdf
5. European Commission (2022): Measuring Open Data Maturity. data.europa.eu. The official portal for European data. Retrieved 10.02. from https://data.europa.eu/en/publications/open-data-maturity/2022
6. Official Gazete (2023): Strategija digitalne Hrvatske za razdoblje do 2032. godine. Official Gazzete Republic of Croatia. 2/2023. Retrieved 13.02.2023. from https://narodne-novine.nn.hr/clanci/sluzbeni/2023_01_2_17.html
7. European Commission (2023): *Shaping Europe's digital future. Open data*. Retrieved 01.02.2023. from the https://digital-strategy.ec.europa.eu/en/policies/open-data
8. State Geodetic Administration (2023): GeoCroatia. Retrieved 02.02.2023. from https://www.geohrvatska.hr/en/
9. State Geodetic Administration (2023): Geoportal State Geodetic Administration. Retrieved 10.02.2023. from https://geoportal.dgu.hr/
10. State Geodetic Administration (2023): Geoportal National Spatial Data Infrastructure. Retrieved 10.02.2023. from https://geoportal.nipp.hr/en/
11. Joint Information System (2023): One Stop Shop portal. Ministry of Justice and State Geodetic Administration. Retrieved 10.02.2023. from https://oss.uredjenazemlja.hr/

THE EFFECT OF SOCIAL NETWORK ON AUDIENCE'S EMOTIONS

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ABSTRACT
The digitization and convergence of media have changed not only the way of production and distribution of media content, but also the way it is consumed. Primarily it has happened due to social networks, which have completely changed the way we communicate and share information. With the emergence of the constant need to be always available to everyone, the power of social networks is constantly increasing. Although they have many good sides; they provide the feeling of connection and belonging, and they enable expressing one's opinion and publishing various personal and public content, on the other hand, at the same time they can encourage the development of unpleasant emotions due to constant exposure to a large amount of negative information and the comparison with other users. It is important to investigate their influence on various aspects of human behaviour and to be aware of their influence on their audience. The aim of this paper is to analyse the content of social networks and to investigate their influence on the individuals' emotions. To gain an insight into the content of the posts on Facebook and Instagram of the most influential national daily newspapers in the Republic of Croatia (Večernji list and Jutarnji list) and their emotional colouring, the method of quantitative and qualitative content analysis was used. In addition, a survey was conducted on the impact of social networks on audience emotions. The goal of survey was to gain insight into how social network users perceive their content, that is, how this content affects their emotions. The obtained results confirmed that social networks really influence the emotions of the audience and that, if we cannot already influence the posts of individuals, at least the national media should consider what content their editors publish on social networks.
Keywords: *digital media, emotions, Facebook, Instagram, social networks*

1. INTRODUCTION

Contemporary media are faced with challenges and phenomena that redefine their social role and the way users perceive and interpret them today. Socially responsible journalism records a continuous decline in reach and importance, and it is increasingly faced with major financial issues. The digitization and convergence of the media have changed not only the way media content is produced and distributed, but also the way the content is consumed, and the way people communicate. This was primarily due to social networks, which have completely changed the way we communicate and share information about ourselves today. Since people are social beings, communication is the basis of human survival, and we cannot imagine modern life without it. Internet, mobile telephony, and other modern sources of communication have become an integral part of our everyday life. Young people, as well as adults, have the need to communicate in different ways, which nowadays implies the use of state-of-the-art technology.

The influence of modern technology on the daily life of individuals is still not sufficiently researched, and it is not possible to draw a clear conclusion from the results of existing research. The study of the media effect and the influence of the mass media throughout history has produced various theories of the mass media, some of which were completely contradictory. Throughout history, many media studies have shown that the media have a certain influence on public opinion, although not great, and it does not result in a change of attitudes. However, a whole series of theories subsequently showed that this influence not only exists, but also has great importance, especially within the mass communication that takes place on a daily basis. This paper presents an overview of theoretical bases relevant to the topic of this paper, as well as the methodology and overview of the results of empirical research.

2. THEORETICAL FRAMEWORK

Mass communication is the organised and institutionalised transmission of all forms of information using modern means of communication. For a long time, the media have not been just intermediaries that transmit some content, but actually form their own social environment and have become part of our own natural-artificial environment. We expect a lot from them, they convey some knowledge to us, they represent entertainment. German communicator and psychologist Gerthard Maletzke defines mass communication as „that form of communication that is mediated to dispersive audience through public statements (therefore, the recipients are not limited in number nor are they personally defined), by technical means (media), indirectly (between participants in communication, there is a spatial, temporal or spatial and temporal distance) and unilaterally, that is, without changing roles between the one who sends and the one who receives the message" (Kunczik 2006: 24; Čulo 2021). Mass communication is a characteristic feature of modern society. Their development is accompanied by an increase in the complexity of social activities and arrangements, rapid social changes, technical innovations, an increase in personal standard and quality of life, and a decline of some traditional forms of control and authority. According to McQuail (2005), many social changes, whether undesirable or favourable, and attributed to mass communication, are certainly the cause of other phenomena in society; and mass communication is as much a consequence as a cause of change. The same applies to the media as one of the fundamental channels of mass communication, which the audience consumes in different ways and to satisfy different needs. The uses and gratifications theory thus, for example, implies that consumers consume certain media content primarily to satisfy their needs, which can be of a different range - from searching for information to entertainment, etc. At the same time, consumers are considered active participants in communication, and not just recipients who do nothing and passively receive messages that the media communicate to them. When compared to other theories, this theory differs precisely in its focus on the audience, which is given a lot of attention, and it is assumed that consumers are very familiar with the media they consume, that they know their content and that they are able to find it. According to Katz et al. (Katz: 1974: 20; Čulo 2021), „social and psychological causes lead the audience to a need that creates expectations from the mass media and other sources, which leads to various forms of media exposure (or involvement in other activities), resulting in the satisfaction of the need and other, often unintended consequences." In that context, the most important are the social and psychological patterns of consumers who, depending on them, have different needs for information that they want to satisfy. Therefore, media consumption also differs depending on the satisfaction of those needs. At the same time, the media's competitors are all other forms and sources of information through which consumers can satisfy their needs. The uses and gratifications theory is also based on similar theses. According to Rubin (1994: 420), the basic principles of this theory are the following: „communication behaviour of individuals, including the selection and use of the media, is purposeful, motive-driven and goal-directed behaviour; individuals take initiative in choosing

and using communication tools to satisfy their needs and desires; a set of social and psychological factors determine the communication behaviour of individuals; the media constantly compete with other communication channels to gain the attention of individuals in order to choose and use them to satisfy their needs and desires; people influence each other more than they are influenced by the media, but not always." McQuail (2005: 53, Čulo 2021) and McLuhan also dealt with the uses and gratifications theory and, according to them, there are four key reasons why consumers use media content. These are „the need to get away from everyday problems, routine or the need for emotional relaxation; the need to create and maintain personal relationships through society and various social relations and practices; the need to build a personal identity through identifying one's own attitudes and values and comparing them with the environment; the need for information, that is, the need for "surveillance" or knowledge of the situation in which the individual finds himself. " (McLuhan 2008: 45; Čulo, 2021). The scientific research that followed expanded the range of needs that media users want to satisfy – from the need to escape from everyday life, the need for education, social contact, self-realisation, relaxation, to information from the area of pop culture, etc. Consequently, McQuail (McQuail: 2005: 53-54) et al. established a new model named – integrated model of audience choice. This model is a combination of many different causes that encourage consumers to use certain media content to satisfy their needs, which, at the same time, results in their influence on the production and distribution of that same content. There are two key components to understanding this model – the media audience (to whom the content is intended and who consumes it) and the medium (which produces that content). Therefore, it is very important to know the media audience, that is, the media consumers (their personal preferences, demographics, standards, etc.). In addition, the society, that is, the community in which this media audience lives is also important, as well as the conditions surrounding it (political system, religion, geographical features, history, etc.). After that, the individual preferences and taste of each consumer as well as the way and place in which they consume the media content come into play. It should be noted that different media content is consumed in different ways and through different media platforms, and it is very important to ensure the conditions that consequently determine the choice of individual media and its content. As for the medium itself, each medium has its own distinctive features and the way of consuming media content. In addition, it is extremely important how that content is structured and presented, and only at the end, the content itself consumed by the audience. Accordingly, in order for the content to be consumed and noticed by the media audience, the media should promote it in some way. Promotion in modern society is primarily done through social networks, which are often the audience's first contact with media content, and it is through social networks that the audience consumes content of a certain medium, often completely superficially, having read only the headlines and a few sentences of the text. With the emergence of the constant need to be available to everyone at all times of the day and night and the need for easy and quick information consumption, the power of social networks is constantly increasing. The media had to adapt to this in order to continue to remain "desirable" and to keep their audience, which dispersed across different media platforms. They had to adapt to the conditions and wishes of the audience and, after launching their web portals, they had to create profiles on social network. Social networks have completely changed the way the media are consumed and created a global revolution in the way people communicate. At the same time, the digitization of the media leads to even greater commercialisation of content and the emergence of trends of trivialisation and tabloidization, lack of content, tendentiousness, ideological bias, weaknesses of consumerism, propaganda of commodification of culture (McQuail, 2005, Čulo 2021). With the emergence of digital media, printed media have lost a large part of the audience that no longer wants to spend money on printed editions, when information can be obtained free of charge on the internet.

In addition to recording a significant drop in circulation, there is a noticeable drop in revenue from advertisers. At the same time, television is also losing its audience and political power, that is, public television no longer has as much influence on citizens as before. All of this leads to major changes in all media, resulting in the 'mixing' of the content. The informative programme is "coming closer" to the entertainment programme and becomes − infotainment, a combination of information and entertainment. In addition, in the time of digital platforms that grow dispersedly and insufficient ethical rules that serve as a guide through cyberspace, the socially responsible role of the media and the structuring of public communication is extremely important to enable the public to participate in decision-making (Christians et al. 2009: 236; Čulo 2021). In order for the audience to be able to participate in decision-making and to perceive information in the way as they are selected and presented by journalists, and then consequently by the media, it is extremely important that the audience is media literate. According to Nada Zgrabljić Rotar, media literacy is a part of communication sciences that is developing into a separate field as a result of communication trends (Zgrabljić Rotar, 2008: 43). Media literacy requires the development of ability to understand the media, that is, it enables „critical competences for understanding the media content that create the ability to interpret and critically evaluate the content; technical competences for access to media; practical competences for creating media messages, that is, writing some content either in classic media or in new media." (Zgrabljić Rotar, 2008: 46) The author emphasizes that media literacy prepares citizens for the conscious use of the media and the critical reception of the media content (Zgrabljić Rotar, 2008: 47; Čulo, 2021), and this can and must be applied to social networks, which today take precedence when it comes to media consumption. It was social networks that changed completely the relationship between the media and the audience, which is no longer one-way. The audience no longer wants just content but wants to feel the experience that the medium provides to the user. Martinoli (2016) points out that today the concept of audience has become much more complex because the audience is not a passive but an active media consumer who reacts to media content in different ways: by sharing that content, liking it or disliking it, subscribing to the content, etc. „When we are talking about the audience, we are talking about fans, followers, subscribers, users, likers, producers or prosumers, shares" (Martinoli: 2016). With the emergence of the constant need to be available to everyone at any time of the day and night and the need for easy and quick consumption of information, the power of social networks is constantly increasing. Although they have many good sides and, on the one hand, provide a sense of connection and belonging due to the possibility of unlimited communication with others, expressing one's opinion and posting various personal and public content, on the other hand, at the same time, they can encourage the development of unpleasant emotions due to constant exposure to a large amount of negative information and due to the comparison of social network users with other users. Emotions are based on what people care about and what they appreciate. Another key feature of many emotions is the inclusion of tendency to act (Frijda, 1986), which means that emotions motivate or prepare behavioural responses. Since the use of social networks is growing unstoppably, it is important to examine their influence on various aspects of human behaviour and to be aware of the influence of the content of individual posts on their audience. Accordingly, the main aim of this paper was to determine whether the content on social networks affects the emotions of the audience. Three sub-aims of this paper were derived from the main aim of the paper: (1) to analyse the content of social networks (Facebook and Instagram) of the most influential national daily newspapers in the Republic of Croatia – Večernji list and Jutarnji list; (2) to examine do users of social networks believe what they read on social networks and (3) how that content affects their emotions.

3. EMPIRICAL RESEARCH
In order to gain an insight into the content of the posts on Facebook and Instagram of the most influential national daily newspapers in the Republic of Croatia (Večernji list and Jutarnji list) and their emotional colouring, the method of quantitative and qualitative content analysis was used. In addition, a survey on the impact of social networks on audience's emotions was conducted. The goal of the survey was, as mentioned before, to gain an insight into how social network users perceive their content, that is, how this content affects their emotions.

3.1. First research – content analysis
Content analysis is the process of studying and breaking down verbal or non-verbal material in order to observe its characteristics and messages (Lamza Posavec 2021: 258). It is a part of the so-called desk research, and in this paper, a quantitative and qualitative analysis of the content was conducted because of the aims and purpose of the research. The aim of this method was to determine how much content the most influential daily newspapers in the Republic of Croatia publish on social networks per month and how emotionally coloured that content is.

3.1.1. Results of the first research
The analysis of social networks (Facebook and Instagram) of the leading daily newspapers in the Republic of Croatia (Večernji list and Jutarnji list) during a period of one month (from May 1st to May 31st 2022) covered a total of 580 posts on social networks, of which 299 were posts on social networks of Večernji list (48 on Facebook and 251 on Instagram) and 281 posts on social networks of Jutarnji list (110 on Facebook and 171 on Instagram).
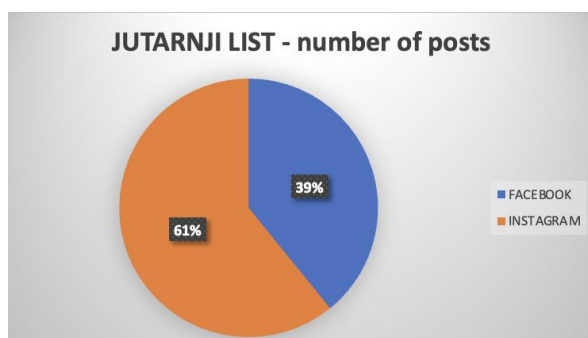
Chart 1: Number of posts on social networks of Jutarnji list
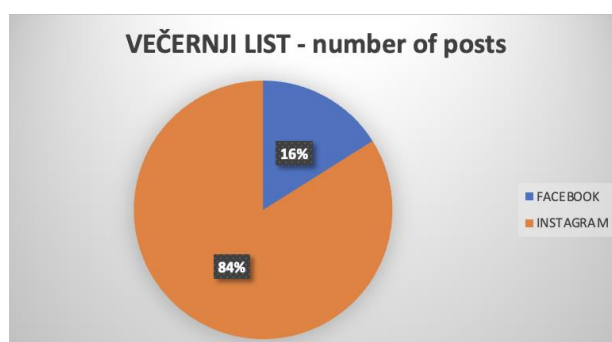
Chart 2: Number of posts on social networks of Večernji list

As presented in Charts 1 and 2, both daily newspapers have more posts on Instagram (Večernji list – 251, Jutarnji list – 171 posts) than on Facebook (Večernji list – 48, Jutarnji list 110), although Instagram is a social network that is based on photos, while Facebook is based on text, and it is also possible to directly link the text from a web portal.

Regarding the emotional colouring of the content on social networks, Jutarnji list has an almost equally distributed number of positive, negative (34%) and neutral (35%) posts on Facebook; however, there are slightly fewer positive posts (31%). When it comes to Instagram, there is almost an equal number of positive (44%) and negative (44%) posts, while neutral posts are the least numerous (13%). The emotional colouring of the posts on social networks is shown of Jutarnji list is shown in Chart 3.
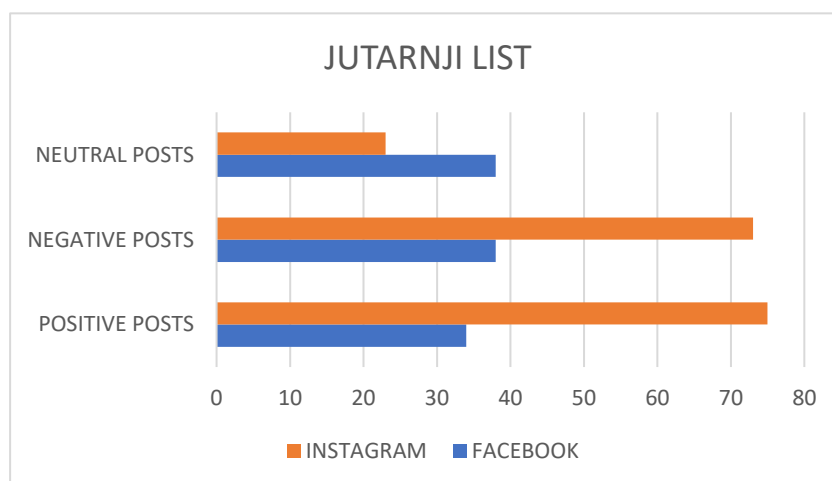
Chart 3: Emotional colouring of posts on social networks of Jutarnji list

Regarding the emotional colouring of the content on social networks of Večernji list, this daily newspaper has the largest number of negative posts on Facebook (44%), while there is almost an equal number of positive (29%) and neutral (27%) posts. When it comes to Instagram, as in the case of Jutarnji list, there is almost an equal number of positive (42%) and negative (43%) posts, while neutral posts are the least numerous (15%). The emotional colouring of the posts on social networks of Jutarnji list is shown in Chart 4.
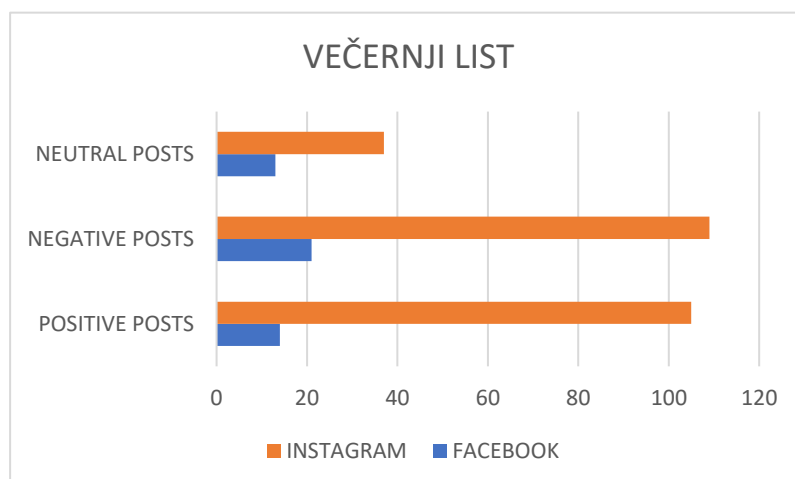
Chart 4: Emotional colouring of posts on social networks of Večernji list

As evident from the quantitative analysis of the content on social networks of Večernji list and Jutarnji list, there is almost an equal number of positive and negative texts. However, while positive posts rarely show euphoria and use onomatopoeia, except when posting about sports successes, in the case of negatively coloured posts in the media, adjectives like „shocking", „disturbing", „frightening" are used, and nouns like „fear", „scarcity", „war", „hunger", „disaster", etc.
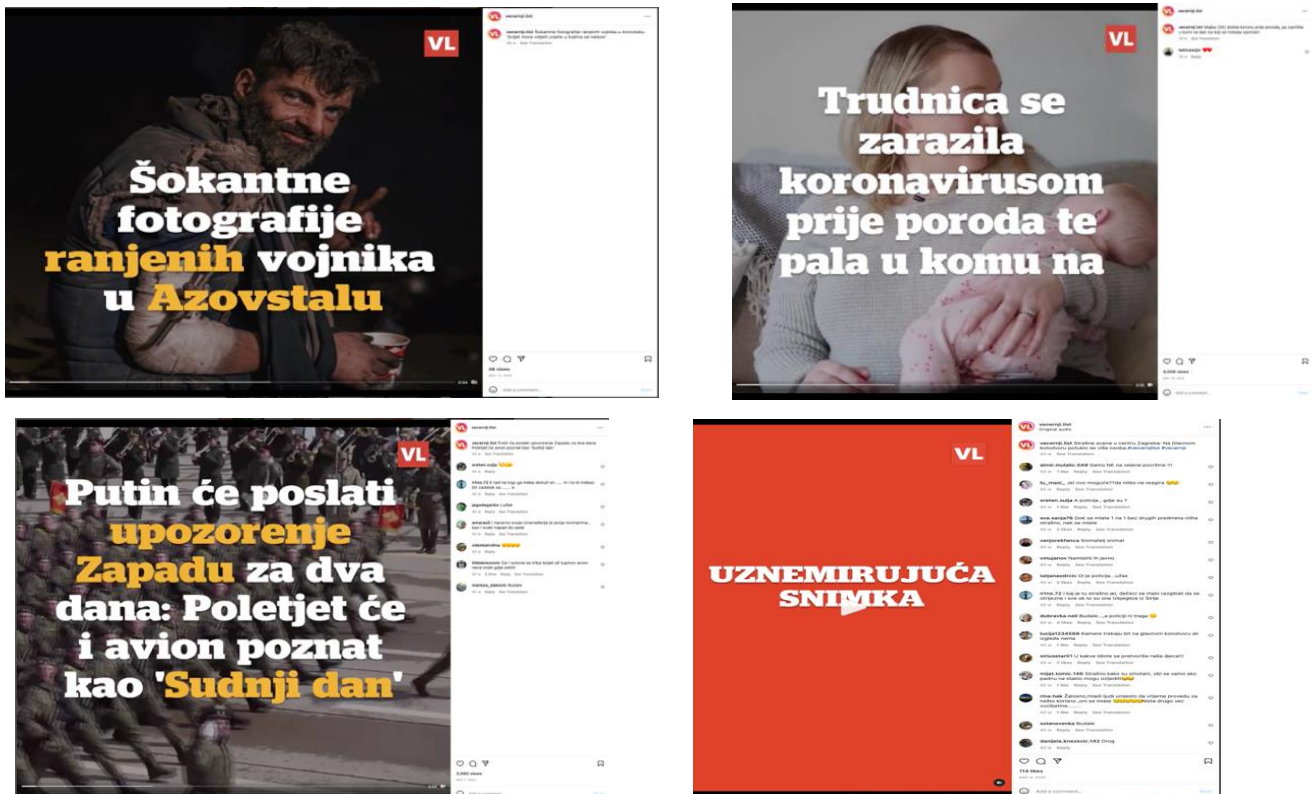
Picture 1: Examples of negatively coloured posts on social networks of Večernji list

The texts on the photos are also quite disturbing: „Shocking photos of wounded soldiers in Azovstal", „Pregnant woman catches coronavirus before giving birth and falls into coma...", „Putin will send a warning to the West in two days: The plane known as 'Doomsday' will take off", „Disturbing footage", etc.
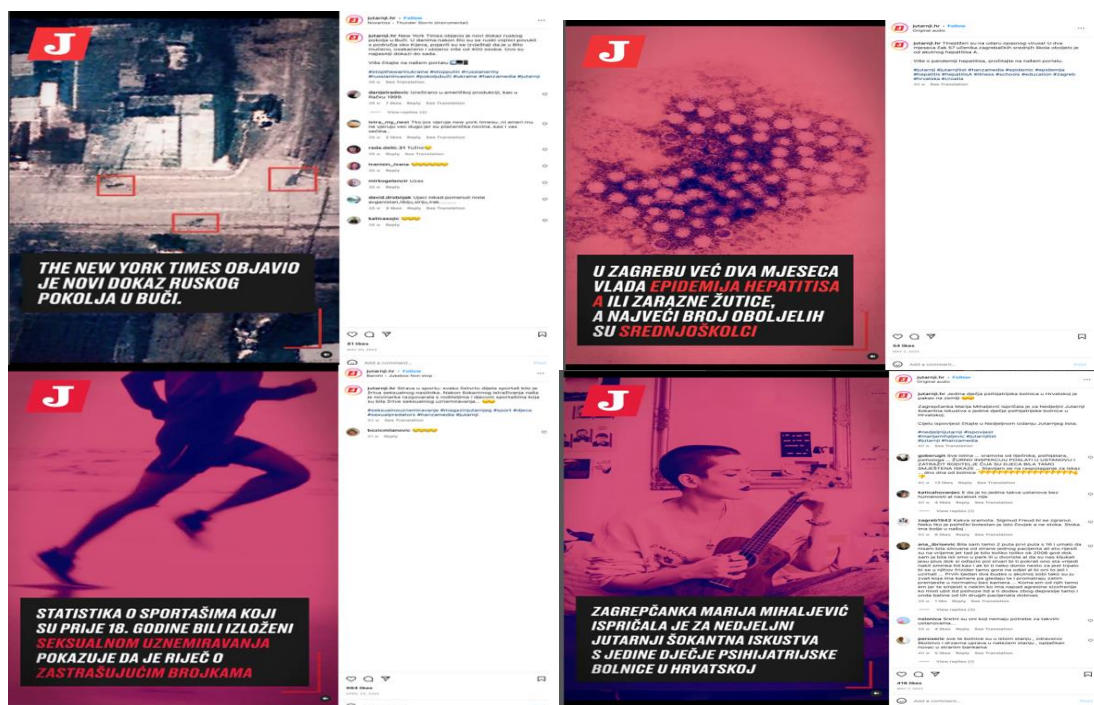
Picture 2: Examples of negatively coloured posts on social networks of Jutarnji list

Furthermore, the texts on the photos of negatively coloured posts on social networks of Jutarnji list are also quite disturbing, such as, for example, the following posts: „The New York Times publishes new evidence of new massacre in Buča", „Hepatitis A or infectious jaundice epidemic has been in Zagreb for two days, and the largest number of patients are high school students", „Statistics on athletes who were exposed to sexual harassment before the age of 18 show that these are frightening numbers", „Marija Mihaljević from Zagreb tells Nedjeljni Jutarnji about her shocking experiences from the only children's psychiatric hospital in Croatia".

3.2. Second research – quantitative survey among media consumers (audience)
An invitation to participate in the internet survey was sent to potential respondents through social networks, and they were briefly presented with the topic of the survey and the purpose of the research was explained to them. Participation in the survey was voluntary and the respondents had the option to stop participating in the survey at any time without an explanation. The survey results are anonymous and confidential, that is, the collected data are used exclusively for the purpose of creating the research paper. The survey was conducted from May 7th to May 12th 2022, and was completed by 150 respondents. Considering the method of data collection and the way the respondents were selected, it is a non-probabilistic sample, while according to the type of the sample, it is a volunteer sample.

3.2.1. Results of the second research
Socio-demographic characteristics of the respondents
The realised sample included a total of 150 respondents (research participants), of which 83 were women and 67 were men. Considering the age structure of the respondents, the realised sample included persons between 18 and 64 years of age. In addition, the research sample included 51 members of the youngest age group (18 to 25 years), 1 member of the oldest age group (64 years), and 98 members of other, central age groups (26 to 35 years, 36 to 45 years, and 46 to 55 years).
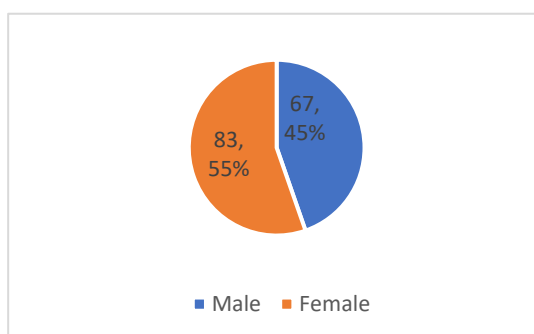
Chart 5: Frequency of using social networks by gender
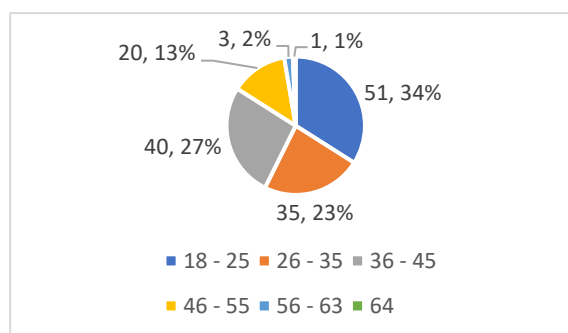
Charts 6: Frequency of using social networks by age

As presented in Chart 5, the results of the survey show that women (55%) use social networks more than men (45%). When it comes to age (Chart 6), the results show that persons between the ages of 18 and 25 (34%) use social networks the most, and people aged 64 and over (1%) the least.
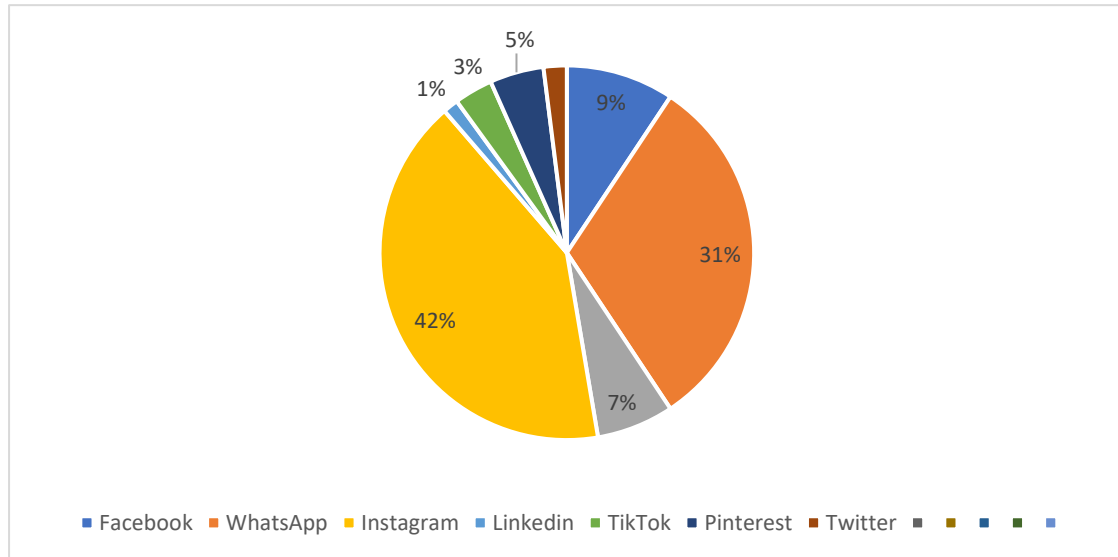
Chart 7: Types of social networks used by respondents

As for the types of social networks used by the respondents, the results show that they use Instagram the most (42%), followed by WhatsApp (31%) and Facebook (9). In addition, all 100% of respondents confirmed that they use social networks several times a day. When it comes to the credibility of social networks, that is, whether they believe the content they read on social networks, the majority of respondents (82%) believe what they read on social networks, while only 27 of them (18%) do not, and most of them (56%) think about what they read during the day, while only 15% of them do not think about the content read on social networks during the day.
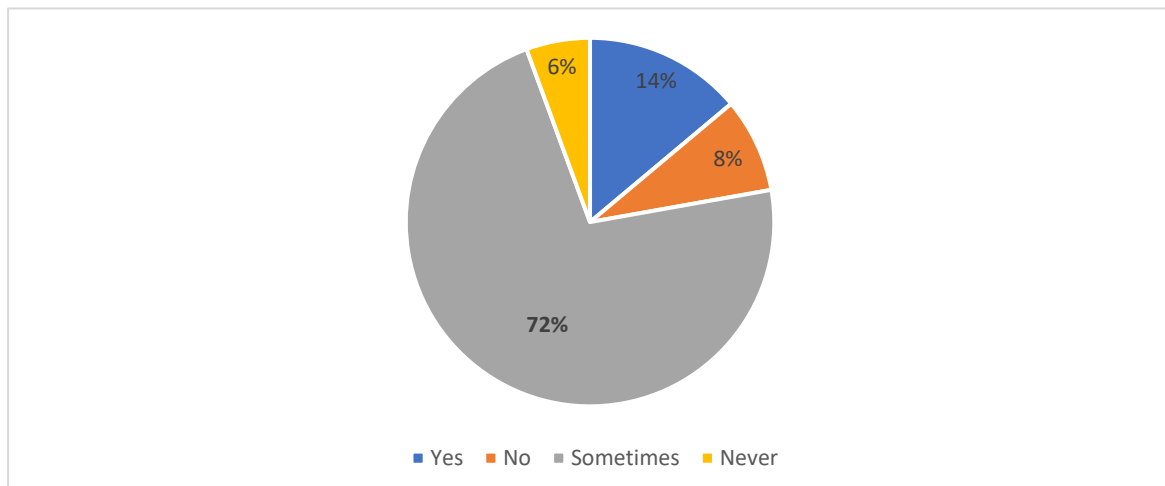
Chart 8: Impact of social network content on respondents' emotions

As shown in Chart 8, as many as 72.2% of respondents confirmed that the content they read on social networks greatly affects their emotions, and after browsing social networks, their emotions are different, as shown in Chart 9.
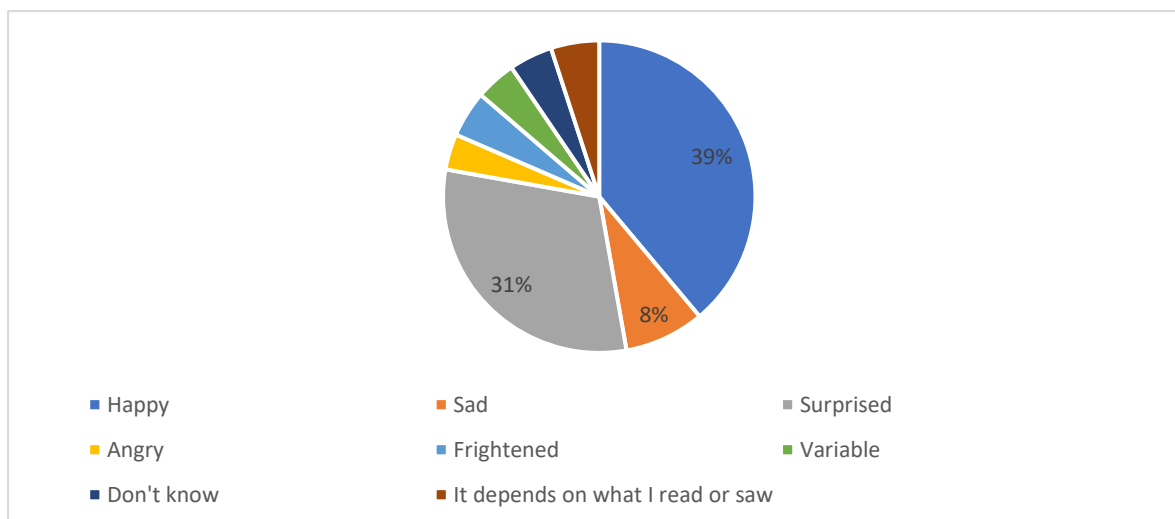
Chart 9: Emotions after browsing social networks

However, although 39% of respondents stated that they feel happy after using social networks, most respondents (62%) admitted that they deactivated one of the social networks because they felt very bad after using it, while 15% of respondents plan to do so soon.

4. CONCLUSION
Social networks are virtual spaces for easy and quick connection of users that, like other media, the audience consumes to satisfy different needs, which can be of a different range - from searching for information, entertainment to connecting with each other, exchanging experiences and expressing attitudes and opinions. The number of social network users is growing day by day, as is the number of new social networks that offer new and different experiences. Digitization has become an integral part of modern society and as much as technology facilitates the quality of life, it also has its negative aspects. This is precisely why increasingly more research is being conducted on the impact of social networks and technology on an individual's mental health and emotions.This research has confirmed that the audience actively consumes content on social networks several times a day, that they trust that content, and that, depending on what content users watch, read or listen to on social networks, their emotions change, and they thus become happy or sad. The content they see often remains in the minds of the audience throughout the day and affects their feelings and mood, and this is precisely why the majority of respondents have already deactivated some social networks, and another 15% plan to do so in the near future.The obtained results have confirmed that social networks really have an impact on audience's emotions and that, since we cannot influence the posts of individuals and private profiles on social networks, at least the national web portals with a large readership should consider what kind of content they publish on social networks. Unfortunately, in times of struggle for every click, this is often not the case.

LITERATURE:
1. Christians, G.C.; Glasser, T.L.; McQuail, D.; Nordenstreng, K.; White, A.R. (2009) „Normative theories of the mass media", *Journalism in democratic*, Urbana i Chicago, University of Illinois Press
2. Čulo, Ivona (2021) *Percepcija lifestyle novinarstva u domeni tema održivog razvoja društva*, doctoral thesis, Koprivnica, University North, from https://repozitorij.unin.hr/islandora/object/unin:5483 - retrived 10.12.2022.)
3. Frijda, Nico H. (1986) *The Emotions*, Cambridge University Press, Cambridge

4. Lamza Posavec, Vesna (2021) *Metodologija društvenih istraživanja, temeljni uvidi*, Zagreb, Institut društvenih znanosti Ivo Pilar

5. Katz, Elihu/Blumler, Jay G./Gurevitch, Michael (1974) *Utilization of MassCommunication by the Individual* u: Blumler, Jay G./Katz, Elihu (ur.): *The Uses of Mass Communications: Current Perspectives on Gratifications Research*, Beverly Hills, pp. 19-32

6. Kunczik, M. (2006) *Uvod u znanost o medijima i komunikologiju*, Zagreb, Zaklada Friedrich Ebert

7. Martinoli, Ana (2016) "Digitalna medijska publika – nova očekivanja, nove navike", in *In media res: časopis filozofije medija*, vol. 5, no.8, pp 1269-1284

8. McQuail, Denis (2005) *McQuail's Mass Communication Theory*, Los Angeles, London, New Delhi, Singapore, Wahsington DC, Sage

9. McLuhan, Marshall (2008) *Razumijevanje medija* (Understanding Media, 1964), Zagreb, Golden marketing/Tehnička knjiga

10. Zgrabljić Rotar, N. (2008) "Medijska pismenost i medijska etika u civilnom društvu" in: Peruško, Z. (ed.) *Mediji, kultura i civilno društvo*, Zagreb: Hrvatsko sociološko društvo, pp. 43-7

'TIME LOST' AT ZAGREB STOCK EXHANGE (ZSE): CROBEX INDEX CASE

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ABSTRACT
Zagreb Stock Exchange (ZSE) represents relatively small emerging-market, founded in early 90's as main Croatian stock market. Its main index CROBEX (Croatian Bourse Index) was firstly introduced on 1.9.1997. and it is calculated on daily basis since then, with starting value of one thousand (1.000) points. It is a price index, consisting of 15-25 shares that are included according to its free float market capitalization and revised biannually - every March and September. CROBEX all time high value (ATH) was recorded on January 4, 2008 with 5.292,14 points (closed at 5.279,14). Global financial crises in 2008 caused CROBEX to rapidly decline from +5.000 points to values -1.500, where it averaged through following years with rare exception of breaking psychological barrier of 2.000 points. CROBEX main growth was mainly achieved in period 2004-2008, and this paper aims to show its downfall, and disability to properly recover ever since. Thus is of relevant importance since stock market indices not only show the main movements of a certain stock market, but also represent good indicators of economic trends in general.
Keywords: CROBEX, price index, stock trends, turmoil, Zagreb Stock Exchange

1. INRODUCTION
Indices represent numerical values, calculated using weighted or unweighted arithmetic mean of a group of stocks and base period that can vary from index to index (Teweles & Bradely, pp.380). This indicator is often used as a benchmark to track the overall health of the stock market and to evaluate the performance of individual investments. Stock market indices are typically composed of a selected group of companies that represent a particular market or sector, and are weighted according to their market capitalization or other criteria. By tracking the performance of an index, different parties can gain insight into the overall direction of the market, and use this information accordingly. Main Zagreb Stock Exchange (ZSE) Index is called CROBEX, and it is the first stock index which ZSE began to calculate and present. It is a price index where weighting of each share is determined in accordance with its free float market capitalization. Free float market capitalization refers to the total value of a publicly traded company's outstanding shares that are freely available and ready to be traded on the stock market. Free float does not include shares that are kept for any other reason than trading itself, and some exclusions are (Vernimmen et al., 2009, p. 532):
- buying with intention to control,
- buy and (long-term) hold,
- purchase based on emotional / sentimental purposes, etc.

Calculation is in basics performed by multiplying the number of 'ready-to-be-traded' shares by the current market price per share. This metric is often used by investors and analysts as an indicator of a company's liquidity and 'availability'. Maximum weighting of individual shares in CROBEX is limited to 10 %. Its base value is 1,000 points and the base index date 1st of July 1997. CROBEX is calculated in EUR currency and distributed in real time, continuously in the course of trading (ZSE Website / Products & Services / Equity Indices). It is revised biannually, with extraordinary revisions depending on set of strict requirements.

2. CROBEX ANALYSIS

CROBEX, like other stock market indices, experiences fluctuations in value over time based on a variety of economic, social and market factors. CROBEX movements and trends can also be influenced by a range of company-specific and sector-specific factors, such as changes in financial result, dividend policy, or regulations. In addition, relevant or extreme external events, together with global economic conditions, can also impact the index, making it important for investors to monitor CROBEX performance alongside other market indicators. Main characteristics of CROBEX are presented in Table 1.

Launch Date	3 September 1997
Starting/Base Value	1.000 points
Base Date	1 July 1997
Trading System Symbol	CBX
No. of Constituents	18 / at time of research (15-25)
Calculation Frequency	Real Time
Weight	Free Float Market Capitalization
Inclusion Requirement	75% Trading Days
ATH Value	5.292,14 (January 4, 2008)

Table 1: CROBEX ID
(Source: zse.hr; Processed by: Author)

CROBEX reached its all-time high (ATH) value in the early 2008, with +5.000 points, right before global financial crisis has started to spread globally. Considering fact that its base value was multiplied five (5) times at that point, but never reached again after that – term 'time-lost' basically represents an opening frame for the research. Since CROBEX is representing the performance of the largest and most liquid companies in Croatia, it movements also serve as an important indicator of the Croatian economy itself, while providing an useful tool for investors and different users. Composition of CROBEX (Table 2.) is changing through time, where some 'old' issuers are no longer visible in its structure and some are continuously or mostly in it. This paper will present CROBEX movements, trends and the result since its foundation, with emphasize on three later highlighted periods:

- Global financial crises 2008
- Covid-19 crises
- 'post-Covid' period (beginning of 2023)

As shown in Table 2., sectors represented in CROBEX include finance (Zagrebacka banka d.d. or HPB d.d.), industry (Koncar d.d.), tourism (Valamar Riviera d.d. or Plava Laguna d.d.), consumer goods (Atlantic Grupa d.d.), telecommunications (HT d.d. or Ericsson Nikola Tesla

d.d.), shipping and ship building industry (Atlantska Plovidba d.d. and Brodogradiliste Viktor Lenac d.d.), with individual companies spanning a variety of industries and market segments, such as AD Plastik d.d. with specific car-parts production as an example.

SYMBOL	ISSUER	# OF SHARES	FREE FLOAT FACTOR	FREE FLOAT MARKET CAP.	WEIGHT
ADPL	AD PLASTIK d.d.	4.199.584,00	0,70	37.628.272,64	2,06 %
ADRS2	ADRIS GRUPA d.d.	6.784.100,00	0,95	164.022.436,37	9,00 %
ARNT	Arena Hospitality Group d.d.	5.128.721,00	0,50	82.059.536,00	4,50 %
ATGR	ATLANTIC GRUPA d.d.	13.337.200,00	0,45	163.273.506,29	8,96 %
ATPL	ATLANTSKA PLOVIDBA d.d.	1.395.520,00	0,80	54.257.817,60	2,98 %
ERNT	ERICSSON NIKOLA TESLA d.d.	1.331.650,00	0,55	178.707.430,00	9,80 %
HPB	HPB d.d.	2.024.625,00	0,30	72.886.500,00	4,00 %
HT	HT d.d.	78.775.842,00	0,45	176.041.098,77	9,66 %
INGR	INGRA d.d.	13.545.200,00	0,95	31.140.414,80	1,71 %
JDPL	JADROPLOV d.d.	1.636.674,00	0,30	4.910.022,00	0,27 %
KOEI	KONCAR d.d.	2.572.119,00	1,00	187.363.037,76	10,28 %
LRHC	FTB TURIZAM d.d.	302.641,00	0,13	7.868.666,00	0,43 %
PLAG	PLAVA LAGUNA d.d.	2.197.772,00	0,16	95.647.037,44	5,25 %
PODR	PODRAVKA d.d.	7.120.003,00	0,85	216.630.436,22	11,88 %
RIVP	Valamar Riviera d.d.	126.027.542,00	0,55	167.662.678,04	9,20 %
SPAN	SPAN d.d.	1.960.000,00	0,50	43.610.000,00	2,39 %
VLEN	BRODOGRADILISTE VIKTOR LENAC d.d.	16.813.247,00	0,14	6.590.792,82	0,36 %
ZABA	Zagrebacka banka d.d.	320.241.955,00	0,04	132.580.169,37	7,27 %

Table 2: CROBEX Structure/Composition in time of analysis (February 2023) (Share Prices
/in EUR/ are excluded)
(Source: zse.hr; Processed by: Author)

Right before the global financial crisis, CROBEX was on an upward trend, reaching its all-time high values during end of 2007 and beginning of 2008. During the crisis, CROBEX experienced a significant decline, as investors pulled out of the market and risk-averse sentiment prevailed. Stagnation period, with more or less fluctuations followed, and slow positive trend was visible until new critical decline caused by Covid-19 crises, with the result of delaying CROBEX true recovery for upcoming years or decades. This will be shown in following analysis.

2.1. Global Financial Crises 2008
Since CROBEX was firstly introduced in 1997, with base value of 1.000 points, performance through first decade that followed could be divided in two main periods:
- 1997-2000 - 'First third', as a 'warm-up' period of stagnation and corrections
- 2000-2008 - Constant and strong growth starting in 2000

Above mentioned is shown in Figure 1., where CROBEX values reach the peak after first decade of its performance.

It is also visible that its record values were suddenly lost and never reached again during presented period.
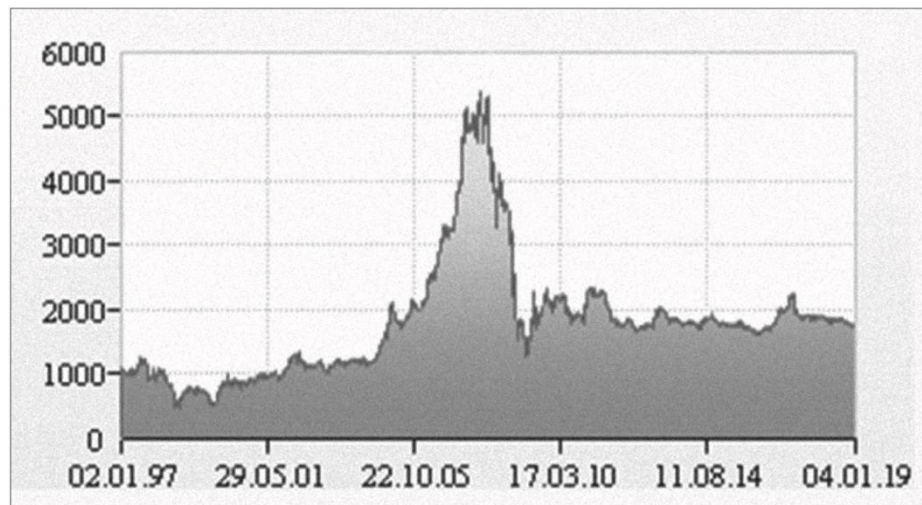
Figure 1: CROBEX performance since first presented until Jan 2019.
(Source: Penda (2019). pp.129)

Just between October 2007 and March 2009, CROBEX lost almost 80% of its value, dropping close to its starting or base value. That was basically the first real correction, with both devastating and 'to-date' results. Most of world economies suffered huge damage during the recession period, CROBEX was just reacting as most indices and markets did.
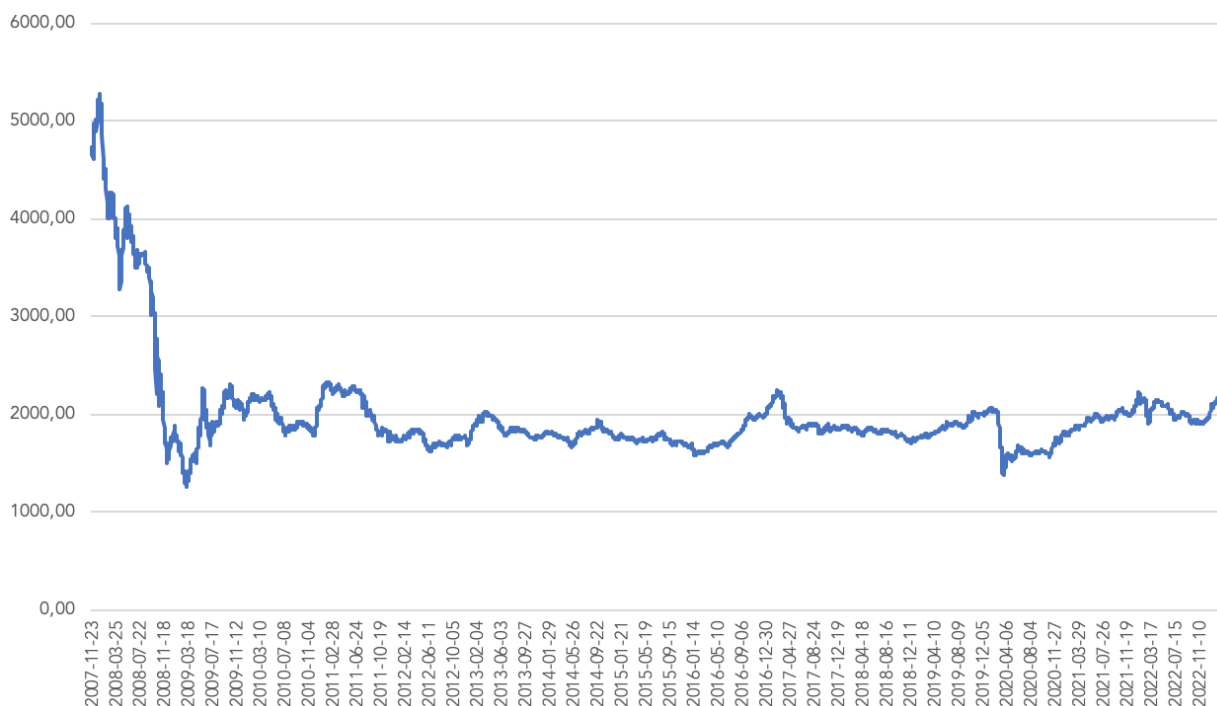
Figure 2: CROBEX performance since its ATH values (end 2007 - end 2022)
(Source: hrportfolio.hr; Processed by: Author)

After the global financial crisis (Figure 2.), CROBEX started to recover gradually, as the global economy was stabilized and investor confidence returned.

By the end of 2009, CROBEX had gained approximately 70% to its lowest point, reaching a level of approximately 1,800 points – which is certainly not even close to full recovery or to its historic values. In Figure 2. It is also shown that breaking 'psychological barrier' of 2.000 points for few times since then, was best CROBEX did.

2.2. Covid-19 Crises

Before the Covid-19 crisis, CROBEX was performing relatively well through second decade of its calculation, with a steady upward trend throughout 2019. In February 2020, CROBEX again broke through the psychological barrier of 2.000 points, reflecting positive sentiment in the Croatian economy. At that point, health crises reached Croatian stock market. During the Covid-19 crisis, CROBEX experienced a significant decline, reflecting the turmoil in global financial markets as expected. Losses were huge but still incomparable to ones from 2008 crises, since CROBEX actually never recovered and bottom was not that far away this time. Still, CROBEX fell sharply, showing the majority of its losses in period of just over a month and reached values below 1.400 points once more. After the initial shock and visible effects of the Covid-19 crisis, CROBEX began to recover very slowly and gradually. By the end of 2020, CROBEX had moved up closer to pre-crisis levels, where mentioned recovery is still not even close to values before crises in 2008. Performance during 'Covid-years' is shown in Figure 3.

Figure 3: CROBEX performance during Covid-19 crises
(Source: zse.hr; Processed by: Author)

Observed period shows two phases of slight positive trend, broken with sudden decline after Croatia started to feel first signs and restrictions connected to virus.

2.3. Post-Covid period

Following the initial shock, CROBEX immediately started its recovery. Negative effects of Covid-19 crises have been neutralized, plus this time (unlike after Global Financial Crises in 2008), recovery is full. CROBEX value in post-covid19 period is shown in Figure 4.

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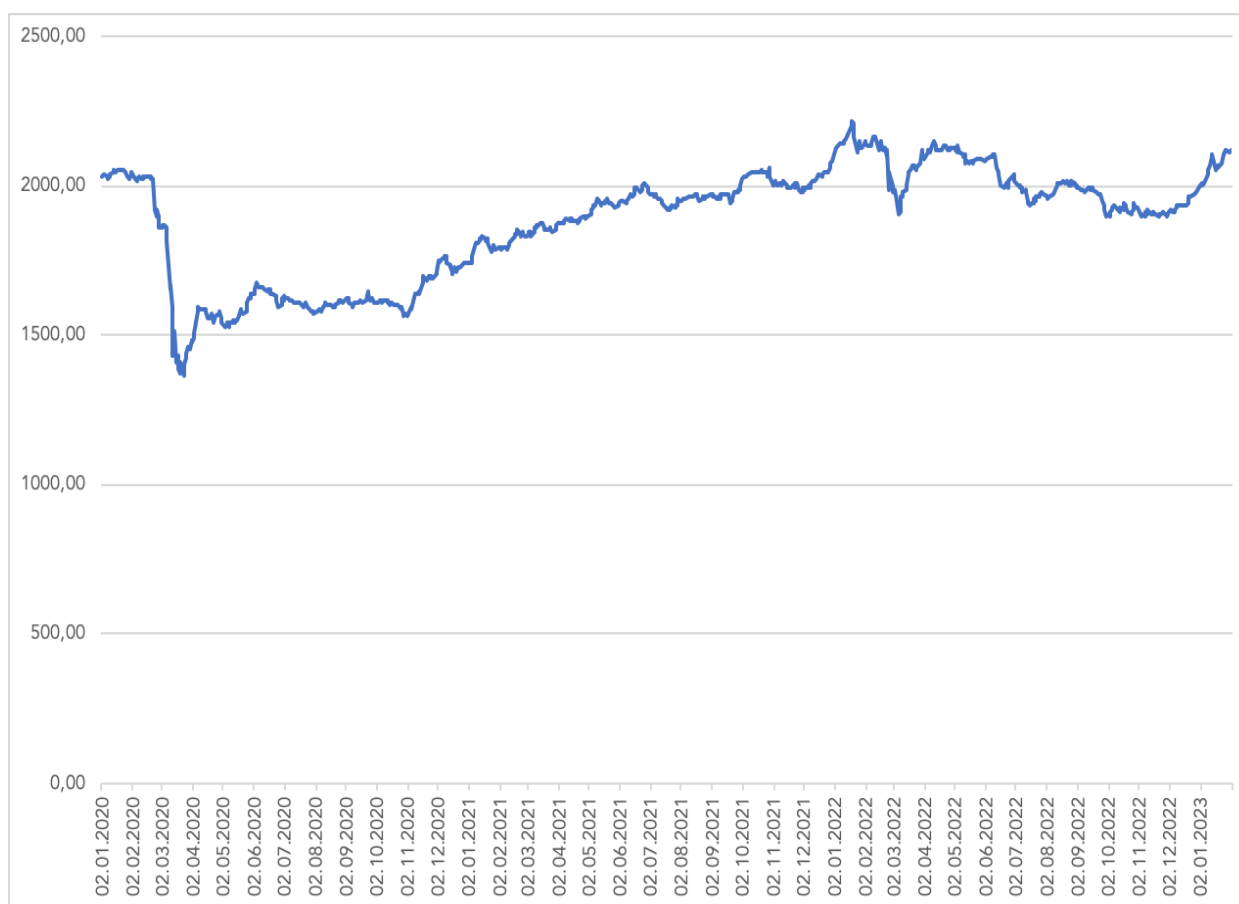
Figure 4: CROBEX performance during and after the Covid-19 restrictions
(Source: zse.hr; Processed by: Author)

Volatility and few corrections are also visible (Figure 4.), as concerns about inflation and rising interest rates influenced investor sentiment negatively. That goes throughout whole observed period, especially during 2021 and 2022 – majority of 2020 is in positive trend.

2.3.1. CROBEX during War in Ukraine

Post-covid period was also weakened and affected with another critical and global event that would require separate analysis and research, war in Ukraine. This analysis is not detaching this period to analyze it separately, since authors consider time of this catastrophic situation to be happening during ongoing and global post-covid period. Still, corrections with negative trend during whole 2022 represent direct result of war in Ukraine, where more and more world economies and markets expect another potential and longer lasting global crises in following years. That means that in 2023, CROBEX will continue to face challenging and unstable market environment, as concerns over the pandemic and geopolitical risks remain in focus.

2.4. Summary

Overall, after multiplied growth from the late 90's until end of 2007, CROBEX has never recovered after global financial crises in 2008. While main ZSE index has largely recovered from the Covid-19 crisis, it is again facing new relevant factors that are affecting it's performance during the post-pandemic period. The ongoing risks and uncertainties in the global economy continue to put weight on investors mood. War in Ukraine, as latest impact with lots of uncertainties in upcoming period, represent new obstacle for further growth and possible recovery to its highest historic values.
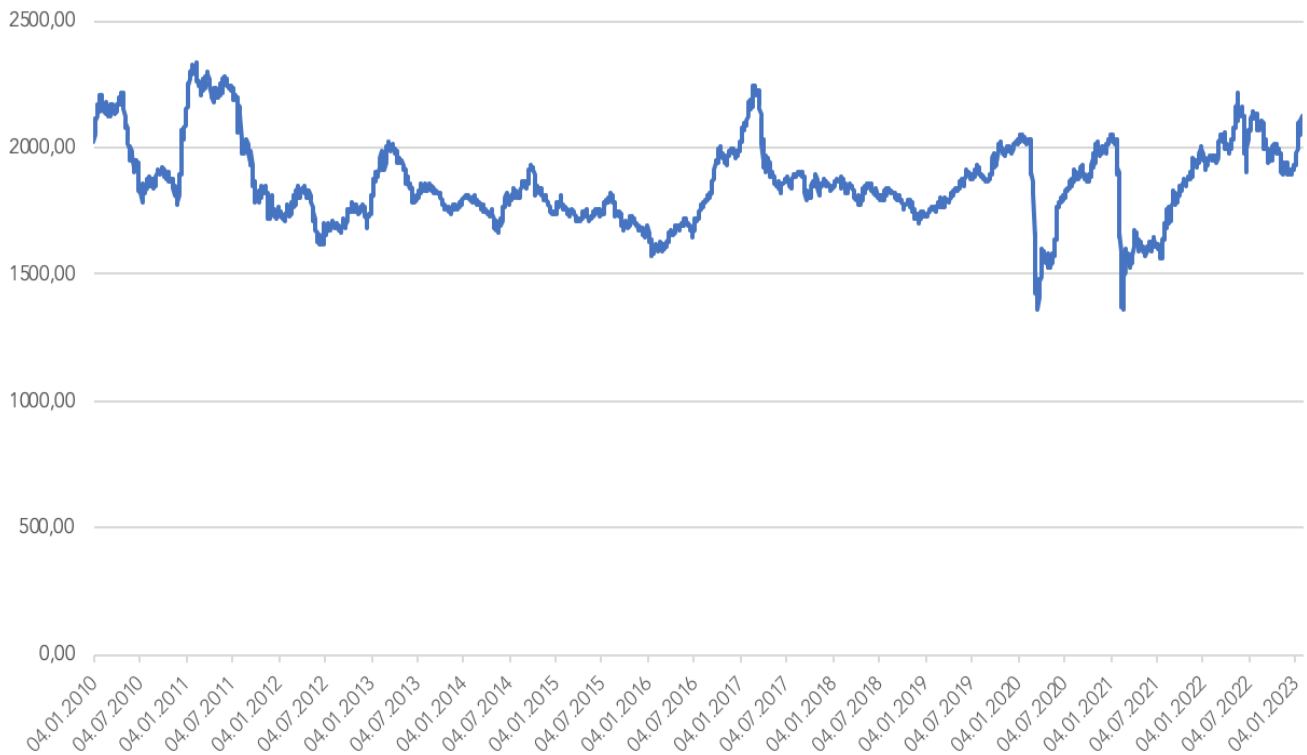
Figure 5: 'Time-lost'; CROBEX performance since 2010.
(Source: zse.hr; Processed by: Author)

Figure 5. shows different trend directions and more fluctuations over past decade. Mentioned oscillations move its value mostly in range 1.500-2.200 points. The graph is not including global crises of 2008 period, therefore it represents only part of an argument for term 'time-lost' in meanings of CROBEX. Stagnation with lots of uncertainty and oscillations can mostly bring profit to short-term investors who speculate. Medium and long-term expectations have ended in "time-lost' segment, and if most devastating period for CROBEX with Crises in 2008 is summed up, we talk about more than two decades of lost time.

3. LIMITATIONS AND RECOMMENDATIONS

Monitoring main price index is insufficient to make overall conclusions on market's performance, especially if referring to it as in title of this paper – 'time lost'. Some sectors or individual issuers can in practice show different performance than index, as one kind of 'average' or general representative. Further research should firstly include other ZSE indices, such as CROBEX10 ('top-ten' CROBEX stocks), CROBIS (bond index), together with sector indices, such as CROBEXnutris (food production and processing), CROBEXindustrija (industrial production), CROBEXturist (tourism), CROBEXkonstrukt (construction industry) and CROBEXtransport (transportation). It is of crucial significance to also monitor a total turnover on ZSE in full CROBEX period to better understand market movements or to predict possible full recovery of CROBEX itself. There are several factors that influenced ZSE turnover in past period, and also gave negative mark on traded volumes of many international markets:

- psychological effects of global financial crises 2008
- new financial instruments, digital currencies and products
- covid-19 pandemic period
- war in Ukraine, etc.

Since world is still in post-covid period in time of this research, and war in Ukraine overlap existing global crises, analysis should be extended with upcoming years of performance. In meanings of expecting full potential recovery of CROBEX, authors emphasize importance of conducting a survey, to determine if investing atmosphere around Croatian stock market is lost for upcoming period, especially due to above mentioned reasons.

4. CONCLUSION

After longer period of huge success in its beginning, CROBEX did not nearly move to its all-time high value after the decline in 2008. Global financial crisis had an obvious and significant impact on the Croatian economy, as well as on domestic stock market. Same thing happened to many other stock market indices – rapid and strong decline in value during observed period, represents a 'highlight', or better to say most relevant milestone of many international markets. CROBEX was best in its performance with reaching and keeping around +5,000 points during late 2007 and early 2008, but by 2009 it had fallen to its lowest values since presented. While the index gradually tried to recover over the following years, it did not succeed to come even close to its all-time-high value. If in past period CROBEX did not succeed to fully recover, it will be even harder to do it in upcoming period, with more and more individuals (especially young investors) and business entities, aim they portfolio to modern digital currencies and products, which represent even bigger risk than stock market investments - which throughout history were considered as high-risk actions. Global crises on health, geopolitical and economic level, that are happening more and more often, represent unbreakable obstacle for CROBEX and Croatian stock market until now. It's important to note that indices overall performance is subject to a wide range of many different economic, political, and social factors. While the main Croatian stock market index has shown some resilience and recovery capabilities over time, it is still very far away to its previous all-time high value, which in theory should always be overpassed in a long-run.

LITERATURE:

1. *HRPortfolio*. Indeksi – Website. Accessed on 30.01.2023; www.hrportfolio.hr
2. Penda, I. A. (2019). *Devastacija hrvatskog trzista kapitala – sto dalje?*. FIP – Financije i Pravo, Vol 7. No 1., pp. 125-156. ISSN 1849-4803 (Online). EFFECTUS poduzetnički studiji - visoko učilište, Zagreb
3. Teweles, R.J., Bradley, E. S. (1998). *The Stock Market*. 7th ed., John Wiley & Sons Inc., New York
4. Vernimmen, P., Quiry, P., Dallochio, M., Le Fur, Y. and Salvi, A., (2009), *Corporate Finance: Theory and Practice*, John Wiley & Sons Ltd., Chichester, West Sussex, UK
5. *Zagreb Stock Exchange* - Official Website. Accessed on 25.01.2023; www.zse.hr

TOURIST BEHAVIOR AND MOTIVATIONAL FACTORS DURING COVID-19 OUTBREAK IN THAILAND

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ABSTRACT

Since COVID-19 has been spread out in December 2019, it has impacted the world's economy significantly. As of other countries, there are several businesses in Thailand were directly affected by the outbreak of COVID-19 especially in tourism industry which is one of the major revenues in previous years. The new ways to live with COVID-19 such as social distancing, hand washing, or mask wearing have been promoted by the government ever since. Moreover, a few campaigns have been launched to support people in this difficult time including "We Travel Together" which is mainly focused on tourism. However, some questions also arise whether this campaign is sufficed for boosting the tourism industry, what are the tourist behavior, opinion, and motivation factors during this time because no one knows how long the situation will resume to normal and when COVID-19 will be last. The findings show that during COVID-19 situation, respondents mostly travelled to Central region of Thailand with rate of frequency of 1-4 times, the majority of respondents chose sightseeing (63.7%) over other types of tourism, and respondents mostly were motivated by Relax/Escape (Mean = 4.12) which is one of the 13 motivational factors from Travel Career Pattern model (Pearce & Lee, 2005). This refers to tourism during COVID-19 situation is still needed as long as tourism is available and the motivation can be met.
Keywords: Motivational factors, Tourism during COVID-19, Tourist behavior

1. INTRODUCTION

Tourism in Thailand has always been recognized as one of the top destinations by tourists around the world. After the outbreak of COVID-19 in Thailand in early 2020, the Thai government and public health response team has managed to provide instructions and guidelines for all Thai people including city lockdown, curfew, social distancing, hand washing, and mask wearing. As a result, the tourism in Thailand has been frozen for a while and later on level of restrictions have been removed in different stages based on the situation of COVID-19, the tourism has also started to resume back bit by bit after that. At the end of 2020, the figures of international and domestic travel in Thailand has dropped at -83% (13.8 millions) and -46% (123.2 millions) compared to 2019 according to the record of Ministry of Tourism and Sports. While the COVID-19 pandemic is still ongoing, an understanding of situation and support by all stakeholder of tourism industry including public and private sectors must work together in terms of collaboration and promotion in order to support tourism businesses which may include owner, employee, retailer, as well as tourist. There's one campaign has been promoted by the government called "We Travel Together" (เราเที่ยวด้วยกัน.com) that particularly launched to support Thai tourism businesses during COVID-19, Thai tourists get 40% of hotel charge, ticket fares, and food voucher supported by the government which would encourage tourists to travel and spend money to boost the tourism market and economy of Thailand during this difficult time. However, not everyone can afford to travel during this time even being supported with this campaign by the government and some questions need to be clarified such as; people are still

concerned over COVID-19 situation and not ready to travel or how to have better understanding of people who will be motivated to travel and participate this campaign. Basically, this campaign must be involved by as many as possible of stakeholders in tourism industry in order to achieve the goal of this campaign and bring back the tourism in Thailand to the same level as previous years. This study aim to gain a better understanding of tourist behavior by applying the consumer behavior 6W1H concept and motivational factors by applying the Travel Career Pattern model (Pearce & Lee, 2005) during COVID-19 situation. The result of this research would help the government authorities and private sectors of Thai tourism to develop the amount of participation of this current campaign as well as to implement new proper campaign and improve engagement of tourists in most effective way in the future.

2. RESEARCH OBJECTIVES
1) To analyze the tourist behavior during the COVID-19 outbreak.
2) To examine the tourism motivational factors during the COVID-19 outbreak.

3. RESEARCH SCOPE
1) This study focused on Thai tourists who travelled domestically only.
2) This study focused on tourist's behaviors and motivational factors during COVID-19 outbreak in Thailand.
3) This study was conducted with tourist behavior and motivational factors of those Thai tourists who travelled during January 2020 – August 2021.

4. RESEARCH METHODOLOGY
4.1. Research Methodology
This study focused on tourist behavior and motivational factors of Thai tourists during COVID-19 situation, the quantitative research was conducted by using online questionnaire which applied and developed from previous studies including;
- Tourist behaviors with the application of consumer behavior 6W1H model including; Who, What, Who, When, Where, and How (Who is tourist? What type of tourism? Who travelled with? When did tourist travel? Where did tourist go? How did tourist go there?). However, one of components "Why" was not included in the questionnaire as this is corresponded with the tourist motivational factors topic.
- Tourist motivational factors with the application of Travel Career Pattern (TCP) model consisted of 13 dimensions of travel motivational factors including; novelty, relax/escape, relationship strengthening, nature, host-site involvement, stimulation, self-development/personal development, relationship security, self-actualization, isolation, nostalgia, romance, recognition.

A sample of 405 Thai tourists was calculated by Cochran formula which is appropriated in situation of large populations.

4.2. Research Process
After the research's objective was determined, the conceptual framework was developed based on related theories. The online questionnaire was conducted in 3 sections including respondent's personal information, respondent's travel behavior during COVID-19, and respondent's travel motivation during COVID-19. The questionnaire was developed and applied from the 6W1H and Travel Career Pattern models, the respondent's personal information section was constructed with multiple choice questions, the respondent's travel behavior during COVID-19 was constructed with multiple choice, and fill-in number questions, and the respondent's travel motivation during COVID-19 was constructed with a five-point

rating scale consisted of "Least important (1), Slightly important (2), Moderate important (3), High important (4), and Most important (5)". The questionnaire was released for pre-testing with 30 Thai tourists in order to find any problem or difficulty to understand of the questions. After pre-testing was done, the reliability test was conducted by applying Cronbach's alpha which has the coefficient figure accepted at the minimum threshold of 0.7 calculated in SPSS. The result of pre-testing overall score for respondent's travel behavior during COVID-19 was 0.84 and for respondent's travel motivation during COVID-19 was 0.959 which are higher than the minimum threshold and considered reliable.

4.3. Data Collection
The data collection method of this study was designed to use a survey method focused only on Thai tourists who is over 18 years old and have travelled during the COVID-19 pandemic. The questionnaire for this survey was delivered through online platform by creating a Google form application, the online form was distributed to respondents via social media primarily in Facebook and Line applications through these groups and individuals. There were 405 respondents who qualified and completed the questionnaire.

4.4. Data Analysis
The collected data were analyzed by descriptive statistics including; frequency, percentage, mean, and standard deviation and hypotheses testing were studied by inferential statistics including; t-test and one-way ANOVA in SPSS program.

5. RESEARCH FINDINGS
The sampling data showed that the majority of respondents are female with the portion of 58.5% while male is at 41.5%. Most of respondents are at age between 31-40 years old of which are 60.5% of all. For income, most of respondents receive income between 50,000 – 100,000 THB per month or about 33.3%. The respondents are mostly living in Bangkok and Metropolitan area with 73.3% of all. The collected data of the tourist's behavior on regions that respondents have travelled to during COVID-19 situation which divided into 7 regions including; Bangkok & Metropolitan, Central, Northern, Northeastern, Eastern, Western, and Southern (Table 1). The data showed that the most frequency travel to Bangkok and metropolitan region was Not Applicable (32.8%) which means most of respondents simply lived in this area, the most frequency travel to Central region was 1-4 times (41.2%), however most of respondents never travelled to Northern region (46.4%), Northeastern region (63.7%), Eastern region (48.4%), Western region (47.2%), or Southern region (47.2%) during COVID-19 situation. For tourist's behavior on average length of stay of respondents during COVID-19 situation (Table 2), the average length of stay was between 1-5 days (93.3%). For tourist's behavior on types of tourism of respondents who travelled during COVID-19 situation which divided into 21 types (Table 3), the most frequency type of tourism was sightseeing between 1-4 times (63.7%) but other types of tourism showed that most of respondents never tried to do so including; Adventure tourism (Never, 73.1%), Caving (Never, 84.9%), Trekking (Never, 81.7%), Waterfall abseiling (Never, 94.6%), Rafting (Never, 90.4%), Mountain biking (Never, 88.9%), Snorkeling (Never, 74.6%), Sea kayaking (Never, 75.1%), Medical tourism (Never, 92.3%), Eco tourism (Never, 67.2%), Cultural tourism (Never, 61.7%), Wellness tourism (Never, 82.2%), MICE tourism (Never, 78.8%), Cruising (Never, 88.9%), Sport tourism (Never, 83.7%), Educational tourism (Never, 81.5%), Business tourism (Never, 77.3%), Wildlife tourism (Never, 80.0%), Culinary tourism (Never 52.1%), and Film/Series tourism (Never, 87.7%). For tourist's behavior on who were their travel accompany during COVID-19 situation (Table 4), the most frequency travel accompany of respondents was the family (39.8%).

For tourist's behavior on when they have travelled during COVID-19 situation (Table 5), the most frequency period that they travelled was Nonspecific (44.4%) which means most of respondents travelled without preference period of travel. For tourist's behavior on how they have travelled during COVID-19 situation (Table 6), the most frequency transportation mode was By car (94.3%).

Regions	Frequency						Total
	Never	**1-4 times**	**5-8 times**	**9-12 times**	**Over 12 times**	**Not Applicable**	
BKK & Metro	36 (8.9%)	99 (24.4%)	54 (13.3%)	44 (10.9%)	39 (9.6%)	133 (32.8%)	405
Central	128 (31.6%)	167 (41.2%)	51 (12.6%)	27 (6.7%)	19 (4.7%)	13 (3.2%)	405
Northern	188 (46.4%)	155 (38.3%)	33 (8.1%)	0	2 (0.5%)	17 (4.2%)	405
Northeastern	258 (63.7%)	118 (29.1%)	13 (3.2%)	4 (1%)	9 (2.2%)	3 (0.7%)	405
Eastern	196 (48.4%)	156 (38.5%)	31 (7.7%)	13 (3.2%)	5 (1.2%)	4 (1%)	405
Western	288 (71.1%)	86 (21.2%)	12 (3%)	7 (1.7%)	6 (1.5%)	6 (1.5%)	405
Southern	191 (47.2%)	161 (39.8%)	28 (6.9%)	14 (3.5%)	3 (0.7%)	8 (2%)	405

Table 1: Tourist's behavior on regions that respondents have travelled to during COVID-19 situation

Average Length of Stay	Frequency	Percentage
Under 5 days	378	93.3%
6 – 10 days	21	5.2%
11 days and over	6	1.5%
Total	405	100%

Table 2: Tourist's behavior on average length of stay during COVID-19 situation

Types of Tourism	Frequency					Total
	Never	**1-4 times**	**5-8 times**	**9-12 times**	**Over 12 times**	
Sightseeing	35 (8.6%)	258 (63.7%)	79 (19.5%)	23 (5.7%)	10 (2.5%)	405
Adventure tourism	296 (73.1%)	95 (23.5%)	10 (2.5%)	4 (1%)	0	405
Caving	344 (84.9%)	55 (13.6%)	5 (1.2%)	1 (0.2%)	0	405
Waterfall	383 (94.6%)	19 (4.7%)	3 (0.7%)	0	0	405
Rafting	366 (90.4%)	36 (8.9%)	3 (0.7%)	0	0	405
Mountain Biking	360 (88.9%)	42 (10.4%)	2 (0.5%)	1 (0.2%)	0	405
Snorkelling	302 (74.6%)	91 (22.5%)	9 (2.2%)	1 (0.2%)	2	405
Sea Kayaking	304 (75.1%)	92 (22.7%)	7 (1.7%)	1 (0.2%)	1 (0.2%)	405
Medical tourism	374 (92.3%)	29 (7.2%)	1 (0.2%)	1 (0.2%)	0	405
Eco tourism	272 (67.2%)	112 (27.7%)	18 (4.4%)	3 (0.7%)	0	405
Cultural tourism	250 (61.7%)	129 (31.9%)	21 (5.2%)	5 (1.2%)	0	405
Wellness tourism	333 (82.2%)	56 (13.8%)	10 (2.5%)	6 (1.5%)	0	405
MICE tourism	319 (78.8%)	70 (17.3%)	13 (3.2%)	2 (0.5%)	1 (0.2%)	405
Cruising	360 (88.9%)	39 (9.6%)	6 (1.5%)	0	0	405
Sport tourism	339 (83.7%)	49 (12.1%)	14 (3.5%)	3 (0.7%)	0	405
Educational tourism	330 (81.5%)	61 (15.1%)	13 (3.2%)	1 (0.2%)	0	405
Business tourism	313 (77.3%)	68 (16.8%)	16 (4%)	2 (0.5%)	6 (1.5%)	405
Wildlife tourism	324 (80%)	70 (17.3%)	7 (1.7%)	3 (0.7%)	1 (0.2%)	405
Culinary tourism	211 (52.1%)	141 (34.8%)	37 (9.1%)	10 (2.5%)	6 (1.5%)	405
Film/Series tourism	355 (87.7%)	38 (9.4%)	8 (2%)	3 (0.7%)	1 (0.2%)	405

Table 3: Tourist's behavior on types of tourism of respondents who travelled during COVID-19 situation

Travelled Accompanies	Frequency	Percentage
Alone	22	5.4%
Family	161	39.8%
Friends	96	23.7%
Spouse	111	27.4%
Business colleagues	15	3.7%
Total	**405**	**100%**

Table 4: Tourist's behavior on travelled accompany during COVID-19 situation

Travelled period	Frequency	Percentage
Only weekends	128	31.6%
Only weekdays	31	7.7%
Only long holidays	66	16.3%
Nonspecific	180	44.4%
Total	**405**	**100%**

Table 5: Tourist's behavior on travelled period during COVID-19 situation

Transportation mode	Frequency	Percentage
By car	382	94.3%
By Motorbike	11	2.7%
By plane	162	40%
By bus	13	3.2%
By train	20	4.9%
By others	8	2%
Total	**405**	**100%**

Table 6: Tourist's behavior on transportation mode during COVID-19 situation

Along with the tourist's behavior statistics collected from the survey, there were 13 dimensions of travel motivational factors in this questionnaire including; Novelty, Relax/Escape, Relationship Strengthening, Nature, Host-Site Involvement, Stimulation, Self-Development/Personal Development, Relationship Security, Self-Actualization, Isolation, Nostalgia, Romance, and Recognition. The data showed that the highest mean score of travel motivational factors from respondents was Relax/Escape (Mean = 4.12), followed by Nature (Mean = 3.71) and Relationship Strengthening (Mean = 3.54) respectively.

Motivational Factors	n	Mean	Std. Deviation
Novelty	405	3.35	1.05
Relax/Escape	405	4.12	0.92
Relationship Strengthening	405	3.54	1.08
Nature	405	3.71	1.05
Host-site Involvement	405	2.90	1.16
Stimulation	405	3.17	1.10
Self-Development/Personal Development	405	2.60	1.18
Relationship Security	405	2.89	1.09
Self-Actualization	405	2.59	1.24
Isolation	405	3.50	0.99
Nostalgia	405	3.44	1.25
Romance	405	3.05	1.29
Recognition	405	2.47	1.15

Table 7: Travel motivational factors during COVID-19 situation

6. HYPOTHESIS TESTING

The hypothesis testing for travel motivational factors during COVID-19 situation was conducted using t-test and One-Way ANOVA. The t-test method was applied when analyzing between two groups and the One-Way ANOVA method was applied when analyzing among multiple groups (3 or more) with the minimum significant level at 0.05.

- **H1**: Travel motivation during COVID-19 situation is different between tourists with different gender.
- **H2**: Travel motivation during COVID-19 situation is different among tourists with different Age.
- **H3**: Travel motivation during COVID-19 situation is different among tourists with different income.

The hypothesis testing of **H1**: travel motivation during COVID-19 situation is different between tourists with different gender has been performed with t-test method (Table 8). Based on the overall statistics, the overall p-value of 0.401 was greater than 0.05 threshold and there was no significant difference in travel motivational factors during COVID-19 situation between genders. In addition, the mean score showed that male tourists (3.27) had higher travel motivation than female tourists (3.11). However, if we look into each dimension there were 4 dimensions that found p-value lower than 0.05 threshold including; Host-Site Involvement (0.008), Relationship Strengthening (0.004), Self-Actualization (0.000), and Recognition (0.008) of which found significant difference in travel motivation with different gender.

Motivational Factors	Gender				t	Sig
	Male		Female			
	n=168		n=237			
	Mean	STD. Dev	Mean	STD. Dev		
Novelty	3.33	1.05	3.37	1.05	0.332	0.740
Relax/Escape	4.13	0.84	4.11	0.97	0.220	0.826
Relationship Strengthening	3.61	1.09	3.50	1.08	1.026	0.305
Nature	3.72	1.04	3.72	1.06	0.023	0.982
Host-Site Involvement	3.08	1.17	2.77	1.14	2.676	0.008
Stimulation	3.21	1.09	3.14	1.12	0.638	0.524
Self-Development/Personal Development	2.69	1.24	2.54	1.12	1.305	0.192
Relationship Security	3.08	1.09	2.76	1.07	2.895	0.004
Self-Actualization	2.87	1.28	2.39	1.18	3.879	0.000
Isolation	3.52	0.97	3.48	1.01	0.443	0.658
Nostalgia	3.45	1.22	3.44	1.27	0.101	0.920
Romance	3.19	1.22	2.94	1.32	1.914	0.056
Recognition	2.64	1.18	2.33	1.11	2.650	0.008
Overall	**3.27**	**1.11**	**3.11**	**1.11**	**1.392**	**0.401**

Table 8: Result of independent sample test of travel motivational factors during COVID-19 situation and Thai tourists with different gender

The hypothesis testing of **H2**: travel motivation during COVID-19 situation is different among tourists with different age has been performed with One-way ANOVA method (Table 9). Based on the overall statistics, the overall p-value of 0.335 was greater than 0.05 threshold and there was no significant difference in travel motivational factors during COVID-19 situation among age. In addition, the mean score showed that tourists of age 18-30 years old (3.310) had the highest travel motivation followed by 31-40 years old (3.225) and 41 years of and over (3.038) respectively.

However, if we look into each dimension there were 4 dimensions that found p-value lower than 0.05 threshold including; Host-Site Involvement (0.008), Relationship Security (0.004), Self-Actualization (0.000), and Recognition (0.008) of which found significant difference in travel motivation with different age.

Motivational Factors	Age						F	Sig
	18-30 yr		31-40 yr		41 and over			
	n=48		n=245		n=112			
	Mean	STD. Dev	Mean	STD. Dev	Mean	STD. Dev		
Novelty	3.451	1.061	3.321	1.036	3.383	1.078	0.372	0.690
Relax/Escape	4.208	0.849	4.176	0.864	3.964	1.042	2.295	0.102
Relationship Strengthening	3.688	1.156	3.620	1.059	3.317	1.084	3.526	0.030
Nature	3.715	1.020	3.768	1.087	3.803	0.994	0.537	0.585
Host-Site Involvement	3.062	1.172	2.893	1.182	2.842	1.105	0.612	0.543
Stimulation	3.389	1.041	3.169	1.116	3.074	1.099	1.365	0.257
Self-Development/Personal Development	2.917	1.196	2.712	1.181	2.220	1.069	9.038	0.000
Relationship Security	3.042	1.119	2.941	1.125	2.717	0.971	2.168	0.116
Self-Actualization	2.743	1.149	2.674	1.279	2.324	1.173	3.509	0.031
Isolation	3.521	0.878	3.490	1.016	3.506	0.983	0.025	0.976
Nostalgia	3.490	1.274	3.422	1.275	3.464	1.311	0.083	0.921
Romance	3.198	1.379	3.216	1.248	2.607	1.242	9.375	0.000
Recognition	2.611	1.151	2.527	1.219	2.271	0.979	2.337	0.098
Overall	**3.310**	**1.111**	**3.225**	**1.130**	**3.038**	**1.087**	**2.711**	**0.335**

Table 9: Result of One-way ANOVA test of travel motivational factors during COVID-19 situation and Thai tourists with different age

The hypothesis testing of **H3**: travel motivation during COVID-19 situation is different among tourists with different income has been performed with One-way ANOVA method (Table 10). Based on the overall statistics, the overall p-value of 0.118 was greater than 0.05 threshold and there was no significant difference in travel motivational factors during COVID-19 situation among income. In addition, the mean score showed that tourists of income 30,000-49,999 (3.371) had the highest travel motivation followed by income 15,000-29,999 (3.151), income over 100,000 (3.133), income 50,000-100,000 (3.058), and income below 15,000 respectively. However, if we look into each dimension there were 6 dimensions that found p-value lower than 0.05 threshold including; Novelty (0.046), Relax/Escape (0.001), Relationship Strengthening (0.039), Self-Development/Personal Development (0.036), Relationship Security (0.019), and Romance (0.009) of which found significant difference in travel motivation with different income.

Table following on the next page

Motivational Factors	Income										F	Sig
	Below 15,000		15,000-29,999		30,000-49,999		50,000-100,000		Over 100,000			
	n=27		n=79		n=132		n=135		n=32			
	Mean	S.Dev	Mean	S.Dev	Mean	S.Dev	Mean	S.Dev	Mean	S.Dev		
Novelty	3.099	1.284	3.325	1.078	3.573	0.969	3.225	1.048	3.281	0.991	2.442	0.046
Relax/Escape	3.605	1.240	3.979	1.015	4.353	0.686	4.099	0.936	4.041	0.899	4.991	0.001
Relationship Strengthening	3.352	1.150	3.411	1.176	3.742	1.042	3.411	1.086	3.781	0.822	2.539	0.039
Nature	3.531	1.126	3.646	1.175	3.859	1.020	3.637	1.056	3.813	0.733	1.160	0.328
Host-Site Involvement	2.827	1.027	3.060	1.206	3.032	1.087	2.721	1.255	2.771	0.937	1.748	0.139
Stimulation	2.963	0.953	3.270	1.185	3.310	1.061	3.079	1.123	2.885	1.056	1.707	0.148
Self-Development/Personal Development	2.407	1.185	2.700	1.120	2.818	1.188	2.422	1.178	2.365	1.118	2.596	0.036
Relationship Security	2.802	0.988	2.924	1.169	3.129	1.029	2.689	1.068	2.760	1.137	2.981	0.019
Self-Actualization	2.630	1.083	2.603	1.276	2.755	1.222	2.462	1.246	2.323	1.343	1.321	0.261
Isolation	3.321	0.894	3.392	1.124	3.647	0.896	3.440	1.026	3.542	0.891	1.323	0.261
Nostalgia	3.259	1.163	3.234	1.313	3.689	1.118	3.352	1.297	3.469	1.331	2.201	0.068
Romance	2.630	1.182	2.848	1.415	3.299	1.162	2.915	1.270	3.391	1.395	3.462	0.009
Recognition	2.432	1.016	2.578	1.250	2.613	1.152	2.301	1.096	2.302	1.210	1.593	0.175
Overall	2.989	1.099	3.151	1.193	3.371	1.049	3.058	1.130	3.133	1.066	2.313	0.118

Table 10: Result of One-way ANOVA test of travel motivational factors during COVID-19 situation and Thai tourists with different income

7. CONCLUSION

Based on the results of data analysis, most of the respondents were female with the age range between 31-40 years old. They have an average monthly income range between 50,000-100,000 Baht and mostly lived in Bangkok and Metropolitan area. Most of respondents have travelled during COVID-19 situation about 1-4 times for sightseeing. The most frequent tourist destination they have travelled to was Central region with an average length of stay no more than 5 days. The respondents mostly preferred to travel by their cars with their family without any specific period of time or it can be said that they have travelled whenever time was available. It was certain that since the COVID-19 pandemic happened, there were questions like when the COVID-19 situation will be better, how long people need to stay at home, or being forced to have social distancing. After the COVID-19 situation improved with re-opening of tourism by Thai government, it seems like people can hardly wait to travel again. The result of survey showed that respondent's still had motivational to travel during COVID-19 and the highest mean score from 13 travel motivational factors was Relax/Escape. Moreover, the result of hypotheses testing indicated that travel motivation during COVID-19 situation in overall had no difference among respondents with different gender, age, and income. Although there were previous studies conducted, tourist motivation was a hybrid concept (Pearce, 1993) and not all tourist have the same need (Yousaf & Amin & Santos, 2018) however, this study had received the result differently in regards to the global impact by such a complex situation of COVID-19 pandemic which never happened before and it resulted as there was no difference among the difference of gender, age, and income of tourists during this very unique period of time.

8. SUGGESTION

This study showed the determination of tourist behavior and motivational factors during COVID-19 outbreak in Thailand, suggestions can be provided as followed;

For academics, the result of this study may be useful for reference in future studies or other research works relating to tourism, tourist behavior, and tourist motivation during the pandemic.

For tourism authorities and businesses, the result of this study may be useful for their promotional campaign in the future such as;

1) Promoting more travel campaign based on tourist's behavior in this study such as launching a campaign for family, couples, and friends travel together to get special discounts because these groups are the top 3 travelled accompanies. Or trying to promote more with types of tourism that people unlikely have ever tried such as waterfall abseiling, rafting, and medical tourism because based on this study, most of respondents have never tried to travel with these types of tourism

2) Adapting travel campaign by using the concept of Relax/Escape more with their marketing advertisement because it was the highest rank of travel motivation based on this study and it could encourage Thai people to travel more.

3) Enhancing an accessibility of promotional campaign or special offers for male tourists with age of 18-30 years old and income of 30,000-49,999 can increase the number of tourism because this was the group of tourists that received highest mean score of travel motivation apart from other gender, age, and income groups.

LITERATURE:

1. Anon., n.d. *Department of Disease Control, Ministry of Public Health.* [Online] Available at: https://ddc.moph.go.th/viralpneumonia/
2. Anon., n.d. *Ministry of Tourism and Sports.* [Online] Available at: https://www.mots.go.th/news/category/411
3. Axhausen, K. W. & Zurich, E., 2007. Concept of Travel Behavior Research.
4. Baidya, R. D., n.d. *The Holiday Story.* [Online] Available at: https://www.theholidaystory.com/different-types-of-tourism/
5. Dimanche, F. & Havitz, M. E., 1995. Consumer Behavior and Tourism. *Journal of Travel & Tourism Marketing,* pp. 37-57.
6. Filep, S. & Greenacre, L., 2007. Evaluating and Extending the Travel Career Patterns Model. *Tourism,* pp. 23-38.
7. Kotler, P. & Armstrong, G., 2001. *Principles of Marketing.* s.l.:Prentice Hall.
8. Oktadiana, H., Pearce, P. L., Pusiran, A. K. & Agarwal, M., 2017. Travel Career Patterns: The Motivations of Indonesian and Malaysian Muslim Tourists. *Tourism, Culture & Communication,* pp. 231-248.
9. Paris, C. M. & Teye, V., 2010. Backpacker Motivations: A Travel Career Approach. *Journal of Hospitality Marketing & Management.*
10. P, D. S., Das, A. & Ashraf, M., 2020. Changing Paradigms of Travel Motivations Post COVID-19. *International Journal of Management (IJM),* pp. 489-500.
11. Reporters, P., 2020. *Bangkok Post.* [Online] Available at: https://www.bangkokpost.com/thailand/general/1891910/curfew-starts-today
12. Shamshiripour, A., Rahimi, E., Shabanpour, R. & Mohammadian, A. (., 2020. How is COVID-19 reshaping activity-travel behavior? Evidence from a comprehensive survey in Chicago. *Transportation Research Interdisciplinary Perspectives.*
13. Van Vuuren, C. & Slabbert, E., 2012. *Travel Motivations and Behavior of Tourists to a South African Resort.* Algarve, s.n., pp. 295-304.
14. Yousaf, A., Amin, I. & Santos, J. A. C., 2018. Tourist's Motivations to Travel: A Theoretical Perspective on the Existing Literature. *Tourism and Hospitality Management,* pp. 197-211.

FACTORS INFLUENCING THE ADOPTION OF CORPORATE SOCIAL RESPONSIBILITY ACTIVITIES OF SMALL AND MEDIAUM ENTERPRISES

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ABSTRACT

Corporate Social Responsibility (CSR) concept has been going on for over the past two decades. In Thailand, several businesses especially small and medium enterprises (SMEs) had a problem via the pandemic situation of the Coronavirus Disease 2019. However, CSR still act as the main activity for increase the good life of people and the community. The aim of this study is not only to determine business owner's characteristics of SMEs influencing the adoption of CSR, but also determine the SMEs's characteristics of SMEs influencing the adoption of CSR as well as describe the effect of perception towards SMEs adoptions of CSR. The populations of the study are the owner of SMEs manufacturing, excluded trading and services in Thailand who authorized person of company to contribute the CSR sector. The 14 types of industry are selected via the random collection of the database through the Ministry of Industry. The Gross Domestic Product (GPD) is a one factor for concerning the business income. The appropriate formula for 510 sample size determination of the industry matched the population size was selected, and the structural equation model (SEM) was used to confirmatory factor analysis and path analysis. The sampling group of this study used stratified sampling divided by the type of manufacture and each sample group was sampled normally and divided equally.As a consequence, this research contribution is emphasizing the CSR activity of the business in Thailand, the main task of good entrepreneurs needs to highlight a good attitude and kind response in the social community regarding CSR together with increasing the SMEs' ability for doing CSR, which is promoting the good characteristic of the business.
Keywords: SMEs, Psychographic Perception, Participant's characteristics, Firm's characteristics, Adoption of CSR

1. INTRODUCTION

The pandemic situation of the Coronavirus Disease 2019 has occurred in Thailand and has continued until now. At present, it has caused severe impacts on many areas of Thailand economy. This causes many businesses to have problems such as lacking business liquidity, risk of closure and dissolution, especially among small and medium enterprises (SMEs). Many business owners and employees were affected by the situation. The results of the COVID-19 and the current economic situations have impacted many businesses sectors and created a huge loss on people's income. According to the World Bank "Monitoring the impact of Covid-19 in Thailand", it reports that Thailand has performed lockdown and other related measures to slow down the spread of the pandemic, contributing to jobs racking, overall incomes, businesses, food sustainbility and children's education. Unfortunately, because of the subsequent waves and emerging of new variants, this has imposed a major economic challenge for Thailand. Many businesses including small and medium size need a business plan to assist them in adapting themselves to survive in a current economic situation by focusing on strengthening business strategy and develop their potential through the adoption of corporate social responsibility

(CSR) activities to drive sustainable business. Corporate Social Responsibility (CSR) concept has been going on more than two decades. We usually see the concept that has been practiced in for-profit companies. According to the website Keap "Why small business should practice CSR?", it shows that nearly one-half of consumers increasingly buy from company that make them focusing on the helath care of consumer as well as well-being and environment. The study suggests that the SME owners that serve a local community need to consider the CSR initiatives. Corporate social responsibility activities can give businesses higher sales and margins, increased valuation, improve public characteristic, increase employee, and decrease the employee turnover. Most importatly, the small businesses can gain invaluable customer loyalty and produce the positive impact in the community. However, there are cons for CSR initiatives such as CSR activities can be costly and challenging, and it has to be voluntarily for a cause. It also mentions that a misguided and/or flawed CSR initiatives resulting in damage small business as well as reduce the business potentaility in the real market. The Office of Small and Medium Enterprise Promotion stated that the definition of "Enterprise" is defined as three main businesses including manufacturing sector, trading sector, and service sector; and medium and small enterprises called SMEs. SMEs in Thailand have committed to economic development of the country; and they help to alleviate the problem of poverty. The article obtained from the website Bangkokbiznews.com showed that at present the number of SMEs across Thailand are 3,176,055 enterprises, which composed of small enterprises (Micro), accounting for 85.47%, followed by small enterprises (13.18%) and medium-sized enterprises (Medium) representing 1.35%. In this regard, SMEs are very important in driving a national economy for Thailand. Due to the spread of the Covid-19, the capacity of SMEs is reduced; and the government has to issue various measures to assist SMEs many entrepreneurs in order to turn around and create new opportunity for their businesses. In Thailand, the concept of CSR is widely accepted among corporations. The article "Corporate Social Responsibility" by Phoenix Capital Group mentioned that corporate social responsibility has caused manufacturing companies to venture on the product and service innovation which affected to the challenges and opportunities in economic pathway, social and environment aspect. Many corporations have made commitment to local communities and doing a good part of living an ethical Thai people life. Because of this idea, there is a growing awareness among many Thai firm to provide good assurance to the consumers and stakeholders, and take good care of environmental and social communities. In Thailand, the practice of corporate social responsibility activities is found among well-known companies such as Siam Cement Group, PTT and Unilever. Siam Cement Group, a largest cement manufacturing in Thailand has promoted the utilization of the cement bags by turning them into usable handbags. In this action, it has reduced the waste from the agricultural or manufacturing for millions of tons every year. PTT is a largest national for oil and gas production company in Thailand. They commits itself to be a good corporate citizen to protect environment and improve quality of life of the communities. Also, Unilever, created the campaing of "Unilever Sustainable Living Plan" which distributes consumer products in an environmentally friendly jute bag. The column CEO talk discussed the topic on "Should small and medium enterprises (SMEs) do CSR or not?" by Dr. Pornchai Sriprapai. He wrote about corporate social responsibility and mentioned that CSR will help strengthen the corporate culture that emphasizes morality and contribute to society. Moreover, CSR will help cultivate good social habits among employees and encourage employees to take part in social responsibility. Cultivating corporate cultures with the aim to contribute good deeds to society can be done in any organizations either a small or large. However, it would even be better if smaller organizations would adopt corporate social responsibility (CSR) activities initiative practice to drive sustainable business. He also mentioned further that corporate social responsibility is not just about donations or philanthropy, but it is more about building fundamentals of doing good to great business.

Doing good business is to run business with responsibility for the success of the business itself, and for our society and natural environment. Business owners must be very careful not to cause negative effects on society and environment, and strive to create positive results such as doing good things for society, giving back to its customers and community and concern, and at the same time to protect environment as much as possible. People may wonder if a business that focused on the benefits of customers, community and society can be sustained or gained financial benefits because the cost of practicing it is quite high. He suggests that customers will positively respond to the business that keep the benefits of the customers in mind. In contrast, if a business that only takes advantages from the customers, it will never last. A business that interests and involves in community activity will receive a positive respond from the community; as well as customers will see the business as a part of community and support it. In this case, it drives the sustainable of the business, build positive image and create financial benefits in return. There are many corporate social responsibility (CSR) research on large corporations but only a few has done research on the adoption of corporate social responsibility activities to drive sustainable business among small and medium enterprises (SMEs) in Thailand. Therefore, the aims of the study are to assess factors influencing small business's adoption of corporate social responsibility activities to drive sustainable business; and to explore the perceptions toward the adoption of corporate social responsibility (CSR) activities initiative practice to drive sustainable business among SMEs in Thailand.

Research contribution:
- This study can be used as a guideline for the implementation of CSR activity initiatives among small and medium size businesses.
- Obtained information regarding the perceptions and factors influencing the adoption of CSR activities can be used for making a policy and plan for business strategy
- The output of this research provide how firms can gain competitive advantage from applying CSR activities to their practices using this research as additional information.

2. LITERATURE REVIEW
2.1. Psychographic Perception
According to the "Corporate Social Responsibility (CSR) by small and medium enterprises (SMEs): A Systematic Review" focused on the key characteristics and issues in corporate social responsibility among small and SMEs. The study employed the assessment using quantitative technique (SQAT) to identify and examine the 62 peer reviews CSR articles from the high-quality academic journals. Most of the studies they analyzed took place in Europe and Asia. The study mentioned that there is often a misconception about CSR activities that CSR activities are only carried out by high volume of profitable businesses. In fact, small and medium enterprises (SMEs) can have a great role to play in the corporate social responsibility. CSR activities contribute to improve society, community, and environment which in turn has created positive impacts on the businesses who engaged in the CSR activities. The paper also mentioned that the implementation of CSR can create business opportunity among SMEs, help improve SMEs funding status, and carry out business monitoring for increase the efficiency. However, the articles address CSR implementations among small and medium enterprises that several SMEs do not implement CSR due to resource constraints and lack of fact of benefits via CSR guideline. The study of CSR in Norway (Grimstand, M.S., et al, 2020) which aim to investigate the relationship between firms' motivation for CSR and moderating role of internationalization. The design of the study showed the conceptual model based on a survey by 65 participants from the (M&R) maritime cluster was developed by previous researchers. The results of the study showed that firms' intrinsic motivation drives CSR more than extrinsic motivation.

Based on the paper, intrinsic motivation is understood as a firm engaging in CSR because it is a right thing to do; and extrinsic motivation associated with separate outcome achieving. The impact of intrinsic motivation on CSR have been found contingent on the extent of the internationalization within SMEs. Most of firms perceive CSR activities for the main task for business case and profit.

2.2. Participant's Characteristic

A study intergenerational differences of CSR activities in family-run business in eastern Thailand (Laysiriroj, S. & Wehrmeyer, W., 2020) explored the differences and non-diference in CSR between generations of business pathway in Thailand (include family-run business). The study focused on motivation, behavior, targets, activities, and expectation towards CSR. It mentioned that family-run businesses approach CSR differently from larger corporations. This study performed a data collection and analysis using semi-structured interviews because the interview can provide in-depth observation and wider perspective from family-run business owners' perspective. There was no hypothesis in this study because it was not suitable for the research since this was not an explanatory and normative or confirmatory. This study sought nature of the knowledge regarding CSR in family-run business owners. Snowball sampling technique was employed to select 28 family-run business in Eastern Thailand. The interview questionnaire comprised of 5 parts including demographic and historical information, exploring the idea of CSR or main drivers of CSR activities, determining the views and aspect of CSR activities of the FRB owners, determining the receiver of CSR activities and determining owners' expectations from CSR activities in FRBs. The findings in this study showed that the 1st generation owners were often associated with religious teachings; whereas the 2nd generation were passed on from then 1st generation through family culture. For the behavior, the 1st generation did not link the concept of CSR to their business. On the other hand, the 2nd generation engaged in CSR to their business strategy. The 1st generation owner expected their employees to trust them as a figure; whereas the 2nd generation owners expected employees to have better impression of their company as a brand for long term benefits. The study of Gen Y's perceptions in Thailand (Wattanasupachoke, T., 2017) which is investigated perception towards CSR among the new generation in Thailand, Gen Y namely. The main focusing of this study was "What are the important levels of SCR strategies perceived by generation Y in Thailand?" The expected outcomes of current work were to help company formulating CSR strategies in particular of gen Y people. The study used quantitative method using questionnaire for data collection. Descriptive statistics and factor analysis were used to analyze obtained data. In conclusion, company should not over point of view of the linkage between business pathway and socio-community. Companies must consider the effects of environment and social changes on their performance. Majority of generation Y paid attention to the corporate social responsibility concept. New generation people concerned about reducing pollution, compliance with environmental regulations, and saving natural resources and environment. According to the result of factor analysis, it also showed that the CSR strategy should focus on customers, creativity and innovation of products and services, and fair treatment among employees and stakeholders.

2.3. Firm's Charateristic

"A relational study of firm's characteristics and CSR expenditure", (Chauhana, S. & Amita., 2014) analyzed the impact of firm characteristics toward corporate social responsibility expenditure using variables. The size of firm, firm profitability, firm leverage, and sales of the firm were collected as the cirteria of this study. The population of the study was obtained from BSE firm which is 30 index during year of 2007-2012 periods.

The study used multiple regression analysis to analyes the results; in which it reported that three point include firm size, firm profitability, firm sales, have an influence toward the CSR expenditure, meanwhile firm leverage showed have no influence on the CSR perspective. Bielawska (2022) performed a study with assumptions that macro-, micro-, and medium-sized enterprise undertake CSR mainly guided by the benefits obtainable for this activities. Therefore, he identified the achievable and achieved benefits of undertaking CSR by SMEs enterprises by researching literature studies and empirical researc in three stages including selection of experts, colleection of information using CAWI and CATI method, and development and interpretation of research results. Based on literature reviews, two-third of all private sectors employees in SMEs and another 50 percent of industry in EU was value-added. There are many businesses in EU that have implemented CSR activities. Many business owners showed strong social commitment duirng the COVID-19 pandemic by functioning their businesses by another method when compare to the way of laying off employees. Literature pointed out that having responsibility towards society including employee's benefits, strong connection with the community could reduce the un-stability of the company's stakeholders during the socio-economic period crisis. This research has indicated that all enterprises applied one or more CSR task be considered most important for the good vision of manufacuring. In term of benefits, the distribution of benefits are vague because CSR practices is gave a different types of benefits to enterprises.

2.4. Adoption of CSR

Allen (2021) mentioned in his article that any business owner either small or medium enterprises (SMEs) will know that the key to success is to be able to adapt their business to the times. A good leader should know when his business needs to evolve and call for a change. Allen (2021) mentioned further that adapting to changes in technologies, businesses need to adapt to CSR. The CSR trend is growing and it is proven to provide benifits for many companies and their stakeholders. Therefore, he mentioned 5 reasons why small businesses should adopt CSR strategies. First of all it helps businesses increase their sales because when it has the upper hand over competitor who has not adopted CSR. Secondly, it improves customers and employees loyalty because people admire businesses that take positive actions toward improving community, society and environment. Thirdly, every SMEs either small or medium size should have responsibility toward our natural reources and environment; which helps create positive images for its business. Fourthly, business should get involved with giving and volunteering; in which this can motivate its employees to have more passions in the business. By providing opportunities to support community through workplace, this creates high employee engagement and productivity, and reduce turn over rate. Lastly, a survey showed that 55% of employees would like to work for socially responsible company, even if it meant a lower salary. Adopting CSR programs are proven to be effective at recrruiting decent employees. And if a small business with a conscience practice of CSR, it gives competitive advantages over its competitors. According to the article "CSR from a Thailand based SME perspective" (Lee, D., 2019), the concept of corporate social responsibility (CSR), is the idea that a business should play positive role in decision making and having social responsibility towards community and enviroment. The idea of CSR is familiar to many companies operating in Thailand. They recognize the importance of customer relations, communities, and brands in regards to enviromental impact, workers, supply chains, and society and environmental issues. CoffeeWORKs, is a coffee company using local raw materials supply chain partners called the Integrated Tribal Development Program, Thailand's largest and older coffee growing NGO. It started from a small company with less resources; however, the founders believed that the business has strong potential to increase their product's quality, reduce harvest water usage, and create higher income for ethnic minority hill tribe people who growing coffee communities

in Thailand. With this practice over three years, they gained 90% price premium above commodity coffee process trade on global exchanges. This is a very good example of the company's CSR efforts and evidence of its program sustainability goals that aimed to improve quality of the products, generate higher farmer incomes, and gain farmer participation. With the CSR program, business has the ability to start and make a real difference. The article mentioned one important point of CSR practice in SMR based on Thai Commerce Minister Sontirat Songtijirawong (2018) that CSR programs coming the SME sector has the opportunity to create huge benefits for participating companies and stakeholders.
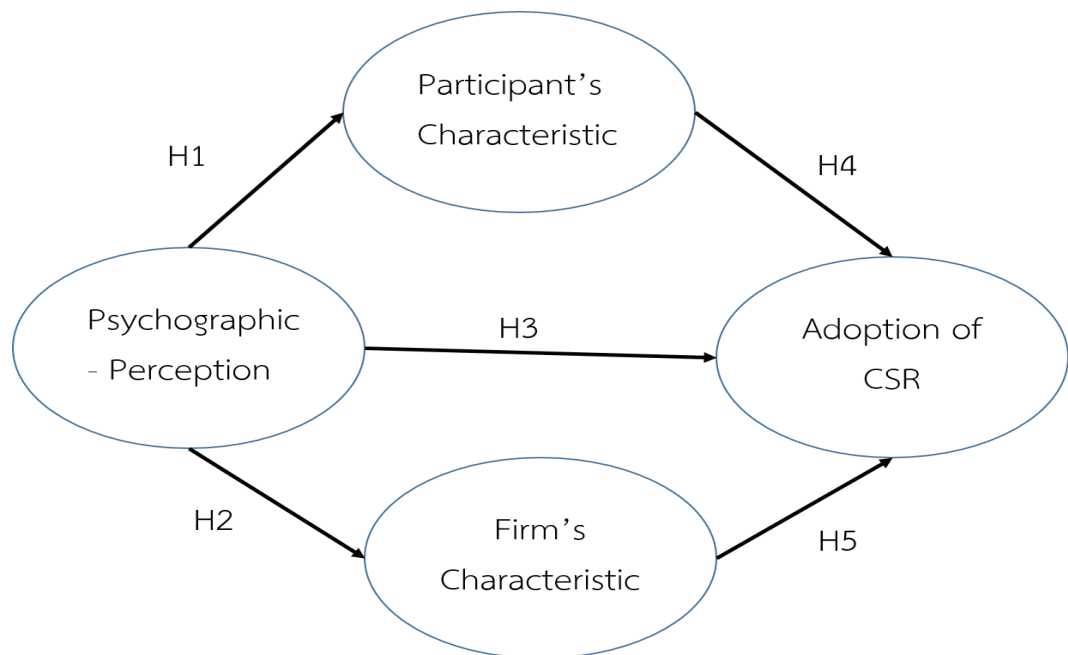
Figure 1: Conceptual framework

Research contribution:
- This study can be used as a guideline for the implementation of CSR activity initiatives among small and medium size businesses.
- Obtained information regarding the perceptions and factors influencing the adoption of CSR activities can be used for making a policy and plan for business strategy
- The output of this research provide how firms can gain competitive advantage from applying CSR activities to their practices using this research as additional information.

3. METHODOLOGY
The mixed research method was applied in this study to determine the factors influencing the adoption of CSR Activities of Small and Medium Enterprises (SMEs) in Thailand. In this chapter, research context, sampling mehods, research instrument, research procedure, and data processing together with analysis of the pilot test are discussed in detailed.

3.1. Research design
This research is designed to use both quantitative and qualitative study. Quantitative study, it will be used to assess factors influencing the small business's adoption of corporate social responsibility activities. And the quantitative using content analysis to explored SMEs owner perception towards the adoption of CSR. It will be done through using statistical analysis.

3.2. Study area and Population

The populations of the study are small and medium enterprises (SMEs) are manufacturing, excluded trading and, services in Thailand. In 2021, there are 3,178,124 companies (sme. 2021) and the entrepreneur describe as the owner, manager or someone who authorized person of company to make decisions about CSR.
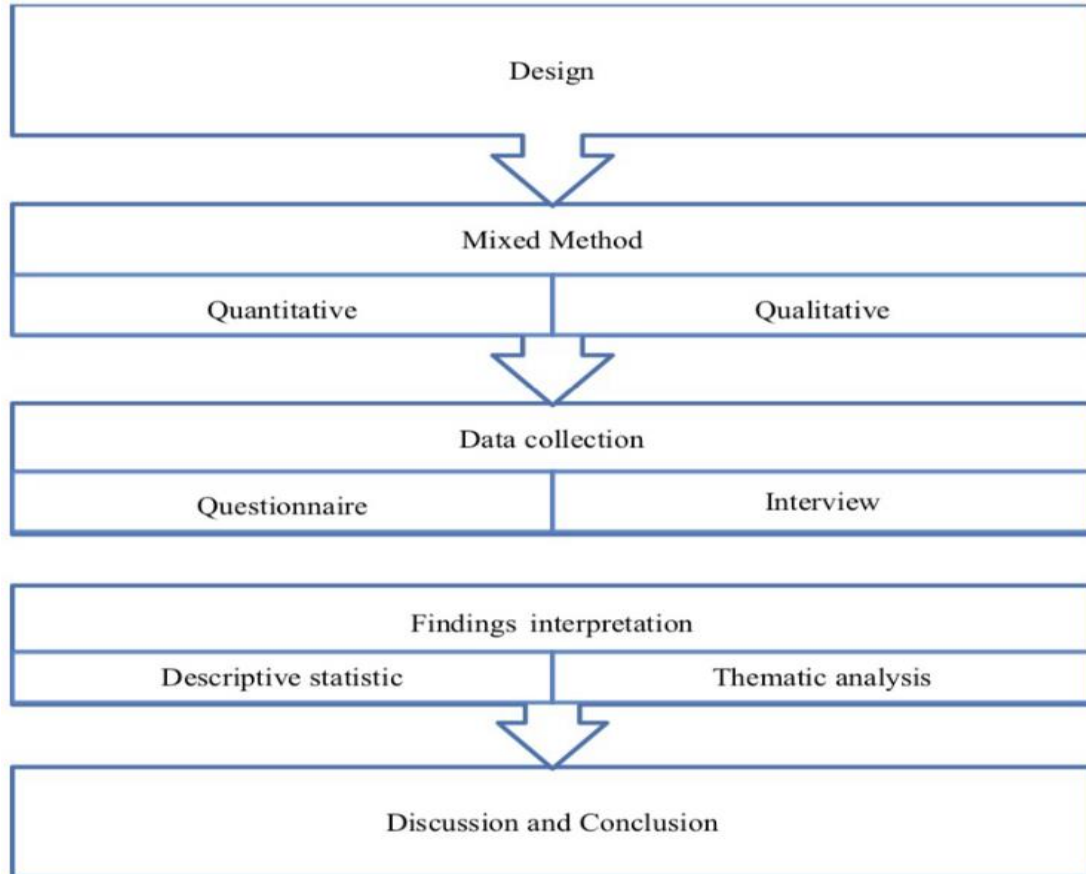
Figure 2: The research diagram / overall design of this study.

3.3. Data Collection and Sampling technique

The process of data collection will be done by the researcher will obtain the list of small and medium enterprises (SMEs) in Thailand, and will randomly select the subject to participate in the study. The researcher ensures their willingness to participate in the study before assessing for data. The sample used for the study is small and medium enterprises (SMEs) focusing on the production sector. For a random collection of the database through the Ministry of Industry, selecting the six potential industries in Thailand in terms of income (measured by Gross Domestic Product: GDP) from a total of 14 types of industry, resulting in those samples provide a vital of Thai economic up to 60% of SMEs income. The appropriate formula for sample group determination of the industry matched the population size was selected, and the structural equation model was used to analyze data. Jackson (2003) Cited in Kline. (2011) suggested that the rule of N:q should be concerned with the determination via the proportion of N, and the independent variable prediction (parameters) q does not lower than 10:1. For the current study, the independent variable will be used for 34 variables. Thus, the sample group was fixed for n:q at 15:1, which was higher than the lowest value, contributing to the sample 510 person/industry. The sampling group of this study used stratified sampling divided by the type of manufacture (collecting with six sectors as mentioned above). Moreover, each sample group was sampled normally and divided equally.

3.4. Measurement and tools

The tool used for data collection included a questionnaire developed from the theory of Resource Based View (RBV), theory of Contingency, and theory of Planned Behavior. The questionnaires are divided into two main parts including questionnaires for quantitative study and qualitative study. The questionnaires include general participant's characteristics of businesses and owners including age, gender, education, position, and CSR work experience. The second is Firm's characteristics of business, including type of owned business, numbers of employers, specific type of what business industries, total amount investment money in business, business's property and years of business. The third part of questionnaires is about the CSR's attituded and perceptions toward corporate social responsibility activities initiative practice.

3.5. Data Analysis

For the analysis of quantitative data, the questionnaires will be coded before entering to the database and analyzed by using AMOS program which is a statistical software and it stands for analysis of a moment structures. AMOS is an added SPSS module, and is specially used for Structural Equation Modeling, path analysis, and confirmatory factor analysis. It is also known as analysis of covariance or causal modeling software. Descriptive statistics for general characteristics will be expresses as mean, standard deviations (SD), frequency, and percentage. Statistical test will be performed with a 95% confidence interval and p-vale <0.05 considered as statistically significant. Statistical analysis will be used to analyze variables, associations among factors, and factors influencing small business's adoption of corporate social responsibility activities to drive sustainable business. For the analysis of qualitative data, the data which obtain from informal interview, in-depth interview, and focus group discussion will be analyzed using content analysis.

LITERATURE:

1. Ajzen, I. (1991). *Theory of Planned Behavior*. *Organizational Behavior and Human Decision Processes.* (50). 179-211.
2. Allen, J. (2021). *5 Reasons Small Businesses Should Adopt a CSR Strategy & How to do it* retrieved from https://www.charities.org/news/5-reasons-small-businesses-should-adopt-csr-strategy-how-do-it
3. Bielawska, A. (2022). Socially Responsible Activity of Micro-, Small-, and Medium-Sized Enterprises—Benefits for the Enterprise. *Sustainability 2022*, 14, 9603. https://doi.org/10.3390/ su14159603
4. Ayodele, O. and Adedapo, A. A. (2019). Knowledge and Attitude of Corporate Social Responsibility by Selected Small Businesses in Ado-Ekiti. *American Journal of Social Sciences and Humanities.*
5. Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, (17). 99–120.
6. Bikefe, G., Zubairu, U., Maitala, F. and Ediuku, E. (2020). Corporate Social Responsibility (CSR) by Small and Medium Enterprises (SMEs): A Systematic Review. *Small Business International Review.*
7. Branco, M. C. and Rodrigues, L. L. (2006). Corporate Social Responsibility and Resource-Based Perspectives. *Journal of Business Ethics*. 111-132.
8. Chauhana, S. and Amita., (2014) A relational study of firm's characteristics and CSR expenditure. *Swati Chauhan and Amit / Procedia Economics and Finance 11,* 23 – 32.
9. Darcy, C., Hill, J., McCabe, T. J., and McGovern, P. (2013). A Consideration of Organizational Sustainability in the SME Context: A Resource-Based View and Composite Model. *European Journal of Training and Development.* 38(5), 398-414.

10. Flø Grimstad, S. M., Glavee-Geo, R. and Fjørtoft, B. E. (2019). SMEs motivation for CSR: An exploratory study. Retrieved 15.01.2023 from https://www.emerald.com/insight/0955-534X.htm.

11. Ham, M., Pap, A. and Stimac, H. (2018). *Applying the Theory of Planned Behavior in Predicting the Intention to Implement Corporate Social Responsibility.* 31st International Business Information Management Association ConferenceAt: Milano, Italy.

12. Ham, M., Pap, A. and Stimac, H. (2019). *Intention to Implement Corporate Social Responsibility-The role of Religiousness and Ethical Idealism* retrieved from https://ideas.repec.org/a/ejn/ejbmjr/v7y2019i1p18-30.html.

13. Harney, B. (2016). "Contingency Theory" in Johnstone, S. and Wilkinson, A. (2016) An Encyclopedia of Human Resource Management, Cheltenham: Edward Elgar.

14. Husted, W. B., (2000). A Contingency Theory of Corporate Social Performance. *BUSINESS & SOCIETY,* 39 (1).

15. Jurevicius, O. (2021). Resource Based View retrieved 15.01.2023 from *Strategic Management Insight* https://strategicmanagementinsight.com/tools/resource-based-view/.

16. Lee, D. (2019). CSR from a Thailand based SME perspective. Co-Founder & Managing Director at CoffeeWORKS Limited retrieved from https://www.austchamthailand.com/march-2019-csr-from-a-thailand-based-sme-perspective/

17. Maldonado-Erazo, C. P. (2020). Corporate Social Responsibility and Performance in SMEs: a meta-analysis, *Marketing Intelligence & Planning*, 40(*2*). 184-204.

18. Madhani, P. M. (2010). *Resource Based View (RBV) of Competitive Advantage: An Overview*. Icfai University Press, Hyderabad, India.

19. Roles of SMEs for Thailand Economy, Office of Small and Medium Enterprise Promotion. Retrieved 15.01.2023 from https://www.sme.go.th/upload/mod_download/ch201710241-1.22305pdf.

20. Rothaermel, F. T. (2012). *Strat.Mgmt*. Concepts and Cases. McGraw-Hill/Irwin, 5.

21. Siboro, T. D., Siahaan, M. A., Muda, I. and Ginting, S. (2020). *Corporate Social Responsibility is Viewed from a Contingency Perspective.* In Proceedings of the 1st Unimed International Conference on Economics Education and Social Science (UNICEES 2018).

22. SMEs Situations in Thailand in the Third Quarter. (2023). Retrieved 15.01.2023 from The column CEO talk discussed the topic on "Should small and medium enterprises (SMEs) do CSR or not?".

23. The World Bank. (n.d.). *Monitoring the impact of Covid-19 in Thailand. The impact of Covid-19 on Thailand's households.* Retrieved 15.01.2023 from https://www.world bank.org/en/country/thailand.

24. The World Bank. (n.d.). *Theory of Behavior Change*. Communication for Governance & Accountability Program. CommGAP Towards a new Agora. Retrieved 15.01.2023 from https://documents1.worldbank.org/curated/en/456261468164982535/pdf/526140BRI0Beh a10Box345574B01PUBLIC1.pdf.

25. Virjkus, S. (2009). *Contingency Theory*. Leadership Models, Tallinn University. Retrieved 09.01.2023 from https://www.tlu.ee/~sirvir/Leadership/Leadership%20Models/contingen cy_theory.html.

26. Wang, X., and Bian, W. (2022). Analyzing the Role of Corporate Social Responsibility for Sustainable Environmental Performance: Mediating Roles of Environmental Strategy and Environmental Outcomes. *Frontiers in Psychology.*

27. Wattanasupachoke, T. (2017). Corporate Social Responsibility (CSR) Strategies: A Study of the Gen Y's Perception in Thailand, *Chulalongkorn Business Review*. 39.

28. Wayne, W. LaMorte, M. D., Ph. D, and M. P. H. (2019). *Behavioral Change Models.* Retrieved 09.01.2023 from https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralch angetheories/BehavioralChangeTheories3.html.

29. Wehrmeyer, W. and Laysiriroj, S. (2020). Intergenerational differences of CSR activities in family-run businesses in eastern Thailand, *Asian Journal of Sustainability and Social Responsibility*.
30. *Why small businesses should practice CSR*. (2020). Retrieved from 15.01.2023 from https://keap.com/business-success-blog/business-management/culture/why-small-business es-should-practice-CSR.

CORE SELF-EVALUATION AND SELF-LEADERSHIP: A CASE STUDY OF EMPLOYEES IN ABC COMPANY LIMITED

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ABSTRACT

The organization will be successful and sustainable; the organization should be prepared for deal with any changes. It is therefore important to prepare personnel with human resource development strategies. However, the organization should know the personalities of its personnel as much as possible in order to create the right and appropriate strategy. Two of the most important self-concepts of this study were core self-evaluation and self-leadership. Core self-evaluation is based on personality traits for self-esteem, self-efficacy, locus of control, and emotion stability. Self-leadership is a condition in which a person, using strategies, leads themselves to achieve their goals. In this study, the case study is ABC Co., Ltd., a company that provides laboratory testing services. Most of the employees graduated in science. This study was a survey of 237 employees. The objectives of this study were to: 1) study the core self-evaluation and self-leadership of the employees; 2) study the demographic characteristics' effect on core self-evaluation and self-leadership; and 3) study the correlation between core self-evaluation and self-leadership. Collect the data through the questionnaire, the core self-evaluation scale by Judge et al. (2003), and the self-leadership scale by Houghton et al. (2012). The results of this study found that the sample has core self-evaluation and self-leadership at levels of high and very high, respectively. Correlation coefficient for core self-evaluation and self-leadership is 0.214, had a statistically significant relationship with significance at the 0.05 level. The relationship is in the same direction and low relationship.
Keywords: core self-evaluation, self-leadership

1. INTRODUCTION

In the current business situation, there have rapidly changing and increasingly competitive. Organizations should be ready for situations that will affect the organization at any time. Organizations should create strategies to prepare and increase competitiveness. One important strategy is the human resource development strategy. Because if the organization has personnel with potential, the organization will have a strong operation, and when any changes occur both inside and outside, the organization can maintain the integrity of its management system by being managed quickly. However, any changes related to individuals often have problems, so the organization should consider developing personnel to be competent and ready for change. For the appropriate and effective strategies of the developing personnel, an organization should know the personality of its personnel as much as possible. In the case study, ABC Co., Ltd. is a company that provides laboratory testing services by testing agricultural products, food, agricultural production factors (such as fertilizer, water, soil), environmental samples, etc. The operation of this company is an academic and technical work.

Organizations use international standards (International Organization for Standardization, ISO) to control the operational process. For this business model, ABC Co., Ltd. has most of its employees who have graduated in science and often specialize in specific areas, and they work both in the laboratory and in other departments. The company evaluates employees and promotes positions when there is a job vacancy due to resignation, transfer, retirement, or organizational restructuring. The problem of this situation is the personnel did not want to be promoted to the job position, especially in the management line. There were numerous reasons discovered, including lack of confidence, dislike of the presentation, ignorance of how to manage people, expertise in the current job, preference for academic and technical work over management work, inappropriate compensation, lack of confidence in the stability of the new position, and so on. At present, the company's human resource development emphasizes training in academic and laboratory techniques. The company therefore plans to develop more in terms of management to increase the confidence of the employees and reduce the problem of promotion to the management position, either because of the refusal of the position or the lack of ability to perform new tasks. Initial studies of employees will provide information for the company's use in personnel development planning, especially in terms of leaders and those who are about to be leaders. According to the literature review, the leaders should be able to lead themselves, or have self-leadership, before leading others, and the leader should make the follower have self-leadership too. (Lovelace, Manz, & Alves, 2007). Ongoing leadership success is mostly determined by one's ability to develop advanced self-leadership skills that enable one to better navigate important, complex, and relational situations. (Gambill, 2021) Therefore, self-leadership is the fundamental quality of a leader. "Self-leadership is a process through which individuals control their own behavior, influencing and leading themselves through the use of specific sets of behavioral and cognitive strategies" (Manz 1986; Manz and Neck 2004; Neck and Houghton 2006, as referred to in Cristofaro and Giardino, 2020). A literature review found the core self-evaluation have a significant positive influence on self-leadership (Mendoza, 2017). And a high level of core self-evaluation is connected with a high level of self-leadership (Cristofaro and Giardino, 2020). Core self-evaluations is the fundamental evaluations of individuals about themselves and their own abilities, define both the breadth and limits of opportunities (Mendoza, 2017). Examining self-leadership and core self-evaluations of the employees can provide the starting point for the company to use the information for personnel development planning, especially a leadership development program.

2. THEORETICAL BACKGROUND
2.1. Core Self-Evaluation
In 1997, Judge, Locke, and Durham published a concept paper linking an integrated personality trait, called "core self-evaluation," and job satisfaction by starting with a study of the dispositional traits factors that affect job satisfaction. This dispositional trait is presented in the concept of "core evaluations," which come from the integration of eight literature review areas: philosophy, clinical psychology research, practicing clinical psychology, job satisfaction research, stress research, child development theory, personality theory, and social psychology. To study and understand the personality base of job satisfaction. The core self-evaluation is the basic of person self-awareness related to themselves, the world, and others. It is the person's subconscious. Therefore, the person who is evaluating their work or the colleagues, that person's assessment will be influenced by their deep sense of self- evaluation. Judge et al. (1997) defined the concept of the basic core trait of core self-evaluation according to three criteria: self-evaluation; the core trait should involve self-evaluation, not depiction by themselves or others, fundamentality; the core trait should be the intrinsic basis of the person. It's not a character that can only be seen on the outside, and scope; the core trait should be clear, bounded; a dominant trait.

The summarized three traits that met the three criteria above: self-esteem, generalized self-efficacy, and neuroticism, and considered a potentially important trait, the locus of control. However, Judge et al. (1997) also discussed the possibility of other traits, especially dispositional optimism and positive and negative affectivity. Judge et al. (1998) 's research used the dispositional optimism trait, and the research of Judge and Heller (2002) uses negative affectivity traits as a component of core self-evaluation. From the literature review, studies such as those by Judge, Eres, Bono, and Thoresen (2003), Bono and Judge (2003), Mendoza (2017), Cristofaro and Giardino (2020), and Naksit and Dudduean (2020) studied four personality traits: self-esteem, generalized self-efficacy, neuroticism, and locus of control. The neurotic traits are also known as emotional stability (Bono and Judge, 2003). The concept of four personality traits: (1) self-esteem; self-esteem is perceiving yourself as competent, important, successful, and valuable (Coopersmith, 1967), self-esteem is the overall value that one places on oneself as a person (Harter, 1990), (2) generalized self-efficacy; generalized self-efficacy is an evaluation of how well one can perform across a variety of situations (Locke, McClear, &Knight, 1996), generalized self-efficacy is an evaluation of one's ability to perform across a variety of contexts (Bono and Judge, 2003), (3) locus of control; beliefs about the causes of events in one life - locus is internal when individuals see events as being contingent on their own behavior (Rotter, 1966), the locus of control is one's beliefs about having the ability to control one's own situation (Bono and Judge, 2003), and (4) neuroticism or emotional stability; neuroticism is the tendency to have a negativistic cognitive/explanatory style and to focus on negative aspects of the self (Watson, 2000), emotional stability is the level of positive mental health and is a trait used when dealing with stressful situations (Bono and Judge, 2003). These four traits are related (Bono and Judge, 2003), for example, there is a connection between self-esteem and generalized self-efficacy, generalized self-efficacy and locus of control. According to this logic, individuals who judge themselves to be able to perform in a variety of contexts— generalized self-efficacy—think they can control the situation or environment. And there is a connection between self-esteem and emotional stability. Therefore, these four traits should not be studied separately. The study results of the correlation of each personality trait showed that the average Pearson correlation was 0.60 (Judge, Erez, Bono, & Thoresen, 2002) - Self-esteem and general self-efficacy have the highest correlation, with r = 0.85, and locus of control and emotional stability have the lowest correlation, with r = 0.40. Individuals with high core self-evaluation will assess themselves as efficacious, valuable, and in control of their lives (Judge et al., 2004).

2.2. Self-Leadership

Manz and Sims (1980) presented the concept of self-management—the concept of everyone having their own self-management within their own identity. The self-leadership concept first appeared in a 1983 practitioner-oriented book (Manz, 1983). Self-leadership is an all-encompassing self-influence that allows one to lead oneself into action with natural reward and manage oneself to get successful work even when there is no natural reward. In addition, the concept of self-leadership differs from related concepts in that it is more self-influencing. Examples of related concepts include self-control and self-management. Manz (1991) further clarified the distinctness of self-leadership from self-management by using three underlying questions: "What?" "Why?" and "How?" He specifically described self-management as a self-influence process and set of strategies that primarily address how work is performed to help meet standards and objectives that are typically externally set, tends to rely on extrinsic motivation and to focus on behavior (Stewart, Courtright & Manz, 2011). Alternatively, Manz (1991) described self-leadership as a self-influence process and set of strategies that address what is to be done (e.g., standards and objectives) and why (e.g., strategic analysis) as well as how it is to be done, incorporates intrinsic motivation and has an increased focus on cognitive

processes (Stewart, Courtright & Manz, 2011). Among other things, this emphasizes that self-management processes are dependent on extrinsic incentives (e.g., pay and other external rewards for an employee performing autonomous work) whereas self-leadership is less driven by external forces, though still allows for influences such as the empowering actions of a leader who creates intrinsic reward opportunities as well as external incentives. As will be discussed in more detail, there is somewhat of a paradox in that external leadership (focused on empowering and facilitating individual and team self-leadership) can not only be consistent with but is usually a necessary component of effective self-leadership in practice (Manz, 1991; Manz & Sims, 1987, 1990, 1991; Stewart, Courtright & Manz, 2011). Self-leadership is a continuum of behaviors ranging from those caused by external influences to those caused by internal influences (Manz, 1992; Stewart, Courtright, & Manz, 2011). The details of externally managed, self-management, and self-leadership as - externally managed; no influence over What, How, and Why of Work and dependent only on extrinsic incentives, self-management; influence over How of work and mainly dependent on extrinsic incentives, and self-leadership; Influence over What, How, and Why of work and dependent on intrinsic and extrinsic incentives (Stewart, Courtright, & Manz, 2011). This concept shows that the externally managed determines the work standard by a supervisor or an organization, and the self-managed determines how to work, regardless of what the job is or why it needs to be accomplished. The broad definition of self-leadership is the process of self-influence (Neck & Manz, 2010). The importance of self-leadership is having a process of self-influence to build credibility, responsibility, and increased capacity (Manz, 2015). Self-leadership should be present in both leaders and followers. A leaders should be able to lead themselves, or have self-leadership, before leading others, and the leader should make the follower have self-leadership too. (Lovelace, Manz, & Alves, 2007). If you want to lead somebody, the first critical step is to lead yourself. (Manz & Sims, 1991). Leadership requires self-leadership (Furtner et al., 2012). Follower who has self-leadership that is responsible and has increased abilities (Manz, 2015). It will be the basis for further leadership development. The components of self-leadership have some overlap, but they can be divided into three main categories: behavior-focused strategies, natural-reward strategies, and constructive-thought strategies (Manz, 2015). Behavior-Focused Strategies including self-observation, self-reinforcement, and self-criticism/self-punishment) (Neck & Manz, 2013; Stewart, Courtright & Manz, 2011). Self-observation is the primary method of self-leadership for obtaining relevant information about themselves, whether it supports self-goal setting or in conjunction with other strategies. Self-reinforcement and self-criticism or self-punishment are two sides of a coin; both involve self-applying behavior to the consequences. The positive will be self-reinforcement, and the negative will be self-criticism or self-punishment. This strategy produces positive effects on performance and other satisfactory outcomes for the people—trainees, students, and employees (Neck & Houghton, 2006; Prussia, Anderson, & Manz, 1998; Stewart, Courtright, & Manz, 2011). Natural-reward strategies are positive self-enhancement strategies that involve creating a natural motivation to work. That is, a person strives to build work relationships and self-worth more than the reward from outside. Natural reward strategies are fundamentally similar to self-determination theory (Deci & Ryan, 1985). Natural reward strategies focus on incorporating natural reward into the task. In other words, self-leaders will take the approach of designing their task and/or their thinking in a way that enables a sense of self-control, competence, and aim. In conclusion, the purpose of the strategy in this group is to support empowerment in performing tasks (Neck & Houghton, 2006). Constructive-thought strategies support the creative thinking patterns that can influence effective performance (Neck and Manz, 1992), involving analysis, thinking, and positive self-talk. Which is usually a person who expects the success of the job. There is a tendency to work with a positive mind set (Manz and Neck, 2004).

Mental imagery, beliefs, and assumptions guide the format of overall thought patterns (Neck & Manz, 2013; Stewart, Courtright, & Manz, 2011). Using imagery, self-talk, and/or beliefs and assumptions can promote awareness, self-efficacy, persistence, and challenging goals to increase efficiency (Stajkovic & Luthans, 1998).

3. CONCEPTUAL FRAMEWORK

The conceptual framework was based on the self-leadership concept developed by Manz (1983) and Stewart, Courtright & Manz (2011). Self-leadership strategies can be categorized into three categories: behavior-focused strategies, natural reward strategies, and constructive thought pattern strategies. Behavior-focused strategies aim to enhance self-awareness and manage behaviors involving necessary but potentially unpleasant tasks. Natural reward strategies emphasize the pleasant aspects of a given task or activity. The constructive thought pattern strategies aim to promote the formation of constructive thinking patterns and habitual ways of thinking which can have a positive impact on performance. Self-leadership is the ability to influence oneself to obtain successful results; thus, if employees in the company have self-leadership, both as leaders and followers, the company will be more agile and fast. It also entails grooming followers to become future leaders. Therefore, in this study, the factors influencing self-leadership were studied. Self-leadership strategies are rooted in their fundamental evaluations of themselves and their own abilities. Therefore, core self-evaluations can also influence an employee's effectiveness. This study inferred that core self-evaluation complements self-leadership. Besides, there has been no research on the relationship between core self-evaluation and self-leadership in Thailand. Thus, this concept was the means of collecting empirical evidence to confirm the proposition of this study.
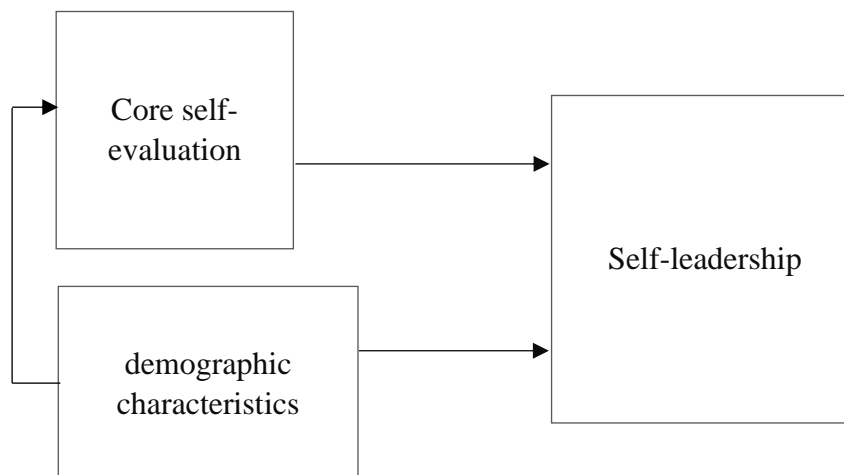
Figure 1: conceptual framework

4. METHODOLOGY

The descriptive research design was used. The sample constituted two hundred thirty-seven employees of ABC Co., Ltd. A stratified random sampling was employed for the study, dividing the population into the various position, operation group and command and management group. Taro Yamane's (1973) formula with a significance level of 0.05 was used to determine the sample size. The survey questionnaire contained the three parts: 1) the demographic data Form, 2) the core self-evaluations Scale (Judge et al, 2003) consisted of 12 items, and 3) the abbreviated self-leadership questionnaire or ASLQ (Houghton et al, 2012) consisted of 9 items. The core self-evaluations Scale and ASLQ used a 5-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree).

The questionnaire showed a Cronbach's Coefficient Alpha of 0.70, tested by try-out with the other organization's 32 employees. To measure the variables and test the hypothesis of the study, statistics were computed using the statistical software, PSPP. The study made use of descriptive statistics such as frequencies, percentages, means, and standard deviations. Inferential statistics, such as the independent sample t-test and one-way analysis of variance (ANOVA), are also used. It made use of the correlation coefficient for relationship analysis. All statistics were tested with a significance level of 0.05.

5. RESULTS AND DISCUSSION

The demographic characteristics of the sample showed that the largest number of samples were female (74.3%), ages 34–45-years-old and less than 30-years-old had similar proportions (39.7% and 38.4%, respectively), bachelor's degrees (78.7%), and work in the operations group (74.3%). The experience in the current position is less than 5 years (48.5%), and the salary level is less than 25,000 baht (57.4%). The ABC Company's employees have high core self-evaluation, with an overall mean of 3.80 (table 1).

Item	questionnaire	Mean	SD
1	I am confident I get the success I deserve.	4.42	0.688
2	Sometimes I feel depressed.	3.00	1.103
3	When I try, I generally succeed.	4.41	0.717
4	Sometimes when I fail, I feel worthless.	2.53	1.170
5	I complete tasks successfully.	4.73	0.471
6	Sometimes I do not feel in control of my work.	3.15	1.025
7	Overall, I am satisfied with myself.	4.23	0.645
8	I am filled with doubts about my competence.	2.70	1.143
9	I determine what will happen in my life.	4.28	0.695
10	I do not feel in control of my success in my career.	2.81	1.177
11	I am capable of coping with most of my problems.	4.22	0.695
12	There are times when things look pretty bleak and hopeless to me.	2.50	1.099
	Overall Mean: Description: High core self-evaluations	3.80	

Table 1: Core Self-Evaluation of The ABC Company's employees

This means that employees have the following high-level personality traits: self-esteem, generalized self-efficacy, emotional stability, and locus of control (their four traits are related). Their traits are a fundamental appraisal of one's worthiness, effectiveness, and capability as a person. These personality traits can be very crucial in knowledge-based work because the business model of an ABC company is all about the technical and scientific aspects of laboratory work. The reliability of the company is important. However, some of the employees' negative feelings were discovered, such as the fact that they couldn't control their work and felt depressed at times. Some question items on the questionnaire were negative (items 2, 4, 6, 8, 10, and 12), and the results showed that their SD value was higher than the SD value of the positive question items. Because the questions alternate between positive and negative questions, the respondent may be perplexed about how to score their opinion. However, I did not make the question easier to score by changing the negative question to a positive question, because I would like to use the original question. And in this study, the reliability test of the questionnaire passed the criteria. However, there is an observation point that is passed at a low level. The ABC Company's employees have very high self-leadership, with an overall mean of 4.23 (table 2). The results of behavior-focused strategies, natural-reward strategies, and constructive-thought strategies were 4.54 (very high), 4.15 (high), and 4.12 (high), respectively.

Item	questionnaire	Mean	SD
Behavior-Focused Strategies			
1	I establish specific goals for my own performance	4.41	0.614
2	I make a point to keep track of how well I'm doing at work	4.36	0.634
3	I work toward specific goals I have set for myself	4.54	0.571
Behavior-Focused Strategies		4.54	0.611
Natural-Reward Strategies			
4	I visualize myself successfully performing a task before I do it	4.18	0.711
5	Sometimes I picture in my mind a successful performance before I actually do a task	4.14	0.710
6	When I have successfully completed a task, I often reward myself with something I like	4.14	0.915
Natural-Reward Strategies		4.15	0.783
Constructive-Thought Strategies			
7	Sometimes I talk to myself (out loud or in my head) to work through difficult situations	3.95	0.944
8	I try to mentally evaluate the accuracy of my own beliefs about situations I am having problems with	4.26	0.699
9	I think about my own beliefs and assumptions whenever I encounter a difficult situation	4.17	0.742
Constructive-Thought Strategies		4.12	0.811
	Overall Mean:	4.23	
	Description: Very high self-leadership		

Table 2: Self-Leadership of The ABC Company's employee

This means that employees use all three strategies to manage and push themselves to be successful in their jobs. Employees, in particular, used behavior-focused strategies to set their own goals, track tasks, and work toward achieving them. For the natural-reward strategies, employees create a natural motivation to work, build work relationships, and value themselves more than the reward from outside. And for constructive thought strategies, employees can develop creative thinking patterns that can influence effective performance through analysis, thinking, and positive self-talk. They have a positive attitude to work with. This means they do not need a strict leader. If the leader only assigns tasks and sets goals, the employees will be able to achieve success on their own. The study results of the difference in demographic characteristics and their effect on core self-evaluation and self-leadership are shown in Table 3.

Demographic characteristics	Core self-evaluation	Self-leadership
Gender	No difference	No difference
Age	Difference	No difference
Education	No difference	No difference
Position	Difference	No difference
experience in the current position	No difference	No difference
Salary rate	Difference	No difference

Table 3: The study results of the difference in demographic characteristics and their effect on core self-evaluation and self-leadership

This study proposes that core self-evaluations relate to self-leadership. It considered that these two concepts are important to the human resource development process, including the leadership development of employees; and therefore tried to establish if the two are related. The correlation test between core self-evaluations and self-leadership showed that the correlation coefficient was 0.214 and Sig = 0.001, meaning that core self-evaluations were positively correlated with self-leadership with a low correlation level (Table 4).

Variables	Correlation coefficient			
	Self-leadership (Y)	Behavior-focused strategies (Y1)	Natural-reward strategies (Y2)	Constructive-thought strategies (Y3)
Core self-evaluation (X)	0.214 (Sig. = 0.001*)	0.395 (Sig. = 0.000*)	0.130 (Sig. = 0.045*)	0.043 (Sig. = 0.515)

Table 4: The Correlation coefficient of core self-evaluation and self-leadership

6. CONCLUSION

The objectives of this study were to: 1) study the core self-evaluation and self-leadership of the employees; 2) study the demographic characteristics' effect on core self-evaluation and self-leadership; and 3) study the correlation between core self-evaluation and self-leadership. The results of this study showed that the ABC Company's employees have high core self-evaluation, with an overall mean of 3.80, and very high self-leadership, with an overall mean of 4.23. Signifying that they have personality traits of self-esteem, generalized self-efficacy, emotional stability, and locus of control. These personality traits can be very crucial in knowledge-based work. And they have the self-leadership strategy to manage and push themselves to be successful in their jobs without much follow-up from their leaders. Leaders can only assign tasks or set goals for their followers. They will be responsible and complete the work themselves. The results of study of the demographic characteristics' effect on core self-evaluation and self-leadership showed that the demographic characteristics; gender, age, education, position, experience in the current position, and salary rate does not effect self-leadership. This means that the employees in varying demographic characteristics, they are also used the leadership strategy no significantly different statistically. For core self-evaluation, the results of the study found that the difference in age, position, and salary rate effect on core self-evaluation. The results showed that the employee's core self-evaluation increased with age, position, and salary rate. And the results of study of the correlation between core self-evaluation and self-leadership showed that the correlation coefficient was 0.214 and Sig = 0.001, meaning that core self-evaluations were positively correlated with self-leadership with a low correlation level.

7. RECOMMENDATIONS

The results of the study showed that the ABC Company's employees have high core self-evaluation and very high self-leadership, indicating that they have the personality traits to be well-prepared for their primary task and a self-leadership strategy to manage and push themselves to be successful in their jobs. Which is an advantage for the company. However, the company may consider appropriate leadership for employees with high core self-evaluation and very high self-leadership. Because employees have high responsibilities, leaders can empower employees by delegating tasks or setting goals. However, leaders should establish clear goals and reasons for the task, because employees may consider the work received. It could be the conflicts if they find it useless or disagree. The study in the future, may consider what the type of leadership with these employees prefer.

According to the core self-evaluation questions, some questions are negative (items 2, 4, 6, 8, 10, and 12). The results showed that the SD value of the negative question was higher than the SD value of the positive question. Maybe because the questions alternate between positive and negative, the respondent may be perplexed about how to score their opinion. Therefore, if this questionnaire will be used in the future, the researcher may inform the questionnaire that it has both positive and negative items before the respondent scores the answer. The human resource development program should engage employees to foster their strengths and address their weaknesses, and the appropriate training for the current task and their new task may be around professional and career growth. This study only looked at personal variables as assessed by the respondent, and may therefore be expanded to include workplace factors like policies, compensation and benefit packages, and organizational structure.

LITERATURE:
1. Amorn Wangpeerawong, Penpilai Rithakananone, and Nonglak Wiratchai. (2010). *The Influence of Core Self-Evaluation on Job Satisfaction: The Mediating Role of Job Stress and Job Burnout*. KKU Res Journal (GS) 10 (4) : October - December 2010.
2. Anan Yaemyuen. (2014). *Construction and Validation of Peer Safety Exchange Behavior Scale in Undergraduate Students and Its Measurement Invariance*. Journal of Social Development Vol.16 No. 2/2014.
3. Apinun kumsiri, Sutteporn Moolsart, and Wallapa Boonrod. (2016). *The Relationships Between Personal factors Self - Leadership, Job Satisfaction and Job Performance of Charge Nurses in Phramongkutkloa Hospital*. Journal of The Royal Thai Army Nurses Volume 17 No. 2 (May - Aug) 2016.
4. Boonsri Pommapun. (2018). *Techniques for Data Interpreting for Using Correlation and Regression in Research*. STOU Education journal. Vol.11 No.1 January - June 2018.
5. Cai-Hui Veronica Lin and Jian-Min James Sun. (2018). *Chinese employees' leadership preferences and the relationship with power distance orientation and core self-evaluation*. Lin and Sun Frontiers of Business Research in China (2018) 12:6 from https://doi.org/10.1186/s11782-018-0027-9.
6. Charles C. Manz and Henry P. Sims, JR. (1980). *Self-Management as a Substitute For Leadership: A Social Learning Theory Perspective*. Academy of Management Review. Vol.5 No.3. pp.361-367.
7. Charles C. Manz. (2015). *Taking the Self-Leadership high road: Smooth surface or potholes ahead*. The Academy of Management Perpective. 2015, Vol.29, No.1, 132-151.
8. Coopersmith, S. (1967). The antecedents of self-esteem. San Francisco: W. H. Freeman and Company.
9. Duchduen Bhanthumnavin and Sutthatip Phan-Iam. (2017). *Antecedent Model of Quality of Work-Life of the Army Personnel*. National Defence Studies Institute Journal. Vol. 8 No. 3 September - December 2017.
10. Greg L. Stewart, Stephen H. Courtright and Charles C. Manz. (2011). *Self-Leadership: A Multilevel Review*. Journal of Management Vol. 37 No. 1, January 2011 185-222.

11. Harter, S. (1990). *Issues in the Assessment of the Self-Concept of Children and Adolescents*. In: La Greca, A.M., Ed., Through the Eyes of the Child: Obtaining Self-Reports from Children and Adolescents, Allyn & Bacon, Needham Heights, 292-325.

12. Heidi Grace P. Mendoza. (2017). *Self-Leadership and Core Self-Evaluations: An approach to a personal management development program*. Journal of Institutional Research in South East Asia – Vol. 15 No.3 Dec 2017.

13. Jeffery D. Houghton and Christopher P. Neck. (2002). *The revised self-leadership questionnaire Testing a hierarchical factor structure for self-leadership*. Journal of Managerial Psychology, Vol. 17 No. 8, 2002, pp. 672-691. www.emeraldinsight.com/0268-3946.html.

14. Jeffery D. Houghton, David Dawley and Trudy C. DiLiello. (2012). *The Abbreviated Self-Leadership Questionnaire (ASLQ): A Mmore Concisemeasure of Self-Leadership*. International Journal of Leadership Studies, Vol. 7, Iss. 2, 2012.

15. John W. Best and James V. Kahn. (1998). *Research in Education. Eighth Edition*. Printed in the United States of America.

16. Joycee.Bono and Timothya. Judge. (2003). *Core Self-Evaluations: A Review of the Trait and its Role in Job Satisfaction and Job Performance*. European Journal of Personality, S5-S18, 2003.

17. Judge, T. A., Locke, E. A., & Durham, C. C. (1997). *The dispositional causes of job satisfaction: A core evaluations approach*. Research in Organizational Behavior, 19, 151-188.

18. Krisanachot Bualar and Duchduen Bhanthumnavin. (2018). *Psychological Characteristics and Situational Factors as Correlates of Absorption-Study Behavior of the First-Generation University Students*. Journal of Behavioral Science for Development (JBSD). Vol.10 No.2, August 2018.

19. Liu Jinyan, Bunpitcha Chitpakdee, and Thitinut Akkadechanunt. (2021). *Leading yourself and leading others: Linking self-leadership to transformational, transactional, and laissez-faire leadership*. Nursing Journal Volume 48 No.3 July-September 2021.

20. Marco R. Furtner, Urs Baldegger, and John F. Rauthmann (2012). *Leading yourself and leading others: Linking self-leadership to transformational, transactional, and laissez-faire leadership*. European Journal of Work and Organizational Psychology, 2012, 1–14, First article.

21. Matteo Cristofaro and Pier Luigi Giardino. (2020). *Core Self-Evaluations, Self-Leadership, and the Self-Serving Bias in Managerial Decision Making: A Laboratory Experiment*. Administrative Sciences. 2020, 10, 64; doi:10.3390/admsci10030064 from www.mdpi.com/journal/admsci.

22. Naksit Sakdapat and Duchduen Bhanthumnavin. (2020). *Integration of Psychosocial Factors as Correlates to Critical Thinking Ability in Graduate Students*. Dusit Thani College Journal Vol.14 No.1 January - April 2020.

23. Panyarattana Panthong. (2015). *The Relationships between Demographic Characteristics, Professional Characteristics, Social Characteristics and Self-Leadership of the Officers of Sub-District Administrative Organization of Muang Udon-Thani District, Udon-Thani Province*. Research and Development Journal development Suan Sunandha Rajabhat University.

24. Paritchaya Ingsatitanawan. (2014). *The Impact of Personality Traits on Incentive-based Compensation*. An Independent Study Submitted in PartialL Fulfillment of The Requirements for The Degree of Master of Accounting Integrative Business Accounting Faculty of Commerce and Accountancy Thammasat University Academic Year 2014.

25. Petrus Nel and Ebben van Zyl. (2015). *Assessing the psychometric properties of the revised and abbreviated self-leadership questionnaires*. SA Journal of Human Resource Management/SA Tydskrif vir Menslikehulpbronbestuur, 13(1), Art. #661, 8 pages from http://dx.doi.org/10.4102/sajhrm.v13i1.661.

26. Pichamon Boonsit. (2019). *Development of Personal Growth Initiatives, Self-Leadership and Self-Directed Learning in English Among of Thai Undergraduate Students for The Free Flow of Skilled Labor in The Asean Community*. A Dissertation Submitted in partial Fulfillment of Requirements for Doctor of Philosophy (M.S./Ph.D. (Applied Behavioral Science Research)) Institute of Research in Behavioral Science Srinakharinwirot University 2019.

27. Sarunya Kaewkhamla and Sutteeporn Moolsart. (2015). *The Relationships Between Personal Factors, Self-Leadership, and Job Performance of Professional Nurses at Selaphum Hospital, Roi Et Province*. Mahasarakham Hospital Journal Vol.12 No.2 (May - August) 2015.

28. Sharon E. Norris. (2008). *An Examination of Self-Leadership*. Emerging Leadership Journeys, Vol. 1 Iss. 2, 2008, pp. 43-61.

29. Supaporn Prasongthan and Chokechai Suvetwatanakul. (2015). *Employee Engagement Model in Thai Hotel Industry*. Journal of Social Sciences Srinakharinwirot University Vol.18 January-December 2015.

30. Teresa Müller and Cornelia Niessen. (2019). *Self-leadership in the context of part-time teleworking*. Journal Organizational Behavior, 2019; 40: 883–898.

31. Timothy A. Judge, Amir Eres, Joycee.Bono and Carl J. Thoresen. (2003). *The Core Self-Evaluations Scale: Development of A measure*. Personnel Psychology 2003, 56, 303-331.

32. Tony Gambill. (2021). *Why Self-Leadership Is The Most Important Leadership*. Forbes (Online). Retrieved 24|11|2022 from www.forbes.com.

PROBLEMS ANALYSIS FOR PROCESSES AND PROCEDURES SERVICE IMPROVEMENT OF SERVICE FOR PHYSICAL THERAPY DEPARTMENT, PANYANANTHAPHIKKHU CHONPRATHAN MEDICAL CENTER SRINAKHARINWIROT UNIVERSITY

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ABSTRACT
This research study aimed to discover problems in the processes and procedures of service provision, Physical therapy Department, Panyananthaphikkhu Chonprathan Medical Center, Srinakharinwirot University. Kaizen Theory and 5W1H were tools applied to identify problems arising during current work method; then, the unproductive processes and procedures would be improved. Primary data were collected from service recipients at the Physical therapy Department by interview; while secondary data were gathered from various sources such as article from journals, books, statistic documents from the department.The inductive method were used to analyze the data. The conclusions were drawn to propose the problems in the processes and procedures of this department for further improvement.
Keywords: Processes and Procedures, Improvement, Kaizen

1. INTRODUCTION
Improving people's health is the foundation for the country's prosperous and stable development. Currently, the number of patients is increasing, causing increases in demand for public health services and longer waiting time. This effect created service recipient in longer time consuming.The delay in processes and procedures treatment had negative affects client on both health physical and mental. Moreover,it also deprivate of others patients. The goal setting by MPH is to reduce the average waiting time of Outpatient service by 25% per year (Ministry of Public Health, 2013). The hospital, therefore, had to focus on service quality and increasing efficiency. One of an important goals is a faster service, reduce unnecessary process. Additionally, hospitals should aware of the quality of service provided to meet the needs of the patient. Moreover patient's waiting period was highly correlated with the patient's satisfaction of service (Kongyeun and Phetthai, 2012). Currently, there are a large number of patients who come to receive treatment with the Physical therapy department of Panyananthaphikkhu Chonprathan Medical Center and the trend of incoming service recipients increase every year. Due to limitation of staff resource, to be more efficiency in the department, this research study; therefore, proposed problem analysis for Processes and Procedures to improve it's service.Some study suggested lean concepts to reduce waiting time and increase satisfaction in service quality. This concept introduce the reduction of non-value-generating work processes, with the ability to adapt to support continuous improvement and the Lean concept also helps to improve operational efficiency. Implement the flow of work processes continuously. By focusing on responding to customer needs as a priority (Customer focused) with the highest quality. The lowest cost and the least time spent (Chalermklao Thaisrisut, 2008). The waiting period is therefore an important factor in reflecting the quality and efficiency of the hospital's services. While the long waiting period may result in customer dissatisfaction. Therefore, improving hospital management with lean concepts is recommend.

Physical Therapy department of Panyananthaphikkhu Chonprathan Medical Center Srinakharinwirot University which is a hospital under Faculty of Medicine Srinakharinwirot University. There were 150 patients receiving the service on average per day. Patients were found to have delayed assessment and treatment services from physical therapists. Cause problems, complaints from service recipients and from the Physical Therapy department of Panyananthaphikkhu Chonprathan Medical Center, Srinakharinwirot University in 2013 (June-October). The researcher therefore desire to analyze the causes or factors that have an effects on the process flow of the service system in the physical therapy department. The Kaizen system has been introduced. With a physical therapy provider in order to make the operation more efficient. The results of the study will be used as a guideline for managing the process to achieve operational efficiency and to increase service recipient satisfaction.

2. CONCEPTS AND THEORIES ABOUT WAITING TIMES AND QUEUES.

The waiting time for service is one of the most important factors for service quality improvement. The waiting period count from the recipients step into the beginning procedure till the end of process. Studies (Hart,1995) have shown that waiting times for services should not be longer than 30 minutes. Service longer waiting time caused patient dissatisfaction in many aspects. Therefore; improvements must be sought to reduce the waiting time for patients' service (Hart, 1995). The waiting period is the time, taking place from patient submitted patient's card until s/he receiced the examination and treatment. If the patients have entered the service process system but have to wait or did not receive the service as soon as s/he arrives in such a way, it will cause a queue to be managed by the service provider - involved in queuing system. The layout of the queuing system, the service criteria and the number of service providers must be considered, especially the number of service providers. If patients have to wait for service for a long time, it may cause some customers to change their mind from waiting for service, causing loss of customers.

2.1. Basic components of a queuing system

Beside the general structure, factors that may affect waiting system – queuing, is needed to take into consideration.

2.1.1. Customer arrival

It would be either the probability distribution of the number of customers coming in for a certain period of time or the probability distribution of the length of time between customers coming.

2.1.2. Time period of service

In the form of a probabilistic distribution of length of service or a probability distribution of the number of customers completing a service during a certain period of time.

2.1.3. Service Station

The term "service station" generally consists of queuing patterns and the number of service providers, so the management of service stations is very important. Because it will directly affect the waiting of customers. The proper queuing arrangement may depend on the property, type of clientele, or other environment.

2.1.4. Criteria for providing services

In the queuing system, it is necessary to have standard criteria for providing services to customers depending on the suitability and many other components of the system.

2.1.5. Number of customers available in the queuing system
Some queuing systems, the number of customers you can have in the system (here means the number of customers in line and the number of customers being served) may be limited or unlimited. Depending on the restrictions of the location or restrictions on other aspects.

2.1.6. Population or source of customers
The population or source of customers is the primary component of the queuing system, which can be both limited and unlimited. Depending on each queuing system that is any type.

2.1.7. Customer Characteristics
In this section, it refers to the customer's habits when receiving the service. This makes the analysis of the queuing system model difficult and complex.

2.2. Characteristics of the queuing system
In the general queuing system, there are characteristics or structures of the same important system, such as customers who come to receive services in the form of queuing and service stations.
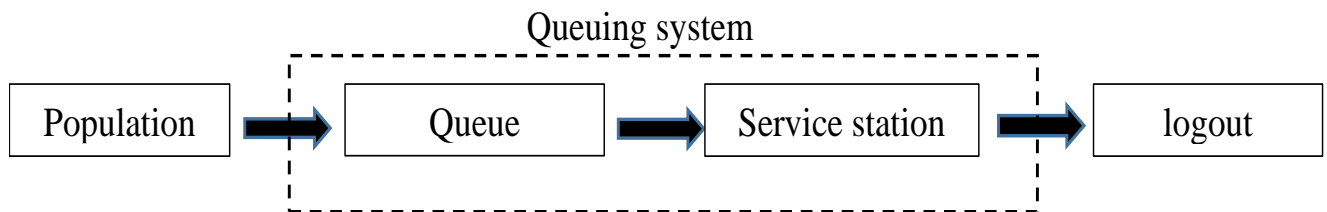
Figure 1: The form of the queuing system
(Source: Sutima Chamnanwet,2009)

In the queuing system, there are 3 parts of the costs that occur as follows:
- *Customer arrival* - The sum of the cost of the service and the cost incurred in queuing.
- *Time period of service* - It is an expense arising from the service. In which the service provider or the business owner pays or is responsible for expenses in this section, consisting of wages for service personnel, tools, equipment, maintenance costs equipment, etc. It will be found that the cost in this section will increase if there are more units to serve.
- *Waiting Cost: WC* - It is the expense incurred from the service that the customer has to wait in line for the service. because the service unit cannot provide service immediately This will result in losing the opportunity to do other benefits for the service users.

3. CONCEPTS AND THEORIES ABOUT KAIZEN
Kaizen is a Japanese term meaning continuous improvement. It is an improvement to make work easier and more convenient. gradual improvement by focusing on the participation of all employees. To improve the existing work process even better. Continuously infinite (Continuous improvement), which is a concept of continuous improvement. By preserving the existing way of working better. Focus on participation in the work process from top management to all operators. Which results in ease of operation have teamwork make personnel more efficient in the work of the organization. The researcher therefore developed a guideline to reduce waiting time in the Physical therapy department of Panyananthaphikkhu Chonprathan Medical Center Srinakharinwirot University developed from The concept of Kaizen tools (Kaizen) 5W 1H to be used to analyze the cause of the problem and apply it to service users in the department. Which is suitable for solving problems in terms of time. To improve work processes that are more suitable and efficient.

3.1. Kaizen tools

The tools used to improve the work of Kaizen include many tools such as 5S activities, 5W 1H, QCC, TQM, ECRS, PDCA, etc. The researcher has selected tools that are consistent and suitable for the work process of the physical therapy department of Panyananthaphikkhu Chonprathan Medical Center Srinakharinwirot University, including 5W 1H, which the 5W 1H tool is used to find the cause of the problem as follows:

- 5W 1H refers to a tool used to find problems by asking questions. to find the cause of problems in the work process Then find ways to improve the work process, which 5W 1H consists of (Panida Wanpetch, 2012)
- WHAT is a questioning in order to know the purpose of work. The concepts that frame the question are: What can I do? Can I do something else?
- WHEN is a question to know the appropriate working time. framework concept In asking questions such as when to do it, why to do it then. Can I do another time?
- WHERE is a question to know if the workplace is suitable or not. And why do you have to do it then? The concepts that frame the question are: where to do it? why to do it there? Can I do it elsewhere?
- WHO is a question to know who is suitable for the job. framework concept In asking questions: who did it, why did it have to be done? Can others do it? WHY is a question to review whether the idea is correct or not. to find out what needs to be done
- HOW is a question to know whether the method is suitable for the job. The conceptual framework for asking questions is how to do it, why to do it? Can you do another method?

In addition, after using the 5W 1H tool to analyze the cause. The principle of ELIMINATE COMBINE REARRANGE SIMPLIFY (ECRS) may be considered to find ways to improve work.

Analyze root causes using 5W1H questions.
What: find the purpose of work.
When: suitable working time.
Where: Find a suitable workplace.
Who: Find the right person for the job.
Why: Find a reason to work.
How: Find the right method for the job.

Use ECRS to find workflow improvement processes.
E: Cut off unnecessary parts.
C: Combine processes.
R: Reorganize the order of work appropriately.
S: Improve the way it works to make work easier.

Figure 2: 5W1H tool to find ECRS

4. CONCEPTS AND THEORIES ABOUT SERVICE EFFICIENCY

Performance efficiency refers to individual actions. With the ability and readiness to try and dedicate themselves willingly in their work. Fluently with regulation, rules, and work to be completed on time, quickly, accurately, quality and standards, It can be concluded that people

will have operational efficiency. It must come from diligence and perseverance. Responsible and attentive in work with an honest mind and loyalty to the organization. The work will achieve the organization's goals set or even better.

5. RESEARCH METHODS

This research is a developmental research. The population and the sample were patients who received services in the Physical therapy department of Panyananthaphikkhu Chonprathan Medical Center Srinakharinwirot University. The tools used in this research consisted of 2 parts as follows.

5.1. The tools used in the experiment

Operating model to reduce waiting time for service in patients receiving services in the physical therapy department Panyananthaphikkhu Chonprathan Medical Center Srinakharinwirot University. By using the 5W 1H tool a questionnaire was prepared. Survey the Service receiver to find out the cause of the problem.

5.2. Basic components of a queuing system

5.2.1. General information record form
The researcher generated information includes information about gender, age, education level, occupation, address and activities according to appointments.

5.2.2. Waiting time record form for service
The researcher created using the unit of time in minutes and seconds from the process of submitting the card to the process of paying for the service before returning home.

5.2.3. Satisfaction questionnaire on services received
The answer is a 5-level estimation from a score scale of 1-5. The criteria for interpreting the scores were divided into 5 levels: least satisfaction level, low level, moderate level, high level and the highest level.

5.2.4. Clock
Used to collect information about the waiting time for service.

5.3. Conducting research and collecting data

1) The researcher asked permission to conduct the research from the Director of Panyanantaphikkhu Chonprathan Medical Center, Srinakharinwirot University.
2) The researcher met with the head of the department of physical therapy, Panyanantaphikkhu Chonprathan Medical Center, Srinakharinwirot University. To clarify the research objectives, expected benefits, qualifications and number of groups to be studied and the steps taken.
3) The researcher conducts development and evaluation, divided into 2 phases as follows:
   - Preparation phase The researcher studied the details of service in the physical therapy department of Panyanantaphikkhu Chonprathan Medical Center, Srinakharinwirot University. Presenting information to relevant personnel, as well as presenting a draft operation plan to reduce waiting time for services in patients in the Physical Therapy Department of Panyananthaphikkhu Chonprathan Medical Center, Srinakharinwirot University.
   - Operation and evaluation phase The researcher developed an operation model to reduce the waiting time for services in patients in the Physical Therapy Department of

Panyananthaphikkhu Chonprathan Medical Center, Srinakharinwirot University. which has the following Step:

- Step 1: Identify the service work that needs to be developed in the physical therapy department, Panyananthaphikkhu Chonprathan Medical Center, Srinakharinwirot University. From the process of submitting the card to the process of receiving documents for the patient to pay before returning home
- Step 2: Brainstorm issues and gather factors related to service lead times and satisfaction with the service received.
- Step 3: Measure current performance (before developing an operational model to reduce waiting time for services in physical therapy patients: PRE-TEST) by collecting data on waiting time for services and Satisfaction with the services received
- Step 4: Brainstorm to identify issues that prevent the service process from being successful.
- Step 5: Develop and improve service models
- Step 6: Implement the operational model to reduce the waiting time for services at the Physical Therapy Department, Panyananthaphikkhu Chonprathan Medical Center, Srinakharinwirot University.
- Step 7: Measure performance after implementing the operation model to reduce waiting time for services in physical therapy patients (POST-TEST). By collecting information about service waiting times and satisfaction with the services received.

6. CONCLUSION

After the process and procedure of work method was analyzed, by using kaizen and queuing system of 5W1H (WHO , WHAT , WHEN , WHERE, WHY , HOW) in every step of the work process.) This research study found that process of receiving the service of the Physical Therapy Department, Panyananthaphikkhu Chonprathan Medical Center, Srinakharinwirot University was:

Figure following on the next page

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┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐
│ Receive medical │     │                 │     │   Receive an    │     │ Call for a queue│
│    referral     │ →   │   Make an       │ →   │  appointment    │ →   │ to take a history│
│ documents from  │     │  appointment    │     │  card from a    │     │ / measure vital │
│    patients     │     │   card **       │     │    patient      │     │     signs.      │
└─────────────────┘     └─────────────────┘     └─────────────────┘     └─────────────────┘
                                                                                  │
                                                                                  ↓
┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐
│   make an       │     │   Physical      │     │                 │     │                 │
│ appointment and │     │  examination,   │     │   Call the      │     │  Take a patient │
│ issue a card for│ ←   │    disease      │ ←   │  patient for    │ ←   │    history      │
│    the next     │     │ diagnosis and   │     │  examination    │     │                 │
│   appointment   │     │ treatment plan  │     │                 │     │                 │
└─────────────────┘     └─────────────────┘     └─────────────────┘     └─────────────────┘
         │
         ↓
┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐
│ Call for a queue│     │ Treat patients  │     │ Make documents  │
│ for treatment** │ →   │  according to   │ →   │ for patients to │
│                 │     │     plan        │     │ contact finances│
└─────────────────┘     └─────────────────┘     └─────────────────┘
```

*** is long waiting times*
Figure 3: 5W1H tool to find ECRS.

From the current situation, it can be seen that waiting time occurs at 2 main points. The first one was the make an appointment card which patients had to wait for issuing appointment cards and another point was calling for a queue for treatment which patients had to wait for physical therapy treatment. The analysis of 5W 1H, it was found that the problem were:

1) Procedure for issuing appointment cards. Because the time period is not specified clearly, the patients chooses the time to come by themself. which initiated a problem causing a large number of patients to receive the service during the same period, from 8:30 a.m. to 9:30 a.m.

2) The process of calling a queue for physical therapy treatment. Since the next step is a treatment process that takes at least 20-40 minutes per person, patients have to wait for treatment after the previous person has completed the treatment. And when the problem is known, the ECRS principle will be used to improve the flow of services in the physical therapy department at Panyanantaphikkhu Chonprathan Medical Center, Srinakharinwirot University to reduce steps and wasted in further operations.

LITERATURE:
1. Banya Bunya, Surat Tangpaitoon. (2008). Kaizen, gradual and infinite improvement. Retrieved 11.10.2022 from http://ballmdr.wordpress.com
2. Burachai Sirimahasakorn. (2017). KAIZEN Continuous Improvement. Journal of the Institute of Teacher Development, Faculty and Educational Personnel.
3. Chalermklao Thaisrisut (2008). The application of the Lean concept in service provision with Marks in the organization of business processes are self-explanatory. Master of Engineering Department of Industrial Engineering Department of Industrial Engineering graduate school King Mongkut's University of Technology North Bangkok, Academic Year 2008.

4. Hart, M. (1995). Improving out-patient clinic waiting times: Methodological and substantive issues. International Journal of Health Care Quality Assurance.

5. Kongyeun K and Phetthai P.(2012). Reduce the waiting time. Golden Jubilee Medical Center Mahidol University Retrieved 20.12.2022 from http://www.gj.mahidol.ac.th/tech/Filedownload/File/D150511180956.pdf

6. Panida Wanpetch. (2012). Optimization of work using the Kaizen concept: a case study of the cost accounting department. Master of Business Administration thesis. Department of Business Engineering Management, Rajamangala University of Technology Thanyaburi.

7. Paritas Silpakit. (2010). Study of adverse events among psychiatric patients. Mental Health Journal. of Thailand

8. Paul Knechtges, Michael Christopher Decker. (2014). Application of Kaizen Methodology to Foster Departmental Engagement in Quality Improvement. Journal of the American College of Radiology.

9. Strategy and Planning Division. Indicator details. Ministry of Public Health Fiscal Year 2021, Office of the Permanent Secretary, Ministry of Public Health.(2020) Retrieved 11.10.2022 from http://www.cco.moph.go.th/cco24/Detailed indicators of the Ministry of Public Health. Year 2021.pdf

10. Suthima Chamnanwet.(2009). Operations research, Department of Commerce Faculty of Commerce and Accountancy Chulalongkorn University, Bangkok

THE IMPACT OF REWARD SYSTEM ON EMPLOYEE LOYALTY IN CHONGQING BUSINESS VOCATIONAL COLLEGE, CHINA

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ABSTRACT
This study explores the impact of reward system on employee loyalty is significant at both institutional level and team building level at Chongqing Business Vocational College. currently it has 900 faculties; this paper adopts convenient sampling method, and the sample is 444 faculties. The paper employs questionnaire as research instrument, where data were collected through Questionnaire Star. The respondent indicates that they are agree with remuneration, working environment, learning and development, and intrinsic reward. However, they express their Neutral perception on welfare, and promotion questions. The finding reveals that working environment, learning and development, intrinsic reward plays a role on employee loyalty. However, remuneration, welfare, and promotion play no part on employee loyalty. This study puts forward optimization on the reward system and other aspects.
Keywords: Employee Loyalty, Higher Education Management, Human Resource Management

1. INTRODUCTION
The teaching staff is the academic institution's greatest capital, and the development of the teaching staff is intrinsically linked to the growth and stability of the institution. As the core factor of the academic institution's development, the teacher team is not only the foundation for effective teaching and innovative talent training, but also the driving force behind the academic institution's scientific research innovation and social service, which is directly related to the academic institution's overall competitiveness (Liu & Huang, 2022). In recent years, the Chinese government has attached great importance to the development of the teaching staff, and has repeatedly proposed that the income of teachers should not be lower than that of government officials. How to stimulate the enthusiasm of teachers and improve the effective income of teachers through a scientific and reasonable reward system, so as to enhance the sense of belonging and loyalty of teachers, has been a practical problem faced by colleges and universities (Liang, 2021).

2. RESEARCH OBJECTIVES

This research project is mainly to put forward suggestions on the improvement of the reward system on employee loyalty. The specific research objectives are:

1) Explore the reward system in Chongqing Business Vocational College.
2) Explore employee loyalty in Chongqing Business Vocational College.
3) Examine the impact of reward system on employee loyalty in Chongqing Business Vocational College.

3. LITERATURE REVIEW

3.1. Reward system

The reward system refers to rewarding employees with performance in a certain way. By rewarding, employees pay more attention to their work. (Wu & Lin, 2001). The predecessor of the reward system is the piecework distribution system, but there are obvious differences between the reward system and the piecework distribution system. It is no longer simply a distribution form in which wages are linked to the quantity of products in the traditional sense, but a distribution system formed through scientific standards and management procedures. The reward system mainly includes six aspects, namely: remuneration, welfare, work environment, learning and development, promotion and intrinsic reward (Li, 2010). Research on the reward system, for example, colleges and universities excessively use the incentive methods of "piecework, work-point system, and high leverage", which are commonly used in the initial stage of industrialization, and cannot support the innovative development concept in the new era and new journey (Qiu, 2023); The reward system for lecturer should highlight the ability level as the key indicator, create a good competitive environment for the development of the university, and realize the two-way sustainable development of academic institutions and teacher personal development (Wang, & Jiao, 2007); Colleges and universities should take improving the quality of teachers as the core, promote the development of teaching and scientific research as the guide, establish a reasonable and relatively perfect teacher performance evaluation system, give full play to its function of improving and improving higher education activities, so as to further improve the quality and efficiency of colleges and universities (Wang, 2012); University reward system should be distributed systematically according to work (Chen, Zheng, & Chen, 2012); In the research on the governance path of piecework wage in university performance management, quantitative assessment is proposed (Cai & Lu, 2020); Efficient performance management should be goal-oriented and targeted (Chen, 2020); Performance management should break egalitarianism (Zhao, Pei, Zhang, & Li, 2020); University performance management should set scientific evaluation indicators and multidimensional evaluation system (Liang, 2021). Dynamic mechanism and incentive mechanism should be established for performance pay in colleges and universities (Chen, 2021); Performance pay should play an active incentive role (Lu, 2016); Human resource incentives in colleges and universities need to optimize the structure and improve the evaluation indicators (Li & Jia, 2021); the proportion of teaching related incentive should be improved (Liu & Huang, 2022).

3.2. the role of reward system on employee loyalty in academic institution

Research on the relationship between reward system and employee loyalty: remuneration satisfaction has a positive effect on teachers' work enthusiasm, teaching effect and work performance, and there are certain differences. If colleges and universities only improve one element of remuneration, it will not have enough impact on the overall satisfaction of teachers' remuneration (Chen, 2009); The establishment of an incentive mechanism for college teachers based on teachers' qualifications helps guide teachers to devote themselves wholeheartedly to their own work (Yang, & Li, 2012); Colleges and universities can use Adams's equity theory to

eliminate or reduce teachers' sense of unfairness by strengthening ideological education and institutional construction (Zhao, 2011); The main factors of teacher turnover include the imperfect withdrawal mechanism, the lack of effective appeal mechanism and the lack of teachers' organizational loyalty. University personnel management should improve the teacher withdrawal response mechanism, establish an effective teacher appeal response mechanism, and improve teachers' organizational loyalty (Long, Zhou, & Dong, 2014); College teachers' professional confidence is an important factor affecting their work quality, which is related to factors such as teachers' individual characteristics, income level, work pressure, etc. Organizational loyalty shows that college teachers' identification and attribution to their colleges and universities, and factors such as individuals, organizations and environment have an impact on college teachers' organizational loyalty. China's college teachers' professional confidence and organizational loyalty are high and have a positive relationship, but the income level Work autonomy, individual development and management system still need to be improved (Lin, 2009); A highly loyal teaching staff is the key to the long-term development of principals of private vocational colleges (Dong, 2010). Ideal employee loyalty is a valuable resource of the academic institution. The influencing factors of employee loyalty are economic and more non-economic (Chen, & Wang, 2007). Improving the professional loyalty of young teachers in colleges and universities is of great significance for stabilizing the teaching staff and improving the teaching quality (Zou, & You, 2013). The quality of teachers' performance appraisal is an important factor affecting employee loyalty. A reasonable performance system can strengthen teachers' recognition of the academic institution and enhance teachers' loyalty to the academic institution, so that the academic institution has a team of enthusiastic, responsible and high-quality teachers (Zhu, 2015).

3.3. Agency theory
The relationship between teachers and academic institutions conforms to the characteristics of agency theory, so the use of agency theory can also more accurately define the relationship between reward system and employee Loyalty.

1) The contractual relationship between academic institutions and teachers. Based on the agency theory, the relationship between the academic institution and the teacher is a contractual agency relationship. The academic institution is the principal and the teacher is the agent. The two parties have concluded a contractual relationship according to the labor contract. The academic institution as the principal provides a working platform for the teacher, pays the labor remuneration for the teacher, provides the matching welfare treatment and working environment, and clarifies the position and job responsibilities of the teacher, and puts forward work requirements for the teacher. As an agent, the teacher, according to the labor contract signed with the academic institution, performs his/her work duties in his/her work position, completes the work tasks assigned by the academic institution, and accepts the assessment and supervision of the academic institution.
2) The relationship between reward system and employee Loyalty. The academic institution has obtained the right to evaluate the performance of teachers according to the contract. As an agent, teachers must perform their duties well according to the wishes of the client, and need to provide excellent teaching results for the academic institution and provide high-quality teaching services for students. According to the performance appraisal system, the academic institution as the principal should provide the target task of teacher performance appraisal, and the teacher as the agent should fulfill the work responsibilities and complete the work tasks according to the contract and performance appraisal target task. When the performance appraisal system changes, it will put forward new requirements for teachers. When the requirements deviate from teachers' expectations, it will affect teachers' loyalty.

3) The impact of theoretical expectations on employee Loyalty. Expectation theory is the motivation theory put forward by the famous theorist V. Vroom in 1964. The basis of this theory is that the reason why a person can complete a work task and achieve the established goal is that the organization that assigns the work task can help achieve the personal goal and meet the needs of personal goals. When teachers work in accordance with the contract, especially when they complete the performance appraisal objectives and tasks, according to the performance appraisal system, teachers can get corresponding incentives, such as considerable remuneration, high-quality welfare and promotion opportunities in line with personal expectations, which can improve teachers' loyalty.

3.4. Research framework and hypothesis
The research framework is as follow:
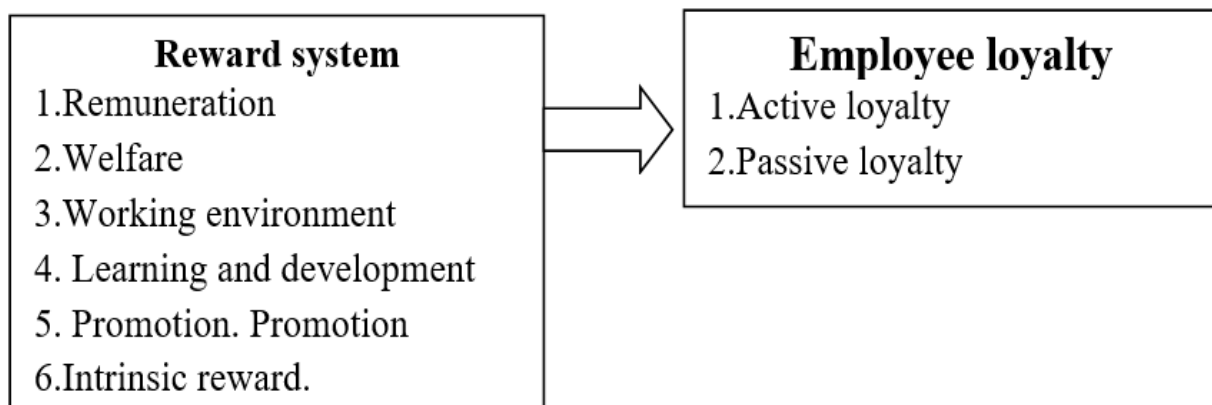
Figure 1: Conceptual framework
(Source: author)

According to the literature on reward system and employee performance using Agency Theory, this research puts forward the following hypotheses:
- Hypothesis 1: remuneration has a positive effect on employee loyalty.
- Hypothesis 2: welfare has a positive effect on employee loyalty.
- Hypothesis 3: Working environment has a positive impact on employee loyalty.
- Hypothesis 4: Learning and development has a positive impact on employee loyalty.
- Hypothesis 5: Promotion has a positive impact on employee loyalty.
- Hypothesis 6: Intrinsic reward has a positive impact on employee loyalty.

4. RESEARCH METHODOLOGY
4.1. Research method
This study mainly adopts the survey method. On the basis of normative research, the Questionnaire on the Impact of Reward System on Employee Loyalty in Chongqing Business Vocational College was prepared, and the data samples obtained from the questionnaire Star website was used to prepare for the subsequent statistical analysis.

4.2. Population and sample
This project is based on 900 lecturers of Chongqing Business Vocational College. By using Yamane formula, 396 sample size is required. As 74% return rate is expected, this research post 536 questionnaires using convenient sampling method which 444 were returned, account for 82.84% rate of return.

4.3. Data analysis

In this data analysis, SPSS has carried out frequency analysis, mean and standard deviation, correlation analysis and linear regression analysis were adopted to analyze the data. Descriptive statistics is a statistical method used to describe and summarize the distribution characteristics of data. The average and standard deviation are the most commonly used indicators to describe statistics. This research gathers the questionnaire by rating their attitude toward the question using 5 Likert scale. The data were analyze using the following table:

Attitude	Score	Range	Interpretation
Strongly agree	5	4.21-5.00	strongly agree
Agree	4	3.41-4.20	agree
Neutral	3	2.61-3.40	neural
Disagree	2	1.81-2.60	disagree
Strongly disagree	1	1.00-1.80	strongly disagree

Table 1: Descriptive analysis
(Source: author)

Next, correlation analysis mainly studies whether there is certain interdependence between variables, and analyzes whether there is positive or negative correlation between variables.
Lastly, regression analysis is to establish a mathematical model based on data, and describe the relationship and function between variables through data. This study mainly tests whether the hypothetical relationship between performance reward system and teacher loyalty exists and what changes have taken place in the relationship and role of variables through regression analysis.

5. RESULTS AND DISCUSSION

Descriptive analysis explores perception of current reward system and loyalty among employee at Chongqing Business Vocational College.

	Mean	SD	level
X1 Remuneration	3.471	0.585	Agree
X2 Welfare	3.235	0.765	Neutral
X3 working environment	3.724	0.689	Agree
X4 Learning and development	3.711	0.766	Agree
X5 Promotion	3.198	0.835	Neutral
X6 Intrinsic reward	3.709	0.722	Agree
Y Employee Loyalty	4.087	0.560	Agree

Table 2: Reward system and employee loyalty
(Source: author)

The respondents express their agreement toward most of the reward system questions at agree level. They indicate that they are agreed at 3.471 remuneration questions. They are agreed with the working environment of 3.724. They are also agreed with the learning and development issues of 3.711. Furthermore, they are agreed with the intrinsic reward of 3.709.

Their loyalty was also expressed at the agree level at 4.087. However, the respondents express their agreement toward welfare and promotion questions in a lower degree at neutral level.

This research project uses Pearson correlation analysis to analyze the correlation between variables as follows:

	X1	X2	X3	X4	X5	X6	Y
X1 Remuneration	1						
X2 Welfare	0.541	1					
X3 working environment	0.463	0.617	1				
X4 Learning and development	0.452	0.484	0.623	1			
X5 Promotion	0.482	0.543	0.571	0.610	1		
X6 Intrinsic Reward	0.503	0.482	0.665	0.645	0.625	1	
Y Employee Loyalty	0.396	0.396	0.558	0.493	0.411	0.621	1

Table 3: Correlation Analysis
(Source: author)

It can be seen from Table 3 that there is a significant correlation between regeneration, welfare, working environment, learning and development, promotion, intrinsic reward and employee loyalty, which are 0.396, 0.369, 0.558, 0.493, 0.411 and 0.621 respectively. The preliminary indicates potentially positive impact among reward system and employee loyalty.

On the basis of 444 valid sample data collected, this research performs regression analysis to examine the impact of reward system on employee loyalty. The finding reveals as followed:

	Coefficients	Standard Error	t Stat	P-value	
Intercept	1.855	0.139	13.367	0.000	**
X1 Remuneration	0.066	0.044	1.497	0.135	
X2 Welfare	0.011	0.037	0.294	0.769	
X3 working environment	0.184	0.046	4.030	0.000	**
X4 Learning and development	0.067	0.038	1.735	0.083	
X5 Promotion	-0.051	0.035	-1.471	0.142	
X6 Intrinsic Reward	0.324	0.043	7.490	0.000	**
$R^2 = 0.432$, Adjusted $R^2 = 0.425$, F = 55.491, Significance F= 0.000**					
**,* denotes significant level at 0.01, and 0.05 respectively					

Table 4: Regression analysis results
(Source: author)

Table 4 shows the linear regression model between remuneration, welfare, work environment, learning and development, promotion, intrinsic reward and employee loyalty, with statistical significance of 1% (F=55.491). The linear regression coefficient is 0.066 (t=1.497, p=0.135>0.05), indicating that compensation has no significant impact on employee loyalty. The regression coefficient of welfare is 0.011 (t=-0.294, p=0.769>0.10), indicating that welfare has no significant impact on employee loyalty. The regression coefficient of work environment is 0.184 (t=4.030, p=0.000<0.01), indicating that work environment has a significant impact on employee loyalty. The regression coefficient of learning and development is 0.067 (t=1.735, p=0.083<0.10), indicating that learning and development have a significant impact on employee loyalty. The regression coefficient of promotion is -0.051 (t=-1.471, p=0.142>0.10), indicating that promotion has a negative impact on employee loyalty.

The regression coefficient of intrinsic reward is 0.324 (t=7.490, p=0.000<0.01), indicating that intrinsic reward has a significant impact on employee loyalty. From the perspective of regression data model, hypothesis 3 and 6 are accepted.

6. CONCLUSION

The study found that work environment, and intrinsic rewards have a positive impact on staff loyalty in Chongqing Business Vocational College. Thus, this research recommends that:

1) The college should improve and optimize the working environment to enhance the loyalty of staff in Chongqing Business Vocational College. A good working environment has a very good role in promoting the work of staff, advanced cultural atmosphere, reasonable work and rest time, etc., which can make staff feel happy which consequences to the loyalty of teachers.

2) The college should pay attention on intrinsic rewards. From the data analysis, we can see that the impact of remuneration on the loyalty of staff in Chongqing Business Vocational College is not significant enough, compared with the impact of intrinsic reward on the loyalty of teachers, both positive loyalty and passive loyalty, so we should also pay attention on the intrinsic reward of teachers at work, so that teachers have a stronger sense of gain, happiness and belonging.

LITERATURE:

1. Cai, L. & Lu, H. (2020). Research on piece rate wage of university teacher performance management and its governance path. University Education Management. 14 (2). 97-104.
2. Chen, B. (2021) The way of performance wage reform in colleges and universities. Human resources, 35 (8). 122-123.
3. Chen, J. & Wang, L. (2007) An analysis of the loyalty of college teachers. Journal of Changsha Civil Affairs Vocational and Technical College 12(4) .104-106.
4. Chen, J. (2009). The impact of college teachers' remuneration satisfaction on job performance and enthusiasm. China Human Resources Development. 230 (8). 101-104.
5. Chen, Y & Zheng, Z & Chen, X. （2012) Research on library performance management and performance wage distribution system under the background of public institution wage system reform 32(3).28-36.
6. Chen, Y. (2020) An analysis of the difficulties and ways to improve college performance management 27(35) .169-170.
7. Dong, F. (2010) From the perspective of humanism, Employee Loyalty in private vocational colleges and modern commerce industry 30(7) .203-204.
8. Gao, Y. & Li, Q. (2010). Research on the loyalty management of college teachers in the perspective of psychological contract. Journal of the National Institute of Education and Administration. 11 (7). 67-70.
9. Guan, Y. (2021) exploring the implementation strategy of the incentive performance wage system in colleges and universities. Industry and Technology Forum, 20 (19). 283-284.
10. Li, J. (2010). Operation Manual of Performance Wage Reform in Public Institutions. China Machine Press.
11. Li, Q. & Jia, N. (2021) incentive mechanism in human resource management in colleges and universities. Human Resource Development 28(4) .31-33.
12. Liang, M. (2021) Exploring the internal performance management model of colleges and universities. Journal of Higher Education 17(5).156-160.
13. Lin, J. (2009). College teachers' professional confidence and organizational loyalty to teaching positions - based on a sample survey of ordinary universities across the country. Tsinghua University Education Research. 30 (2). 90-98.

14. Liu, J. & Huang, S (2022) Scientific effectiveness and management realization of Employee Pay-performance. Shenzhen Social Sciences 5(1) .149-158.
15. Long, X. & Zhou, J & Dong, S. (2014). Governance of university teacher turnover - based on the theoretical perspective of "withdrawal appeal loyalty". Higher Education Research. 35 (6). 46-51.
16. Lu, J. (2016) Optimization of the incentive mechanism of Pay-performance for college teachers. Operation and Management, 33 (2). 149-150.
17. Qiu, Y. (2023). Dialectically recognize the phased role and inevitable limitations of remuneration lever in the construction of "double first-class" Journal of Southwest Jiaotong University (Social Science Edition). 24 (2). 1-16.
18. Sang, D. (2017). Comparison between Royce's concept of loyalty and Chinese traditional concept of loyalty. Journal of Jinggangshan University (Social Science Edition). 38 (1). 45-51.
19. Wang, J. & Jiao, W. (2007). The current situation and reform measures of university teachers' remuneration system. Jiangsu Higher Education. 42 (3). 126-127.
20. Wang, X. (2012). Environmental analysis and path selection of university teachers' performance evaluation. Journal of Hunan University of Science and Technology (Social Science Edition). 15 (5). 78-180.
21. Yang, J & Li, D. (2012). Analysis of incentive mechanism for university teachers based on Lewin field theory. Journal of Northeast University. 14 (6). 544-548.
22. Zhao, X. Pei, L., Zhang, Z. & Li, T. (2020) Research on the Improvement of the Incentive Mechanism of University Employee Performance Assessment. Contemporary Education Practice and Teaching Research, 7 (9). 146-147.
23. Zhao, J. (2011). On the application of Adams' equity theory in college teacher motivation. Education and occupation. 690 (14). 50-51.
24. Zhu, Y. (2015) The Influence of Performance Appraisal on the Loyalty of Teachers in Chongqing Business Vocational College and Countermeasures 31(4) .139-140.
25. Zou, B & You, J. (2013) An Analysis of the Key Factors Affecting the Professional Loyalty of Young College Teachers. Journal of Chongqing University of Science and Technology (Social Science Edition) 19, (3) .163-165.

THE IMPACT OF EMPLOYEE COMPENSATION AND ORGANIZATIONAL COMMITMENT ON TURNOVER INTENTION: A CASE OF SICHUAN UNIVERSITY OF SCIENCE & ENGINEERING, CHINA

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ABSTRACT
This research verifies the impact of compensation and organizational commitment on turnover intention. Survey method was adopted to check the reality of employee compensation and organizational commitment on turnover intention at Sichuan University of Science & Engineering, China. 306 sample were conveniently sampling from 1,500 faculties. Mean, standard deviation, correlation, and regression analysis were performed. The results indicate that perk, affective commitment, and continuance commitment have significant impact on turnover intention, which means the higher sense people has, higher sensitive to university conditions and they are more likely to be upset, and leave.
Keywords: *Compensation, Organizational Commitment, Turnover Intention*

1. INTRODUCTION
In Chinese higher education, colleges and universities is a talent cultivation and gathering. Undertake the important mission of science and education and talent power, this study takes the priority that academic staffs should consider. Although university officials are aware of the significance and urgency of this issue, they have taken extensive efforts and developed several policies to recruit and retain talent. Nevertheless, according to data on the transfer of talent over the past several years, the situation of brain drain in Chinese institutions is getting increasingly severe (Zhou, 2012). Compensation is an essential aspect of human resource management and an issue that university human resource managers place a great deal of emphasis on. How to recruit talents, manage talents, and retain skills is the top priority of human resource management in the era of the information economy. In recent years, as a result of the fast growth of society, the existing remuneration structure for college professors has steadily shown its flaws and even harmed the passion and job satisfaction of college professors. Reforming the pay structure is essential (Dai, 2010). In the human resource management of colleges and universities, compensation is not only a vivid manifestation of the vitality of the institution, but it is also the core of the overall and orderly operation of the university organization, and salary compensation can be viewed as an essential component of talent compensation.

When the turnover rate of college professors is excessive, it indicates that the competitiveness of human resources is weak, the organizational vitality and innovative awareness are insufficient, and the core competitiveness has been lost. Therefore, the examination of the underlying causes of turnover, the creation of efficient remedies, and the appropriate management of the turnover rate are of the utmost importance. (Yan, 2015)

Research objectives:
1) Explore the employee compensation of Sichuan University of Science & Engineering.
2) Explore the organizational commitment of Sichuan University of Science & Engineering.
3) Explore the turnover intention of Sichuan University of Science & Engineering.
4) Examine the impact of employee compensation and organizational commitment on turnover intention at Sichuan University of Science & Engineering.

2. LITERATURE REVIEW
2.1. Employee compensation
Employee compensation refers to all payment made by employer to meet the basic life needs and internal psychological needs of employees; the other is to meet the needs of enterprises to motivate and retain talents (Zhang, 2020; Yu, 2020). Milkevich and Newman (2002) believes that are three types of compensation include basic pay, incentive pay, and other benefits.

2.1.1. Salary
Salary is to refer to the remuneration paid by the employer or the legal employer according to the law, or the industry regulations, or according to the agreement with the employee. It is a type of wages, wages is the employee salary, is a fixed working relationship in the employee income has the time rules of employee compensation, is the employer or legal unit of choose and employ persons according to the law, or industry regulations, or according to the agreement between employees, in the form of currency to the employee labor payment (Wang, 2021).

2.1.2. Bonus
Bonus is to point to the remuneration that the excess labor that provides to laborer pays, it is a supplementary form that realizes distribution according to work. Bonuses can be generally divided into two categories: rewards given because workers provide excess labor that directly increase social wealth (e. g., increasing production, saving, etc.), and rewards given because workers provide excess labor that create conditions for increasing social wealth (e. g., technological innovation).

2.1.3. Perks and benefits
perks are supplementary compensation payment such as insurance payment, retirement payment, and other material perks. It has no fixed form of expression, by each institution according to the actual situation to determine, has a certain flexibility (Wang, 2021).

2.2. Organizational commitment
Organizational commitment refers to the general term of the attitudes and behaviors of organizational members to their organizations (Mi & Cheng, 2018). In addition, Wu (2019) defines organizational commitment generally refers to the strength of an individual identifying with and participating in an organization. It is different from the contracts signed between individuals and organizations in terms of work tasks and professional roles, but rather it is a psychological contract. In organizational commitments, the individual determines the perspective and degree of connection to the organization, especially by prescribing actions outside of professional roles that formal contracts cannot specify.

Employees with a high organizational commitment have a very strong sense of identity and belonging to the organization.

2.2.1. Affective commitment

Affective commitment refers to the degree to which the members of an organization are involved in the organization and participate in the social interactions of the organization. It is the individual's emotion to an entity, which is a positive psychological tendency. It includes recognition of value goals, employee pride, and voluntary sacrifice and contribution to the organization for its benefit.

2.2.2. Continuance commitment

Continued commitment, also referred to as continuous commitment, is a commitment that employees have to stay in the organization in order not to lose their existing position and the benefits paid for years of investment. It is a commitment based on economic principles and has a strong trading color. Continuous commitment exists when employees gain benefits and leave, and a high sustained commitment makes it difficult for employees to change jobs, due to the huge costs associated with job-hopping (Jasen, Jeffrey, Michelle, 2010).

2.3. Turnover intention

Turnover intention is the most direct precursor of resignation behavior. Fishbein (1967) believes that separation intention is consistent with attitude, desire, and behavior, and that it is generally considered a predictor of turnover behavior. Shore (Martin, 1989) noted that the departure intention is an appropriate dependent variable because it is directly related to the actual turnover behavior. Yu (1980), believed that turnover is a phenomenon of labor mobility, that is, the departure and acquisition of labor force, and that employees request to terminate the labor relationship and leave the original organization.

2.4. Sichuan University of Science & Engineering

Sichuan University of Science & Engineering located in Zigong City, Sichuan Province, also has a campus in Yibin City. As of June, 2022, The school is located in two famous national historical and cultural cities, Zigong City and Yibin City, With Huidong headquarters, Li Bai River, Yibin, three campuses, Covering an area of more than 4,700 mu, construction area of more than 1.6 million square meters, More than 3.07 million paper books and documents, There are 124 Chinese and foreign literature databases; With 24 colleges, Open 77 undergraduate majors; There are 8 master's authorization programs in first-level disciplines (covering 36 second-level disciplines), 11 professional degree categories (covering 35 professional degree fields); There are more than 2,400 teaching and administrative staff members, Among them, 1500 are full-time teachers, There are 45,000 full-time graduate students, undergraduates and international students.

2.5. Equity theory

The equity theory is the theory that studies the influence of the rationality and fairness of wage distribution on the enthusiasm of workers. Written by the American psychologist, Adams, in 1965. Equity theory is a compensation incentive theory. The theory points out that the fairness and reasonable degree of employee salary distribution will have a positive or negative impact on their labor enthusiasm, but the fairness degree of such salary depends on the subjective judgment of employees' personal vertical and horizontal comparison. Their work enthusiasm and labor efficiency results, are affected by the so-called sense of fairness. It mainly studies the fairness of enterprise compensation management, and the impact on the working attitude and performance of employees.

From the perspective of employee compensation allocation, this theory conducts a study on its rationality and fairness, and further studies the relationship between compensation distribution fairness and employees' positive degree and work efficiency, through the relationship between compensation ratio and the work enthusiasm of employees. The core point of Equity theory is that members of the organization care not only about what they work hard, but also about other colleagues' remuneration, both absolute and relative gains (Liu,2022).

2.6. Conceptual Framework
The independent variable studied in this paper is the employee compensation (include:Salary, bonus, Perk and benefits) and the organization promises (include: affective commitment, Continuance commitment), Because the change is the turnover intention, the turnover intention changes with the change of employee compensation and organizational commitment.
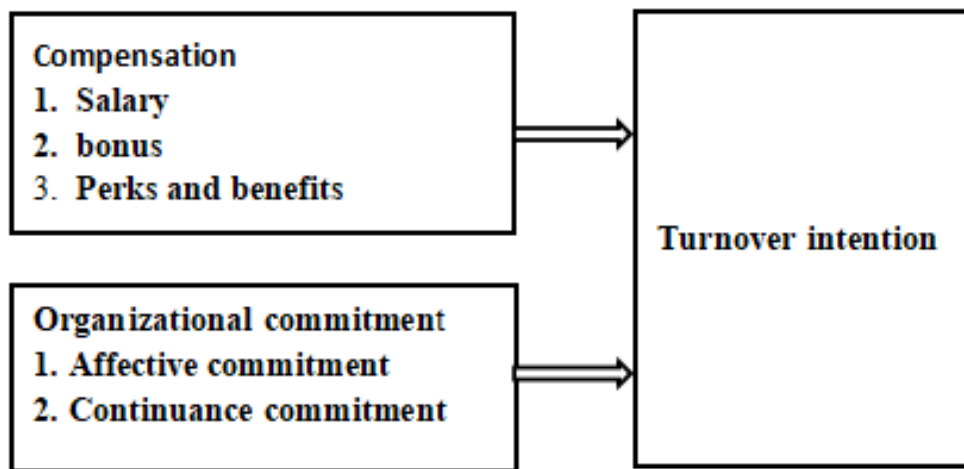
Figure 1: Conceptual framework
(Source: author)

Research hypothesis
- Hypothesis 1:Salary has impact on turnover intention in Sichuan University of Science & Engineering.
- Hypothesis 2:Bonus has impact on turnover intention in Sichuan University of Science & Engineering.
- Hypothesis 3:Perks has impact on turnover intention in Sichuan University of Science & Engineering.
- Hypothesis 4:Affective commitment has impact on turnover intention in Sichuan University of Science & Engineering.
- Hypothesis 5:Continuance commitment has impact on turnover intention in Sichuan University of Science & Engineering.

3. RESEARCH METHODOLOGY
3.1. Research method
This paper conducts quantitative study by questionnaire survey. According to the actual situation, the specific situation of the employee compensation and organization commitement of Sichuan University of Science & Engineering was understood through the questionnaire survey, the salary situation of Sichuan University of Science & Engineering was deeply analyzed, and the impact of the salary on the resignation intention of the university employees was summarized through the data analysis.

3.2. Population, and sample

Population of this study is 1500 academic staffs at Sichuan University of Science & Engineering. Sample size is calculated as 306 using Yamane's formula. This research project mainly adopts a convenient sampling method.

3.3. Data analysis

Section 1 presents descriptive data in the form of frequency, percentage, mean, and standard deviation. It also reports on each variable's degree of attitude. This survey collects data on Likiert's five scales of attitudes.

Attitude	Score	Range	Interpretation
Strongly agree	5	4.21-5.00	strongly agree
Agree	4	3.41-4.20	agree
Neutral	3	2.61-3.40	neural
Disagree	2	1.81-2.60	disagree
Strongly disagree	1	1.00-1.80	strongly disagree

Table 1: Descriptive analysis
(Source: author)

Section 2 contains inferential statistics based on correlation and multiple regression. A correlation analysis reveals the strength and direction of a linear relationship between two variables, while a simple linear regression analysis produces parameters in a linear equation that may be used to anticipate the values of one variable based on the values of the other.

4. RESULTS AND DISCUSSION

Variable	Mean	Standard Deviation	Level of perception
Salary	3.553	0.734	agree
bonus	3.293	0.896	neural
Perk and benefits	3.482	0.780	agree
Affective commitment	3.711	0.687	agree
Continuance commitment	3.679	0.610	agree
Turnover intention	2.347	0.622	disagree

Table 2: Results of descriptive analysis
(Source: author)

Table 2 shows when measuring respondents' satisfaction with their salary, the mean was 3.553 and the standard deviation was 0.734, showing that respondents were satisfied. When measuring the respondents' satisfaction with their bonuses, the mean was 3.293 and the standard deviation was 0.896, showing that the respondents were neutral. When measuring respondents' satisfaction with their perk, the mean was 3.482 and a standard deviation was 0.780, showing that respondents were satisfied. When measuring respondents' satisfaction with their organizational commitment, the results were satisfactory, where the mean of affective commitment was 3,711 with a standard deviation of 0.687 and the mean of continuance commitment was 3,679 with a standard deviation of 0.610. When measuring the turnover intention, the mean was 2.347 and the standard deviation was 0.622, which showed that the respondents were reluctant to leave.

	X1	X2	X3	X4	X5	Y
X1 Salary	1					
X2 Bonus	0.874	1				
X3 Perks	0.817	0.869	1			
X4 Affective commitment	0.667	0.605	0.656	1		
X5 Continued commitment	0.665	0.677	0.712	0.748	1	
Y Turnover intentions	0.606	0.592	0.657	0.774	0.786	1

Table 3: Correlation analysis results
(Source: author)

There is highly correlate between salary and bonus, perks, affective commitment, continued commitment, and turnover intentions, with 0.874,0.817,0.667 and 0.665,0.301,0.606. There was a very significant correlation between the bonus and benefits, emotional commitment, continued commitment and turnover intentions, at 0.869,0.605,0.677 and 0.592, respectively. There was a highly correlate between welfare and emotional commitment, continued commitment and the turnover intentions, at 0.656,0.712 and 0.657, respectively. There was a highly correlate between the emotional commitment and the continued commitment and the turnover intentions, at 0.748 and 0.774, respectively. There was a highly correlate between continued commitment and the turnover intention, at 0.786, respectively.

	Coefficients	*Standard Error*	*t Stat*	*P-value*	
Intercept	5.547	0.128	43.184	0.000	**
Salary	0.032	0.058	0.542	0.588	
Bonus	0.027	0.054	0.497	0.620	
Perks	-0.152	0.054	-2.972	0.006	**
Affective commitment	-0.415	0.046	-9.122	0.000	**
Continuance commitment	-0.355	0.054	-6.637	0.000	**

$R^2 = 0.718$, Adjusted $R^2 = 0.713$, $F = 150.079**$, Significance $F = 0.000$

*,** denotes significance level at 0.05, 0.01, respectively

Table 4: Impact of employee compensation and organizational commitments on turnover
intentions
(Source: author)

Table 4 shows the results of regression analysis of employee compensation (salary, bonus, perks), organizational commitment (affective commitment, continuance commitment) and turnover intention. The multiple linear regression model had an adjusted square R square of 0.718, showing good overall goodness of fit, with an F test value of 150.079 and a probability of significance exceeding 99%. Based on the above analysis, perks has a significant negative impact on turnover intentions, emotional commitment, and continuance commitment has a significant negative impact on turnover intentions. It means higher commitment people does not likely to leave. So lower commitment will leave soon or later.

Table following on the next page

	Coefficients	Standard Error	t Stat	P-value	
Intercept	5.568	0.123	45.275	0.000	**
Salary	-0.040	0.038	-1.058	0.291	
Affective commitment	-0.426	0.045	-9.386	0.000	**
Continuance commitment	-0.400	0.051	-7.837	0.000	**

$R^2 = 0.709$, Adjusted $R^2 = 0.706$, $F = 241.404$**, Significance $F = 0.000$

*,** denotes significance level at 0.05, 0.01, respectively

Table 5: Impact of employee compensation and organizational commitments on turnover intentions
(Source: author)

Table 5 shows the results of the regression analysis of employee compensation, organizational commitment (emotional commitment, continued commitment), and turnover intention. The multiple linear regression model had an adjusted square R square of 0.709 and a good overall goodness of fit, with an F test value of 241.404 and a probability of significance exceeding 99%. Emotional commitment, and continued commitment has a significant negative effect on turnover intentions. It means higher commitment people are lower chance to leave.

	Coefficients	Standard Error	t Stat	P-value	
Intercept	5.529	0.123	44.857	0.000	**
Bonus	-0.045	0.030	-1.513	0.131	
Affective commitment	-0.429	0.043	-9.874	0.000	**
Continuance commitment	-0.383	0.053	-7.246	0.000	**

$R^2 = 0.710$, Adjusted $R^2 = 0.707$, $F = 242.742$**, Significance $F = 0.000$

*,** denotes significance level at 0.05, 0.01, respectively

Table 6: Impact of employee compensation and organizational commitments on turnover intentions
(Source: author)

Table 6 shows the results of the regression analysis of bonus, organizational commitment (emotional commitment, continued commitment), and turnover intention. The multiple linear regression model had an adjusted square R square of 0.711 and a good overall goodness of fit, with an F-test value of 182.081 and probability of significance exceeding 99%. Emotional commitment, and continued commitment had a significant negative impact on turnover intentions. It means higher commitment people are lower chance to leave.

	Coefficients	Standard Error	t Stat	P-value	
Intercept	5.546	0.121	45.912	0.000	**
Perks	-0.109	0.036	-2.988	0.001	**
Affective commitment	-0.408	0.044	-9.341	0.000	**
Continuance commitment	-0.349	0.053	-6.591	0.000	**

$R^2 = 0.717$, Adjusted $R^2 = 0.714$, $F = 250.322$**, Significance $F = 0.000$

*,** denotes significance level at 0.05, 0.01, respectively

Table 7: Impact of benefits and organizational commitments on turnover intentions
(Source: author)

Table 7 shows the results of the regression analysis of welfare, organizational commitment (emotional commitment, continuing commitment) and turnover intention.

The multiple linear regression model had an adjusted square R square of 0.717 and a good overall goodness of fit, with an F-test value of 250.322and probability of significance exceeding 99%. Perks, emotional commitment, and continued commitment has a significant negative effect on turnover intentions. This findings confirms table 4-6 that perks, emotional commitment, and continued commitment are the factors have a significant negative effect on turnover intentions.

5. CONCLUSION AND RECOMMENDATION

Hypothesis	Variable	Expected sign	Empirical sign	Statistically significant at 5%	Hypothesis testing
H1	Salary	+	+/-	No	Rejected
H2	Bonus	+	+/-	No	Rejected
H3	Perks	-	-	Yes	Accepted
H4	Affective commitment	-	-	Yes	Accepted
H5	Continuance commitment	-	-	Yes	Accepted

Table 8: Summaries the hypotheses testing
(Source: author)

The results show that employee compensation and organizational commitment will affect employees' turnover intention. There are three dimensions of employee compensation: salary, bonus, and perks. Organizational commitment: affective commitment, and continued commitment. As can be seen from Table 8, perks have a negative impact on turnover intention. Therefore, hypothesis 3 is accepted. However, hypothesis 1 and 2 are rejected. In the two dimensions of organizational commitment, it can be seen that both affective commitment and continuance commitment have significant impact on turnover intention. In the regression analysis, the coefficients of affective commitment have a positive effect on turnover intention, so Hypothesis 4 is accepted; the coefficients of continuance commitment have a positive effect on turnover intention, so Hypothesis 5 is accepted. Thus, this research provides evidence that is the institution should appropriately determine base payment Strengthen pay for performance, and increase the proportion of bonus in the total employee compensation. Furthermore, organizations can increase their willingness to stay by increasing their satisfaction with the organization's affective commitment. Organizations can increase their willingness to stay by increasing their satisfaction with the continuance commitment.

LITERATURE:
1. Akerlof, Y (2017), Optimization of Worker Assignment in Dynamic Cellular Manufacturing System Using Genetic Algorithm. Journal of Advanced Manufacturing Systems, 15(1): 35-42.
2. Dai, J. (2010) Research on the Problems and Countermeasures in Chinese Enterprise Compensation Management. The Chinese business community. (2), 250-252.
3. Jason, A., Geoffrey A., & Michelle J. (2010) Wesson. Improve the execution of the elements of the commitment. Dongbei University of Finance and Economics Press.
4. Lin M. (2018) Management Countermeasures for Class B Employees. Human Resources development in China (03): 145-146.
5. Liu, Z. (2022) The influence of enterprise compensation management fairness on employee work performance, Human Resources,14-0069-03

6. Meng F. (2016) Analysis of the salary satisfaction and influencing factors of college teachers. Exploration of Higher Education (03): 154-155.
7. Mi, H., &Chen J. (2018) Study on the relationship between commitment and job satisfaction in higher vocational colleges. Intelligence, (5), 154-156.
8. Milkovich, G. T., & Newman, J. M. (2002). Compensation, 7th ed. Burr Ridge, IL: McGraw- . Hill Irwin.
9. Song C. (2019) The optimization countermeasures of the compensation management system in the enterprise human resource management. Office business.(14): 161- 166.
10. Wang, Y. (2021) Research on salary management and performance appraisal of public institutions, Management Garden,11.
11. Wu X. (2019) Empirical study on the influencing factors of job satisfaction in compulsory education teachers. Educational research, 40(1), 66-75
12. Yan, H.（2015) Analysis of the resignation tendency of university teachers-Take A university as an example,32-180.
13. Yu, Y. (2020) Enterprise human resource compensation management strategy in the new period. Modern economic information. (24), 21-22.
14. Zhang, Q. (2020) Study on employee compensation satisfaction in HX Shipping School, Shandong University.
15. Zhou, Y. (2012) Research on the insufficient salary incentive of college teachers and its countermeasures-Take Guangxi University as an example, Guangxi University, (7).

THE IMPACT OF REWARD SYSTEM ON EMPLOYEE PERFORMANCE: A CASE OF SUPPORTIVE STAFFS AT SICHUAN UNIVERSITY OF SCIENCE & ENGINEERING, CHINA

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ABSTRACT

This study explores the impact of reward system on employee performance using Sichuan University of Science & Engineering as the research object. This study surveys 255 supportive staff from Sichuan University of Science & Engineering. The finding reveals that, material rewards, social rewards, and activity-based rewards all significantly enhance employee performance. The research finding confirms Two-factor theory which suggests that the stimulation of employee motivation is influenced by both hygiene and motivator factors. Thus, this study affirms that knowledge of human resources management has certain theoretical importance and practical benefit. It also adds to the body of knowledge on China's higher education support departments' employee rewards systems and offers fresh conceptual and aesthetic direction for other Chinese higher education support departments' reward activities.
Keywords: *Reward System, Employee performance, Higher Education, Human Resource Management*

1. INTRODUCTION

Literature dates China's higher education significant growth in last decades with both quantitative and qualitative results (Piracha, Tani, Zimmermann, and Zhang., 2022). Yin (2006) states that the quality of an institution's research, teaching and learning, and interaction with society are significantly influenced by the qualifications and working circumstances of its higher education personnel. The author extends that supportive department is a crucial component of and one of the three pillars of college education work, and it has a direct impact on how teaching and scientific research often go at higher education institution. The major task is to make sure that the school's utilities as well as the campus's environment and the student housing are maintained. "Serve the growth of the school, teaching and research, and the life of teachers and students" is the ultimate purpose of supportive departments. The focus of the model's creation is on the relationship between reward systems and employee performance. This study helps to fully realize the significance of the impact of reward system and employee performance. Through this appropriate reward system should be introduce, thus it can improve the enthusiasm of the supportive staffs, improve the sense of belonging and job satisfaction, reduce the turnover rate, and provide sustainable development of the supportive departments.

2. RESEARCH OBJECTIVES
The main purpose of this study are as followed:
- To explore the reward system at Sichuan University of Science & Engineering.
- To explore employee performance at Sichuan University of Science & Engineering.
- To examine the impact of reward system on employee performance at Sichuan University of Science & Engineering.

3. LITERATURE REVIEW
This section discusses the relationship between the reward system and employee performance, which includes reward system, employee performance, existing research, research framework, research hypotheses, etc. Reward system refers to a system for employees to improve work efficiency and make more profits by getting more rewards to their employees and get more profits (Liting, 2018). Reward by encouraging people's ambition and their own work and daily behavior, the sense of honor and satisfaction, so as to achieve a management means to motivate the progress. The reward system includes policies, processes, and practices that reward employees according to their contributions, abilities, and skills. It is implemented in the company's reward concepts, processes, practices, structures, and procedural forms, to provide appropriate types and levels of compensation, benefits, and other forms of rewards (Armstrong, 2003). Using rewards provides employees and receives more attention from individuals who can meet their respect and recognition needs (Sandillyan, Mukherjee, and Miltera, 2012). Meilian & Junyi (2001) defines reward system as the combination of salary and pay-performance, and enabling employees to pay more energy through rewards. Shimei (2011) proposed that strengthening the reward for work is an effective measure to meet the self-realization needs and accomplishment, and reasonable work rewards can meet their needs at higher levels. Employee performance is a central part of the organization's mission and strategic goals. Campell (1993) pointed out that the connotation of performance is essentially similar to the connotation of behavior. He believed that performance is a practical action taken to achieve the goal, and that such action needs to be easily detected by others. Jie et al. (2001) believe that performance is the result of an organization or individual achieved in a certain way within a certain time range, which is an effective combination of time, method and result. Juan (2014) believes that Employee performance is the performance of individuals using their own organizations to assign tasks with their own resources, including its dynamic process content and static result content. Performance is interpreted as a record created during a specific job function or activity (Bernardin and Russel, 1998) . Scholar said that performance reflects the individuals hired to perform their tasks and work activities that can be appropriately assessed and measured by the (Campbell, 1993). Borman & Motowidlo (1997) defines the behavior and results of performance,which is the process of individual work and contribution in the organization; the result is the effect and influence on the realization of organizational goals. Two-factor theory suggests that the stimulation of employee motivation is influenced by both hygiene and motivator factors. Hygiene factors refer to the external environment that makes employees satisfied, including organizational policies, management, remuneration, and working environment and conditions; Motivator factors refer to the factors influenced employees effort to improve their work efficiency, such as their recognition, work achievements, development opportunities, and so on. In order to fully mobilize the enthusiasm of employees, in addition to hygiene factors that rely on external environment, motivator factors are but also need stimulate spiritual encouragement (Ashton, 2018; Fangping, 2020). Thus, this study expected all type of reward system has positive impact on employee performance. Research Framework and hypotheses can be draw from the literature review.

This research proposes the following research framework:
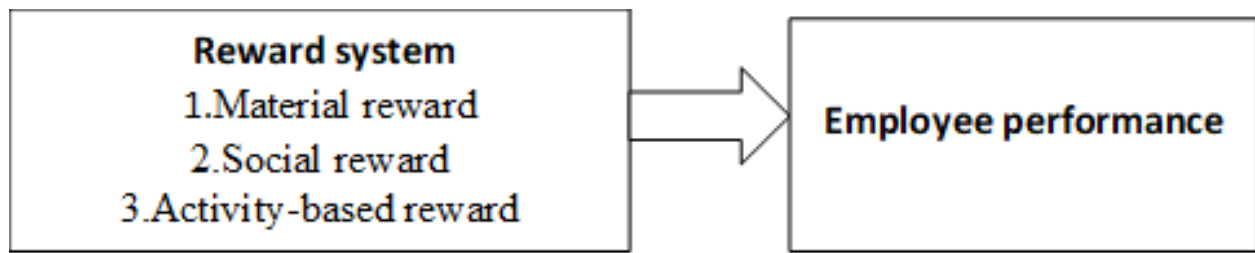
Figure 1: Conceputal framework
(Source: author)

This study examines the impact of reward system, including material reward, social reward, and activity-based reward on employee performance; According to the research on reward system (Mengmeng, 2020), the following assumptions are put forward as:

- Hypothesis 1: Material reward has a positive impact on employee performance.
- Hypothesis 2: Social reward has a positive impact on employee performance.
- Hypothesis: 3: Activity-based reward has a positive impact on employee performance.

4. RESEARCH METHODOLOGY

This study adopts quantitative survey method on the impact of reward system on employee performance. The questionnaire of this study was designed, and the effect of the reward system to employee performance was analyzed. The total population of this study is Sichuan University of Science & Engineering supportive department is approximately 700 employees. This study used Yamane formula to determine the sample size, which required 255 samples. The data for this study were collected through STAR online survey platform by employees of Sichuan University of Science & Engineering supportive departments. The researcher provided the respondent with detailed instructions on filling in the questionnaire, and checked the relevant data in the almanac. This study uses SPSS statistical software to analyze the data. Descriptive statistics such as mean and standard deviation were adopted using this folloing table:

Attitude	Score	Range	Interpretation
Strongly agree	5	4.21-5.00	strongly agree
Agree	4	3.41-4.20	agree
Neutral	3	2.61-3.40	neural
Disagree	2	1.81-2.60	disagree
Strongly disagree	1	1.00-1.80	strongly disagree

Table 1: Descriptive analysis
(Source: author)

Next, correlation analysis mainly studies whether there is certain interdependence between variables, and analyzes whether there is positive or negative correlation between variables. Lastly, regression analysis is to establish a mathematical model based on data, and describe the relationship and function between variables through data. This study mainly tests whether the hypothetical relationship between reward system and employee performance exists and what changes have taken place in the relationship and role of variables through regression analysis.

5. RESEARCH FINDING

In this paper, the reward system divided into material reward, social reward and activity-based reward. The specific analysis contents are as follows:

Material reward	Mean	Standard deviation	level of perception
Q 7. I am motivated to perform when paid bonus.	4.363	0.862	strongly agree
Q 8.If you perform well, the institution will raise your salary.	4.081	0.979	agree
Q 9.When you provide better results, the institution gives an additional bonus.	4.027	0.970	agree
Q10.Bonus motivates me to be more committed to my performance.	4.490	0.661	strongly agree
Q11.Sufficient perk that currently provided is satisfy me.	3.533	0.961	agree
Q12.I am happy with the benefits received.	3.834	0.867	agree
Average	4.055	0.605	agree

Table 2: Material reward
(Source: author)

Table 2 shows that general consent was found when measuring the mean of material rewards for respondents. The mean value of Q7-Q12 was 4.055 with a standard deviation of 0.605, indicating a higher mean value of materialistic reward in the sample. Q10 had the highest mean level of 4.49 with a standard deviation of 0.661, indicating that respondents generally strongly agreed with " Bonus motivates me to be more committed to my performance.".Q11 had the lowest average level of 3.533, saying that respondents generally agreed that " Sufficient perk that currently provided is satisfy me.", While the standard deviation was 0.981, indicating that the results were more crete.

Social reward	Mean	Standard deviation	level of perception
Q13.Promotion can advance my performance.	4.676	0.573	strongly agree
Q14.The institution gives you enough opportunities for promotion.	3.629	0.899	agree
Q15. I often plan and arrange the progress of my work.	4.035	0.701	agree
Q16. The work assigned gives you a sense of accomplishment	3.726	0.905	agree
Q17. Your institution trust you, so you can make my own decisions at work.	3.510	0.942	agree
Q18. Trust is important to accomplish your work.	4.375	0.706	strongly agree
Average	3.992	0.537	agree

Table 3: Social reward
(Source: author)

Table 3 shows that in terms of social rewards, respondents expressed general and the mean of Q13-Q18 was 3.992 with a standard deviation of 0.537, indicating that the staff's level of perception of social rewards was agree. Q13 had the highest mean value of 4.676 with a standard deviation of 0.573. The mean value for Q17 was a minimum of 3.51, suggesting that some respondents neurally with the statement that "Your institution trust you, so you can make my own decisions at work.

Activity-based reward	Mean	Standard deviation	Level of perception
Q19. I can use whole ability at my work	3.869	0.830	agree
Q20. I have a lot of independence and autonomy over how to do my work	3.459	0.868	agree
Q21. The work I do makes great sense to me	4.239	0.900	strongly agree
Q22. My work has a lot of room for improvem	4.351	0.713	strongly agree
Q23. I have a great influence on the work that the company does	3.826	0.870	agree
Q24. I can realize my ideals and aspirations from my current work	3.320	1.039	neural
Average	3.844	0.668	agree

Table 4: Activity-based reward
(Source: author)

Table 4 shows that in the case of activity-based reward, Q19-Q24 averaged 3.844 with a standard deviation of 0.668, indicating that the respondents' perceived level was low. Q24 had the lowest mean value, and the respondents expressed a neutral attitude towards the statement of "I can realize my ideals and aspirations from my current work".

	Mean	Standard deviation	level of perception
Q25. I have made a significant contribution to my department.	3.633	0.872	agree
Q26. I can always finish the tasks assigned to me on time	4.162	0.702	agree
Q27. I think I'm one of the best employees in my department	3.637	0.880	agree
Q28. My Employee performance always meet the expectations of my superiors.	3.734	0.769	agree
Q29. My superior was very satisfied with my Employee performance.	3.714	0.790	agree
Q30. All tasks come easiest to me.	3.363	1.023	neural
Q31.Occasionally I will use the spare time ensure that the task is completed on time.	4.069	0.690	agree
Q32.I often take on extra work to help others or strive for group performance.	3.934	0.802	agree
Q33.I Always work with other colleagues in the institution well.	4.232	0.604	strongly agree
Q34.Colleagues will give support an encouragement when I encounter problems	4.139	0.650	agree
Q35.I will give advice and take the initiative to help colleagues	4.232	0.591	strongly agree
Q36.I will imagine and proactively help my colleagues for the institution.	4.266	0.606	strongly agree
Average	3.926	0.537	agree

Table 5: Employee performance
(Source: author)

Table 5 reveals that the average value of task performance and contextual performance is 3.707 and 4.145, and the average value of Employee performance is 3.926, indicating that the overall Employee performance of employees at Sichuan University of Science & Engineering supportive department is at the upper middle level. Where the statement " I will imagine and proactively help my colleagues for the institution" received the highest score," All tasks comes easiest to me" received the lowest score. This study explores the correlation analysis of the reward system and each dimension of Employee performance, so as to further judge whether the hypothesis is reasonable.

	X1	X2	X3	Y
X1 Material reward	1			
X2 Social reward	0.649**	1		
X3 Activity-based reward	0.487**	0.760**	1	
Y Employee performance	0.472**	0.622**	0.655**	1
**, * devrote singinficant at 1%, 5% , respectively				

Table 6: Pearson's correlation analysis
(Source: author)

Table 6 indicates that the correlation between the reward system and employee performance is 0.472, 0.622, and 0.655, respectively. It indicates that all the variables are positively correlated with each others at the statistically significance at 1%.

Next, regression analysis is to measure the linear dependence between the reward system and the Employee performance variable, and to analyze the predictive ability of the reward system on employee performance as followed:

	Coefficients	Standard Error	t Stat	P-value
Intercept	1.296	0.192	6.734	<0.000**
Material reward	0.109	0.053	2.062	0.040*
Social reward	0.214	0.080	2.665	0.008**
Activity-based reward	0.347	0.056	6.182	<0.000**
R^2 =0.474, Adjusted R^2 =0.469, F =76.686**, Significance $F = <0.000$				
**, * are significant at 1%, 5% , respectively				

Table 7: Regression analysis of the reward system on employee performance
(Source: author)

Table 7 shows the results of the regression analysis of the reward system and Employee performance. The multiple linear regression model had the adjusted R square of 0.469, a good overall goodness of fit, and an F test value of 76.686, with a significant probability over 99%. Based on the above data, it can be concluded thats, material reward, social reward, activity-based reward had a significant positive impact on employee performance. The generation impact power, however, greatest at activity-based reward, following by social reward, fewest by material reward. The finding confirms Two-factor theory which suggests that the stimulation of employee motivation is influenced by both hygiene and motivator factors. However, Chenise academician at Sichuan University of Science & Engineering express their willingness harder through motivator factor compare with hygiene factors. The employee performance equation can be written as

Employee performance = 1.296 + 0.109Material reward + 0.214Social reward + 0.347Activity based reward

6. CONCLUSION

This study tested the impact of reward system on employee performance using *Two-factor theory*. It surveys the employees of the supporting department at Sichuan University of Science & Engineering, China. The multiple regression analysis indicates that the reward system has a positive impact on employee performance. Employees are motivated to perform when they are physical and metally rewarded, which encourages them to be more committed. Thus, this research finding confirms Two-factor theory which suggests that the stimulation of employee motivation is influenced by both hygiene and motivator factors. Therefore, organizations should have the tools to attract workers and meet good standards, as the two-factor theory suggested.

LITERATURE:
1. Armstrong, M. (2003), 'Employee Reward', 3rd ed., London :CIPD.
2. Ashton, A. (2018). How human resources management best practice influence employee satisfaction and job retention in the Thai hotel industry. Journal of Human Resources in Hospitality & Tourism, 17(2), 175–199.
3. Bernardin, H. J., & Russel, J. E. (1998). Human Management.
4. Borman,W., & Motowidlo,S. (1997).Task performance and contextual performance: The meaning for personnel selection research[J]. Human Performance, 10(2): 99-109.
5. Campbell, I. (1993). Thomas Carlyle. Hyperion Books.
6. Sandilyan, P.R., DEY, A., Mukherjee, M., Mitra, M., (2012) Commitment By Employee's Responses On Training And Development-A Study of Select Hotels In West Bengal. Excel-International Journal of Multidisciplinary Management Studies, 16(32), 125
7. Fangping, H. (2020). Maslow needs several thoughts on ideological and political education in colleges and universities under the perspective of hierarchical theory. Journal of Luohe Vocational and Technical College, (4): 98-100.
8. Jie, Y., Liluo, F., & Wenquan, L. (2001). Thoughts on some basic problems of performance evaluation. Dialectic of Nature Communication, ,23 (2): 40-51.
9. Juan, L. (2014). Employee performance: work pressure and response The influence of the study. Social psychology Science, (10): 49-53.
10. Jung, H., Yoon, H. (2021) Generational Effects of Workplace Flexibility on Work Engagement, Satisfaction, and Commitment in South Korean Deluxe Hotels, Sustainability, 13(16), 9143.
11. Liting, G. (2018). Job satisfaction, engagement and employee performance study. South China Agricultural University.
12. Meilian, W., & Junyi, L. (2001), Reward and Reward [J], Human Resource Management.
13. Mengmeng, L. (2020). Construction of employee compensation incentive mechanism to manufacturing industry example. Geological equipment, 21(01), 43-45.
14. Piracha, M., Tani, M., Zimmermann, K.F., and Zhang, Y., (2022) Higher education expansion and the rise of China in economics research, China Economic Review, 74, 101813.
15. Sandilyan, P., Dey, A., Mukherjee, M., & Mitra, M. (2012).Determining Employee
16. Shimei, G., （2011）. Research on the current status quo, problems and countermeasures of employee work motivation. Enterprise Guide, (5）188-190.
17. Yang, H. (2008), 'Efficiency Wages and Subjective Performance Pay', Economic Inquiry, 46(2), 179–196.
18. Yin, G. (2006).Some thoughts on the socialization reform of colleges and universities. Chinese geological education Yu,(02): 22-24.

THE BENEFIT-COST ANALYSIS OF THE GIANT SOUR TAMARIND PRODUCT: CASE STUDY OF PHITSANULOK AND PHETCHABUN, THAILAND

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ABSTRACT
The purpose of this study was to investigate the benefit (B) and cost (C) of the giant sour tamarind product, especially in the provinces of Phitsanulok and Phetchabun, Thailand. This study also aimed to analyze the background of the area-based, while also investigating the economic analysis of processing of giant tamarind products using the B-C concepts and practices. The population sample consisted of 100 giant sour tamarind orchard farmers in the provinces of Phitsanulok and Phetchabun, who grew and processed the giant sour tamarind fruit. In-depth interviews, which were an inductive summary, were implemented and used to collect data, and a quantitative analysis was performed. Data were collected to improve the production process with value stream mapping and verify of the production efficiency of giant sour tamarind product. The results showed that the cost compared to the selling and servicing expenses of the giant sour tamarind product was low and got the returns over the long run which has a payback period (PB) of 5 years onwords. According to our findings, it was a wise business decision to invest in such a project in because the real return exceeded the internal rate of return and payback period. Moreover, the activities based on the value chain concept of giant sour tamarind products, there were 5 primary activities: 1) Inbound logistics; 2) Outbound logistics; 3) Operations; 4) Sales and marketing; and 5) Customer service. In addition, there were four supporting activities: 1) Infrastructure; 2) Human resource management; 3) Technological advancement; and 4) Procurement. The results obtained from this research proved to be useful for the development and planning of giant sour tamarind products organized and managed by the women groups in the province, which reduce the production costs necessary to meet customer demands. It was concluded that the application of the value stream management techniques in the agricultural industry increased the efficiency of the process.
Keywords: Benefit-Cost analysis, Giant sour tamarind, Phitsanulok, Phetchabun, Activities, Value change

1. INTRODUCTION
Tamarind comes from the tamarind tree and is native to Asia. More tamarind is produced in India and Thailand than anywhere else in the world. Tamarind is one of the common fruit trees found grown all over Thailand especially in the north and northeastern of Thailand mostly under rainfed conditions, particularly, in the north and northeastern of Thailand such as northern region; Phetchabun, Uttaradit, Phitsanulok Nan, Lamphun, for northeastern region; Loei, Khonkaen, Udonthani, Nongbualamphu, Kalasin (Office of Agricultural Economics, 2021). It is also one of the most popular avenue trees which yield useful fruits and timber besides providing shade.

Tamarind is believed to be native of Tropical Africa but now cultivated throughout Southeast Asia, Australia, America. In Thailand, Tamarind are majority cultivated in the northern and northeastern regions consist of 17 and 20 provinces, respectively with an area of 106 million Rai for the north; 105.5 million Rai for the northeasteran, which is about 66% or about two-thirds of the entire countrys's areas, with the majority of the terrain being forested. There are approximately 32.5 million Rai for the north, and 63.5 million Rai for the northeastern which is agricultural land, or 64.6% of the whole country's area is used for agriculture in 2020. The population in both two regions is 33.9 million people or 47.4% of the country's population. (Figure 1)
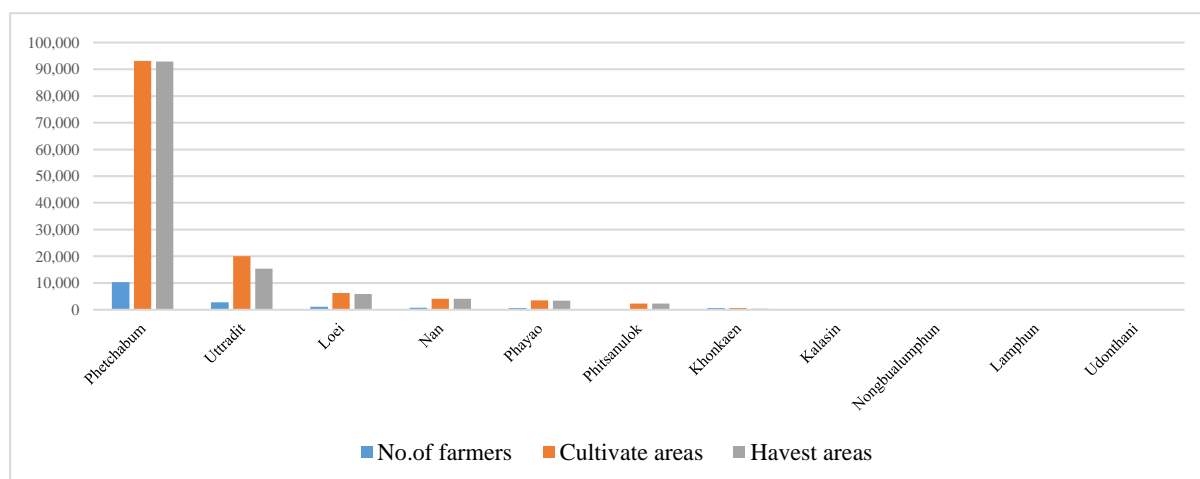
Figure 1: No. of farmers, cultivate and harvest areas of Tamarind farming in the north and northeastern in the northern and northeastern region of Thailand
(Source: Office of Agricultural Economics (2021))

Tamarind fruit is an important condiment and adjunct used as an acidic or flavouring agent in the Thai cookery. The Tamarind can be categoriezed as sweet and sour Tamarind. For the data collected throguh the Office of Agriculatural Economics combine both items and declare as Tamarind. Thailand produces tonnes of Tamarind pulp annually. Pulp powder and juice concentrates have a export potential in European countries. Tamarind pulp has an excellent keeping quality when dried properly in and cured with salt. The sour taste of the pulp is attributed to Tartaric acid together with malic and citric acids. The fruit is good source of phosphorus, calcium and iron. Tender leaves and flowers are also edible. Tamarind seeds yield a cheap substitute for cereal starch which is in textile industry. The Tamarind tree produces pods of fruit that have a sweet and sour taste. Drying the pods or using them unripened will amplify the sourness and sweetness. The sweet and sour flavor of tamarind helps to give many Thai dishes their distinct and recognizable tastes.Tamarind is high in magnesium and antioxidants. It can reduce inflammation and help digestion. Tamarind can even protect neurological health, remove fluoride deposits from bones, and improve cardiovascular health. Tamarind tree has a acid climatic adaptability requirement and can be grown in humid to dry hot regions. It is very sensitive to frost. The optimum rainfall requirement is 750-1900mm, but can thrive in region with low annual rainfall of 500-750mm. For the soil requirement, it can thrive on variety of soils, but deep loamy or alluvial soils providing optimum condition for development of its long tap roots are ideal. It can tolerate slightly saline and alkaline soils. Common method of propagation in vogue is by seed. However, being heterozygtes, it does not breed true to type through seed. The prolonged juvenile phase is also due to predominance of seed propogation. Seedlings Trees about 15-20 years for economic yields. Vegetatively propagated plants start yielding after 3-4 years.

Vegetative methods such as approach grafting, air layering and budding have been successful. However, layers are suitable for planting under dryland conditions for lack of deep growing tap root system. In order to obtain true to type plants with reduced pre-bearing age, uniform growth and yield vegetative methods like budding and grafting be used in establishing Tamarind orchards. The objectves of this paper written are two overview the snapshot of Tamarind cultivations from the two provinces which referred from Figure 1. There majority of Tamarind cultivate and harvest areas were Phetchabun, Uttaradit, Loei, Nan, Phayao and Phitsanulok, respectively. This article will be targeted to explore the benefit and cost of the giant sour Tamarind surveyed from Tamarine orchards of Phetchabun and Phitsanulok provinces. The snapshot of Tamarind production will be overveiwed and conclusion given.

2. TAMARIND PRODUCTION AT PHISANULOK AND PHETCHABUN PROVINCES

A study of Tamarind production from the introduction mentioned that in 2020, the number of farmer, cultivate and harvest areas are the most significant in the northern region of Thailand can be fourd from Phetchabum and Phitsanulok province which are an agricultural society, services sector oriented. Most of the population is engaged in agriculture, especially farming and gardening. Both provinces have a suitable landscape for agriculture because the city itself is located and surrounded by the mountains. Its northern and middle geology are plateaued, while the east and north-eastern sides of the province are mountainous. (Bhagaporn Wattanadumrong et al., 2017). Tamarind farming is mostly found in Lomsak district of Phetchabun, and Nakhonthai, Wangthong districts of Phitsanulok. Phetchabun province is wellknown as the Tamarind cultivation significant source of Thailand especitally the giant sour Tamarind plantation due to the geography location, soid texture and the temperature which appropriate for cultivation. Moreover, the orchards have experties and experince skills adoption from generations. (Provinical Agricultural Office, 2022). In 2022, the Provincial Agircultural Office reported that Phetchabun province has the giant sour Tamarind cultivation areas cover 5,901 Rai with number of Tamarind orchards 887 people. The most popular areas were in Lomkao, Mueng, Nongphai and Wangpong Districts. The situation of agricultural production from Phetchabun during 2019/2020 indicated that Phetchabun province has giant sour Tamarind cultivated areas totaled 1,803 Rai which yield given 900 Kilogramme. The most popular districts giant sour cultivation areas inluded Lomkao covers 774 Rai, Muang Phetchabum covers 366 Rai, Chondan covers 254 Rai. The average outputs was production 816 Kilogramme per Rai which average price was average Baht 20.02 per kilogramme. The fruits will be harversted during September to December. The highest yields will be in November (Provinical Agricultural Office, 2019). For Phitsanulok province the Tamarind plantation areas cover 2,297 Rai with number of Tamarind orchards 337 people. The most popular areas were in Naknonthai and Wangthong districts. (The Office of Agriculatural Economics, 2020). Phetchabun province is welknown as the Tamarind cultivation significant source. The study consists of the production line, marketing, along with the feasibility considered from benefit-cost analysis of the Tamarind, as well as study the value chain and the relevant factors which affect them, and the Tamarind orchards who are involved in growing in two provinces especially of Lomsak, Nakhonthai and Wangthong districts. This research also focuses on related theories for better understanding and initiate the methodology with reliability. The giant sour Tamarind trees were found that there are easily plantation, the maintenance is not complicate cultivation, although the orchards leave them with dried. These Tamarind productivities could be yield and with low cost of productions; for example, the expenditures from fertilizer, watering, and other food substance given. The more technological taken integrated in the Tamarind cultivation, the increased in fruits will be found. The framework of this study will be illustrated as follows (Figure 2),
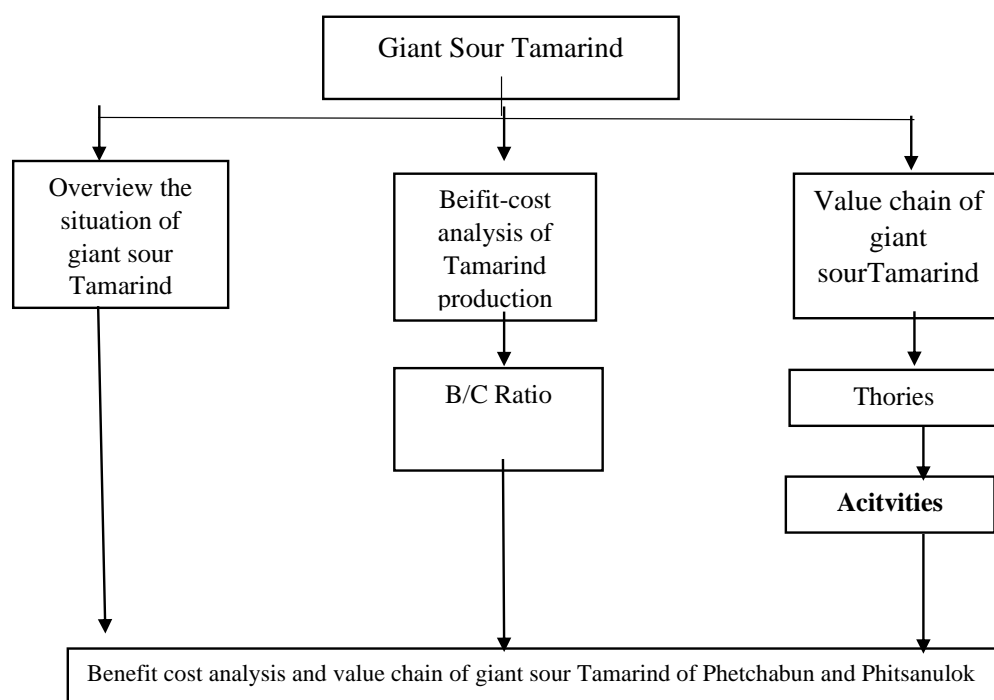
Figure 2: The framework of study
(Source: Developed by author)

2.1. Methodology

Field or the study of this research article mainly focuses on the farmers (orchards Tamarind), middleman and processors in Lomsak, Wangpong; Phetchabun and Nakhonthai, Wangthong district. Sample group of the study was the farmers who involved in giant sour Tamarind farming in Lomsak, Wangpong; Phetchabun and Nakhonthai, Wangthong district of Phetchabum and Phitsanulok, especially in Lomkao community, using interviews as a research instrument. The data analysis based on 2020 of the production in the specified area, using Taro Yamane's method (1967), with 95% of reliability, equal to 100 orchard farmers who were picked from the total members.[1] Research Data consists of the primary data which obtained from the number of giant sour Tamarind orchard farmers who planted Tamarind trees in the four areas by surveyed using interviews and sample groups. The data were later assessed and analyzed.

Data analysis: using the financial analysis of the investment project, by comparing the costs and expenditures with the revenues from the project, the analysis consists of 2 methods:
1) Net Present Value: NPV, or the difference between the current value of the revenue from the project and the current value from the investment, in accordance with the criteria that if NPV > 0, it is expected that the current value of the revenue is more than the costs.
2) Benefit – Cost Ratio: (B/C) which is the current value of the revenue, compared with the costs of the project, in accordance with this criteria; if B/C > 1, it is expected that the benefit is more than the costs of the project.

3. BENEFIT AND COST OF GIANT SOUR TAMARIND RESEARCH FINDINGS

This findings is a quantitative analysis which consist of two sections. The study of costs and revenues from the farmers, who planted giant sour Tamarine at Lomsak and Wangpong district;

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[1] The number of 4 areas of giant sour Tamarind orchards in both provinces have been calculated through Yamane's method to get the number of observations), with 95% of reliability, equal to 100. However, 70 of them accepted to get survey and interview.

Phetchabun, Nakhonthai and Wangthong district; Phitsanulok was aims to understand the process of giant sour productions, using the quantitative method and interview with the total of 100 Tamarine orchard farmers from both provinces.

- **Section 1:** Marketing analysis and value chain management between giant sour Tamarind orchards farmers and consumers, as well as provide an information to improve the value chain productivity within the target areas, by using surveys and interviews as a research instrument. The data analysis based on 2020 of the production in the specified area, using Taro Yamane's method (1967), with 95% of reliability, in accordance with less than 5% of the deviation, resulting in 100 people who were picked as a sample group.
- **Section 2:** Costs and revenue analysis of Tamarind farming in two provinces farmer group, using the following factors: Financial analysis of investment project, costs, benefit from the project. The analysis consists of 2 methods: 1) Net Present Value (NPV), which shows the different between current income and current costs from the investment (expense), If NPV > 0, it can be referred that the current income is more that the expense. 2) Benefit to cost ratio: B/C shows the different between current income and current expense of the project. If B/C ratio is more than 1, it can be referred that it has a profit.

This research suggests that, 2020, the orchard farmers from Lomsak and Wangpong district produced 90,000 kg of the Tamarind from 18,000 trees in total, with 15 years average age in each tree. While in Nakhonthai and Wangthong produced 60,000 kg of the Tamarind from 12,000 trees, with 10 years average age of each tree. Total produced Tamarind from both areas is 150,000 kg from 30,000 Tamarind trees, with 10 to 15 years average age. Table 1 show that 100 Tamarind farmers from both areas, 67 males (67.0%) and 33 females (33.0%).

The number of farming	District/Privince			
	Lomsak district, Wangpong district/Phetchabum		Nakhonthai district, Wang thong district/Phitsanulok	
Number of plant (Unit)	18,000		12,000	
Product (Kg)	90,000		60,000	
Average age (year)	15		10	
Number and percentage of farmers	**Male**	**Female**	**Male**	**Female**
Sub total number of farmers	37 (74.0)	13 (26.0)	30 (60.0)	20 (40.0)
Total	50 (100.0)		50 (100.0)	

Table 1: Data of the Tamarind farming in Phitsanulok and Phetchabun Provinces, 2020
*Note: the number in * show a percentage*
(Source: Tamaring orchard farmers)

3.1. The value chain of orchard farmers Tamarind production and processing of two areas
Giant sour Tamarind is considered to be an important fruit and currently on demand in both domestic and international markets. It is in general known that Tamarind has low cost of production and also easily cultivated. These Tamarind trees do not have high costs but it is generally known as profitable of Tamarind farming with low cost of production with hight returns. The value chain of Tamarind trees of the orchard farmers, most of which distribute their good by wholesale, or is Tamarind products.

According to the interview and focus group the farmers, the middlemen was taken part in processing, distribution and exports to increase the market supply in 2020. For the pocessing phase, most of the product will be in the processed into preserve fruits or Tamarind, using the locals processing. The benefits of Tamarind Planting is that it does minimize costs of cultivation. The marketing of the Tamarind had both export and domestic, the retails products can be distribute in various directions. The middleman will carried their working hard with high connection to connect the others to sell and distribute to the factories or the third party which directly sent to the central market in Bangkok and vicinities areas. All of which as shown in Figure 3. Moreover, the activities based on the value chain concept of giant sour tamarind products, there were 5 primary activities: 1) Inbound logistics; 2) Outbound logistics; 3) Operations; 4) Sales and marketing; and 5) Customer service. In addition, there were four supporting activities: 1) Infrastructure; 2) Human resource management; 3) Technological advancement; and 4) Procurement. The results obtained from this research proved to be useful for the development and planning of giant sour tamarind products organized and managed by the women groups in the province, which reduce the production costs necessary to meet customer demands. It was concluded that the application of the value stream management techniques in the agricultural industry increased the efficiency of the process.

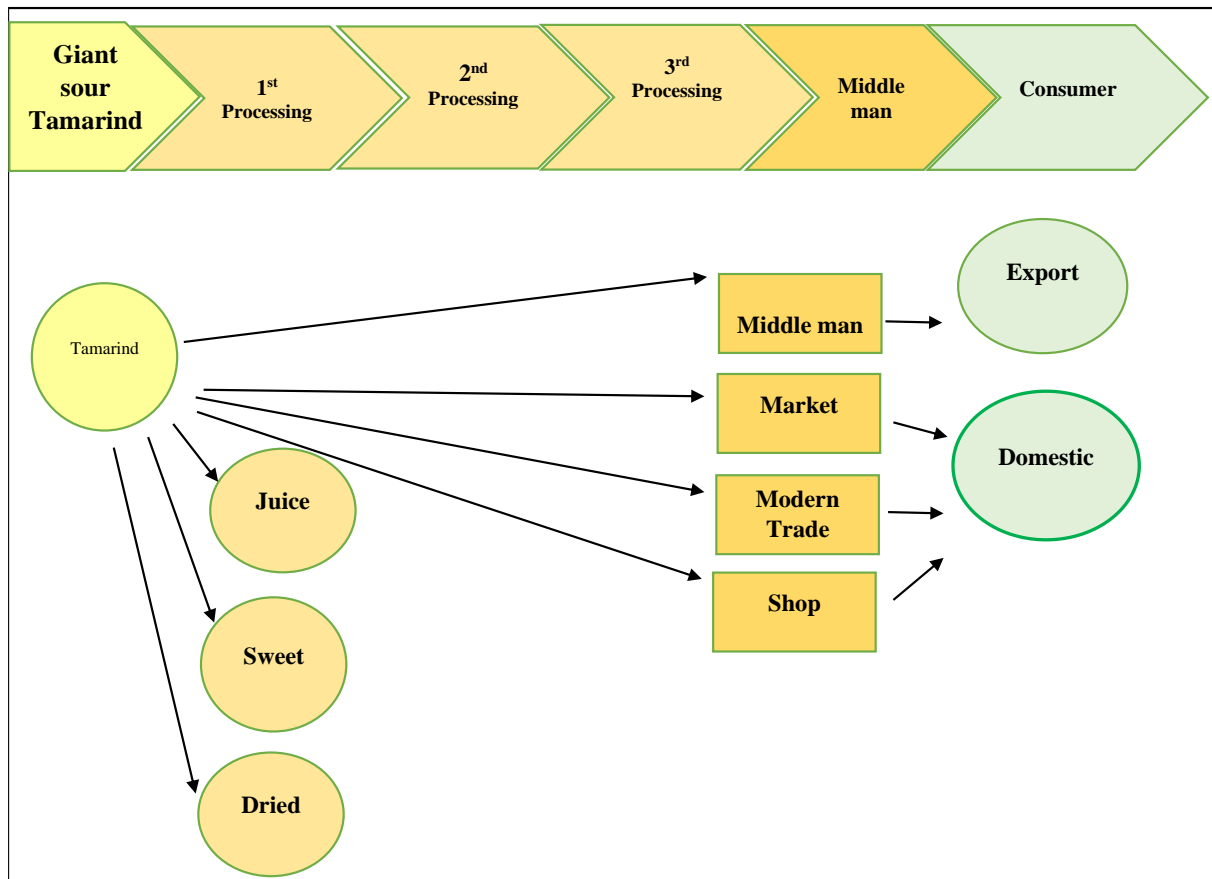*Figure 3: Marketing (value chain) of giant sour Tamarind of Phetchabun and Phitsanulok*
(Source: surveyed and interviewed)

The average costs and revenue of giant sour Tamarind. Regarding giant sour revenue, consist of the costs for the project, fertilizer, pruning, insecticide, herbicide, wager. While the revenue consists of the profit from selling the giant sour Tamarind, the details were provided in Table 2 as follow.

List item	USD per each tree	Total
Benefits (B): Income (50 - 100 kgs per a tree)	0.30	15.00 – 30.00
Costs (C): Land	-	
Fertilizer	1.20	
Pruning	2.20	
Herbicide	2.00	
Insecticide	1.25	
Labour	1.00	7.65
B/C ratio:		**1.96 – 3.91**

Table 2: The costs of giant sour Tamarind tree (USD / each)
*Note: * Most orchard farmers' land are located in the area of moutainous surrounded and rarely have the costs of land coverag, Exchage rate 1USD = THB 32.71*

There are 25 giant sour Tamarind trees farming per rai. Regarding the average selling price, it is worth THB 10 [USD 0.30] per kilogram. During the beginning of the cultivate season, it can be sold at least THB 20 [USD 0.61] per kg. Each giant sour Tamarind tree will produce 50 – 100 kgs. From an analysis of the costs and revenue of the giant sour Tamarind per each tree, it was found that the revenue of the investment consists of; the total costs approximately THB 250 [USD 7.65] per plant, it can produce around 50 – 100 kg per each plant. During the beginning of the cultivate season, it can be sold up to THB 20 [USD 0.61] while the average price is THB 15 [USD 0.46], resulting in the orchard farmers to have income between THB 490.65 –981.30 [USD 15.00 to 30.00] per each plant. The calculated ratio between the revenue to the costs are 1.96 – 3.91. As can be seen, the cost compared to the selling and servicing expenses of the giant sour tamarind product was low and got the returns over the long run which has a payback period (PB) of 5 years onwords. According to our findings, it was a wise business decision to invest in such a project in because the real return exceeded the internal rate of return and payback period.

4. CONCLUSION
The supply chain analysis of the production of the giant sour Tamarind as the agricultural products at provincial-level in Phitsanulok and Phetchabun Province, Thailand. The areas are appropriate landscape for mainly in agriculture based, especially farming and gardening which lead to a positioning of a junction of trading connected area from other provinces of Thailand. Each province will be selected two majority districts such as Lomkao, Wangpong (Phetchabun province), Nakhonthai and Wangthong districts (Phitsanulok province). These areas are fruit farming areas of Phitsanulok and Phetchabun Province (Bhagaporn Wattanadumrong et al., 2017). Giant sour Tamarind farming is mostly found in those areas. The target of this research is to concentrate on the benefit and cost analysis and overview a snapshot of marketing and economic valuation analysis of Tamarind market. The marketing system and value chain management from benefits and costs analysis of the giant sour Tamarind production of agricultures in the two provinces are estimated by employing the quantitative approach and having the interviews of 100 orchard farmers of four districts target group. They locate in the areas of Lomkao and Wangpong districts from Phetchabun province; Nakhonthai and Wangthong districts from Phitsanulok province. The methodology and data collection approaches have been designed and tested in these areas. The results from the marketing part shows that at present giant sour Tamarind are in highly demand but the farmers cultivate Tamarind needs many supplieres to serve the market demand. Giant sour Tamarind cultivation should be planned to increase the quality of productivities in the production areas. The results of the economic valuation part shows that the orchard farmers Tamarind have benefits over costs, in particular, benefits increase in the sixth-year onwards.

The benefit-cost (B/C) ratio shows that the orchard farmers Tamarind in these areas can generate income from getting the products and cost recovery in the short terms compared to cultivate other fruit products. The determinant factors are the low cost of production and high returns in terms of the diminishing of current costs. In case the fruit production and marketing in the target areas can be operated continuously since the processes are not highly investment, the sustainability of "giant sour Tamarind Production" to the areas will distribute income to the others at the provincial-level. The networking of orchard farmers Tamarind can extend to other areas in the long run such as knowledge sharing management, accounting, economics, marketing or other of their production experience, these can be the "giant sour Tamarine Model" for the others at provincial-level which can raise up and generate income in other areas.

LITERATURE:

1. Anthony E. Boardman, D. H. G., Aiden R. Vining, David L. Weimer. (2001). *Cost-Benefit Analysis : Concept and Practice.*; Prentice Hall, Upper Saddle River.
2. Chaipanya, W. (2002). Cost and Return Analysis of the Sweet Tamarind Farming Investment in Muang District, Loei Province. (Thesis, M.Sc.), Kasetsart University, Bangkok.
3. Effah-Kesse, D. (2017). *Implementation Of Lean In The Public Sector: Investigating The Benefits And Drawbacks. (A Case Study of Molde Municipality).* Molde University College.
4. Intaraput, N. (2011). The Investment Possibility of Sweet Tamarind in Mueang District of the Phetchabun Province. (Self-research, M.A.), University of the Thai Chamber of Commerce, Bangkok.
5. Gereffi, G., & Korzeniewicz, M. (1994). *Commodity chains and global capitalism*: ABC-CLIO.
6. Kaenkla, S. (2016). Value Chain of Organic Rice Products, Mae Taeng District, Chiang Mai Province. (Thesis, M.B.A.), Chiang Mai University, Chiang Mai.
7. Jaithip, M. (2012). A Cost and Return Analysis of Native Chicken Livestock for Business in the Lower Northern Region. (Thesis, M.A.), Naresuan University, Phitsanulok.
8. Martin K, & Osterling M. (2014). Value Stream Mapping, n.p.: New York, McGraw-Hill.
9. Omari, H. (2016). Value chain analysis of tamarind fruits in Kishapu district, Tanzania University of Agriculture Morogoro Tanzania.
10. Porter, M. (1985). Competitive Advantage*: Creating and Sustaining SuperiorPerformance.* New York: The Free Press.
11. Sarak, D. (2016). Addition to Value in the Value Chain of Thai Lady Finger Banana Exportation to The Chinese Market. (Thesis, M.B.A.), Burapha University, Chon Buri.
12. Taikhao, B. (2004). Cost and Return Study of Fresh Fruit Sales and Sweet Tamarind Processing (Tamarindus indica L.) in the Province of Phetchabun. (Thesis, M.Sc.), Naresuan University, Phitsanulok.
13. Wahab, A. N. A., Mukhtar, M., & Sulaiman, R. (2013). A conceptual model of lean manufacturing dimensions. *Procedia Technology, 11*(0), 1292-1298.
14. Wattanadamrong, P. & Liampreecha, N. (2016). Processed Fruits and Vegetables Network Program of Lower-Northern Region Strategic Group 1 Under the SME Network of 18 Research Provincial Group Support Program. Naresuan University.

EXPLORING THE USE OF DIGITAL TECHNOLOGY IN PRODUCTION PROCESS MANAGEMENT FOR THE READY-TO-SERVE FOOD INDUSTRY

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ABSTRACT

This study examines a strategy for managing the production process using digital technology in the ready-to-serve food industry. The research was conducted using an in-depth case study of a bakery company that recorded the highest revenue in its industry in Thailand. Data was collected through personal interviews, voice recording, and content analysis software. The findings suggest that using digital technology in production can help the company lower its production costs, improve customer satisfaction, and gain a competitive advantage through increased efficiency and sustainability. The study also highlights the potential of digital technology in the food industry.
Keywords: Digital technology, Production process management, Ready-to-Serve food industry, Time-based strategy, Lean, Six Sigma, Just in Time

1. INTRODUCTION

The food industry is a significant contributor to the economy of Thailand and is expected to continue growing as the economy recovers. Ready-to-serve food products, which are increasingly necessary for today's fast-paced society, can benefit significantly from digital technology. According to Amarinbook (2018), digital tools can help the Ready-to-Serve food industry respond to customer needs more efficiently. Euromonitor International (2018) predicts that the global market value of Ready-to-Serve food products will reach approximately $100 billion by 2022, with an average growth rate of 4% between 2018 and 2022. Thailand's market growth rate is expected to be the second highest in the world at 12% during the same period. The food industry faces various challenges, including the need to improve the efficiency of the production process. Inefficiencies in production can result in material loss and waste, leading to lower product quality and reduced competitiveness. To address these issues, a business process management strategy using digital technology can be employed to improve workflow and reduce waste. By implementing a digital technology-based strategy, the food industry can improve the quality and efficiency of its production process, enabling it to compete better in the market. This is particularly important in meeting the needs of today's consumers, who expect timely responses to their demands. Digital technology can help the food industry promptly respond to today's consumers' needs. According to a survey by COPC - CXMB Series Research (2019), 61% of consumers are dissatisfied with businesses that cannot fulfill their

requests with specified time frame. Improve customer satisfaction and enhance competitiveness, the food industry can adopt digital technology to accelerate business processes and provide high-quality products at a low cost. Digital technology can also facilitate the production of diverse and affordable products, helping Thailand transition to Industry 4.0 and increase its global competitiveness (Anusorn Thammachai, 2018). The use of innovation and digital technology in the production process can also help connect the needs of consumers to an efficient and cost-effective production process (Intellectual Property Institute, 2017). The food industry can compete globally by leveraging technology for cost-effective, high-quality production. Digital technology can help align the industry with national policies and support the development of Thailand into an Industry 4.0 country. This study focuses on business process management strategies using digital technology in the Ready-to-Serve food industry. This research examines intelligent devices, digital resources, and creativity in the food industry and how these tools can be incorporated into practical business plans and strategies. The findings of this study can help entrepreneurs and businesses in the industry improve their operations, compete in the long term, and achieve stability, wealth, and sustainability (Department of Industrial Promotion Ministry of Industry, 2018).

2. RESEARCH OBJECTIVE
This research aims to study the strategy for managing the production process using digital technology in the ready-to-serve food industry. The study aims to understand the potential of digital technology in improving the quality, efficiency, and sustainability of the production process food industry and identify the key factors that contribute to the success of this strategy. The research findings can be used to guide the development and implementation of digital technology-based business process management strategies Ready-to-Serve food industry.

3. LITERATURE REVIEW
3.1. Business process management
Business process management (BPM) is a widely studied area in organizational management. BPM aims to ensure consistent outcomes and identify opportunities for improvement processes within an organization. These improvements can take various forms, such as reducing costs, speeding up execution, or lowering error rates. BPM is not focused on improving individual tasks but on managing entire chains of events, activities, and decisions that add value to the organization and its customers. These chains of activities are called processes. Research on BPM has consistently shown the benefits of process improvements and automation in achieving BPM goals. For example, Messinger, Rogers, and Hawker (2019) found that process improvements and automation can reduce the lost work rate by almost 100 times. This highlights the importance of automation in achieving BPM objectives. Other studies have also demonstrated the potential of BPM to improve organizational performance and competitiveness (e.g., Lee et al., 2018; Kim & Lee, 2016). The use of digital technology in BPM has also gained significant attention in recent years, as it can enable organizations to manage processes more efficiently and effectively (e.g., Chen et al., 2019; Zhou et al., 2018). The adoption of BPM strategies can enable the food industry to respond to the needs of consumers more effectively, improve the quality of its products, and gain a competitive advantage market. context of the food industry, BPM strategies using digital technology can help improve the efficiency and competitiveness of the industry. This can be particularly beneficial, where digital technology is becoming increasingly important.

3.2. Business Digital technology
Business digital technology uses digital tools and technologies to support and enhance business operations and processes. These tools can include hardware such as computers, servers, and

mobile devices, as well as software applications such as customer relationship management (CRM) systems, enterprise resource planning (ERP) systems, and project management software. Digital technology can also include cloud computing services, which allow businesses to store and access data and applications over the internet and various communication and collaboration tools, such as video conferencing and messaging platforms. Using digital technology can help businesses increase efficiency, reduce costs, improve communication and collaboration, and enhance the overall customer experience. It can also help businesses keep up with the rapidly changing business landscape and stay competitive in the industries. Business digital technology has had a significant impact on the way companies operate and interact with their customers. Some of the keyways in which business digital technology has impacted businesses include:

1) Increased efficiency: Digital technology can help streamline business processes and automate tasks, freeing up time and resources that can be redirected towards more value-added activities.
2) Improved communication and collaboration: Digital tools such as messaging and video conferencing make it easier for teams to communicate and collaborate, regardless of location.
3) Enhanced customer experience: Digital technology can help businesses deliver personalized, convenient, and seamless experiences to their customers, leading to increased customer satisfaction and loyalty.
4) Increased competitiveness: By adopting digital technology, businesses can keep pace with industry changes and stay competitive in a rapidly evolving market.
5) Reduced costs: Digital technology can help businesses reduce operational costs by automating tasks, streamlining processes, and increasing efficiency.

Overall, the impact of business digital technology has been significant, and it will likely continue to shape how businesses operate in the future. From the perspective of the food industry, digital technology can help improve the efficiency and competitiveness of the industry. By integrating digital tools into the production process, the industry can lower costs, improve customer satisfaction, and gain a competitive advantage market. The adoption of digital technology food industry can also support the development of Thailand into an Industry 4.0 country, where the use of technology is crucial for improving the competitiveness of the economy.

3.3. Digital process automation
Digital Process Automation (DPA) is a modern approach to business process management that focuses on optimizing processes through automation and synchronization of activities, people, data, and systems. DPA platforms provide insight into process efficiency through analysis and in-depth information, enabling organizations to continuously improve their processes. DPA is different from traditional BPM in that it considers business processes to be digital and ready to be optimized, allowing organizations to focus on their customers and respond more effectively to changing operational models. Digital automation processes help organizations automate their business processes and improve overall efficiency and effectiveness. This can be particularly useful in the digital age, where the ability to experiment and adapt quickly is essential for businesses. Digital automation can help organizations align their processes across different departments and teams, making it easier to respond to changes in the market. One example of how digital automation can be used in business process management is the use of Material Requirements Planning (MRP) to run a demand-driven planning process. This approach, described in Orlicky's Material Requirements Planning, Third Edition (CA Ptak, C Smith, 2011), uses actual sales orders, rather than sales forecasts, to calculate material requirements.

This can be applied in both discrete manufacturing, where the final product is a distinct item that can be counted, and process manufacturing, where the final product is a bulk item that cannot be counted or broken down into its individual parts. MRP can help improve the efficiency of the production process and reduce waste, enabling organizations to respond more effectively to customer demand.

3.4. Business process management strategy

Innovation is essential for businesses to maintain a competitive advantage in today's fast-paced environment. One such innovation is time-based competition, where companies focus on providing customers with what they want, when they want it, at a lower cost and in less time than their competitors. This shift in attention allows early innovators to become time-based competitors, enabling them to offer a wider variety of products and services and outcompete their slower competition. Research by Vickery (1995) on time-based competition furniture industry shows that time compression can improve overall business performance industry. The study examines the relationship between time compression and various financial and marketing performance measures and demonstrates the strategic importance and functional area responsibility associated with time compression. While the findings of this study may not be directly applicable to other industries, the evidence of bottom-line improvements resulting from time compression in different industries suggests that it can help companies increase their overall competitiveness. Business process management strategies can support the adoption of time-based competition by enabling organizations to manage their processes more efficiently and effectively. By automating processes and synchronizing activities, people, data, and systems, BPM strategies can help organizations reduce costs, improve quality, and increase responsiveness to customer demand. This can enable companies to become time-based competitors and gain a competitive advantage in the market.

3.5. Inventory management methods

Lean and Just-In-Time (JIT) are production systems that focus on maximizing efficiency and minimizing waste in the production process. The goal of Lean is to eliminate waste and create a continuous flow of value for the customer. JIT is a production strategy that focuses on delivering the right product at the right time, right quantity, and at the right cost. Six Sigma is a data-driven approach to improving process efficiency and effectiveness. It aims to identify and eliminate defects in a process by using statistical analysis and a structured approach to problem-solving. Both Lean, JIT, and Six Sigma are used to improve efficiency and eliminate waste in the production process. Lean and JIT focus on maximizing efficiency and minimizing waste in the production process, while Six Sigma uses data and statistical analysis to identify and eliminate defects in a process. Together, these strategies can help businesses achieve high levels of efficiency and reduce costs.

Research framework
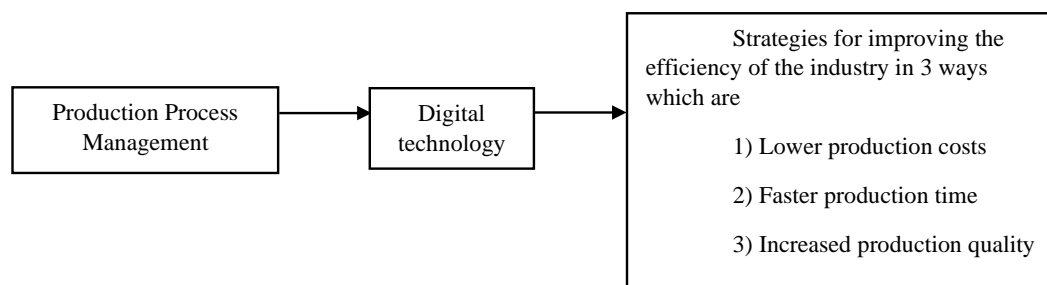
Figure 1: Research framework

4. RESEARCH METHODOLOGY

The research methodology for this study includes both qualitative and quantitative data collection and analysis methods. The research scope includes a focus on the strategy for managing the production process using digital technology in the Ready-to-Serve food industry. To gather data for the study, the following methods will be used:

- Secondary data collection: This will involve reviewing existing literature and documents related to the use of digital technology in the production process of the Ready-to-Serve food industry.
- Observation: The research team will conduct field visits to a bakery company that has recorded the highest revenue in Thailand to observe the production process and document findings.
- In-depth interviews: Semi-structured interviews will be conducted with key personnel at the bakery company to gather information about their production process and the use of digital technology.

Data collected through these methods will be analyzed and used to examine the strategy for managing the production process using digital technology in the Ready-to-Serve food industry. The findings will be reported in the study's results and discussion sections.

4.1. The scope of data collection

In this research, we focus on the business process that involves data collection only production process. This means that we will examine the various stages of the production process and identify opportunities for collecting data, as well as any challenges or limitations that may arise. We will also consider how the collected data can be used to improve the efficiency and effectiveness of the production process, and identify any potential benefits or risks associated with collecting and using this data. Finally, we will explore potential strategies for implementing a data collection system production process, including any necessary technological or organizational changes that may be required.
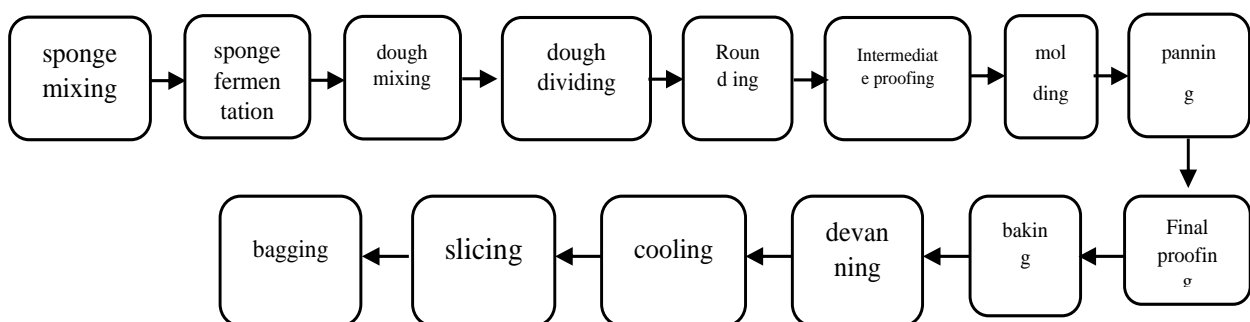
Figure 2: Scope of data collection

The scope of data collection for this research study is focused on the production process of the Ready-to-Serve food industry. This includes analyzing the use of digital technology in the production process and examining strategies for managing the production process using this technology. Data will be collected through a combination of secondary sources, observation, and in-depth interviews. The findings from this data collection will be used to examine the effectiveness of using digital technology in the production process and identify potential areas for improvement.

4.2. Population and sample

The population of this study is the Ready-to-Serve food production business, specifically the production of Ready-to-Serve bread. The sample for this study consists of 30 participants, including 4 production managers, 4 process experts, and 22 people involved in the production process. While this sample is not representative of the entire population of the Ready-to-Serve food production business, it provides valuable insights into the production of Ready-to-Serve bread in Thailand. It is important to note that the findings of this study may not be generalizable to the entire population, as it only represents a small subset of the population that was selected for the purpose of this study.

4.3. Data collection

In this study, the researchers employed a range of data collection methods, including document study, observation, and interviews. They collected and analyzed various information from research papers, academic articles, and internet sources related to production process management strategies to provide context for the data obtained from in-depth interviews. The researchers also used structured observation to record data about the production process without participating in the activities of the sample. For the interviews, they used a semi-structured form that included both open and closed questions to gather detailed information from the participants. The interviews were audio recorded and the data was analyzed using the Nvivo11 program. Overall, the researchers used a combination of qualitative and quantitative methods to gather information about the production of Ready-to-Serve bread in Thailand. The data analysis has shown that automating complex steps in the production process can help businesses reduce costs and improve production time and quality. This conclusion is based on both a document study and observations and interviews with employees in the production process. Digital automation can improve the efficiency of production processes compared to traditional methods. Overall, the analysis suggests that implementing digital technology in the production process can have a positive impact on the efficiency and effectiveness of the business.

4.4. Sample interview

There are several ways that technology can be used to save time in the production of bakery products:

- Automation: Automation can be used to streamline many tasks bakery, such as mixing dough, shaping and cutting pastries, and packing finished products. This can save time and reduce the need for manual labor.
- Recipe management software: Recipe management software can help bakers create and store recipes, calculate ingredient quantities, and generate production schedules. This can save time and reduce the risk of errors.
- Temperature control: Using technology to accurately control and monitor the temperature of ovens, proof cabinets, and other equipment can help ensure that products are baked to perfection and reduce the risk of waste.
- Inventory management: Technology such as barcode scanners and inventory management software can help bakers track and manage their inventory more efficiently, saving time and reducing the risk of running out of ingredients.
- Online ordering and delivery: Using an online platform for ordering and delivery can save time for both customers and bakers by reducing the need for in-person transactions and allowing orders to be placed and fulfilled more efficiently.

LEAN is a methodology that aims to eliminate waste and improve efficiency in business processes.

It can be applied to a bakery to streamline the production of bakery products and increase productivity. Some specific ways that LEAN principles could be applied in a bakery include:

- Identifying and eliminating waste: Waste in a bakery can take many forms, such as overproduction, unnecessary motion, waiting, defects, excess inventory, unnecessary processing, and unnecessary transport. By identifying and eliminating these types of waste, a bakery can become more efficient and productive.
- Streamlining processes: Lean principles emphasize the importance of streamlining processes to make them as efficient as possible. This can involve breaking down tasks into smaller steps, identifying bottlenecks and addressing them, and reducing unnecessary steps or activities.
- Improving flow: In a bakery, improving flow refers to ensuring that ingredients and finished products are moved smoothly and efficiently through the production process. This can involve reorganizing the layout of the bakery, implementing just-in-time production, and using Kanban systems to signal when supplies are running low.
- Standardizing work: Standardizing work involves establishing clear and consistent processes for each task bakery, so that everyone knows exactly what is expected of them. This can help reduce errors, improve quality, and increase efficiency.
- Continuously improving: Finally, LEAN emphasizes the importance of continuously improving processes and identifying opportunities for improvement. This can involve using data and analytics to track performance, gathering feedback from employees, and experimenting with new ideas.

"…The company in this case study has invested in digital technologies to upgrade its factory and improve production efficiency. The company has adopted robots and other digital tools to automate some of its production processes, which has helped to reduce costs and improve the speed and accuracy of production. The company has also invested in tablet technology for its sales department, which allows it to track sales data in real-time and adjust production accordingly. The company expects that these investments will lead to an 8% growth in revenue, as the bread market is expected to grow by 3% this year. Overall, the company's adoption of digital technologies has helped to improve its production processes and positioning market…"
In-depth interviews with production managers and process experts were conducted to analyze the content of the data analysis program and compare it with the theory of production process management strategies. Researchers used words to analyze the content, and the company employed time-based strategies to solve the problems they encountered after using digital technology, such as adopting robots to increase production efficiency and reduce costs. Time-based strategies can be effective in a competitive market where competitors offer a greater variety of products and services at lower costs and in less time. This approach, referred to as time-based strategies, was discussed by George Stalk Jr. and Thomas M. ir 1990 publication. These strategies can help companies improve their efficiency and competitiveness. In addition, time-based strategies can be aligned with Lean, Six Sigma, and just-in-time strategies. For example, adopting lean manufacturing principles can reduce manufacturing costs by increasing labor productivity, reducing production times, and cutting inventories and errors by as much as half. This is supported by John R. Black's 2008 publication, which states that lean strategies can benefit from using Six Sigma in terms of improving awareness, cultural change, and focus on quality, as well as generating savings and profitability. Six Sigma strategies, as discussed by C Adams, P Gupta, and C Wilson ir 2007 publication, can help companies make effective decisions based on their needs to reduce waste, save money, and improve profitability in terms of time, resources, and financial investment. Just-in-time strategies, as discussed by Y Monden in his 2011 publication, aim to produce the necessary items necessary quantity at the time of need, which can be facilitated by computer-integrated technology and information systems.

The success of these initiatives depends on the executives' decision, managers' motivation, and employees' enthusiasm.

5. DISCUSSION

This study examined the use of digital technology in managing production processes in the Ready-to-Serve food industry and found that a time-based strategy can improve efficiency, cost, and production quality. This approach, known as time-based competition, involves using a just-in-time approach and reducing non-value-adding activities. Previous research has shown that this strategy can effectively improve overall business performance in industries such as furniture and automotive. By applying this approach, companies in the Ready-to-Serve food industry can improve their competitiveness and respond to time-based competitive pressures. The research analyzed the relationship between time compression and financial and marketing performance measures, focusing on four key areas: product development cycle time, new product introduction time, production lead time, and the entire value delivery system or product cycle. The study of strategy for managing production processes using digital technology in the Ready-to-Serve food industry found that a time-based strategy can be consistent with Lean, six sigma, and Just in Time strategies. This approach can help reduce waste and increase efficiency, leading to cost savings and improved customer satisfaction. In addition, incorporating environmental considerations, such as transportation and assembly time, can further improve the sustainability of production processes. By adopting a time-based strategy and considering environmental impacts, companies in the Ready-to-Serve food industry can improve their technical competence and achieve continuous improvement goals. Overall, this approach can help businesses in the Ready-to-Serve food industry improve efficiency, cost, and production quality while also considering environmental factors.

6. CONCLUSION

In conclusion, using digital technology in the ready-to-serve food industry can improve production processes and make them more efficient. This can be achieved by implementing a time-based strategy, reducing waste, and improving cost, time, and quality. By adopting this approach, companies in the Ready-to-Serve food industry can improve their competitiveness and respond to the challenges of the industry. Overall, the findings of this study suggest that incorporating digital technology and adopting a time-based strategy can have a positive impact on the efficiency and effectiveness of the production process in the Ready-to-Serve food industry.

LITERATURE:

1. Adams, C., Gupta, P., & Wilson, C. (2007). Six sigma deployment. Routledge.
2. Blackburn, J. D. (1992). Time-based competition: White-collar activities. Business Horizons, 35(4), 96-102.
3. Black, J. R., Miller, D., & Sensel, J. (2008). The Toyota way to healthcare excellence: increase efficiency and improve quality with LEAN (Vol. 1). Chicago, IL: Health Administration Press.
4. Dumas, M., La Rosa, M., Mendling, J., & Reijers, H. A. (2013). Fundamentals of business process management (Vol. 1): Springer.
5. Fellows, P. (1997). Guidelines for small-scale fruit and vegetable processors (Vol. 127): Food & Agriculture Org.
6. Jayaram, J., Vickery, S. K., & Droge, C. (1999). An empirical study of time-based competition North American automotive supplier industry. International Journal of Operations & Production Management, 19(10), 1010-1034.

7. Kissflow Inc. (2019). Digital Process Automation: Everything You Need to Know. Retrieved from https://kissflow.com/bpm/digital-process-automation/

8. Kong, L., Li, H., Luo, H., Ding, L., & Zhang, X. (2018). Sustainable performance of just-in-time (JIT) management in time-dependent batch delivery scheduling of precast construction. Journal of cleaner production, 193, 684-701.

9. Luo, H., Yang, X., & Kong, X. T. (2019). A synchronized production-warehouse management solution for reengineering the online-offline integrated order fulfillment. Transportation Research Part E: Logistics and Transportation Review, 122, 211-230.

10. Monden, Y. (2011). Toyota production system: an integrated approach to just-in-time. Productivity Press.

11. Ptak, C. A., & Smith, C. (2011). Orlicky's material requirements planning (Vol. 546). New York: McGraw-Hill.

12. Ron Ketterling. (2019). LEAN MANUFACTURING INSIGHTS. Business Automation Specialists of Minnesota.

13. SourceCode Technology Holdings, I. (2019). Digital Process Automation.

14. Stalk, G., & Hout, T. M. (1990). Competing against time: how time-based competition is reshaping global markets.

15. Van der Aalst, W. M. (2013). Business process management: a comprehensive survey. ISRN Software Engineering, 2013.

16. Volman, T. (1992). E., Berry, WL, and Whybark, DC (1992). Manufacturing Planning and Control Systems.

17. Vickery, S. K., Droge, C. L., Yeomans, J. M., & Markland, R. E. (1995). Time-based competition furniture industry. Production and Inventory Management Journal, 36(4), 14.

18. Wang, C. N., Chiu, P. C., Cheng, I., & Huang, Y. F. (2019). Contamination Improvement of Touch Panel and Color Filter Production Processes of Lean Six Sigma. Applied Sciences, 9(9), 1893.

19. Williams, G. E. (1977). Digital Technology Principles and Practices.

SECTORAL CONNECTEDNESS AND RISK SPILLOVERS IN THAILAND'S STOCK MARKET

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ABSTRACT

Investigating the mechanisms of risk transmission within economic sectors is vital for comprehending the interconnectedness among industries. This study aims to examine the channels of risk propagation by analyzing volatility spillovers within eleven sectors of Thailand's stock market from January 2012 to December 2021. The sectoral volatility is estimated using the ARMA-GARCH technique. The paper utilizes the connectedness measures developed by Diebold and Yilmaz (2009, 2012, 2014) to examine changes in sectoral connectedness and identify significant trends in specific sectors before and during the COVID-19 pandemic. The result is that total volatility connectedness has increased significantly during the COVID-19 pandemic, indicating a significant rise in systematic risk. The Petrochemical and Chemical sector became the largest transmitter during the COVID-19 pandemic. These two findings are consistent with several studies on sectoral connectedness during the COVID-19 situation. In addition, some certain sectors shifted their role from a net transmitter to a net receiver and vice versa. Investors should be aware of the impact of an increase in systematic risk and the switching roles of net transmitters and net receivers when selecting hedging strategies. The Banking sector and the Finance and Security sector did not transmit much volatility to the market. They were net receivers for both the pre-COVID and the COVID periods. The Finance and Security sector was the largest receiver of volatility shocks during the pandemic. This raised concerns about the future stability of Thailand's financial sector. Overall, the results of this study contribute to an understanding of the changes in sectoral connectedness and risk spillovers in Thailand's stock exchange as a result of the COVID-19 situation.
Keywords: ARMA-GARCH, Connectedness, COVID-19, Sectoral connectedness, Stock Exchange of Thailand, Volatility spillovers, VAR

1. INTRODUCTION

Financial markets have recently witnessed periods of instability and turmoil. These situations are marked by a high level of unpredictability and can be seen in significant fluctuations in market activity. Volatility is essential to the functioning of financial markets. It serves as a measurement of financial risk or uncertainty surrounding financial asset investment. According to Diebold and Yilmaz (2009, 2012, 2014), total connectedness in securities can be attributed to the level of systematic risk. In addition, though different sectors respond to a shock in different ways, all stock sectors are at least partly interconnected. When there is significant volatility, it might extend to other industries. This process is typically referred to as sectoral spillover or sectoral connectedness, which describes the degree to which various sectors of an economy are interrelated and how changes in one sector influence other sectors.

Determining the mechanisms through which risk is transmitted among different sectors in the stock exchange of Thailand could help investors develop better portfolio diversification and hedging strategies, as well as the policymakers select the most effective policy actions. The outbreak of COVID-19 was one of the major unprecedented events that greatly affected us in many ways. The loss of human lives and the decline in economic activities following the unavoidable lockdown policy are mainly considered to be costly consequences of the pandemic. Much of recent works have attempted to investigate several aspects in which this pandemic has caused the overall and sectoral decline of economic activities. One promising area of focus study is the implication of COVID-19 on the Thai stock market and financial investments. According to the data, the outbreak has resulted in a decline in the overall Thai stock market returns; however, the nature in which the pandemic event affects sectoral volatility returns, as well as the intersectoral linkage aspects of volatility spillovers, has been slightly discussed until now. Our work attempts to fill up the existing gap in the recent Thai literature, and investigate the nature in which COVID-19 affects and reshapes the pattern of sectoral volatility spillovers in the Thai stock markets. Several studies analyzed the impact of the COVID-19 pandemic on sectoral connectedness using stock market data. Choi (2022), Shahzad et al. (2021) Laborda and Olmo (2021) examined the changes in the inter-sectoral volatility linkage in the US stock market due to the COVID-19 pandemic. Bui et al. (2021) investigated the volatilities spillovers across 24 sectors in the Vietnam stock market. Ekinci and Gençyürek (2021) analyzed the shock and volatility spillovers among sectors in the Borsa Istanbul stock exchange. Despite reviewing quite numerous studies on the sectoral volatility spillovers during the COVID-19 pandemic, we have yet to come across any research on the sectoral volatility spillovers for Thailand Stock Exchange. The research on sectoral volatility is quite limited. This paper examines the volatility connectedness across eleven sectors of the Stock Exchange of Thailand. There are two periods of analysis, the pre-COVID period (January 2012 – December 2019) and the COVID period (January 2020 – December 2021). The objectives of our paper are two folds. Firstly, within the sectoral analysis of 11 sectors of the Thai stock market, we attempt to uncover the key sector that contributes most to the volatility spillover in the Thai stock market. Second, we ask if the COVID-19 epidemic has changed the nature of financial connectedness. The ARMA-GARCH technique was used to measure sectoral volatilities. After that, we utilize the VAR techniques developed by Diebold and Yilmaz (2009, 2012, 2014, 2015) to estimate the sectoral volatility connectedness. In line with many studies (Laborda and Olmo (2021), Bui et al.(2022), Shahzad et al. (2021), Ekinci and Gençyürek (2021)), we found that total sectoral volatility connectedness significantly increased during the COVID-19 pandemic as compared to before. The systematic risk in the stock exchange of Thailand was much higher because of the situation. In addition, the Petrochemical and Chemical industry became the primary sector through which volatility was transmitted to the other sectors. This result is consistent with Ahmad et al. (2021), Choi (2022), Costa et al. (2022), and Laborda and Olmo (2021). Besides, we found that the Finance and Security sector became the main receiver of the shocks during the pandemic period. The financial industry was the receiver throughout both periods of the study. This result coincides with Laborda and Olmo (2021). Since the instability of financial institutions can cause a financial crisis, this finding suggests policymakers should monitor financial institutions constantly. Moreover, there was evidence of role-switching from a transmitter to a receiver and from a receiver to a transmitter. The pandemic caused a structural change. It might be too soon to find out whether this structural change is temporary or permanent. Investors should be aware of this structural change when choosing hedging strategies. The remainder of this paper is organized as follows. Section 2 describes the Research methodology and the data. Section 3 presents the quantitative results. Section 4 discusses several critical results and policy implications, while section 5 concludes.

2. RESEARCH METHODOLOGY AND DATA
2.1. Research Methodology
In this paper, we study the *systematic spillover effect* among sectoral financial activities using the framework developed by Diebold and Yilmaz (2014). Our work slightly departs from their original work in that we focus on the connectedness among *sectoral volatilities returns (hereafter, sectoral volatilities)*; the original study by Diebold and Yilmaz focused on the connectedness of firms through the lenses of firms' returns. Putting their framework in our contextual application, we proceed with the following four steps.

First, we study the behavior of sectoral returns, denoted by $r_{i,t}$, using the ARMA-GARCH(1,1) model. Then, we uncover the implied sectoral volatilities ($\sigma_{i,t}^2$) from each of the estimated models. *Second*, we analyze the structural relationship among the sectoral volatilities using the Vector Autoregression (VAR) framework. For illustration, we assume that sectoral volatilities are interlinked by the following VAR presentation,

$$Y_t = C + A_1 * Y_{t-1} \ldots + A_P * Y_{t-P} + B * e_t$$

where C is a vector of constants with order K, $Y_t' = \begin{bmatrix} \sigma_{1,t}^2 & \ldots & \sigma_{K,t}^2 \end{bmatrix}$ denotes the collection of sectoral volatilities for each of the K sector and e_t represents the volatilities shocks that must be structurally identified. Our VAR model is estimated by the Maximum likelihood method.

Third, given the estimated VAR model, the structural shocks (e_t) are econometrically identified. We follow the recent literature and identify the shocks using the generalized impulse response function techniques developed by Koop et.al.(1996), and Persarran and Shin (1998). This method has an advantage over other existing identification methods in that the results are invariant to the ordering assumption among structural shocks. *In the final step*, we compute the h-step ahead forecast error variance decomposition (FEVD) of the volatility in sector-i that is attributed to volatility shocks in sector-j. Having defined the pairwise FEVD object as d_{ij}, we then calculate the key connectedness measures proposed by Diebold and Yilmaz (2014), including (i) "TO-connectedness ($T._{\leftarrow i}$)", (ii) "FROM-connectedness ($F_{i\leftarrow}.$)" and (iii) "NET-connectedness (N_i)". These measures are summarized in the table 1.

2.2. Data
This paper analyzes the daily data of 11 sector indices in the Stock Exchange of Thailand from January 2012 to December 2021 (2610 trading day observations). The series is divided into two periods; the pre-COVID period and the COVID period. The pre-COVID period is from January 2012 to December 2019 (2087 trading day observations). The pre-COVID period starts on January 2012. This starting date is chosen because Thailand's financial stability prior to 2012 was affected by massive flooding. The COVID period is from January 2020 to December 2021 (523 trading day observations). It is assumed that the COVID period begins on January 2020 because the cases of pneumonia in Wuhan, China were first reported by WHO on December 31, 2019. The 11 sectors in the Stock Exchange of Thailand include Automobile(AUTO), Banking(BANK), Commerce (COMMERCE), Construction Materials (CONS), Fashion (FASHION), Insurance (INSUR), Packaging (PACKAGE), Finance and Securities (FINANCE), Food and Beverages (FOOD), Petrochemicals and Chemicals (PETRO), and Tourism and Leisure (TOURISM). The data is obtained from Thompson Reuters DataStream International.

	$\sigma^2_{1,t}$	$\sigma^2_{2,t}$	...	$\sigma^2_{K,t}$	FROM others
$\sigma^2_{1,t}$	d_{11}	d_{12}	...	d_{1K}	$F_{1\leftarrow\cdot} = \sum_{j\neq 1} d_{1j}$
$\sigma^2_{2,t}$	d_{21}	d_{22}	...	d_{2K}	$F_{2\leftarrow\cdot} = \sum_{j\neq 2} d_{2j}$
⋮	⋮	⋮		⋮	⋮
$\sigma^2_{K,t}$	d_{K1}	d_{K2}	...	d_{KK}	$F_{K\leftarrow\cdot} = \sum_{j\neq K} d_{2j}$
TO others	$T_{\cdot\leftarrow 1} = \sum_{i\neq 1} d_{i1}$	$T_{\cdot\leftarrow 2} = \sum_{i\neq 2} d_{i2}$	...	$T_{\cdot\leftarrow K} = \sum_{i\neq 2} d_{iK}$	$\frac{\sum_{i\neq j} d_{ij}}{K}$
NET	$N_1 = T_1 - F_1$	$N_2 = T_2 - F_2$	...	$N_K = T_K - F_K$	

Table 1: Sectoral connectedness matrix
(Source: Adapted from Diebold and Yilmaz (2014))

3. QUANTITATIVE RESULTS
3.1. The ARMA-GARCH(1,1) results
The ARCH and GARCH models are widely used to measure the volatility of stock returns and provide a good starting point for the volatility analysis. What are presented in tables 2 and 3 are the variance equation estimation results of the GARCH (1,1) for the pre-COVID and the COVID periods, respectively. Each equation is estimated with the Maximum likelihood under the assumption that the distribution function of error terms is governed by Students-T.

Variance Equation	AUTO	BANK	COMMERCE	CONS	FASHION	FINANCE
Arch (alpha)	0.1465*** (0.0325)	0.0551*** (0.0100)	0.0901*** (0.0158)	0.0397*** (0.0088)	0.1008*** (0.0197)	0.1464*** (0.0241)
Garch (beta)	0.7569*** (0.0001)	0.9422*** (0.0096)	0.9005*** (0.0154)	0.9512*** (0.0105)	0.8520*** (0.0231)	0.8231*** (0.0234)
Constant	1.02 ($\times 10^{-5}$)*** (1.46 ($\times 10^{-4}$))	7.52 ($\times 10^{-7}$)** (3.47($\times 10^{-7}$))	1.67($\times 10^{-6}$)** (5.79($\times 10^{-7}$))	1.12($\times 10^{-6}$)** (4.87($\times 10^{-7}$))	2.41($\times 10^{-6}$)*** (5.91($\times 10^{-7}$))	7.69($\times 10^{-6}$)*** (1.86($\times 10^{-6}$))
alpha + beta	0.9034	0.9974	0.9906	0.9910	0.9528	0.9695
Variance Equation	FOOD	INSURE	PACKAGE	PETRO	TOURISM	
Arch (alpha)	0.0972*** (0.0177)	0.0571*** (0.0123)	0.2134*** (0.0426)	0.0612*** (0.0109)	0.0380*** (0.0084)	
Garch (beta)	0.8642*** (0.0220)	0.9232*** (0.0123)	0.6869*** (0.0467)	0.9295*** (0.0122)	0.9577*** (0.0088)	
Constant	3.63($\times 10^{-6}$)*** (1.02($\times 10^{-6}$))	1.84($\times 10^{-6}$)*** (6.85($\times 10^{-7}$))	1.64($\times 10^{-6}$)*** (3.70($\times 10^{-6}$))	2.78($\times 10^{-6}$)** (1.11($\times 10^{-6}$))	9.71($\times 10^{-7}$)** (4.60($\times 10^{-7}$))	
alpha + beta	0.9615	0.9803	0.9004	0.9907	0.9957	

Notes: Standard errors are in parentheses. Superscripts *, **, and *** denote the significance at 10 percent, 5 percent, and 1 percent confidence levels, respectively.

Table 2: Market Volatility of 11 Sectors in the Stock Exchange of Thailand using GARCH(1,1) estimating, the Pre-COVID Period: January 2012 – December 2019
(Source: Author's calculations)

Table following on the next page

Variance Equation	AUTO	BANK	COMMERCE	CONS	FASHION	FINANCE
Arch (alpha)	0.2078** (0.0938)	0.0653** (0.0310)	0.0695*** (0.0269)	0.0730*** (0.0260)	0.1406** (0.0566)	0.1406*** (0.0469)
Garch (beta)	0.6533*** (0.0003)	0.9168*** (0.0314)	0.8918*** (0.0397)	0.8970*** (0.0317)	0.6868*** (0.1195)	0.7984*** (0.0545)
Constant	$2.14(\times 10^{-5})$** $(3.40(\times 10^{-4}))$	$1.48(\times 10^{-5})$ $(9.31(\times 10^{-6}))$	$5.95(\times 10^{-6})$* $(3.36(\times 10^{-6}))$	$5.01(\times 10^{-6})$*** $(2.68(\times 10^{-6}))$	$1.09(\times 10^{-6})$** $(5.24(\times 10^{-6}))$	$2.22(\times 10^{-6})$** $(9.93(\times 10^{-6}))$
alpha + beta	0.8612	0.9822	0.9614	0.9700	0.8274	0.9390
Variance Equation	FOOD	INSURE	PACKAGE	PETRO	TOURISM	
Arch (alpha)	0.0890*** (0.0301)	0.1629** (0.0658)	0.0851** (0.0412)	0.0653*** (0.0200)	0.0286** (0.0140)	
Garch (beta)	0.9047*** (0.0255)	0.6531*** (0.0658)	0.9138*** (0.0327)	0.9258*** (0.0198)	0.9709*** (0.0137)	
Constant	$2.14(\times 10^{-6})$ $(1.32(\times 10^{-6}))$	$2.69(\times 10^{-5})$** $(1.16(\times 10^{-5}))$	$6.68(\times 10^{-6})$ $(5.32(\times 10^{-6}))$	$4.08(\times 10^{-6})$ $(3.06(\times 10^{-6}))$	$1.62(\times 10^{-6})$* $(2.43(\times 10^{-6}))$	
alpha + beta	0.9937	0.8160	0.9989	0.9910	0.9995	

Notes: Standard errors are in parentheses. Superscripts *, **, and *** denote the significance at 10 percent, 5 percent, and 1 percent confidence levels, respectively.

Table 3: Market Volatility of 11 Sectors in the Stock Exchange of Thailand using GARCH(1,1) estimating, the COVID Period: January 2020 – December 2021
(Source: Author's calculations)

From table 2 and table 3, all estimated coefficients of variance equation (ARCH and GARCH coefficients) are significant at 10%; the results hold true under both sub-sample analyses. Moreover, the sums of the two coefficients associated with the volatility's equations (alpha + beta) are lower than one; the GARCH(1,1) estimations are stationary and stable. Given our simple diagnostic checking methods, we have detected no signs of unusual results.

3.2. The Spillovers Effects Across 11 Sectors in the Stock Exchange of Thailand
3.2.1. Pre-COVID connectedness
Against the backdrop of pre-COVID periods, large fractions of each sectoral volatilities are found to have been mainly captured by their own volatility shocks. As reported in table 4 below, the diagonal elements represent the own-shocks effect; the figures range from the lowest value of 35.90% in FOOD industry to the highest one of 81.41% in FASHION industry. This implies that both sectors are those having the highest and lowest value of FROM-connectedness measures ($F_{i \leftarrow .}$), respectively. In particular, we found that the average FROM-connectedness measures, or overall spillovers index, is roughly around 50.32. To gauge the impact of the sector-i volatility shocks on the volatility of other related sectors, consider the figures reported in *row 12* of table 4. FOOD industry has the highest TO-connectedness ($T_{. \leftarrow i}$) of 82.82 meanwhile FASHION industry has the least reporting figure of 9.64. To measure the net spillover effect of each sectoral volatility shocks, the net effect of directional connectedness measures is more informative; the measures are reported in row 13. From the study, we found that PACKAGE sector plays the most important role as the largest net transmitter to the financial network; meanwhile PETRO industry is the biggest net receiver from other related sectors.

	AUTO	BANK	COM MERCE	CONS	FASHI ON	FIN ANCE	FOOD	IN SURE	PACK -AGE	PE TRO	TOUR -ISM	FROM
AUTO	48.56	3.29	3.89	3.12	2.06	7.11	9.12	6.00	11.51	1.57	3.78	**51.44**
BANK	3.85	41.33	6.33	8.96	0.47	5.77	9.89	8.75	5.94	4.63	4.08	**58.67**
COM-MERCE	4.52	7.47	47.01	6.01	0.44	4.19	12.22	8.45	4.63	1.53	3.51	**52.99**
CONS	6.36	8.75	5.30	39.89	0.55	5.87	8.73	7.07	7.52	4.60	5.36	**60.11**
FASH-ION	4.19	0.60	0.75	0.65	81.41	1.28	2.38	0.90	6.85	0.53	0.47	**18.59**
FIN-ANCE	8.10	3.07	3.52	4.53	0.90	48.60	9.49	6.77	8.49	1.61	4.92	**51.40**
FOOD	6.06	6.85	11.56	7.31	1.37	7.06	35.90	7.78	9.20	2.22	4.68	**64.10**
INSURE	8.85	5.30	6.60	4.59	0.60	4.04	8.30	48.79	7.93	1.68	3.33	**51.21**
PACK-AGE	9.88	4.07	2.48	5.52	2.14	7.11	9.59	7.26	45.80	2.13	4.03	**54.20**
PETRO	4.45	5.99	2.19	5.49	0.88	3.11	5.11	3.93	10.79	54.85	3.19	**45.15**
TOUR-ISM	3.47	3.41	2.91	5.90	0.25	7.12	7.99	6.66	6.91	1.08	54.30	**45.70**
TO	**59.72**	**48.81**	**45.54**	**52.09**	**9.64**	**52.66**	**82.82**	**63.58**	**79.77**	**21.59**	**37.35**	50.32
NET	**8.28**	**-9.86**	**-7.45**	**-8.03**	**-8.95**	**1.25**	**18.72**	**12.37**	**25.57**	**-23.56**	**-8.35**	

Table 4: The Market Volatility Spillovers of 11 Sectors in the Stock Exchange of Thailand, the Pre-COVID Period: January 2012 – December 2019
(Source: Author's calculations)

	AUTO	BANK	COM MERCE	CON S	FASHI ON	FIN ANCE	FOOD	IN SURE	PACK -AGE	PE TRO	TOUR -ISM	FROM
AUTO	49.59	6.40	9.25	2.50	5.42	1.62	6.78	5.10	1.35	7.77	4.23	**50.41**
BANK	7.04	22.44	8.31	3.78	8.64	3.56	11.52	13.00	2.43	15.98	3.31	**77.56**
COM-MERCE	3.41	4.75	19.50	6.80	4.43	5.97	18.74	13.12	2.65	17.30	3.33	**80.50**
CONS	2.86	4.27	9.79	10.99	5.37	7.10	18.39	16.71	4.44	17.92	2.16	**89.01**
FASH-ION	3.31	3.77	9.06	4.24	35.22	3.67	12.38	11.45	4.46	11.64	0.80	**64.78**
FIN-ANCE	2.10	5.36	10.66	8.59	4.39	10.76	18.09	15.23	5.29	17.42	2.11	**89.24**
FOOD	3.09	5.14	12.43	6.31	3.40	6.27	19.76	17.23	3.87	20.26	2.23	**80.24**
INSURE	4.58	5.91	10.06	5.67	3.58	5.79	14.92	25.94	3.89	16.96	2.68	**74.07**
PACK-AGE	6.85	4.86	8.94	5.79	4.81	4.41	13.88	12.35	23.30	12.87	1.95	**76.70**
PETRO	3.08	6.44	10.93	5.41	3.89	4.33	17.01	18.35	3.13	25.34	2.09	**74.66**
TOUR-ISM	8.44	5.19	11.22	4.06	4.62	3.37	11.77	11.04	2.61	15.90	21.78	**78.22**
TO	**44.76**	**52.08**	**100.65**	**53.16**	**48.53**	**46.10**	**143.48**	**133.58**	**34.13**	**154.02**	**24.90**	75.94
NET	**-5.65**	**-25.48**	**20.14**	**-35.85**	**-16.25**	**-43.14**	**63.25**	**59.52**	**-42.57**	**79.36**	**-53.32**	

Table 5: The Market Volatility Spillovers of 11 Sectors in the Stock Exchange of Thailand, the COVID Period: January 2020 – December 2021
(Source: Author's calculations)

3.2.2. Connectedness during the COVID periods
With the outbreak of COVID-19, there had been several changes in the nature for which sectoral volatility shocks play role in generating sectoral connectedness. Each sectoral volatility is found to have been less explained by their own volatility shocks. As reported in table 5 below, the diagonal elements represent the own-shocks effect; the figures range from the lowest value of 35.90% in FOOD industry to the highest one of 49.54% in FASHION industry. When compared with the same reporting values, the figures drop significantly from those in the pre-COVID periods. On the other hand, this implies that the cross-effect of volatility shocks has increased significantly.

The FROM-connectedness measures ($F_{i\leftarrow.}$) rise in all sectors, with the most notable feature being that the average FROM-connectedness measures, or overall spillovers index, was around 75.94. The impact of the sector-i volatility shocks on other related sectoral volatilities also increased during the COIVD periods. Consider the figures reported in *row 12* of table 5. PETRO industry has the highest TO-connectedness ($T_{.\leftarrow i}$) of 154.02 meanwhile PACKAGE industry has the least reporting figure of 24.90. Both minimum and maximum values are higher than those counterparts observed before the COVID period. For the net effect of directional connectedness, the reporting measures in row 13 suggest that PETRO sector plays the most important role as the largest net transmitter to the connectedness among sectoral volatilities; meanwhile, TOURISM industry is the biggest net receiver from other related sectors.

4. DISCUSSION AND IMPLICATION

There are several noteworthy points about sector connectedness, and some of them will be highlighted in this session. Overall, the total connectedness in the COVID period, 75.94, is significantly higher than the pre-COVID period 50.32. This increase in total connectedness may imply a rise in systematic risk. The degree of connectedness is related to systematic risk. Risks that are not connected can be diversified, and as a result, cannot be systematic. Many on sectoral connectedness studies (Bui et al.(2022), Ekinci and Gençyürek (2021), Laborda and Olmo (2021), Shahzad et al. (2021)) also found that total connectedness increased sharply during the COVID-19 pandemic. To further examine the sector's interconnectedness, the graphs in figure 1 display the FROM-connectedness, TO-connectedness, and NET-connectedness in descending order. There are structural changes in the patterns of volatilities spillovers across sectors. As depicted in figure 1a, the Petrochemicals and Chemicals sector was the second lowest transmission of shocks to other sectors in the market, but during the pandemic, it had the strongest volatility spillover effects on other sectors. This result is in line with Ahmad et al. (2021), Choi (2022), Costa et al. (2022), and Laborda and Olmo (2021), which studied the volatilities spillovers across industries in the US stock market. A possible explanation is that the Petroleum and Chemicals sector is most affected by the pandemic shocks (Baek et al. (2020)). The Petrochemicals and Chemical sectors provide petro oil and other chemicals which are the main input for all other sectors. In addition, this result aligns with Hongsakulvasu et al. (2020), which found that the impact of Singapore's oil market on Thailand's sectoral return was greater than it was before the outbreak of COVID-19. Banking and Finance and Securities do not transmit much volatility to the market both during the pre-COVID period and the COVID period.

Figure 1b presents the ranking of the FROM-connectedness of all eleven sectors. Before the COVID pandemic, the Finance and Securities sector was not among the sectors with the highest FROM-connectedness. However, the Finance and Securities sector became the major receiver of the volatility shocks sent from the market during the COVID pandemic. This result aligns with the finding of Panyagometh (2020). The possible reason is that the COVID pandemic has had a significant negative impact on the financial position of the private sector, specifically the business and household sectors, which are the primary clients of the financial sector. This is particularly true for finance and securities companies that primarily serve retail customers. The Food and Beverage sector, on the other hand, had the highest FROM-connectedness before the pandemic but was not one of the major receivers during the pandemic. Even though all industries were negatively affected by the situation, it might be possible that the Food and Beverage sector was relatively affected less by the shocks from other sectors. The demand for food and beverage is usually steady, and it is not significantly affected by shocks in the market or external factors as much as other sectors in the economy due to its nature of necessities.
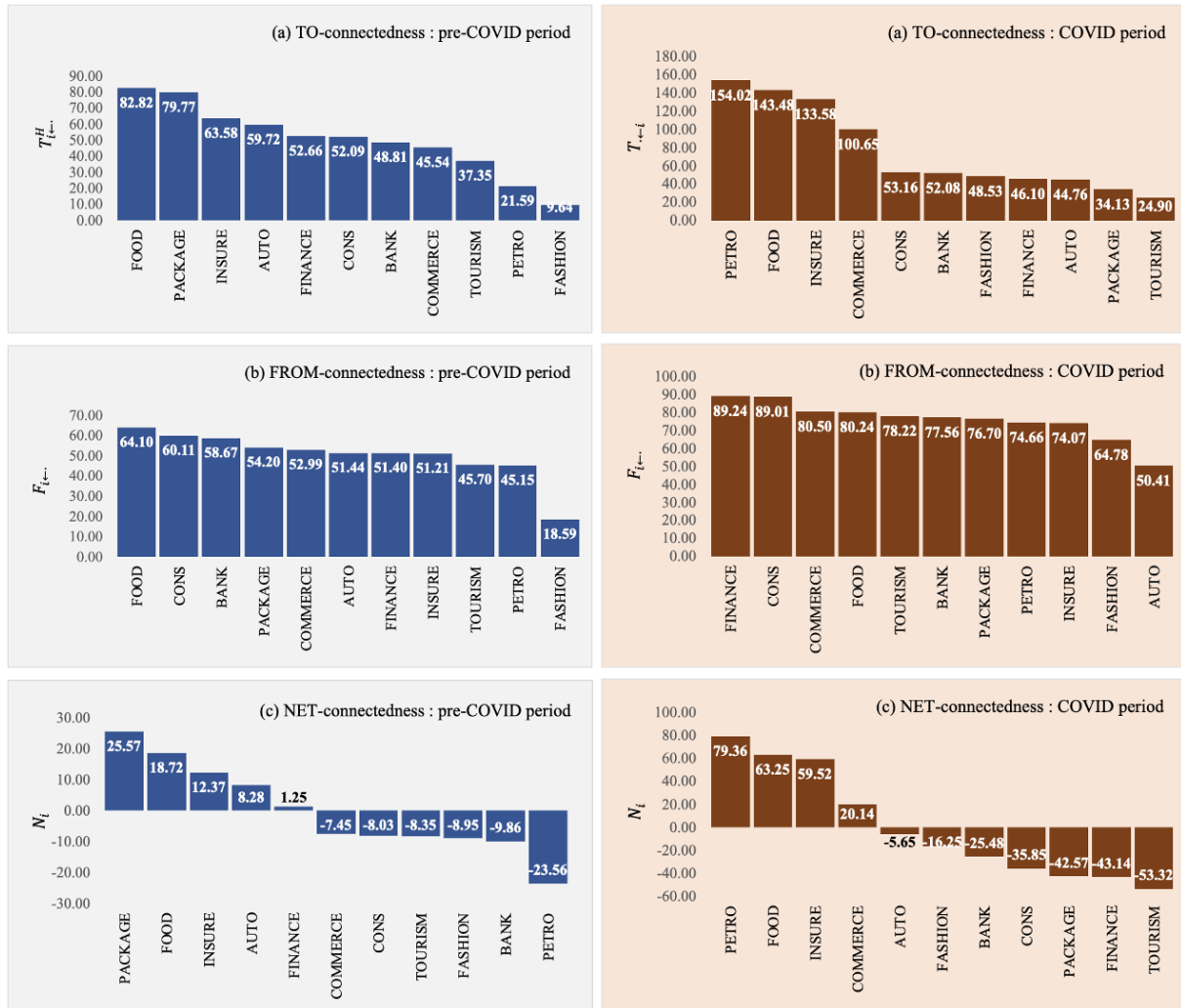
Figure 1: Ranking Plots of (a) TO-connectedness $T_{.\leftarrow i}$ (b) FROM-connectedness $F_{i\leftarrow .}$, and (c) NET-connectedness N_i : A comparison between pre-COVID period and COVID period (Source: author's calculation)

The graphs of the NET-connectedness for every 11 sectors are plotted in figure 1c. The role of certain sectors has shifted. A sector that transmits more (less) shocks to other sectors in the market than receives from them is considered a transmitter (receiver). During the COVID pandemic, the Automobile, Finance and Securities, and Packaging sectors have switched their roles from a transmitter to a receiver. Conversely, the Commerce and Petrochemicals and Chemicals sectors have experienced a shift in their role from being a receiver to being a transmitter. The Tourism and Leisure sector became the largest receiver of the shocks (-53%). It is unclear if the changes in sectoral connectedness during the Covid pandemic are temporary or permanent. It is possible that some parts of the effect can be long-lasting. Investors should be aware of the change in the risk spillover pattern that happened during the COVID situation. The tourism industry has been heavily impacted by the COVID pandemic due to travel restrictions and social-distancing policy. However, this paper found that the other sectors in the market did not receive much volatility shocks from the Tourism and Leisure sector. This finding is in line with Ekinci and Gençyürek (2021)'s research on the Borsa Istanbul stock exchange. Furthermore, the Banking and the Finance and Security sectors are the net receivers of the volatility shocks both before the COVID and during the COVID period. The COVID situation is different from the financial crisis, in which the shocks began and spread from the Banking and Finance and Securities sectors.

It is possible that the COVID shocks, on the other hand, directly impacted the real sectors and then the volatility shocks were transmitted to the financial sector. This result aligns with Laborda and Olmo (2021), who found that the banking and insurance sectors were the source of volatility risk during the 2007-2009 global financial crisis while the energy and technology sectors were the main transmitter of volatility shocks during the COVID situation. Following the COVID incident, this evidence may cause alarm in the future stability of Thailand's financial sector. Volatility shocks transmitted from non-financial sectors to the financial sector in the stock market may signify risk transfer from the real sector to the financial sector. Hence, even after the COVID situation is ended, policymakers may need to monitor the state of the financial industry closely to prevent the economy from a financial crisis.

5. CONCLUSIONS

Volatility spillovers are a reliable indicator of the transfer of risk between industries. The analysis of sectoral connectedness is particularly useful to analyze risk spillover mechanisms across industries during a crisis period. In this paper, we investigated the nature in which sectoral volatility returns of the Thai stock market have been interconnected over time. Using the daily data of 11 sectoral returns, we found that there have been several changes in connectedness during the pre-COVID and COVID periods. Looking through the connectedness index proposed by Diebold and Yilmaz (2014), the spillover effect has intensified during the COVID period. The Petrochemical and Chemical sector was the main transmitter while the Finance and Security sector was the main receiver during the COVID crisis. The COVID crisis could be different from a financial crisis. Laborda and Olmo (2021) studied the US stock market and found that the energy sector was the relevant risk transmitter during the COVID situation while the financial sector was the relevant risk transmitter during the global financial crisis. Our results are consistent with the findings of Laborda and Olmo (2021). The stock market's activity may serve as a leading predictor of what will happen in the real economy. The finding that the financial industry was the primary receiver of the volatility shocks raised concerns about the future stability of the financial system. While this paper provides a good starting point for the study of the interconnectedness of sectoral volatilities, subsequent work could further build upon ours. For example, one might explore the merits of a more sophisticated model that is better at capturing the sectoral volatilities than our proposed GARCH (1,1) model. Also, as the nature of evolving connectedness is clear from the analysis, one could study the connectedness through dynamic measures. However, we leave these issues for further study.

LITERATURE:

1. Ahmad, W., Hernandez, J.A., Saini, S. and Mishra, R.K., 2021. The US equity sectors, implied volatilities, and COVID-19: What does the spillover analysis reveal?. *Resources Policy*, *72*, p.102102.
2. Baek, S., Mohanty, S.K. and Glambosky, M., 2020. COVID-19 and stock market volatility: An industry level analysis. *Finance research letters*, *37*, p.101748.
3. Bui, H.Q., Tran, T., Pham, T.T., Nguyen, H.L.P. and Vo, D.H., 2022. Market volatility and spillover across 24 sectors in Vietnam. *Cogent Economics & Finance*, *10*(1), p.2122188.
4. Choi, S.Y., 2022. Dynamic volatility spillovers between industries in the US stock market: Evidence from the COVID-19 pandemic and Black Monday. *The North American Journal of Economics and Finance*, *59*, p.101614.

5. Costa, A., Matos, P. and da Silva, C., 2022. Sectoral connectedness: New evidence from US stock market during COVID-19 pandemics. *Finance Research Letters*, *45*, p.102124.
6. Diebold, F.X. and Yilmaz, K., 2009. Measuring financial asset return and volatility spillovers, with application to global equity markets. *The Economic Journal*, *119*(534), pp.158-171.
7. Diebold, F.X. and Yilmaz, K., 2012. Better to give than to receive: Predictive directional measurement of volatility spillovers. *International Journal of forecasting*, *28*(1), pp.57-66.
8. Diebold, F.X. and Yılmaz, K., 2014. On the network topology of variance decompositions: Measuring the connectedness of financial firms. *Journal of Econometrics*, *182*(1), pp.119-134.
9. Diebold, F.X. and Yılmaz, K., 2015. *Financial and macroeconomic connectedness: A network approach to measurement and monitoring*. Oxford University Press, USA.
10. Ekinci, R. and Gençyürek, A.G., 2021. Dynamic Connectedness between Sector Indices: Evidence from Borsa Istanbul. *Eskişehir Osmangazi Üniversitesi İktisadi ve İdari Bilimler Dergisi, 16*(2), pp.512-534.
11. Hongsakulvasu, N., Khiewngamdee, C. and Liammukda, A., 2020. Does COVID-19 crisis affects the spillover of oil Market's return and risk on Thailand's sectoral stock return?: Evidence from bivariate DCC GARCH-in-mean model. *International Energy Journal*, *20*(4), pp.647-662.
12. Laborda, R. and Olmo, J., 2021. Volatility spillover between economic sectors in financial crisis prediction: Evidence spanning the great financial crisis and Covid-19 pandemic. *Research in International Business and Finance*, *57*, p.101402.
13. Panyagometh, K., 2020. The effects of pandemic event on the stock exchange of Thailand. *Economies, 8*(4), p.90.
14. Shahzad, S.J.H., Bouri, E., Kristoufek, L. and Saeed, T., 2021. Impact of the COVID-19 outbreak on the US equity sectors: Evidence from quantile return spillovers. *Financial Innovation*, *7*(1), pp.1-23.
15. Shen, Y.Y., Jiang, Z.Q., Ma, J.C., Wang, G.J. and Zhou, W.X., 2021. Sector connectedness in the Chinese stock markets. *Empirical Economics*, pp.1-28.
16. Suwannapak, S. and Chancharat, S., 2022. Stock Market Volatility Response to COVID-19: Evidence from Thailand. *Journal of Risk and Financial Management*, *15*(12), p.592.
17. Zhang, W., Zhuang, X., Wang, J., and Lu, Y., 2020. Connectedness and systemic risk spillovers analysis of Chinese sectors based on tail risk network. *The North American Journal of Economics and Finance*, *54*, p.101248.

THE DEVELOPMENT OF ACCOMMODATION BUSINESS TO PROMOTE TOURISM IN THE NEW NORMAL ERA FOR PHU KRADUENG DISTRICT, LOEI PROVINCE

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ABSTRACT

This study aims to 1) study the potential of the accommodation business in Phu Kradueng district, Loei province, and 2) to propose guidelines for the development of the accommodation business to promote tourism in the New Normal era for Phu Kradueng district, Loei province. The research methodology used mixed-methods research consisting of; quantitative data collected by questionnaires from 400 guests/tourists who stayed in Phu Kradueng district, Loei province, and qualitative data collected through interviews from the government sectors, private sectors, and people in Phu Kradueng district, Loei province. The results of the study found that 1) the current situation of the potential of the accommodation business in Phu Kradueng district, Loei province consists of; a lack of public relations, reservations and online payments, lack of application of computer systems to manage the accommodation business, lack of coordination with nearby attractions, and lack of tour guides and information on current interesting tourist activities. There is local waste and environmental management system, the quality of life is improved and the distribution of income to the local people by promoting and supporting the employment of local people, local enterprises are promoted and supported to use existing resources for sustainability, and arts, traditions, culture and local sports are preserved. 2) Guidelines for the development of accommodation business to promote tourism in the New Normal era for Phu Kradueng district, Loei province consisting of; the project's development of facilities, technology, digital marketing, safety, cleanliness, adoption of local identity, and Activities to connect the local way of life.
Keywords: *Accommodation, Tourism, New Normal*

1. INTRODUCTION

Thailand attaches importance to the development of the competitiveness of the service business to have the potential to enter the creative economy. Guidelines and policies have been established to enhance potential in various fields. It is specified in the strategy to adjust the economic structure for quality and sustainable growth in the national strategic plan to build competitiveness, this is in line with the master plan under the national tourism strategy, issue 5. This is in line with the 13th National Economic and Social Development Plan (2023-2027) through strategies to promote the development of activities, products and services, high value-added tourism, promoting the development and upgrading of tourism that has the potential to accommodate tourists, upgrading of service and tourism management to meet standards accepted by the international market, supporting the development of skills and potential of personnel in the tourism sector. Development of a tourist information system to be a smart tourism system that tourists, entrepreneurs, and government sectors can easily access and take advantage of by focusing on creative tourism, environmentally friendly, including in line with the 3rd National Tourism Development Plan (2023-2027).

The goal of Thai tourism is strong and balanced, that's upgrading tourism connectivity and infrastructure, building trust, and delivering high-value travel experiences and management of sustainable tourism, as well as in line with the Special Area Development Administration for Sustainable Tourism (DASTA) according to the strategy to develop special areas to become a prototype of sustainable tourism to develop and promote a model for sustainable community-based tourism that meets standards, integrates, coordinates and promotes participation of all parties in tourism management and driving towards an organization of excellence in tourism management BCG principles will be applied to preserve Thai identity or identity by developing clusters according to the potential of each area and promoting tourism according to market demand (Office of the National Economic and Social Development Board, 2022). From the assessment of situations affecting the development of Thailand in the 13ᵗʰ National Economic and Social Development Plan (2023-2027), the result found that significant changes at the global level, the world situation is rapidly changing and closely connected, more economic competition will be more intense. The global society will be more closely connected to each other as a condition without borders, technological development will change rapidly and will greatly affect the lives of society and economic activities. It has been prepared on the basis of the 20-years national strategy (2017-2036), which is the main master plan for national development and Sustainable Development Goals (SDGs) including restructuring Thailand towards Thailand 4.0 (Thailand Smart City Office, 2019). Thailand's tourism and accommodation industry. In the past, it was affected by the epidemic of the COVID-19, but now it is found that the tourism and accommodation situation in Thailand has statistics on the number of Thai and foreign guests/tourists in the year 2022 compared to the number of guests/tourists in 2021 (statistical data from January to December 2022), it was found that the number of guests/tourists increased by 151.80 million peoples, or an increase of 207.85 percent, with foreign guests/tourists increasing up to 20.71 million peoples or an increase of 1,794.61 percent and the number of guests in the accommodations increased by 69.83 million peoples or an increase of 206.08 percent, making the total income increased from tourism in the year 2022 compared with the year 2021, it was found that tourism income increased by 8.43 billion baht or up to 349.38 percent from the above statistics. The tourism and accommodation industry has been affected by the situation of the epidemic of the COVID-19 began to recover and return to create a career to generate more income for Thailand (Department of Tourism, 2023), which has a positive effect on the tourism and accommodation industry in Phu Kradueng District, Loei Province. Phu Kradueng National Park is a sandstone mountain with a flat area, on the top of a wide mountain alternating with low hills and the highest peak is Phu Kum Khao, about 1,350 meters above sea level. It is the origin of Lam Nam Phong which feeds Ubonrat Dam and Nong Wai Dam in Khon Kaen Province. Phu Kradueng consists of pine forests interspersed with forests, grasslands, plants, flowers, and leaves growing everywhere around waterfalls, streams, and stone courtyards, which nature has created very beautifully and a plant community on the plateau which is a society of temperate plants, such as pine forests, maple forests, and beautiful flowering plants such as wild rose, orchids, etc. as well as being unique in nature many atmospheres and beautiful scenery. Phu Kradueng National Park covers an area of approximately 348.12 square-kilometers or 217,576.25 Rai (Department of National parks Wildlife and Plant Conservation, 2022). Current situation of Accommodation in Phu Kradueng District, Loei Province, there are 23 accommodations in the area of Phu Kradueng Subdistrict Municipality, There are a variety of interesting tourist attractions and activities in the community. However, some accommodation operators in Phu Kradueng District still lack the readiness and knowledge of accommodation management to make present accommodation in Phu Kradueng District, Loei Province needs to be developed for more accommodation potential (Phu Kradueng Subdistrict Municipality, 2022).

For this reason, the researchers are therefore interested in studying the development of the accommodation business to promote tourism in the new normal era for Phu Kradueng district, Loei province to promote knowledge on raising the standard of tourism in the form of integrating various academic fields. subjects and create new knowledge that can be further extended in research studies to bring about the application of new knowledge for nearby areas as well as being beneficial to academic services arising from cooperation between educational institutions, the government sector, the private sector, and local communities, including enhancing sustainable economic competitiveness able to create jobs, create careers, generate income and to strengthen the society and the creative economy sustainably. The objectives of this study were 1) to study the potential of the accommodation business in Phu Kradueng district, Loei province, and 2) to propose guidelines for the development of the accommodation business to promote tourism in the New Normal era for Phu Kradueng district, Loei province.

2. RESEARCH METHODOLOGY
The research methodology used mixed-methods research consisting of; quantitative data collected by questionnaires from 400 guests/tourists who stayed in Phu Kradueng Subdistrict Municipality, Phu Kradueng district, Loei province, and qualitative data collected through interviews from the government sectors, private sectors, and people in Phu Kradueng district, Loei province. The research instruments were questionnaire and interviews from validity index were based on the Index of Item-Objective Congruence (IOC), which was rated more than 0.67. The evaluation of research instruments was conducted with a reference group for which 40 respondents of sample questionnaires (10 percent of the actual amount) were based on the Cronbach's alpha, which was rated more than 0.81. The quantitative data was analyzed using descriptive statistics and the qualitative data was analyzed using content analysis. It was believed that the results, which were obtained from this research, could provide baseline measures to development of accommodation business to promote tourism in the new normal era for Phu Kradueng district, Loei province, while sustainably generating incomes for the local communities.

3. RESULT OF STUDY
3.1. The current situation of the potential of the accommodation business in Phu Kradueng district, Loei province
The current situation of the potential of the accommodation business in Phu Kradueng district, Loei province consists of the results of this study on demographics and the personal information of respondents in table 1, the results of the analysis of satisfaction with the accommodations are shown in table 2, and the results of SWOT Analysis are shown in table 3, are as follows:

Table following on the next page

Demographics	Frequency	Percentage
Gender		
Male	173	43.25
Female	227	56.75
Age		
Under 20 years old	4	1.00
20 - 30 years old	69	17.25
31 - 40 years old	123	30.75
41 - 50 years old	132	33.00
51 - 60 years old	62	15.50
More than 60 years old	10	2.50
Education level		
Undergraduate	86	21.50
Bachelor's degree	267	66.75
Postgraduate	47	11.75
Occupation		
Students	61	15.25
government official	55	13.75
Private business	129	32.25
Private company employees	88	22.00
Farmer	22	5.50
General Contractors	45	11.25
Monthly income		
Less than 10,000 Baht	27	6.75
10,000 - 20,000 THB	41	10.25
20,001 - 30,000 THB	155	38.75
30,001 - 40,000 THB	118	29.50
40,001 - 50,000 THB	28	7.00
More than 50,000 THB	31	7.75
Domicile		
Central Region	127	31.75
Northeast Region	163	40.75
North Region	51	12.75
South Region	33	8.25
Eastern Region	14	3.50
Western Region	12	3.00
Total	**400**	**100.00**

Table 1: Demographics and the personal information of respondents

From table 1 illustrates the demographics and the personal information of respondents. The majority of the respondents were female (56.75%) and in the 41-50 year-old age range (33%). 66.75% held a Bachelor's degree, 32.25% of the respondents worked in private business, the majority made 20,001 - 30,000 THB permonth (38.75%) and 40.75% of the respondents domicile in Northeast Region. The results of the analysis of satisfaction with the accommodations are shown in Table 2, are as follows:

Satisfaction with the accommodation	S.D.	Average ($\bar{x}$)	Meaning
Product/Service	0.568	3.424	High
Price	0.554	3.367	Moderate
Place	0.565	3.322	Moderate
Promotion	0.560	3.305	Moderate
People	0.559	3.203	Moderate
Process	0.571	3.519	High
Physical Evidence	0.584	3.489	High
Accommodations	0.574	3.509	High
Attractions	0.593	3.444	High
Activities	0.567	3.327	Moderate
Accessability	0.574	3.396	Moderate
Amenities	0.564	3.452	High
Ancillary Services	0.546	3.350	Moderate
Total	**0.568**	**3.408**	**High**

Table 2: The results of the analysis of satisfaction with the accommodations

From table 2, it was found that The results of the analysis of satisfaction with the accommodation were overall at a high level ($\bar{x}$ = 3.408). When considering each item, it was found that the average value of the demand on accommodations was the highest ($\bar{x}$ =3.509) followed by the physical evidence ($\bar{x}$ = 3.489) and the lowest level of the demands was the people ($\bar{x}$ = 3.203). The results of SWOT Analysis for current situation of the potential of accommodation business in Phu Kradueng district, Loei province are shown in table 3; are as follows:

Strengths	Opportunities
- There are many types of accommodation to choose from. - There are local waste and environmental management systems. - The quality of life is improved and the distribution of income to the local people by promoting and supporting the employment of local people. - Local enterprises are promoted and supported to use existing resources for sustainability - Arts, traditions, culture, and local sports are preserved. - The accommodation is close to tourist attractions. - Cheap price. - There are various promotions. - The service process is convenient, easy, and hassle-free. - Good atmosphere.	- The Ministry of Tourism and Sports has the policy to support domestic tourism. - Modern technology can access accommodation information through online platforms, such as receiving help from customer groups, customers will recommend other customers to stay and has been posted on the internet, there are reviews, make the community more well known. - Phu Kradueng Subdistrict Municipality have more policy to support tourism. - Support from the provincial level in terms of supporting tourism and public relations Phu Kradueng District. - The Amazing Thailand Safety and Health Administration (SHA) make tourism a part of Thailand's disease prevention measures and ensure that both Thai and foreign guests/tourists have a positive experience, that they are happy and confident in the sanitation and safety standards of Thailand's tourism products and services. This can be achieved by combining public health safety measures and establishments' high-quality service standards to reduce the risk and prevent the spread of COVID-19, as well as improving Thailand's tourism products and service standards.
Weaknesses	**Threats**
- Lack of public relations. - Lack of reservations and online payments. - Lack of application of computer systems to manage the accommodation business. - Lack of coordination with nearby attractions. - Lack of tour guides and information on current interesting tourist activities.	- Some accommodations or competitors are private entrepreneurs opening in nearby areas such as Phu Pha Man District, and Pha Khao District. - Nearby areas such as Phu Pha Man District and Pha Khao District have beautiful natural attractions causing more entrepreneurs to invest in the accommodation business in various locations. - In the rainy season, the forest is closed causing unable to travel to Phu Kradueng National Park during the rainy season. 4) Long-term economic stagnation as a result, affects the travel decision of tourists were affects the economy and domestic tourism in Phu Kradueng District.

Table 3: The results of SWOT Analysis for current situation of the potential of the accommodation business in Phu Kradueng district, Loei province

The results found that the current situation of the potential of the accommodation business in Phu Kradueng district, Loei province consists of the results of this study on demographics and the personal information of respondents in table 1, the results of the analysis of satisfaction with the accommodations are shown in table 2, and the results of SWOT analysis are shown in table 3 able to synthesize the guidelines for the development of accommodation business to promote tourism in the New Normal era for Phu Kradueng district, Loei province.

3.2. Guidelines for the development of accommodation business to promote tourism in the New Normal era for Phu Kradueng district, Loei province

Take the information obtained from the current situation of the potential of the accommodation business in Phu Kradueng district, Loei province consists of the results of this study on demographics and the personal information of respondents, the results of the analysis of satisfaction with the accommodations, and the results of SWOT analysis able to synthesize the guidelines for the development of accommodation business to promote tourism in the New Normal era for Phu Kradueng district, Loei province consisting of;

Digital marketing development consists of; Accommodation owners to attend basic information technology training, such as using Tiktok, Facebook, Twitter, and Instagram, creating a webpage to promote their accommodation to be widely known. Create a Facebook, Twitter, Instagram, Tiktok, webpage, or an online public relations channel and have someone supervise the page, including posting pictures with interesting information and storytelling via online platforms. Arrange for guests/tourists to check in at their accommodation ready to tell the story of relaxation and awesome travel through online platforms for people to know more about the accommodation as well as allowing guests/tourists to take pictures with accommodations or souvenirs or community products and upload them to social media. Arrange guests/tourists to participate in the game by answering questions via the online platform's accommodation along with liked and sharing to receive souvenirs from the accommodation.

Technology development consists of; Accommodation owners to attend training on the use of technology used in the production and design of souvenirs, which will increase the value of souvenir products as well as enable the production of souvenirs efficiently. Bring local products of the community such as silk and cotton to make scarves, pillows, bags, umbrellas, or products that people can easily use, which must be designed to be unique and memorable for the locals. Create a travel guide QR code for guests/tourists to study and find information, that within the QR code, there was information about the details of the souvenir and the history of the local and including introducing local products to guests/tourists to promote local product sales as well.

Cleanliness development consists of; Accommodation owners are encouraged to attend SHA+ training, including regular maintenance of their accommodations for good hygiene. Accommodation owners must always take care and clean the accommodation so that guests/tourists who come to stay feel that the accommodation looks clean, is pleasant to sleep in, pleasant to stay and takes good care of guests/tourists who stay. Guests/tourists are impressed with the clean and friendly accommodation through accommodation owners' care which make guests/tourists feel happy to come and want to come back to use the service again.

Facilities development consists of; Accommodation owners to attend training on the use of basic information technology and applications for online accommodations reservations including online payment such as Agoda, Expedia, Booking.com, TripAdvisor, and payment via QR code.

Make an application and register access to the online accommodations reservation application including filling in interesting information about the accommodations and taking pictures of the accommodations on the website to attract guests/tourists to stay. Appointing a supervisory information system for the accommodations, as well as teaching the finance department of the accommodations how to use the online payment system or online booking and payment. When customers have finished using the accommodations service, encourage accommodation owners or associates to recommend customers to review online as well, that will make the accommodations look more reliable.

Safety development consists of; Security during emergency events will have officers to protect the property of villagers and guests/tourists from being lost or damaged during periods that require special supervision, such as during the Songkran festival when there are large groups of guests/tourists during the declaration of emergency measures from the authorities, the security supervision was distributed carefully and thoroughly. The security guards will have a group of heads of families of each household including a group of volunteers to participate in the community. There was the rotation of guards and there were timetable systems for supervising safety, including fire prevention. Intruders enter the restricted area against theft, crime, losses, and damages.

Adoption of local identity consists of; Accommodation owners decorate the rooms to be unique to the local community, such as decorating with local fabrics, silk, or cotton to reflect the identity of Phu Kradueng District. When guests/tourists stay, they will be impressed and be remembered as a unique image of Phu Kradueng District. When guests/tourists see the beauty of the accommodation, maybe take a photo on social media to review the room or maybe be impressed until they have to come back to use the service again.

Activities to connect the local way of life consists of; Accommodation owners decorate the accommodation site to tell the story of the people's way of life in Phu Kradueng District to attract guests/tourists to stay. Accommodation's employees can provide more information or tell about the history, culture, and basic activities to allow guests/tourists. Guests/tourists gain more knowledge about the way of life of people in Phu Kradueng District and feel that staying at this accommodation has the warmth and friendliness of the accommodation owners.

4. CONCLUSION AND DISCUSSION
The current situation of the potential of the accommodation business in Phu Kradueng district, Loei province consists of; a lack of public relations and reservations and online payments consistent with the research of Gao & Bi (2021) and Sun, Law & Schuckert (2020) lack of application of computer systems to manage the accommodation business consistent with the research of Cheng, Zhang, Yang, & Fu (2022) lack of coordination with nearby attractions, and lack of tour guides and information on current interesting guests/tourists activities. There are local waste and environmental management system, the quality of life is improved and the distribution of income to the local people by promoting and supporting the employment of local people, local enterprises are promoted and supported to use existing resources for sustainability, and arts, traditions, culture and local sports are preserved. Guidelines for the development of accommodation business to promote tourism in the New Normal era for Phu Kradueng district, Loei province consisting of; the project's development of facilities, technology, digital marketing consistent with the research of Cheng, Zhang, Yang, Bo & Fu (2022) safety, cleanliness consistent with the research of Amblee (2015) adoption of local identity, and Activities to connect the local way of life.

LITERATURE:

1. Amblee, N. (2015). The impact of cleanliness on customer perceptions of security in hostels: A WOM-based approach. *International Journal of Hospitality Management, 49*(August 2015), 37-39, doi: 10.1016/j.ijhm.2015.04.011

2. Cheng, X., Zhang, X., Yang, Bo., & Fu, Y. (2022). An investigation on trust in AI-enabled collaboration: Application of AI-Driven chatbot in accommodation-based sharing economy. *Electronic Commerce Research and Applications, 54*(July–August 2022), 1-12, doi: 10.1016/j.elerap.2022.101164

3. Department of national parks wildlife and plant conservation. (2022). *Phu Kradueng*. Bangkok: Department of national parks wildlife and plant conservation.

4. Department of Tourism. (2022). *3rd National Tourism Development Plan (2023-2027)*. Bangkok: Department of Tourism.

5. Department of Tourism. (2023). *Domestic Tourism Statistics (Classify by region and province 2022)*. Retrieved 26 January 2023 from https://www.mots.go.th/news/category/657

6. Gao, G.X., & Bi, J.W. (2021). Hotel booking through online travel agency: Optimal Stackelberg strategies under customer-centric payment service. *Annals of Tourism Research, 86*(2021), 1-16, DOI: 10.1016/j.annals.2020.103074

7. Office of the National Economic and Social Development Board. (2022). *13th National Economic and Social Development Plan (2023-2027)*. Bangkok: Office of the National Economic and Social Development Board.

8. Phu Kradueng Subdistrict Municipality. (2022). *Local development plan 2023 – 2027*. Loei: Phu Kradueng Subdistrict Municipality.

9. Qian, J., Lin, P.M.C., Law, R., & Li, X. (2022). Lack of IT and digital marketing professionals in hospitality: is it education's fault?. *Heliyon, 8*(12), 1-8, doi: 10.1016/j.heliyon.2022.e12002

10. Sun, S., Law, R., & Schuckert, M. (2020). Mediating effects of attitude, subjective norms and perceived behavioural control for mobile payment-based hotel reservations. *International Journal of Hospitality Management, 84*(January 2020), 1-8, DOI: 10.1016/j.ijhm.2019.102331

11. Thailand Smart City Office. (2019). *Policy and Promotion Strategy*. Bangkok: Thailand Smart City Office.

PERCEPTION OF SERVICE QUALITY AND PERCEPTION MARKETING MIX AFFECTING IN TRUST FOR RENT THE APARTMENT

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ABSTRACT

The purpose of this research was to study 1) the tenants' perception of service quality of the apartment, 2) the tenants' perception of marketing mix perception of the apartment in Chonburi, 3) the tenants' trust in the apartment rental service and 4) the influence of the tenants' perception of service quality of apartment and marketing mix of the apartment on the trust in renting an apartment. The study was conducted using questionnaire distributed to 400 apartment tenants in Chonburi Province. The study results revealed that the service quality was important for the perception of service users. It was found that apartment tenants in Chonburi Province perceived the overall service quality the most. The marketing mix was also important and the tenants perceived the marketing mix at the highest level. This resulted in the tenants' trust in the apartment's personnel and system. It was concluded that the perception of the service quality and marketing mix had a positive effect on the tenants trust in renting the apartment in Chonburi. When various aspects were considered, it was found that apartment tenants in Chonburi Province focused on service quality in terms of convenience, reliability, understanding needs, tangible external characteristics and the marketing mix in term of product, price, apartment staff, and environment.
Keywords: Service Quality, Marketing Mix, Trust for rent the apartment

1. INTRODUCTION

From past to present Housing is considered to be one of the four factors that are essential to people's lives. Due to the economic and social conditions of living, people tend to move their residences for various reasons, such as to go out to find work for those who are domiciled in other provinces. Or to go to study in other provinces, etc., with the purpose of being comfortable and saving travel time, including daily expenses. which may differ according to the nature of social, economic and transportation conditions. But nowadays Most of the people change their jobs frequently due to economic conditions. It makes it inconvenient for people to build accommodation for their own living or to buy a house as a source. because of lack of confidence in the job And various restrictions in order to meet the needs of people to live in the rapidly expanding area. As a result, people turn to change their lives in line with the current social and economic conditions. Therefore, choosing to rent a residence is one of the options for people. that most choose to use the service by the residence It must be stable, secure, and be able to provide convenience and benefit as much as possible. Because of the types of residential buildings, mixed-use rooms, apartments, mansions, condominiums, and various rental houses are options that can respond to the needs of people with income levels appropriately. Including the location of the residence can be convenient and reduce travel costs. Renting alternatives to buying or building Therefore, it is the best and most appropriate choice for residents in today's society (Kritrat Khamfei and Nattaya Muangraman, 2015). Real estate business, it is a business that is gaining interest from investors.

Especially the dormitory and apartment business that has happened a lot from the past to the present and is still one of the four factors that are essential to life. If there is good management Impressive service makes customers satisfied, it can be successful and because of the current economic and social conditions. People are constantly moving their homes for various reasons, such as for further education of those who are domiciled in other provinces. Or for convenience and save time and expenses on traveling to work or school, etc. These factors are the reason why the rental housing business occurs a lot. especially in the provincial area that is the center of the workplace various industrial zones and educational institutions such as Bangkok and its vicinity to major provinces (Thai Real Estate Association, 2017). Chonburi Province has grown and developed a lot. There is prosperity in terms of economy, culture and society. And at present, it is also a special economic zone (EEC), as well as a deep sea port at Laem Chabang. which is the center of the country's main transportation As a result, the working population flows in every year to come to work because Chonburi has many industrial estates. when more people came in The necessity is a place to stay as a place to stay for going to work. And to create comfort, so many accommodations in Chonburi happen. It caused a lot of competition. As a result, customers have options and opportunities to choose a place to live. And there is always a change of accommodation when new options or new projects arise. Chonburi Province has grown and developed a lot. There is prosperity in terms of economy, culture and society. And at present, it is also a special economic zone (EEC), as well as a deep sea port at Laem Chabang. which is the center of the country's main transportation As a result, the working population flows in every year to come to work because Chonburi has many industrial estates. when more people came in The necessity is a place to stay as a place to stay for going to work. And to create comfort, so many accommodations in Chonburi happen. It caused a lot of competition. As a result, customers have options and opportunities to choose a place to live. And there is always a change of accommodation when new options or new projects arise. from current problems The apartment business is highly competitive. Each apartment needs to be renovated for the better. And the apartment business wants to show in terms of perception of service quality and perception of the marketing mix that creates trust in receiving apartment rental services. In order to allow old customers to rent for a long time and new customers to come to stay, therefore studying the perception of service quality, perception of marketing experience that affects trust in receiving apartment rental services. which can bring the results of this study as a guideline for planning management in various fields to be effective and consistent with the situation The results obtained will be used to renovate the rooms to meet the suitability and needs of the customers. rented And from this research will benefit those who want to invest or interested in the apartment business as well as business owners in the future.

2. CONCEPTS AND THEORIES
2.1. perception theory
Naphawan Kananurak (2013, page 90) said that perception It is the process by which consumers select, organize and translate stimuli into meaningful and relevant images of the world (Schiffman, Kanuk, & Lazer, 2007, p. 148 cited in Naphawan. Kanurak, 2013, page 90). In other words, perception can How do we see the world around us? Two consumers may see the same stimulus under the same circumstances and events. But in each consumer will realize organizing, selecting, and translating stimuli through the process of self-awareness within their own needs, values, society and expectations which details the following feelings in response to stimuli.

2.2. Perceived quality of service concept
Wutti Sukcharoen (2016, page 153) said that consumers often judge the quality of a product or service based on clues. From information that is related to that service and product This trace

may be a trace from within. It could be a single trace or it could be a combination. Make consumers perceive the quality of the service and of the product. The results of a study by Parasuraman et al. (1985 cited in Chuchai Smithikrai, 2013) show that consumer expectations are related to service and are influenced by four main sources:

1) Individual needs are the individual needs of consumers that are different from each other. And will depend on the personal characteristics and circumstances of each consumer. Whereas consumers may have different expectations of the same type of service according to their individual needs.

2) Word of mouth is the way consumers receive information from others who may have received the service before. It may be a recommendation to use the service. or remarks about that service

3) Former experience is the direct experience of the consumer that has happened with the service which also influences the expectations of the consumer. Because those experiences that have happened can cause learning and remembering. and create expectations for further service

4) Public relations advertising is public relations advertising from service providers in various forms to create image and reputation. in order to promote sales and services All of them play an important role in shaping consumer expectations in terms of service to be received.

2.3. Marketing Mix Concepts (7P)

Rudee Limpairote (2012, page 39) said that the marketing mix Basically It consists of 4 aspects: product, price, distribution channel. and marketing promotion (Kotler, 1997 cited in Rudee Limpairote, 2012), but the marketing mix in the service business market There will be different from the marketing mix of general products, that is, there must be a focus on employees, personnel, service processes. and physical environment which added components these three parts Considered the main and important factor in service delivery, therefore, the components of the service consist of 7 P's, namely product, price, distribution channel. marketing promotion, staff, service process and physical environment

2.4. Concept of trust in service

Trust is an important concept that has attracted the attention of a wide range of business professionals and scholars, and has been noted by other scholars (Bartlett, Ghoshal, and Birkinshaw (1995). Trust differs in the academic paradigms of researchers in different disciplines, with Lewicki and Bunker (1995) and Lewis and Weigert (1985) stating that trust is someone who is willing to Taking risks with another person agrees with Mayer, Davis and Schoorman (1995) stating that trust is the willingness of a person to be willing to take risks with another person. It depends on the belief that the other person has the ability to reveal. And reliable, and in addition, McKnight and Chervany (1996) also conducted a study on the definition and definition of the word trust, found that the structure of trust can be divided into 6 structures:

1) Trusting intention is the willingness of one party to depend on the other. one in any situation or event that occurs with a sense of security Despite the negative results subsequent It was found that this intent of trust has 5 components: 1.1 Possible negative effects 1.2 Dependence 1.3 Sense of security 1.4 Situational context and 1.5 Lack of control confidence.

2) Structure of trusting behavior (Trusting behavior) is the behavior of one party Trust to delegate duties and powers to another party to act on their own behalf, even if it creates a risky situation.

3) Trusting beliefs You feel confident (and feel confident in that belief) that the other person is credible in the situation. in which credibility Trustworthy means that a person is willing

and able to do things for the benefit of others. which will consist of benevolence Integrity, Integrity, Competence and Predictability

4) Trust in the system (System trust) The belief that an organization or agency will make the participants successful. by the structure of the organization or unit
5) Trust to the person (Dispositional trust) a person's confidence and trust in other people. without being indifferent to events or situations that occur and tend to have trust in
6) wider and in different situations
7) Situational decision to trust Trusting a situation or incident and when something like this happens again The person will gain trust and trust in that situation.

3. POPULATION AND STUDY RESULTS

Population is the people who come to use the apartment rental service in Chonburi province. The exact number of the population is unknown. The sample group were those who used apartment rental services at a price level of 4,500 baht per month or more. in Chonburi province Due to the large population and the exact number of the population is unknown. Therefore, the sample size can be calculated from the unknown sample size formula of W.G. Cochran, which determines a confidence level of 95 percent and a level of error of 5 percent (Kalaya Wanichbuncha, 2015). This study is

$$n = (P(1-P)Z^2)/d^2$$
$$= \llbracket 0.50(1-0.50)1.96 \rrbracket ^2/ \llbracket (0.05) \rrbracket ^2$$
$$\approx 385 \text{ people.}$$

According to the results of the research study on the perception of service quality Perceived Marketing Mix Affecting Apartment Rental Trust The research results can be summarized as follows.

3.1. Demographic information of respondents

From the research results, it was found that apartment tenants in Chonburi province mostly female Representing 51.5 percent and males representing 48.5 percent, younger than or equal to 30 years, most of them, representing 40.5 percent, have a bachelor's degree. Representing 82.3 percent, most of them were single, representing 69.0 percent, working as employees of private companies. Representing 50.3 percent with the average income, most 30,001-40,000 accounted for 23.8 percent

3.2. Perception of service quality

Perceived quality of service found that the perceived quality of service in terms of courtesy and friendliness was at the highest level. with an average of 4.60, followed by the perception of the quality of safety services with an average of 4.59, followed by the perception of service quality in terms of understanding needs with an average of 4.57, followed by the perception of the quality of services in response to quick response with an average of 4.56, followed by the perception of service quality in terms of competency with an average of 4.56, followed by the perception of service quality in consistency with an average of 4.55, followed by the perception of service quality in terms of concrete appearance with an average of 4.51, followed by the perception of service quality in convenience with an average of 4.51, followed by perception of quality of communication services with an average of 4.51 and the lowest was the perceived quality of service reliability. with an average of 4.48

3.3. Marketing Mix Perception

The perception of the marketing mix found that there was a perception of the environmental marketing mix. at the highest level with an average of 4.57, followed by perception of marketing mix distribution with an average of 4.54, followed by perception of marketing mix in service process with an average of 4.53, followed by perception of employee marketing mix with an average of 4.49, followed by perceived price marketing mix with an average of 4.40, followed by the perception of the marketing mix of room products with an average of 4.39 and the lowest is the perception of marketing mix in marketing promotion with an average of 4.10.

3.4. Trust

It was found that apartment tenants trust in the system. (In the overall system of the apartment) is at the highest level. with an average of 4.54 and followed by interpersonal trust (personnel of the apartment) with an average of 4.50.

3.5. Hypothesis Test Results

Correlation analysis found that all variables were related. The correlation was not more than 0.7, with the highest variable being 0.653, which was in the marketing mix variable. service process And the least is the service quality variable. Consistency

	QU1	QU2	QU3	QU4	QU5	QU6	QU7	QU8	QU9	QU10	P1	P2	P3	P4	P5	P6	P7	TR1	TR2
QU1	1																		
QU2	0.655	1																	
QU3	0.491	0.431	1																
QU4	0.545	0.581	0.498	1															
QU5	0.502	0.620	0.478	0.636	1														
QU6	0.343	0.355	0.457	0.469	0.417	1													
QU7	0.442	0.494	0.404	0.546	0.536	0.456	1												
QU8	0.475	0.530	0.362	0.516	0.587	0.473	0.644	1											
QU9	0.392	0.479	0.393	0.480	0.480	0.494	0.618	0.595	1										
QU10	0.338	0.408	0.352	0.495	0.480	0.415	0.554	0.521	0.461	1									
P1	0.360	0.399	0.312	0.423	0.404	0.355	0.477	0.487	0.454	0.447	1								
P2	0.315	0.422	0.297	0.490	0.433	0.384	0.347	0.428	0.465	0.466	0.507	1							
P3	0.412	0.499	0.345	0.532	0.479	0.374	0.556	0.515	0.552	0.545	0.517	0.618	1						
P4	0.175	0.257	0.267	0.367	0.233	0.353	0.328	0.274	0.321	0.353	0.344	0.370	0.335	1					
P5	0.396	0.436	0.359	0.521	0.443	0.389	0.487	0.480	0.540	0.509	0.476	0.528	0.586	0.396	1				
P6	0.438	0.487	0.370	0.495	0.513	0.446	0.525	0.660	0.498	0.571	0.483	0.440	0.556	0.350	0.616	1			
P7	0.443	0.451	0.292	0.508	0.474	0.421	0.584	0.540	0.544	0.513	0.488	0.467	0.598	0.333	0.627	0.653	1		
TR1	0.420	0.403	0.345	0.482	0.467	0.370	0.522	0.456	0.494	0.433	0.435	0.392	0.438	0.312	0.481	0.428	0.538	1	
TR2	0.315	0.347	0.334	0.505	0.426	0.416	0.517	0.445	0.514	0.422	0.405	0.469	0.455	0.325	0.482	0.450	0.521	0.618	1

Table 1: Correlation Aanlysis

from the equation

$$TR1 = \beta0 + \beta1 QU + \beta2 P + e \qquad (1)$$
$$TR2 = \beta0 + \beta1 QU + \beta2 P + e \qquad (2)$$
$$TR3 = \beta0 + \beta1 QU + \beta2 P + e \qquad (3)$$

where
TR1 stands for Interpersonal Trust. (personnel of the apartment)
TR2 stands for trust in the system. (in the overall system of the apartment)
TR3 stands for trust
QU stands for Service Quality.
P stands for marketing mix

	Dependent Variable		
	TR1 (*Equation 1*)	**TR2 (*Equation 2*)**	**TR3 (*Equation 3*)**
constant	0.566	0.704	0.635*
	0.024	0.005	0.002
QU	0.526*	0.397*	0.461*
	0.000	0.000	0.000
P	0.350*	0.459*	0.405*
	0.000	0.000	0.000
R^2	0.622	0.618	0.689
P-value	0.000*	0.000*	0.000*
R^2ADJ	0.384	0.379	0.471

* P-value < 0.05

Table 2: Test the relationship between trust and service quality and marketing mix.

- The test results were in line with the hypothesis that service quality had a positive influence on apartment rental trust. It is true with coefficient = 0.461 and P-value = 0.000.
- The test results were in line with the hypothesis that the marketing mix had a positive influence on apartment rental trust. with coefficient = 0.405 and P-value = 0.000

4. DISCUSSION
Research on "Perception of service quality Awareness of the marketing mix That affects the trust in renting an apartment" This time, the researcher has discussed the results according to the results of the research objectives as follows.

- Objective 1: To study the perceived service quality of apartment tenants in Chonburi province. The perceived quality of service of apartment tenants in Chonburi Province found that apartment tenants in Chonburi Province perceived the quality of service of apartments in terms of courtesy. friendly quality of safety services The quality of service in terms of understanding needs Recognition of the quality of quick response services service quality in terms of competency Consistency of service quality service quality in terms of concrete appearance Convenience service quality quality of communication services Trust service quality Overall, it was at the highest level. The result is like this Because the quality of service is important. In which the quality of service in all 10 areas, the service provider must also give importance to each other at the same time therefore able to create a good perception from tenants in line with the research of Kanlaya Soisingh (2016) who said that the level of service quality expectations of service users staying at hotels in Pattaya City, Chonburi Province Overall, it was at a high level, and in addition, the perceived level of overall service quality was at the highest level. because it can call customers to come to stay and use the service and the quality of the service is also a good trust for those who come to use the service
- Objective 2: To study the perceived marketing mix of apartment tenants in Chonburi province. Perceiving the marketing mix of apartment tenants in Chonburi province found

that apartment tenants in Chonburi province The apartment's marketing mix is perceived. environmental Distribution Channel Marketing Mix Service process marketing mix Employee marketing mix price marketing mix Room product marketing mix Promotional marketing mix Considering all aspects of the marketing mix Overall, the result will be at the highest level. The result is like this. Because in the service, the marketing mix is considered the heart of the business operation, especially the service by applying the 7P theory, which emphasizes service as well, in line with the research of Nattapakan Pinthong (2015) which said that the marketing mix used in deciding to choose accommodation in Lumpini condos in Bangkok as a whole was at a high level. And it is in line with the idea of Rudee Limpairot (2012) that the components of the service consist of 7 P's, namely, product, price, distribution channel. marketing promotion, staff, service process and the physical environment. If all marketing mixes are managed well, efficiency and effectiveness will be beneficial to the business.

- Objective 3: To study the trust in receiving apartment rental services of apartment tenants in Chonburi province. Trust in receiving apartment rental services of apartment tenants in Chonburi province found that apartment tenants have trust in both aspects. trust in the system (In the overall system of the apartment) is at the highest level. and interpersonal trust (Person of the apartment), which is also at the highest level, corresponding to the theory of Luhman (1979), which states that trust influences individuals or organizations. It also indicates the degree to which a person has confidence in another person or organization. Which trust will affect the word of mouth to use the service of other customers in the future and is consistent with the theory of Dick and Basu (1994) that building trust is an important factor in doing business. It is very important.

- Objective 4: To study the influence of tenants' perceived service quality. Apartment and apartment renters' perceptions of marketing mix affecting trust.
  To receive apartment rental services
  1) The result of the 1st hypothesis that "The service quality of the apartment has a positive influence on the trust in renting the apartment" is true because the quality of service is provided. It is an aid in building trust among apartment tenants and is also an aid in making decisions about using apartment rental services. The quality of service is an important element that helps to create awareness and when awareness occurs, it leads to trust and leads old customers to stay and create. Telling new customers to come in because the apartment has good service quality results in a positive influence. This is consistent with the research of Kulissara Plengsrikerd and Phairot Kerdsamut (2017) who stated that the service quality Overall, the quality of service provided is at a good level when considering. Quality of service in 5 aspects, namely the aspect of giving confidence to the service recipients; The concreteness of the service, the response to the needs of the service recipients Paying attention to service recipients In terms of credibility, it was found that all aspects of service quality were at a good level.
  2) As a result of Hypothesis 2, it can be concluded that "Apartment marketing mix has a positive influence on trust in using apartment rental services" is true. that marketing mix There is a huge need in the service business. If the business has a well-managed marketing mix, it will

LITERATURE:

1. Kritrat Khamfei and Nattaya Muangraman. (2015). *Apartment rental management system.Bachelor of Business Administration Project, Business Computer Project*,Faculty of Information Technology, Siam University.
2. Kanlaya Wanichbuncha. (2015). *Using SPSS for Windows to analyze data*. Bangkok:Sam Lada Printing House.

3. Kalaya Soisingh. (2016). *Expectations and Perceptions of Satisfaction in Service Quality of Hotel users in Pattaya City Chonburi Province* Dusit Thani College Journal, 10(1), 216.
4. Kulisara Plengsrikerd and Phairot Kerdsamut. (2017). *Quality of Service of Condominium Juristic Persons. Lasalle Park, Building A, Sukhumvit 105. Southeast Bangkok* Journal, 3(2), 30.
5. Chuchai Smithikrai. (2013). *Consumer Behavior*. Bangkok: V.Print.
6. Nattapakan Pinthong. (2015). *Factors affecting consumer's decision to choose accommodation in Lumpini condo. in Bangkok* Master of Business Administration Thesis, Program in Business Administration,Faculty of Business Administration, Bangkok University. residential area industrial estate Encourage the economy to revitalize a new round. (2016). Available from https://www.posttoday.com/property/news/404597.
7. Naphawan Kananurak. (2013). *Consumer Behavior. Bangkok*: CVL Printing.
8. Nitipon Phutachot. (2013). *Organizational behavior*. Organizational behavior. Bangkok: V.Print.
9. Niramon Pipatsawat (2014). *An Analysis of Satisfaction Components of Apartment Residents In terms of service marketing mix, a case study of apartments in Bang Khun Thian District.* Master of Business Administration Thesis, Management Program, Graduate School,University of the Thai Chamber of Commerce
10. Fonthip Wongsuphachatkul (2015). *Factors affecting the decision to rent a room for living in the area Bangkok and its vicinity*. Master of Business Administration Independent Study, Department of Business Administration, Faculty of Commerce and Accountancy, Thammasat University.
11. Panlop Krityanawat and Ruengjai Kyananasutra. (2012). *Guidelines for investment and business management. Apartments for low and middle income people.* Government Housing Bank Journal, 69

FACTORS AFFECTING TO TRUST AND INTENTION TO CONTINUE USING MOBILE BANKING: A CASE OF A-MOBILE APPLICATION

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ABSTRACT

This research is to examine the relationship between variables impacting trust and intention to continue using mobile banking. The sample group of customers from the Bank for Agriculture and Agricultural Cooperatives located in the Northeastern part of Thailand is used as the basis for this case study on A-Mobile banking application. With the help of questionnaires as a research tool and descriptive statistics like frequency, standard deviation, and structural equation model (SEM) analysis, a sample group of 400 people had utilized the A-Mobile application. The findings demonstrated that perceived usage factor (PU), with a positive correlation of 43%, was the factor that most affected trust (TR). Social influence factor (SI), which had a positive correlation and came in second at 14%, was then considered. The next component that had a positive correlation was 13% of the risk perception factors (PR). And a factor that negatively correlated with the results was privacy and security concerns. Continual mobile banking intentions (IC) were positively correlated with the trust factor (TR), which had the biggest influence (54%).
Keywords: Intention to continue using, Trust, Perceived Usefulness, Social Influence, Privacy and Security Concern

1. INTRODUCTION

Mobile banking is an innovation in the financial services sector that adds an element of service flexibility to enable customers to perform banking services, including money transfers, transactions, and monitoring of one's account anytime, anywhere through mobile technology such as smartphones and tablets. Although nowadays it has already stepped into the digital age, basic financial transactions are still stuck with the habit of using services at banks. Many customers still use financial transactions service over the counter of banks, and some customer groups that used to use mobile banking but stopped using it. Therefore, banks need to understand what factors may contribute to customers' intention to continue using mobile banking. The intention to continue using will only occur if the intention to use has already occurred. When an intention to use is made, it will lead to an intention to continue using. The intention to use mobile banking, an innovation of an information system, is comparable to an intention to use the information system (IS Users Continuance). It is similar to consumer repurchase because both intentions are influenced by the initial use of an information system or product, experience, and leading to revert to the initial decision in the first place. (Bhattacherjee, 2001). Reliability in information systems also influences the intention to use information systems. The repurchase of information systems enables banks that provide mobile banking applications to survive. In other words, the bank needs to rely on the number of new and existing members to generate profits.

Although acquiring new customers plays an important role in keeping a bank moving forward, it costs more investment than maintaining existing customers. The costs of acquiring new customers, setting up new customer account systems, and adding new customers to the information system are acquired (Parthasarathy and Bhattacherjee, 1998). Therefore, studying the factors affecting trust and intention to continue using based on the existing customer base is something that banks should pay attention to. According to Asnakew's (2020) research, the customer's intention to continue using mobile banking was studied. This research applied the Technology Acceptance Model (TAM) and Trust Theory. The study found that attitude and trust had a positive relationship with the intention to continue using mobile banking. In addition, the study by Hassan & Wood (2020) examined the country's culture that influences consumer perceptions of mobile banking. This research applied the Technology Acceptance Model (TAM) theory, perceived usefulness, perceived risk, and social influence, which affected the intention to use mobile banking. Yoon's (2002) research stated that security was a critical component of trust and must be perceived from the first use of the technology (Kim et al., 2010). Therefore, to increase trust in mobile banking use, the protection and security of personal information were important. As such, users' trust in mobile banking is expected to decrease as privacy and security concerns increase. The above studies show that perceived usefulness, perceived risk, social influence, and privacy and security concern affect trust, and trust affects the intention to continue using mobile banking. Banks that provide mobile banking services should study these factors. Bank for Agriculture and Agricultural Cooperatives (BAAC) was established under the Bank for Agriculture and Agricultural Cooperatives Act with the objective of providing financial assistance to farmers, farmer groups, and agricultural cooperatives for their occupation in agriculture or related agricultural occupations in order to increase income or improve the quality of life of farmers or farmers' families. BAAC has developed a channel for providing financial services by launching the application service BAAC, A-Mobile, in July 2017. At present, it is found that the number of customers interested in registering for BAAC A-Mobile application services is increasing every year. According to the data of customers who registered for the BAAC A-Mobile application in the fiscal year 2020, the number of customers was 2,331,261 cases (Digital Product Performance Report on 31 March 2021), which increased from the fiscal year 2019 by 899,897 cases or 62.86 percent. However, in the total number of registered customers, it was found that there were 1,932,029 active transactions or continuous use (Active status). The different amount of 399,232 cases represents the number of consistently inactive customers, 17.13 percent of all registered customers of the A-Mobile application. Compared to the proportion of new registered customers, it was a high proportion of 44.36 percent of the number of increased registered customers in the fiscal year 2019. It showed that although there is an increase in the number of registered customers for the mobile application, likewise, at the same time, there is an inactive number of registered customers who highly discontinue using the application. In the current situation, the BAAC has tried to push bank customers, primarily farmers, to use more mobile banking technology to reduce the number of customers who come to use services at the branch counters. In order to make customers who use the mobile application continue to use it in the future should be a priority. The majority of the previous marketing research has focused on the intention to purchase or use and the intention to repurchase. However, in the application, when the intention to purchase or install the application on the mobile phone occurs, the application will always be installed on the mobile phone and want to create continuous use of the user in order to generate various transactions. Application development involves high investment and ongoing maintenance and development costs. If the user is inactive or discontinues using the application, it will not bring benefits and revenue from the application. For this reason, the study of intention to use evolved into the intention to continue using the study.

Therefore, the researcher acknowledges the importance of the factors affecting trust and intention to continue using mobile banking, resulting in the intention to study and find the relationship between factors affecting trust and intention to continue using mobile banking to confirm the theoretical relationship of the said factors. It will be helpful in the field of databases and further research on the intention to continue using and increase the ability to expand the customer base and maintain the existing customer base to use the A-Mobile application, which can meet customers' needs more efficiently. It is hoped that the study will bring useful information to the Bank for Agriculture and Agricultural Cooperatives that provide online or mobile banking services for implementing and developing better services. For example, using such research results as guideline plans and sets strategies for further operations.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT
2.1. Unified theory of acceptance and use of technology: UTAUT
Venkatesh, Davis and Morris (2003) researched and developed this theory which is relevant and is applied to study the intention and/or behaviour of acceptance of the use of information technology by individuals or organizations. It provides a guide to the analysis of human behaviour. It is used as an alternative theory to study and explain intentions and predict human behavior in accepting information technology more efficiently. It is based on the apparent relationship of factors from eight theories, such as 1. theory of reasoned action (TRA), 2. theory of planned behaviour (TPB), 3. a technology acceptance model (TAM), 4. model of PC utilization (MPCU), 5. diffusion of innovation theory (DOI), 6. motivational model (MM), 7. social cognitive theory (SCT), and 8. the combination between the tam model and the TPB model (combined -TAM-TPB). It has also been used to study individuals' acceptance of technology in the business sector, including performance expectancy, effort expectancy, social influence, and facility conditions. Moreover, some variables affect the above factors, namely gender, age, experience, and voluntariness of using technology. In measuring the expectations of performance and social influence, four key variables affect technology acceptance and use behaviour: gender, age, experience, and voluntariness of using technology. Effort expectancy is measured by three other important variables for acceptance behaviour: gender, age, and experience. In addition, there are facility conditions with two important variables on acceptance behaviour: age and experience, for finding a relationship with technology acceptance. Therefore, the UTAUT model can be used to predict technology acceptance effectively by having a parameter/variable as an extension of the model to increase the accuracy of the prediction.

2.2. Perceived usefulness
Perceived usefulness refers to the degree to which an individual believes using a particular system will increase work efficiency. It is defined as the degree to which an individual believes that the use of the system will increase productivity when the individual perceives the benefits of the product or service or may be further affected in terms of their attitudes and intention to purchase from the perceived usefulness (Davis, 1989). Perceived usefulness is the degree to which the person believes using a particular system will enhance his performance or work (Hassan & Wood, 2020). Perceived usefulness has a positive effect on the intention to use the system. People tend to use or not use the application, which is the belief that if it is used, it will help work better or not. Thus, perceived usefulness can positively impact mobile banking use (Ho, Wu, Lee & Pham, 2020). According to a study by Malaquias & Silva (2020), perceived ease of use, perceived usefulness, and trust were associated with the use of mobile banking by farmers in rural Brazil. It is in line with the research of Ho et al. (2020), which found that perceived usefulness and perceived risk affected the intention to use mobile banking of customers in Taiwan and Vietnam.

Therefore, it is hypothesized:
H1: Perceived usefulness correlates with trust

2.3. Perceived Risk

Perceived risk predicts the loss that may be incurred from obtaining a desired benefit. It is one of the attitudes and beliefs that affect the intention to purchase products or services (Yiu, Grant & Edgar, 2007). The perceived risks of a consumer's or customer's use of online financial services depend on the security of their information and the confidentiality of their personal information. If it can be maintained confidentially, it will result in a low level of risk perception for customers (Zhou, 2014). Trust plays a key role in the internet purchasing process, and perceived risk has a negative impact (Hung et al., 2012; Yangetal., 2008). Individuals with a higher level of trust are more willing to disclose personal information for online transactions than their belief in trust (egDeng et al., 2010; Gefen et al., 2003; Groß, 2016; Kim. et al., 2008; Lu et al., 2011; Sladeet al., 2015; Wu et al., 2012). On the other hand, a lack of trust in technology often results in consumers refusing to share information because they fear that their personal and private information might be exposed (Dinev and Hart, 2006). Consequently, maintaining a degree of control over consumer disclosure can reduce the perceived risk, and it is hypothesized that:
H2: Perceived risk correlates with trust

2.4. Social Influence

Social influence refers to the degree to which self-influenced individuals are encouraged to accept the use of the new system (Venkatesh et al., 2003). It is done by one or more people in order to change the behaviour, thoughts, or feelings of others. It is an incentive to use new technologies. In the context of mobile banking, social influence refers to the influence of the surrounding social environment on the customer's intention to use mobile banking, for example, referral groups, families, initiative leaders, friends, and colleagues (Alalwan et al., 2017, p.102). Studies by Sharma et al. (2017), Tan and Lau (2016), and Zhoua et al. (2010) suggested that the opinions and recommendations of reference groups can affect the guts of consumers to use new innovations, including mobile banking. Therefore, it is hypothesized:
H3: Social influence correlates with trust

2.5. Privacy and Security Concern

In the context of the use of security technology, it reflects the perception of the mechanism for transmitting information that it is trustworthy and that personal data will not be used by third parties (Liu et al., 2005; Kim et al., 2011). The consideration of privacy and security concerns also reflects consumer privacy and transaction security concerns. These concerns include the collection, retention, attachment of personal data, data collection fraud, and loss of financial data (Kim et al., 2011; Tsai et al., 2011). Safety is a critical component of trust and must be recognized from the first use of the technology (Kim et al., 2010). Gao et al. (2015) found that security and privacy concerns negatively associate with trust and satisfaction. In other words, when users perceive that mobile banking services are highly reliable, their trust and satisfaction will also increase. Therefore, it is hypothesized:
H4: Privacy and security concern correlates with trust

2.6. Trust

Trust is the basis of the communication relationship of what will be provided to the customer (Stern, 1997), reflecting the intention that arises from the expectation of what will be received in the future (Mayeret al., 1995). Trust is what individuals follow and plays an important role in electronic financial transactions because users feel risky, uncertain, and uncontrollable (Lu

et al., 2011; Zhou, 2013). In the increasingly competitive financial services industry, trust is emphasized in building stable and long-lasting relationships with customers to impact their business positively (Sekhon et al., 2014). According to Chong's (2013) study in the context of mobile online shopping (ecommerce), it is concluded that trust has the strongest effect on the intention to use mobile online shopping services. It is consistent with the research of Slade and Emma (2015) that trust is an important factor influencing consumer or user behaviour to use the system, demonstrating the safety, reliability, and credibility of using the service. This is a positive effect of intention to use and can be seen from the current increase in mobile transactions compared to the past. Many factors, such as confidentiality of personal information, feelings of trust, and satisfaction of use, cause trust. Therefore, it is hypothesized:
H5: Trust correlates with the intention to continue using mobile banking

2.7. Intention to continue using mobile banking
Intention to continue using mobile banking refers to the consumer's intention to use the service after its application or use has occurred, which differs from the intention to use before implementation. Consequently, the intention to continue using represents a different type of behavioural intention, which has many types, including the intention to purchase, the intention to recommend, and other intentions (Hepola, Leppäniemi & Karjaluoto, 2020). The intention to continue using differs from the intention of first using because continuation is more fundamental and crucial. For mobile banking, the intention to continue using is an attempt to maintain existing customers because the cost per unit of retention is lower than gaining new customers (Wang et al., 2019). Usage is based on satisfaction with the product or service. People with positive experiences tend to have higher continiously intention than those with negative experiences. Intention to continue using is also considered a strong point of consumers whose intention to exhibit definite behaviours similar to the intention to repurchase (Sthapit, Del Chiappa, Coudounaris & Bjork, 2020). Intention to continue using is the user's intention to use the application and is defined as a behavioural pattern that reflects the use of the application (Birkmeyer, Wirtz & Langer, 2021).

3. RESEARCH MODEL AND METHODOLOGY
3.1. Model conceptualization and hypotheses
H1: Perceived usefulness correlates with trust
H2: Perceived risk correlates with trust
H3: Social influence correlates with trust
H4: Privacy and security concern correlates with trust
H5: Trust correlates with the intention to continue using mobile banking
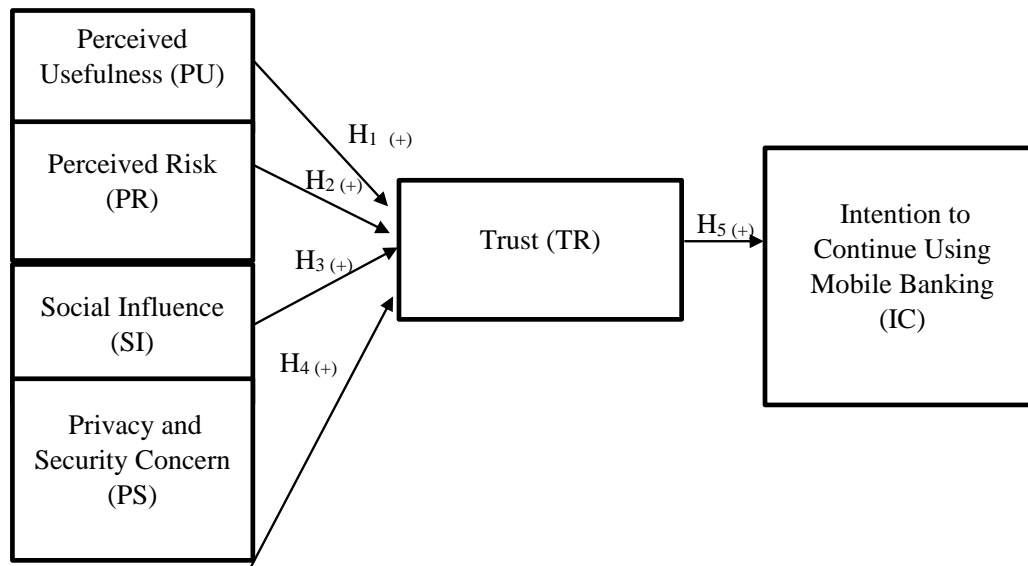
Figure following on the next page

Figure 1: Research model

3.2. Sampling and respondents' profile

The population used in the study was a mobile application user group in the northeastern region. The sample used in the study were Bank for Agriculture and Agricultural Cooperatives customers in the Northeastern region who had used the A-Mobile application. Due to the large population size of 645,127 people (Digital Product Performance Report on 31 March B.E. 2564), the Taro Yamane sample size determination method (Taro Yamane, 1973) at a confidence level of 95% and a sample error of 0.05 was employed. Considering the sample from the substitution in the formula, the sample sizes were 399.75. In order to obtain a suitable sample size, 400 samples were conducted. The random sampling was based on judgment sampling by specifying the respondents' conditions. The samples must be customers of the Bank for Agriculture and Agricultural Cooperatives in the Northeast using the A-Mobile application. The research instrument was a questionnaire that the respondents could answer by themselves (Self - Administrated).

3.3. data analysis

Data were analyzed to determine the relationship between six factors: perceived usefulness, perceived risk, social influence, privacy and safety concern, trust, and intention to continue using mobile banking by using two types of statistical methods to analyze data as follows:

3.3.1. Data analysis with descriptive statistics
1) Frequency and percentage were used to analyze the general information of the respondents, namely sex, age, status, education level, occupation, and income.
2) nMean and standard deviation analysis were used to analyze the level of variables of the factors, namely perceived usefulness, perceived risk, social influence, privacy and safety concern, trust, and intention to continue using mobile banking.

3.3.2. Data analysis with Inference Statistics data analysis with inference stat
Statistics used in data analysis is a statistical method used for hypothesis testing to find the causal relationship and the level of factors that directly and indirectly influence the variables with a structural equation model (SEM). Analyzing data with inference statistics by analyzing structural equation models (SEM) consisted of two phases: Measurement Model and Structural Model.

4. RESULT

4.1. Data validation before statistical analysis

Researchers collected data from the samples from January-March 2022. Judgment sampling was used for randomizing samples. The questionnaire data from the samples met the specified conditions and examined the questionnaire that had been collected and found that all 400 samples were complete. For the normality of data from analyzing skewness and kurtosis of the data and comparing results obtained with Tabachnick and Fidell's table (2007), they were between -2 and 2. It showed that the skewness had a lowest value of -.540 and a highest value of .340, and a kurtosis had a lowest value of -.535 and a highest value of -.041, indicating that the data were distributed normally. The analysis results revealed parameter's coefficient of variation increases when independent variables, variance inflation factor (VIF), or tolerance are related. It indicates the relationship of one independent variable with all other independent variables. If all independent variables are not correlated, the VIF value is 1. According to the analysis results, VIF were between 1.039 and 1.274, which did not exceed 10, and the tolerance values were between .785 to .962, not exceeding 5. It indicates that the data does not have a correlation problem between the observed variables (Stevens, 2009).

4.2. Data analysis results

From the results of the general data analysis of the respondents, the researchers distributed questionnaires to the sample group of 400 sets and collected and checked the validity of the returned questionnaires. It was found that there were 400 complete questionnaires, representing 100 percent. The data were presented in the form of frequency and percentage. The results are shown in Table 1. Most respondents are female, 265 people or 66.3%, and 135 people or 33.8 % are male. Most of them were aged between 51-60 years, 157 people or 39.3%, followed by aged between 41-50 years of 129 people or 32.3%, aged between 31-40 years of 94 people or 23.5%, aged 61 years and over of 14 people or 3.5%, and aged between 20-30 years of 6 or 1.4%, respectively. Marital status is 290 people or 72.5%, followed by single of 87 people or 21.8%, and others of 23 people or 5.7%, respectively. Most of their education degree is primary, 203 people or 50.7%, followed by secondary of 76 people or 19.0%, high school/vocational certificate/equivalent of 58 people or 14.5%, high vocational certificate/diploma of 46 people or 11.5%, and bachelor of 17 people or 4.3, respectively. Most is agriculturist/fishermen of 312 people or 78.0%, followed by merchant/self-employed/business owners of 86 people or 21.5%, and officers of 2 people or 0.5%, respectively. Most of them have an average monthly income of 20,001 - 30,000 baht of 210 people or 52.5%, followed by 10,001 - 20,000 baht of 92 people or 23.0%, 30,001 - 40,000 baht of 77 people or 19.3%, 40,001 - 50,000 baht of 10 people or 2.5%, less than 10,000 baht of 7 people or 1.7%, and more than 50,000 baht of 4 people or 1%, respectively.

Table following on the next page

Demographic Information	Frequency	Percentage
Gender		
Male	135	33.8
Female	265	66.2
Total	400	100.0
Age		
20 - 30	6	1.4
31 - 40	94	23.5
41 - 50	129	32.3
51 - 60	157	39.3
61+	14	3.5
Total	400	100.0
Marital status		
single	87	21.8
Married	290	72.5
Other	23	5.7
Total	400	100.0
Education		
Primary education	203	50.7
Secondary education	76	19.0
High school	58	14.5
Diploma	46	11.5
Bachelor's degree	17	4.3
Total	400	100.0
Occupation		
Merchant / Self-employed	86	21.5
Agriculturist / Fishermen	312	78.0
Officer	2	0.5
Total	400	100.0
Income (Bath)		
Less than 10,000	7	1.7
10,000 - 20,000	92	23.0
20,001 - 30,000	210	52.5
30,001 - 40,000	77	19.3
40,001 - 50,000	10	2.5
More than 50,000	4	1.0
Total	400	100.0

Table 1: Descriptive statistics of frequency and percentage

4.3. Measurement model

The Convergence Validity and Reliability analysis found that the Factor Loading has the highest value of .948 and the lowest value of .618, which is greater than .50. This shows that the data is highly accurate (Hair et al., 2010). As for the reliability value, by analyzing the Cronbach Alpha coefficient, the highest value is .969, and the lowest value is .825, which is greater than .70. It means the data analyzed is reliable and acceptable (Hair et al., 2013). Analysis of composite reliability (CR) and average variance extracted (AVE) found that the total reliability of latent variables has the highest value of .955 whereas the lowest value of .832. Both values are greater than .60. The average variance extracted (AVE) should be greater than .50. The analysis results show that the highest value is .849, and the lowest value is .519.

They are greater than .50, indicating that each latent variable could explain the variance of the observed variable in a unified way (Diamantopoulos & Siguaw, 2000). In addition, the reliability analysis results by finding Cronbach's Alpha Coefficient found that the highest value is .969 and the lowest value is .825. All values are greater than .70, indicating that the analyzed data has high reliability (Zikmund et al., 2010), as shown in Table 2.

| Variables and Items	Loading	CR	AVE	α
Perceived Usefulness (PU) ($\overline{X}$ = 4.360, S.D. = .581)		.946	.815	.951
PU1: Using A-Mobile enhances the efficiency of my financial transactions.	.853			
PU2: Using A-Mobile makes my transactions more convenient.	.882			
PU3: I realize that using A-Mobile is useful for doing financial transactions.	.948			
PU4: Overall, I think A-Mobile is useful.	.924			
Perceived Risk (PR) ($\overline{X}$ = 3.826, S.D. = .533)		.832	.556	.825
PR1: I feel that using BAAC's A-Mobile may cause my bank account to be scammed.	.625			
PR2: I feel that using BAAC A-Mobile may put my data at risk.	.754			
PR3: I feel that my personal information may be hacked (stolen) when using BAAC's A-Mobile.	.794			
PR:4 I feel that my transaction through BAAC's A-Mobile application may be risky.	.796			
Social Influence (SI) ($\overline{X}$ = 3.776, S.D. = .892)		**.947**	**.849**	**.969**
SI1: People who are important to me think that I should use BAAC's A-Mobile.	.915			
SI2: People who are familiar with me think I should use BAAC's A-Mobile.	.884			
SI3: Most people around me use BAAC's A-Mobile.	.928			
SI4: I will use BAAC's A-Mobile, as my relatives and colleagues recommend.	.947			
SI5: The opinion of the person I value prefers to use BAAC's A-Mobile.	.933			
Privacy and Security Concern (PS) ($\overline{X}$ = 3.360, S.D. = .710)		.955	.781	.960
PS1: I am concerned about the security and exchange of personal information on BAAC's A-Mobile.	.818			
PS2: I am concerned that my information may be shared with others without my permission.	.851			
PS3: I am concerned that providing personal information on BAAC's A-Mobile may be misused.	.867			
PS4: I feel insecure when I provide personal information through A-Mobile.	.903			
PS5: I'm uncomfortable using A-Mobile on my phone because other people might access my data.	.931			
PS6: There is a high chance that something goes wrong when using A-Mobile.	.927			
Trust (TR) ($\overline{X}$ = 4.275, S.D. = .404)		.843	.519	.850
TR1: I trust that BAAC's A-Mobile is reliable.	.618			
TR2: I trust that BAAC's A-Mobile is safe.	.740			
TR3: I trust that the BAAC, the A-Mobile service provider, is primarily concerned with customer benefits.	.799			
TR4: I trust that all A-Mobile transaction information is confidential.	.714			
TR5: I trust that I will receive an instant confirmation message once my A-Mobile transaction is complete.	.718			
Intention to Continue Using Mobile Banking (IC) ($\overline{X}$ = 4.166, S.D. = .523)		.885	.658	.883
IC1: I have the intention to continue using BAAC's A-Mobile service more than other channels (such as branches' counter service).	.756			
IC2: I have the intention to continue using BAAC's A-Mobile instead of looking for another bank's mobile banking.	.867			
IC3: ขัน I have the intention to continue using various services provided by BAAC's A-Mobile in the future.	.823			
IC4: If possible, I do not want to stop using BAAC's A-Mobile in the future.	.794			

Table 2: Measurement model evaluation

4.4. Structural model

The researchers analyzed structural equation models of perceived usefulness, perceived risk, social influence, privacy and safety concern, trust, and intention to continue using mobile banking via the Highest Likelihood method by using a finished program to compare the harmony between the developed model and the empirical data. The researcher considered the statistical values: chi-square correlation or X^2/df, comparative fit index or CFI, root mean square error or RMSEM, and root mean squared residual or SRMR. The analysis results show that all values pass the specified criteria. It means the structural equation model is consistent with the empirical data of the structural equation model of perceived usefulness, perceived risk, social influence, privacy and safety concern, trust, and intention to continue using mobile banking. When considering the model consistency index, it is consistent with the empirical data. The five goodness of fit indexes pass the acceptance criteria: $X^2/df = 1.730$, GFI = .911, CFI = .975, RMSEM = .043, and SRMR = .0652. Therefore, it can be considered that the structural equation model is consistent with the empirical data, as shown in Table 3.

Goodness of Fit Index	criterion	Index value	Result
X^2/df	< 5.00	1.730	Pass
GFI	> .90	.911	Pass
CFI	> .90	.975	Pass
RMSEM	< .90	.043	Pass
SRMR	< .80	.0652	Pass

Table 3: Goodness of fit measures result
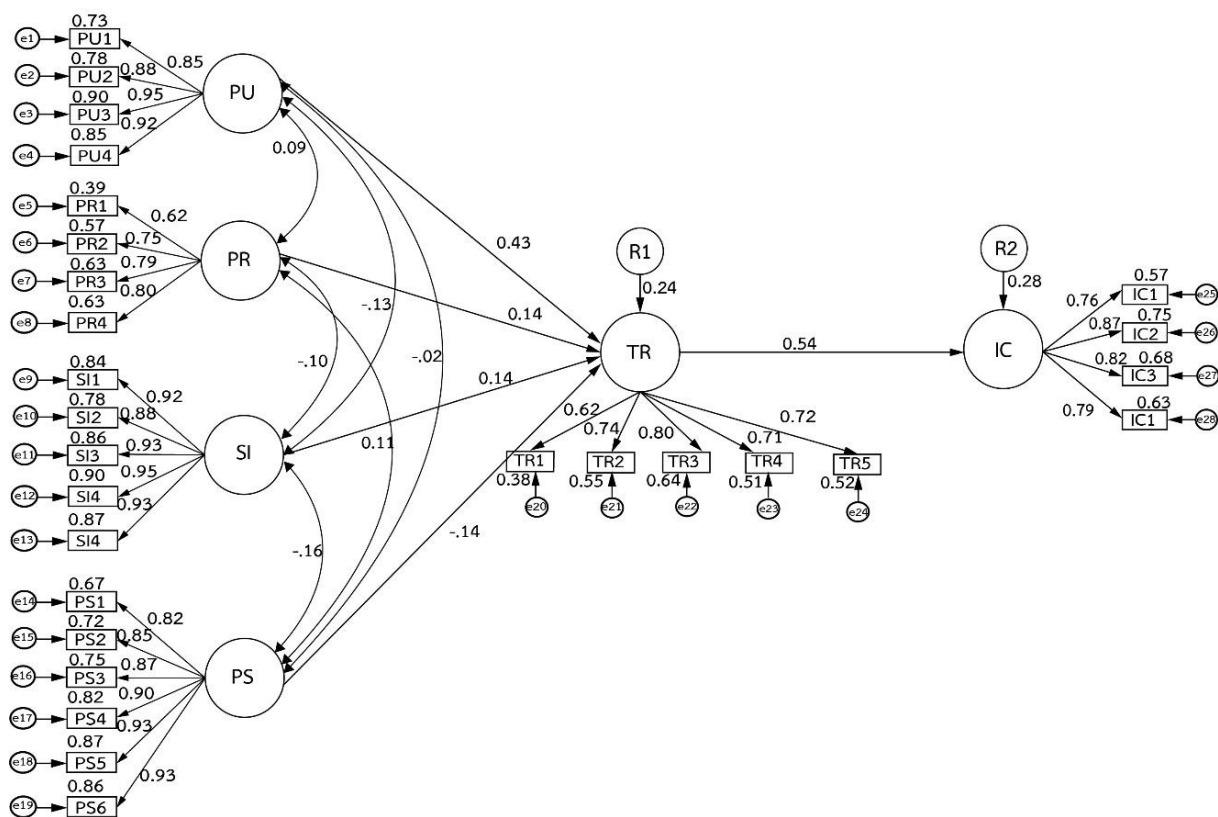
Chi Square = 577.861, df = 334, Chi Square/df = 1.730,
GFI = .911, CFI = .975, RMSEA = .043 SRMR =.0652

Figure 2: Structural model

When considering the highest beta (β) to the lowest beta (β), the highest beta (β) is .539, indicating that the correlation of trust (TR) has a positive correlation with the intention to continue using mobile banking (IC) at a significant level of .001. Following by a beta (β) of .430, it is a correlation of perceived usefulness (PU) that has a positive correlation with trust (TR) at the statistically significant level of .001. The beta (β) of .143, it is a correlation of social influence (SI) that has a positive correlation with trust (TR) at the statistically significant level of .05. The beta (β) of .139, it is a correlation of perceived risk (PR) that has a positive correlation with trust (TR) at the statistically significant level of .01. Lastly, the beta (β) of -.136, it is a correlation of privacy and safety concern (PS) that has a negative correlation with trust (TR) at the statistical level of .01. In addition, when considering the coefficient of determination (R^2) of the structural equation model of perceived usefulness, perceived risk, social influence, privacy and safety concern, trust, and intention to continue using mobile banking showed that trust has a coefficient of determination (R^2) of .24, and intention to continue using mobile banking has a coefficient of determination (R^2) equals .28. It shows that the structural equation models of perceived usefulness, perceived risk, social influence, privacy and safety concern, trust, and intention to continue using mobile banking, 24% can explain the correlation with trust, and 28% can explain the correlation with intention to continue using mobile banking as shown in Table 3.

variable correlation characteristic	β	t- value
PU ---> TR	.430	7.7715***
PR ---> TR	.139	2.534*
SI ---> TR	.143	2.759**
PS ---> TR	-.136	-2.631**
TR ---> IC	.539	8.649***

Notes: $R^2_{TR} = .24$, $R^2_{IC} = .28$
$*P < .05, **P < .01, ***P < .001$

Table 4: Structural model path analysis

4.5. Hypothesis testing result

Based on the structural equation model analysis of perceived usefulness, perceived risk, social influence, privacy and safety concern, trust, and intention to continue using mobile banking, the researchers can conclude the structural equation model analysis as shown in Figure 3.
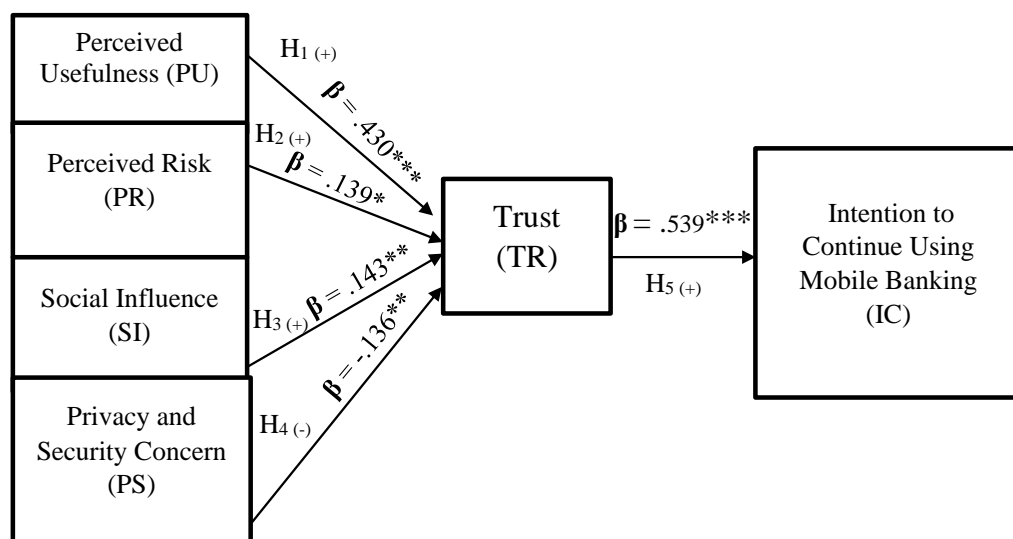

Figure 3: Hypothesis testing result

- Hypothesis 1 or H1: Perceived usefulness correlates with trust; the hypothesis test results show that perceived usefulness(PU) correlates significantly with trust (TR) at the 0.001 level. The beta (β) is .430, which has a direct influence and a positive correlation. It can be explained that Perceived usefulness(PU) positively correlates with trust (TR), according to the specified hypothesis.
- Hypothesis 2 or H2: Perceived risk correlates with trust; hypothesis test results show perceived risk (PR) significantly correlates with trust (TR) at the 0.05 level. The beta (β) value is .139, which has a positive direct influence and correlation, which could explain the positive correlation between perceived risk (PR) and trust (TR) as hypothesized.
- Hypothesis 3 or H3: Social influence correlates with trust; hypothesis testing results reveal that social influence (SI) significantly correlates with trust (TR) at the 0.01 level. The beta (β) equals .143 and has a positive correlation with trust (TR), which is in accordance with the hypothesis.
- Hypothesis 4 or H4: Privacy and security concern correlates with trust; hypothesis results reveal that privacy and security concern (PS) correlates with trust (TR) at 0.01. The beta (β) is -.136, which has a negative direct influence and correlation and can be explained as a negative correlation with trust (TR) in accordance with the specified hypothesis.
- Hypothesis 5 or H5: Trust correlates with the intention to continue using mobile banking; the hypothesis results show that trust (TR) correlates with the intention to continue using mobile banking (IC) significantly at the level of 0.001. The beta (β) is .539, which has a negative direct correlation effect but positively correlates with the intention to continue using mobile banking (IC) as a specified hypothesis. The research hypothesis testing results can be summarized as shown in Table 5.

Hypotheses No.	Research Hypotheses	Result	Correlation
H1	Perceived usefulness correlates with trust	Accepted	Positive
H2	Perceived risk correlates with trust	Accepted	Positive
H3	Social influence correlates with trust	Accepted	Positive
H4	Privacy and security concern correlates with trust	Accepted	Negative
H5	Trust correlates with the intention to continue using mobile banking	Accepted	Positive

Table 5: Variable correlation direction

5. CONCLUSION
5.1. Discussion
This study was designed to test the structural model-based correlation of factors affecting customers' trust and intention to continue using the A-Mobile application. Statistical methods were used for hypothesis testing to find the causal relationship and the level of factors that directly and indirectly influenced the variables with structural equation modeling (SEM), and data analysis with inferential statistics by structural equation modeling (SEM). From the structural model analysis results, it can be concluded that perceived usefulness (PU) has a positive relationship with trust (TR). According to the results of this research, perceived usefulness (PU) is the factor that affects trust the most, 43 percent, relating to the concept of Hassan & Wood (2020). Perceived usefulness is the degree to which an individual believes that using a particular system will increase their performance, positively affecting consumers' trust and intention to use Mobile Banking services. In line with Ho, Wu, Lee & Pham (2020) study, perceived usefulness positively affects the intention to use the system.

Clear perceived usefulness creates a positive attitude and builds trust towards mobile banking. Social influence (SI) positively correlates with trust (TR) as the minor factor affecting trust,14%, which relates to the idea of Baabdullah et al. (2019). Social influence is the effect of social relationships that can maintain or increase the use of technology services that build trust in new technologies and convince users to accept new technologies. This is where users may have to change themselves to use socially acceptable technology for a higher level of social interaction and inclusion. Pimrak, Sang and Penjira Khanthawong's research (2018) studied factors positively influencing consumers' intention to use the Rabbit Line Pay electronic payment system in Siam Square shopping centre, Bangkok found that social influence factors and attitude factors positively influenced the intention to use the electronic payment system Rabbit LINE Pay. Perceived risk (PR) positively correlates with trust (TR). It is a factor affecting trust, accounting for 13 percent, which relates to the concept of Zhou (2014). The perceived risk of a consumer or customer's using online financial services depends on the security of their information and the confidentiality of their personal information. If consumers are aware of potential risks, this can result in a low level of perceived risk, resulting in a positive effect on trust. In addition, Hassan & Wood's (2020) study of perceived risk found that perceived risk affects mobile banking intention factors. Privacy and safety concern negatively correlates with trust (TR). It was found to correlate with the idea of Yoon (2002) that security is a critical component of trust and must be perceived from the first use of the technology (Kim et al., 2010). Therefore, to increase trust in mobile banking use, the protection and security of personal information are important. For this reason, it is expected that as privacy and security concern increases, users' trust in mobile banking will decrease or have a negative effect. Trust (TR) positively correlates with the intention to continue using mobile banking (IC) at 54%, which was found to correlate with the concept of Xin et al. (2015) and Koksal, (2016). Trust is an individual's perception that a service will consistently meet expectations and demonstrates an individual's tendency to use a specific service. This is in line with research by Hunget al. (2012) showing that reliability positively correlates with repurchasing via mobile phone. Chong's (2013) study in the context of mobile online shopping (ecommerce) also concluded that reliability obviously impacts consistent mobile online shopping intention. In addition, Asnakew's (2020) study of customers' intention to continue using mobile banking found that attitude and trust positively correlate with their intention to continue using mobile banking.

5.2. Discussion

This research objective was to examine the relationship between variables impacting trust and intention to continue using mobile banking. The sample of this research was 400 customers of the Bank for Agriculture and Agricultural Cooperatives in the Northeastern region who used the A-Mobile application and were selected by Judgment Sampling. The instrument used in this research was a questionnaire that respondents could answer by themselves (Self-Administered). Data were analyzed using descriptive statistics, including frequency, mean, standard deviation, and structural equation model analysis (SEM) to analyze the data and test the study hypothesis. The results of the hypothesis test found that (1) the Perceived usefulness (PU) had a significant correlation with trust (TR) at 0.001 level, which was a positive correlation, (2) the Perceived risk (PR) was significantly correlated with trust (TR) at the 0.05 level which was a positive correlation, (3) Social influence (SI) correlated with trust (TR) at a significant level of 0.01 which was a positive correlation, (4) Privacy and Security concern (PS) significantly correlated with trust (TR) at the 0.01 level which was a negative correlation, and (5) trust (TR) had a significant correlation with the intention to continue using mobile banking (IC) at the level of 0.001 which was a positive correlation. It can be seen that all five hypotheses are accepted.

According to these five hypotheses, the factor that affects trust (TR) the most is perceived usefulness (PU), with 43% considered as a positive correlation, followed by social influence (SI), with 14% considered as a positive correlation, perceived risk (PR) with 13% considered as a positive correlation, and Privacy and security concern as a negative correlation. The trust (TR) factor affected the intention to continue using mobile banking (IC) the most, 54 percent, and is considered a positive correlation.

5.3. Recommendation

In this study, it was found that the predictive coefficient (R^2) of the trust variable had the Coefficient of Determination (R^2) of .24 and the Coefficient of Determination (R^2) of intention to continue using mobile banking is .28, which is lower than .30. It showed that the variables chosen for this structural model, including perceived risk, social influence, privacy and safety concern, and trust could relatively little predict the relationship of trust and intention to continue using mobile banking. Therefore, in further study, it is advisable to study other early variables used to test this structural model in order to obtain a higher predictive value. The recommendation for implementing the research result with the business sector is that banks should focus on the benefits that customers will get from using because the benefits will make customers or users see the benefits and value from the use of such mobile banking services, such as using mobile banking services to makes financial transactions more convenient and faster, and increases the efficiency of transactions even more. In addition, the bank should emphasize allowing customers or users to see that using mobile banking is easy, for example, the steps for using it are not complicated, and they can perform transactions easily. This will satisfy customers because most customers are farmers in the elderly age range. Therefore, it must be emphasized that customers think that using mobile banking and financial transactions on it is not difficult anymore, emphasizing the mouth of customers who have used mobile banking in order to such customers have informed or recommended their family members or acquaintances to use mobile banking more. Banks should pay more attention to the quality of the system. The information displayed on mobile banking must be accurate, reflect the value of the transaction that the customer has made, and should be clear, easy to understand, and unambiguous. The quality of the system and the information will make customers trust the mobile banking system and the bank. For privacy and safety concerns, customers must be assured that their banking transactions are safe and confidential.

5.4. Limitations and Future Research Implications

This research was conducted on a limited sample of farmers in the northeastern region, resulting in such results. Extending the study to other areas may result in different research results. Further research should develop the models and variables used in this study, repeat research in other study areas, or implement this conceptual framework to research in other contexts such as other applications with the other needs of continue using to compare and verify how models fit with different empirical data. Since this research's coefficient of determination (R^2) of the trust variable equals .24 and the intention to continue using mobile banking equals .28. Because the coefficient of determination value is lower than .30, it indicated that the variables chosen for this structural model were perceived risk, social influence, privacy and safety concern, and trust rarely correlate or affect the intention to continue using mobile banking. Therefore, in the subsequent study, other early variables used to test this structural model should be studied to obtain higher predictive values and find variables that affect intention to continue using mobile banking, such as perceived ease of use, technology anxiety, and even age. Education is divided by age as the application is a technology that must be continuously developed, making each age range accept and use technology differently.

LITERATURE:

1. Alalwan, A. A., Dwivedi, Y. K., Rana, N. P. (2017). *Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust.* International Journal of Information Management, 37(3), pp. 99-110.

2. Albashrawi, M., Motiwalla, L. (2019). *Privacy and personalization in continued usage intention of mobile banking: An integrative perspective.* Information Systems Frontiers, 21(5), pp. 1031-1043.

3. Al-Saedi, K., Al-Emran, M., Ramayah, T., & Abusham, E. (2020). *Developing a general extended UTAUT model for M-payment adoption.* Technology in Society, 62, 101293.

4. Asnakew, Z. S. (2020). *Customers' Continuance Intention to Use Mobile Banking: Development and Testing of an Integrated Model.* The Review of Social network Strategies, 14(1), pp. 123-146.

5. Charin, K. (2021). Factors of Technology Acceptance Influencing Decision Making on QR Code Usage via Smartphone: A Case Study of Bangkok Bank Public Company Limited's Customers in Hatyai District, Songkhla Province. Songkhla: Songkla University.

6. Farah, M. F., Hasni, M. J. S., Abbas, A. K. (2018). *Mobile-banking adoption: empirical evidence from the banking sector in Pakistan.* International Journal of Bank Marketing. 36(7), pp. 1386-1413

7. Foroughi, B., Iranmanesh, M. and Hyun, S.S. (2019). *Understanding the determinants of mobile banking continuance usage intention.* Journal of Enterprise Information Management, 32(6), pp. 1015-1033

8. Froughi, B., Iranmanesh, M., Hyun, S. S. (2019). *Understanding the determinants of mobile banking continuance usage intention.* Journal of Enterprise Information Management, 32(6), pp. 1015-1033.

9. Hassan, H. E., Wood, V. R. (2020). *Does country culture influence consumers' perceptions toward mobile banking. A comparison between Egypt and the United States.* Telematics and Informatics, 46, 101312.

10. Ho, J. C., Wu, C. G., Lee, C. S., & Pham, T. T. T. (2020). *Factors affecting the behavioral intention to adopt mobile banking: An international comparison.* Technology in Society, 63, 101360.

11. 11.Jamshidi, D., Keshavarz, Y., Kazemi, F., & Mohammadian, M. (2018). *Mobile banking behavior and flow experience: An integration of utilitarian features, hedonic features, and trust.* International Journal of Social Economics. 45(1), pp. 57-81

12. 12. Kaur, S., Arora, S. (2020). Role of perceived risk in online banking and its impact on behavioral intention: trust as a moderator. Journal of Asia Business Studies, 15(1), pp. 1-30.

13. Kumar, R. R., Israel, D., Malik, G. (2018). *Explaining customer's continuance intention to use mobile banking apps with an integrative perspective of ECT and Self determination theory.* Pacific Asia Journal of the Association for Information, 10(2), 5.

14. Lee, J. N., Choi, B. (2011). Effects of initial and ongoing trust in IT outsourcing: a bilateral Perspective. Information & Management, 48(2), pp. 96-105.

15. Lifen Zhao, A., Hanmer-Lloyd, S., Ward, P., Goode, M. M. (2008). *Perceived risk and Chinese consumers' internet banking services adoption.* International Journal of Bank Marketing, 26(7), pp. 505-525.

16. Malaquias, R. F., Silva, A. F. (2020). *Understanding the use of mobile banking in rural areas of Brazil.* Technology in Society, 62, 101260

17. Marriott, H. R., Williams, M. D. (2018). *Exploring consumers perceived risk and trust for mobile shopping: A theoretical framework and empirical study.* Journal of retailing and consumer services, 42, pp. 133-146.

18. Masrek, M. N., Halim, M. S. A., Khan, A., Ramli, I. (2018). *The impact of perceived credibility๊and perceived quality on trust and satisfaction in mobile banking context.* Asian Economic and Financial Review, 8(7), pp. 1013-1025.
19. Martin, H. S., Herrero, A. (2012). Influence of the user's psychological factors on the online purchase intention in rural tourism: integrating innovativeness to the UTAUT framework. Tourism Management, 33(2), pp. 341-350.
20. Mohammadi, H. (2015). A study of mobile banking usage in Iran. International Journal of Bank Marketing, 33(6), pp. 733-759.
21. Motiwalla, L. F., Albashrawi, M., Kartal, H. B. (2019). Uncovering unobserved heterogeneity bias: Measuring mobile banking system success. International Journal of Information Management, 49, pp. 439-451.
22. Ofori, K. S., Boateng, H., Okoe, A. F., Gvozdanovic, I. (2017). *Examining customers' continuance intentions towards internet banking usage.* Marketing Intelligence & Planning, 35(6), pp. 756-773.
23. Pimpisa, S. (2019). The Effect of Trust and Customer Satisfaction on Intention to Contiue Using Mobile Banking. Nakhon Pathom: Mahidol University.
24. Rahi, S., Othman Mansour, M. M., Alghizzawi, M., Alnaser, F. M. (2019). *Integration of UTAUT model in internet banking adoption context.* Journal of Research in Interactive Marketing, 13(3), pp. 411-435.
25. Sekhon, H., Ennew, C., Kharouf, H., Devlin, J. (2014). *Trustworthiness and trust: influences and implications.* Journal Of Marketing Management, 30(3-4), pp. 409-430.
26. Slade, E. L., Dwivedi, Y. K., Piercy, N. C., Williams, M. D. (2015). *Modeling Consumers' Adoption Intentions of Remote Mobile Payments in the United Kingdom: Extending UTAUT with Innovativeness, Risk, and Trust*. Psychology & Marketing, (8), 860.
27. Wassana, T. (2016). *Net idolization and its influence on behavior of the Youth.* Bangkok: Thammasat University.

EXPLORING THE USE OF ICT IN BUSINESS: BENEFITS, CHALLENGES, AND OPPORTUNITIES (THE CITY OF SONGKHLA)

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ABSTRACT

Information and communication technology (ICT) has become an integral part of modern business operations, enabling companies to streamline processes, improve efficiency, and stay competitive in today's global market. In this paper, we examine the use of ICT in business in the city of Songkhla, Thailand, and explore the benefits, challenges, and opportunities that it presents. Through a combination of literature review and field research, we analyze the current state of ICT adoption in Songkhla's business sector, including trends and patterns in usage, as well as the impact of ICT on business performance and competitiveness. We also identify key areas where ICT can support business growth and development, and discuss the potential barriers and enablers to ICT adoption in the city. Our research found that the majority of businesses in Songkhla did not use computers. Only 34.9% of all businesses used computers. When considering businesses by size, it was found that businesses with 11 or more employees (4.5% of all businesses) used computers. In particular, businesses with over 200 employees had a high proportion of computer usage, at 99.7%. However, the smallest businesses, with 10 or fewer employees (95.5% of all businesses), had the lowest rate of computer usage, at only 34.3%. It can be concluded that the adoption of computers and Collaborative information systems (CIS) in Thai businesses is generally low and that there is a significant gap between larger and smaller businesses in terms of computer usage. In addition, if government or state's agency provide collaborative information systems (CIS), it will facilitate collaboration among members and help SMEs to become more competitive in their respective markets. Our findings provide valuable insights for policymakers, business leaders, and other stakeholders looking to leverage ICT to drive economic growth and development in Songkhla and beyond.
Keywords: Collaborative information systems (CIS), ICT adoption, ICT in Business, leverage ICT Songkhla, policymaker

1. INTRODUCTION

Information and communication technology (ICT) refers to the use of computers, software, networks, and other digital technologies to process, store, and transmit information. It plays a critical role in the operation and success of small and medium-sized enterprises (SMEs). Here are some ways in which ICT can be used as a key strategy for SMEs. (Singh et al, 2019) Several organizations use ICT to improve communication such as email, instant messaging, and video conferencing; it enables SMEs to communicate more efficiently with employees, customers, and partners, regardless of location. In addition, ICT enhances productivity by automating routine tasks and providing access to real-time data and analytics. Moreover, ICT can help SMEs increase productivity and efficiency. For example, ICT can enable SMEs to provide better customer service by allowing them to quickly access and respond to customer inquiries and complaints. Many SMEs use ICT for global expansion by allowing them to sell their products and services online (Mushtaq et al, 2022). There are a number of challenges that small and medium-sized enterprises (SMEs) in Thailand may face when implementing information and communication technology (ICT).

	Number of Enterprise			
	NNo. of Firms	NNo. of Firms(%)	Use of ICT	Use of ICT (%)
Size of Enterprise	2,520,695	100.0	717,156	28.5
1 - 10	2,410,609	100.0	626,818	26.0
11 - 15	41,439	100.0	30,040	72.5
16 - 25	29,490	100.0	23,754	80.5
26 - 30	6,477	100.0	5,553	85.7
31 - 50	13,150	100.0	11,965	91.0
51 - 200	15,208	100.0	14,717	96.8
200	4,322	100.0	4,309	99.7

Table 1: Indicators on the use of ICT in establishment by size of establishment (Number of persons engaged) (NSO, 2021)

From statistics as shown in table 1, many SMEs in Thailand may lack the financial and human resources needed to invest in and effectively implement ICT solutions. In addition, there is a lack of technical expertise because some SMEs may struggle to find and retain employees with the necessary technical skills to effectively utilize ICT. Moreover, they cannot access high-speed internet because internet connectivity can be a challenge in some parts of Thailand, particularly in rural areas, which can make it difficult for SMEs to access and use ICT tools. More important issue for adoption of ICT is the lack of understanding of the benefits of ICT. Some SME owners and managers may be hesitant to adopt ICT due to a lack of understanding of the potential benefits and a fear of change. The other challenge is security concerns. SMEs may be concerned about the security risks associated with using ICT, such as the possibility of data breaches or cyber attacks. Overall, these challenges can make it difficult for SMEs in Thailand to effectively implement ICT and fully realize the potential benefits it offers (NSO, 2021). There are some common issues that small and medium-sized enterprises (SMEs) may face when adopting information and communication technologies (ICTs) because it is depending on the many challenges. Thus, in this paper, we study and propose a guidance of design collaborative information systems (CIS) for a SMEs to cope with these challenges. Located in southern Thailand, Songkla province is known for its diverse economy, with notable industries such as agriculture, tourism, and manufacturing. The region is particularly known for its rubber and palm oil production, as well as its thriving seafood industry. Furthermore, as a popular tourist destination, Songkla province boasts a range of attractions including beaches, national parks, and cultural sites, presenting opportunities for businesses in the tourism and hospitality sectors. Additionally, the province is home to a growing manufacturing industry, particularly in the production of electronics, textiles, and automotive parts. With well-developed infrastructure including airports, seaports, and highways, the province is an attractive location for businesses looking to establish operations in Thailand. The province also offers various government incentives and support for businesses, including tax exemptions and investment promotion (Amage, 2021; Chanin et al, 2016)). Given its diverse economy, studying the implementation of ICT in Songkla province can provide valuable insights on how to effectively implement technology in a region with a wide range of industries. The potential areas of focus for this study include: analyzing the specific ICT needs and challenges faced by businesses in the different sectors present in the province, examining the current state of ICT infrastructure and access in the province, and identifying ways to improve it, studying the impact of ICT implementation on the different industries in the province and how it affects their productivity and competitiveness, investigating the effectiveness of government incentives and support for ICT implementation in the province, and how they can be improved, and analyzing the adoption and usage of ICT by SMEs in the province, identifying common barriers and

facilitators and providing recommendations to improve ICT adoption and usage. Additionally, the study can be expanded to analyze the impact of CoVID-19 on ICT use, ICT adoption in SMEs key success and failure factors for ICT implementation, and Collaborative information systems (CIS). The paper is structured as follows: Section 2 will explore previous research on the impact of CoVID-19 on ICT use, ICT adoption in SMEs key success and failure factors for ICT implementation and Collaborative information systems (CIS). In Section 3, data on the utilization of ICT in Songkhla will be presented and a model and guidelines for government or agency support of SMEs in their respective markets through the use of Collaborative Information Systems (CIS) will be examined.

2. LITERATURE REVIEW
2.1. Impact of COVID-19 on ICT use
The global COVID-19 outbreak has presented significant health risks, leading to restrictions on out-of-home activities by national and local governments. As a result, many companies and educational institutions have shifted their operations and classes from in-person to online. This has resulted in changes to all business patterns and activities. First, many SMEs have been forced to close their doors or limit their operations due to government restrictions and lockdowns, leading to a loss of revenue. Moreover, some SMEs may not have the infrastructure or digital capabilities to shift their business online and may lose customers as a result. Second, the pandemic has led to disruptions in global supply chains, making it difficult for SMEs to obtain the materials they need to operate. (Singh et al, 2019)   Third, the pandemic has led to disruptions in global supply chains, making it difficult for SMEs to obtain the materials they need to operate. (Ali et al, 2021) In addition, the economic downturn caused by the pandemic has made it difficult for SMEs to obtain financing from banks and other lending institutions and with many businesses moving online, competition may increase, making it harder for SMEs to attract and retain customers. Furthermore, the ongoing nature of the pandemic and constantly changing regulations make it difficult for SMEs to plan for the future and make decisions. Many SMEs may not have the resources to navigate government support programs or may not be eligible for them (Wójcik and Ioannou, 2020). As summary, the COVID-19 pandemic has had a significant impact on the use of information and communication technologies (ICTs). The sudden shift to remote work, online learning, and e-commerce, among other things, has led to an unprecedented increase in the use of ICTs. For SMEs, they have been forced to implement remote work policies in response to government restrictions and lockdowns, leading to an increase in the use of ICTs for communication and collaboration. E-commerce has seen a significant increase, leading to an increase in the use of ICTs for online sales and marketing. (Baldwin and Tomiura, 2020) The pandemic has accelerated the digitalization process for some SMEs, but it has also created challenges and barriers for others. It is crucial for governments, organizations and SMEs themselves to take steps to support the digitalization of SMEs to ensure their survival and competitiveness in the post-pandemic world.

2.2. ICT adoption in SMEs key success and failure factors for ICT implementation
Information and Communication Technologies (ICTs) adoption in Small and Medium-sized Enterprises (SMEs) is crucial for their competitiveness and survival in today's digital world. However, the implementation of ICTs in SMEs can be challenging, and the success of the adoption depends on various factors. Many scholars conducted a research using both quantitative and qualitative methods to identify and develop a modeling framework of factors that affect the successful adoption of ICT in SME companies. The results revealed that small and medium firms have low usage due to the high cost of required investment and lack of skills and knowledge in ICT. (Chertchom et al, 2019) From this research, they indicate that SMEs are still uncertain about the benefits and risks of adopting ICT, so risk management should be

applied to projects to ensure concrete and realistic targets. Factors that contribute to the success of ICT adoption include providing ICT training before and after adoption, clearly defining the scope of the ICT project. SMEs must have clear goals and objectives for their ICT implementation to ensure that the technology is being used to meet the specific needs of the organization. Moreover, SMEs must have adequate resources, including financial, human, and technical resources, to successfully implement ICTs. In addition, employee training and support are critical for the successful implementation of ICTs. Employees must be trained to use the new technologies effectively and provided with ongoing support to ensure their continued use. Additionally, it is crucial for the government to provide subsidies and support for ICT training to address barriers. Moreover, the government should collaborate with leading ICT companies to provide technical assistance, training workshops, and pre-diagnostics for ICT adoption projects. (Kazakov et al, 2020) However, without strong leadership and management support, the implementation of ICTs can be hindered. From previous research, IT project implementation can fail due to various factors. (Harindranath et al, 2008) some of which include: an organization may do it without proper planning, monitoring, and control, a project can easily get off track and fail to meet its objectives. This can include lack of clear project scope, inadequate risk management, and poor communication among project team members. Proper planning, monitoring, and control are essential for the success of any IT project, as failure to do so can result in the project going off track and failing to meet its objectives. This can be caused by a lack of clear project scope, inadequate risk management, and poor communication among project team members. Without these key elements, an organization may struggle to successfully implement their IT project. The scope of the project may change over time, leading to increased costs, delays, and ultimately failure. This can be caused by changing customer requirements, lack of clear project scope, and poor communication among stakeholders. (Varajão et al, 2018) Furthermore, without the support and engagement of stakeholders, the project may not be able to achieve its goals. This can include resistance

2.3. Collaborative information systems (CIS)

The integration of Information and Communication Technologies (ICTs) has become vital for modern business operations. It allows companies to enhance their performance, improve productivity and gain a competitive edge in the market. The automation of various processes through ICTs is one of the main ways it supports business activities. For instance, the use of enterprise resource planning (ERP) systems enables companies to manage their operations more effectively by automating tasks such as inventory management, supply chain management, and financial reporting. This helps in streamlining processes and minimizing errors, resulting in improved efficiency and cost savings. ICTs also support business activities through the use of communication and collaboration tools such as email, instant messaging, and video conferencing, which allow employees to communicate and collaborate with colleagues and clients in real-time, regardless of their location. This helps businesses to stay connected and make quicker, more informed decisions, thereby improving productivity and competitiveness. Furthermore, ICTs support business activities through the use of data analytics and business intelligence tools. These tools allow businesses to collect, process and analyze vast amounts of data, providing insights into customer behavior, market trends, and business performance. This helps businesses to make better-informed decisions, optimize operations, and identify new opportunities for growth (Islam, 2016: Bilan, 2019). Karsten (1999) explained that a collaborative information system (CIS) is a type of technology system that enables multiple users to work together and share information in real-time. CIS are designed to support collaborative activities such as communication, decision-making, problem-solving, and knowledge sharing. They can be used in various settings, including business, education, and research.

CISs can include various types of software and hardware, such as email, instant messaging, video conferencing, and document sharing platforms. They can also include social media, project management tools, and other software that support collaboration and communication. CIS can be integrated into existing IT infrastructure and can be used on a variety of devices, including desktop computers, laptops, tablets, and smartphones. The main goal of a CIS is to improve the efficiency and effectiveness of group work by providing a common platform for communication and sharing of information. It allows team members to access and share documents, data, and other resources, regardless of their location or time, which helps to increase productivity and reduce costs. Additionally, CIS can also help to facilitate knowledge management, by allowing team members to share their expertise and experience, which can lead to better decision-making and problem-solving. There are several benefits of a collaborative information system, for example, an organization can increase productivity by providing a central location for storing and sharing information. Additionally, it helps to reduce the need for repetitive tasks and data entry, freeing up time for more important work (Li et al, 2014). In summary, ICT is a powerful tool that can assist Small and Medium-sized Enterprises (SMEs) in enhancing their operations, gaining a competitive edge and expanding to new markets. Here are some examples of how ICT can be used to benefit SMEs in the manufacturing industry: Automation: ICT can be used to automate various processes in the manufacturing industry, such as material handling, quality control, and scheduling. This can help improve efficiency and reduce costs. Moreover, supply chain management: ICT can be used to track inventory, manage orders, and coordinate with suppliers and partners, enabling SMEs to better manage their supply chain. In addition, ICT can provide real-time data and analytics, which can be used to optimize production processes and improve decision making. Furthermore, ICT tools such as computer-aided design (CAD) software can be used to design and develop new products, allowing SMEs to remain competitive in a rapidly changing market. Last but not least, ICT can be used to provide customers with real-time information about the status of their orders and to resolve any issues that may arise. ICT can play a vital role in helping SMEs in the manufacturing industry increase efficiency, improve quality, and better serve their customers (Saka et al, 2022).

3. METHODOLOGY

The research design for this study follows the procedures outlined in Business Research Method. The researcher selected an industry sector which is SMEs on the objectives of the research. Both quantitative and qualitative research methodologies were applied to find success and failure factors as well as benefits, challenges, and opportunities in ICT adoption for SMEs. The data for this research was collected from SMEs in Songkhla province in the south of Thailand, using Google form surveys, on site interviews from the December of 2022 to the beginning of 2023. The classification of small and medium-sized enterprises was based on the Promotion of SMEs by the Small and Medium Enterprise Promotion Act (no 2), B.E. 2561 (2018). The proposed research framework is presented as follows: Figure 1 Research framework. A sample of 500 SMEs will be taken from a total population of 58,832 as per Open Government Data of Thailand (2022) using Yamane's formula. The goal is to collect a sample of 400 with a confidence level of 95% and a margin of error of 5%. In this research, 400 firms were used after data cleaning and examination. The study approach in this study includes several data analysis methods such as Analytic Induction using Power BI, Typological Analysis and data analysis and interpretation with statistical tools and data analytics using data mining techniques, specifically "K-means clustering" algorithm by Rapid Miner. The K-means clustering algorithm uses a distance metric to determine the similarity between data points. One such metric is the Manhattan distance, which is calculated as the sum of the absolute differences between the coordinates of two points.

In mathematical terms, it can be represented as the formula $d(p,q) = \Sigma\ |p1 - q1| + |p2 - q2| + ... + |pn - qn|$ where $d(p,q)$ is the Manhattan distance between points p and q, and p1, p2, ..., pn and q1, q2, ..., qn are the coordinates of the points in the n-dimensional space (Singh et al, 2013). The purpose of the algorithm is to identify patterns and structure in the data by grouping similar data points together. This can help in identifying patterns and structure in the data which can be useful in various applications such as market segmentation.
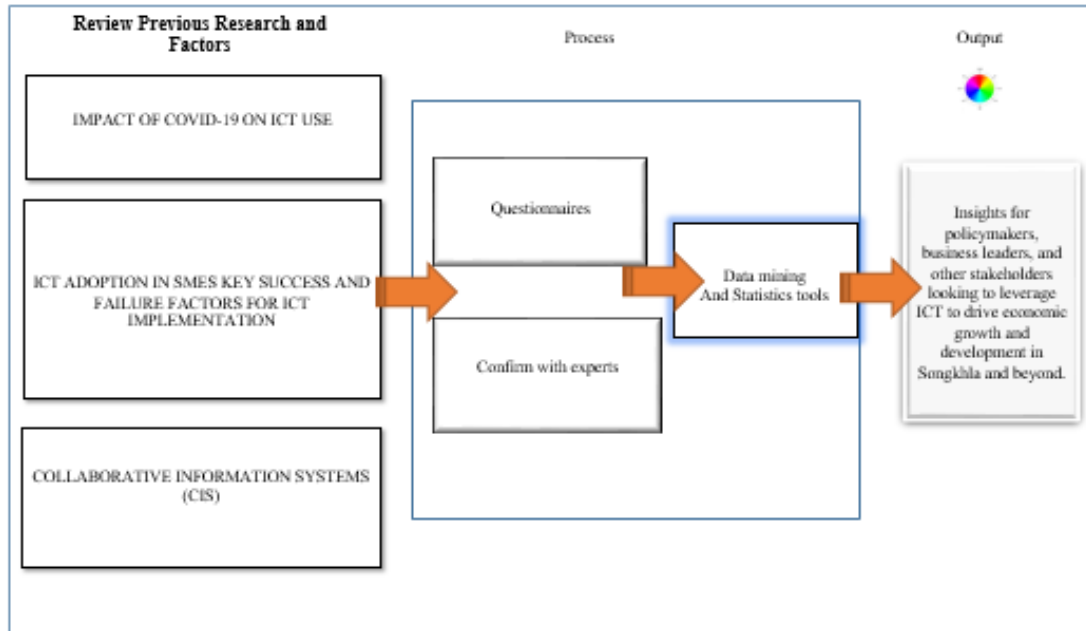

Figure 1: Research framework (By Author)

4. CONCLUSION

The survey population consisted of Small and Medium-sized Enterprises (SMEs) from various economically vital sectors in Songklha province, Thailand, which is known for its high level of productivity. The sectors included in the survey are detailed in Figure 2. The sample size for the study was 400 companies selected from the Songklha province and we received 506 responses.
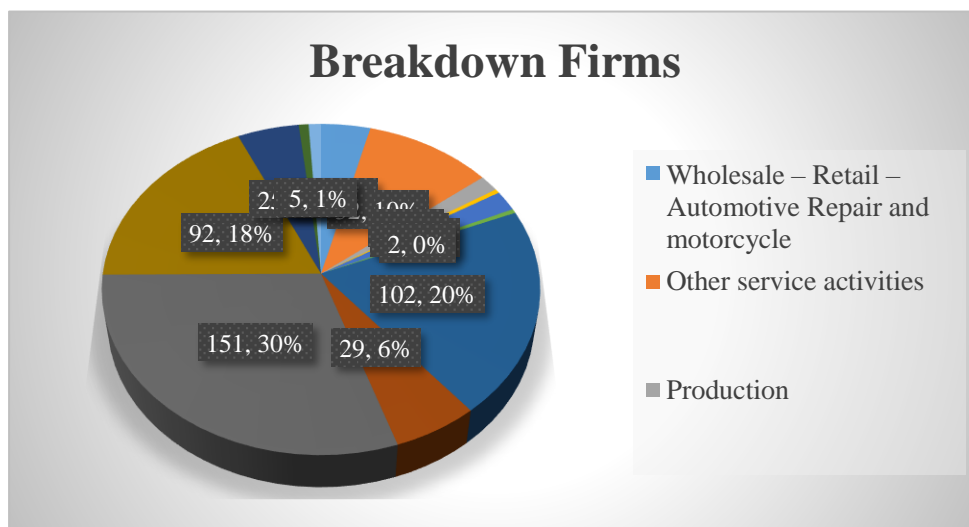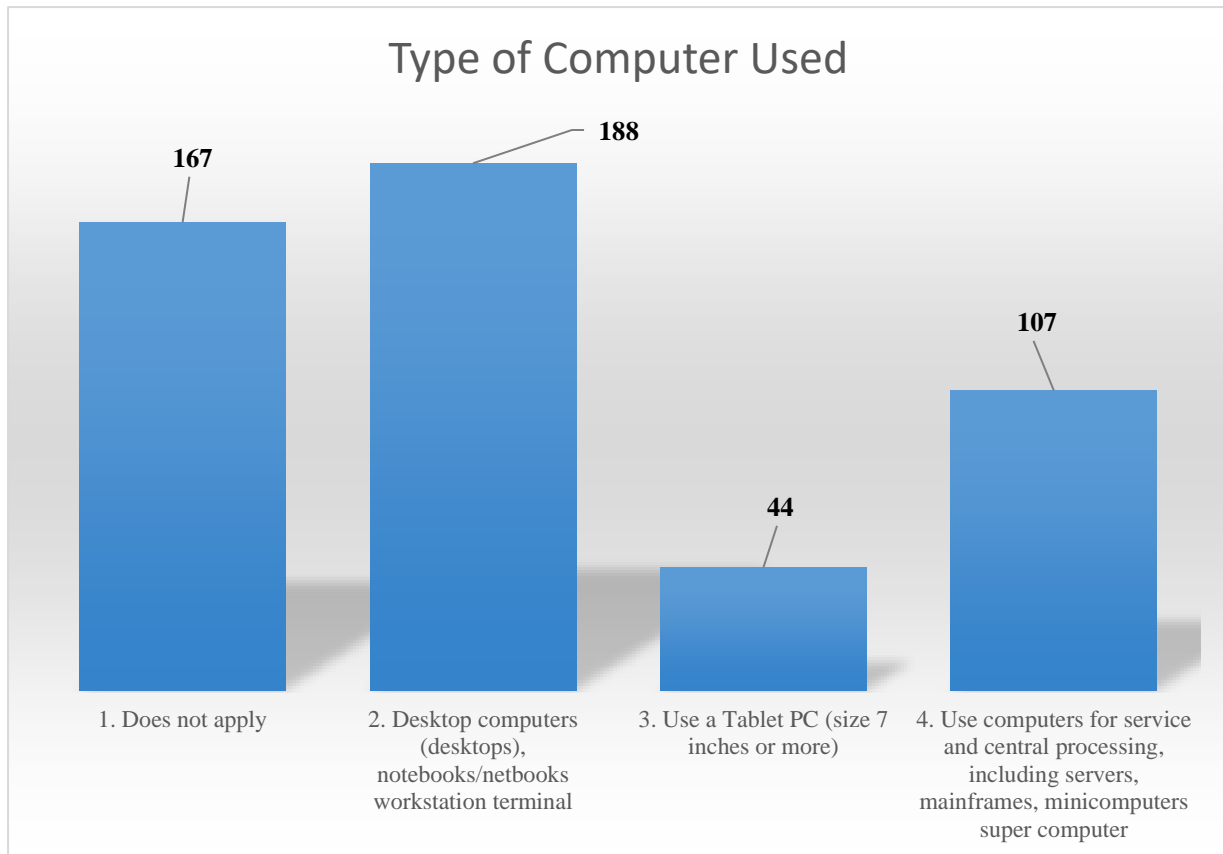

Figure 2: Breakdown Firms

Figure 3: Type of Computer Used

Figure 3 illustrates the types of computers commonly used in the survey, broken down by type. As seen, most firms in the survey primarily used desktop computers, notebooks/netbooks, and workstation terminals. However, it is worth noting that "Does not apply" is the second highest category. This may be due to a lack of funding or understanding of the benefits of ICT among the surveyed companies. Based on these findings, it is evident that a lack of computer or ICT usage can have detrimental effects on a company's operations and competitiveness. Without computers, tasks such as data entry, record keeping, and communication become more time-consuming and prone to errors, leading to inefficiencies and increased costs. Additionally, the absence of computers makes it challenging to collect, process, and analyze large amounts of data, hindering the ability to make informed decisions, optimize operations, and identify new growth opportunities. Furthermore, the lack of computers makes it difficult for employees to communicate and collaborate effectively with colleagues and clients, hindering productivity and competitiveness. Furthermore, not using computers or ICT puts a firm at a disadvantage when competing with other companies that have adopted these technologies to streamline operations, improve products and services, and reach new markets. Figure 3 also highlights the lack of strategic intent in the adoption of ICT by SMEs, as shown by the large percentage of survey data (33%) indicating "Does not Use." This is consistent with the competitive and cost-conscious nature of many SMEs' business environments, where the focus is on reducing costs rather than on long-term strategic benefits of ICT adoption.

4.1. Digital responses of SMEs to the COVID-19 crisis
During the COVID-19 outbreak, digital technology has played a vital role in reducing and mitigating risks related to social, physical and psychological factors, as well as helping to manage the long-term impacts of social isolation and loneliness resulting from lockdowns.
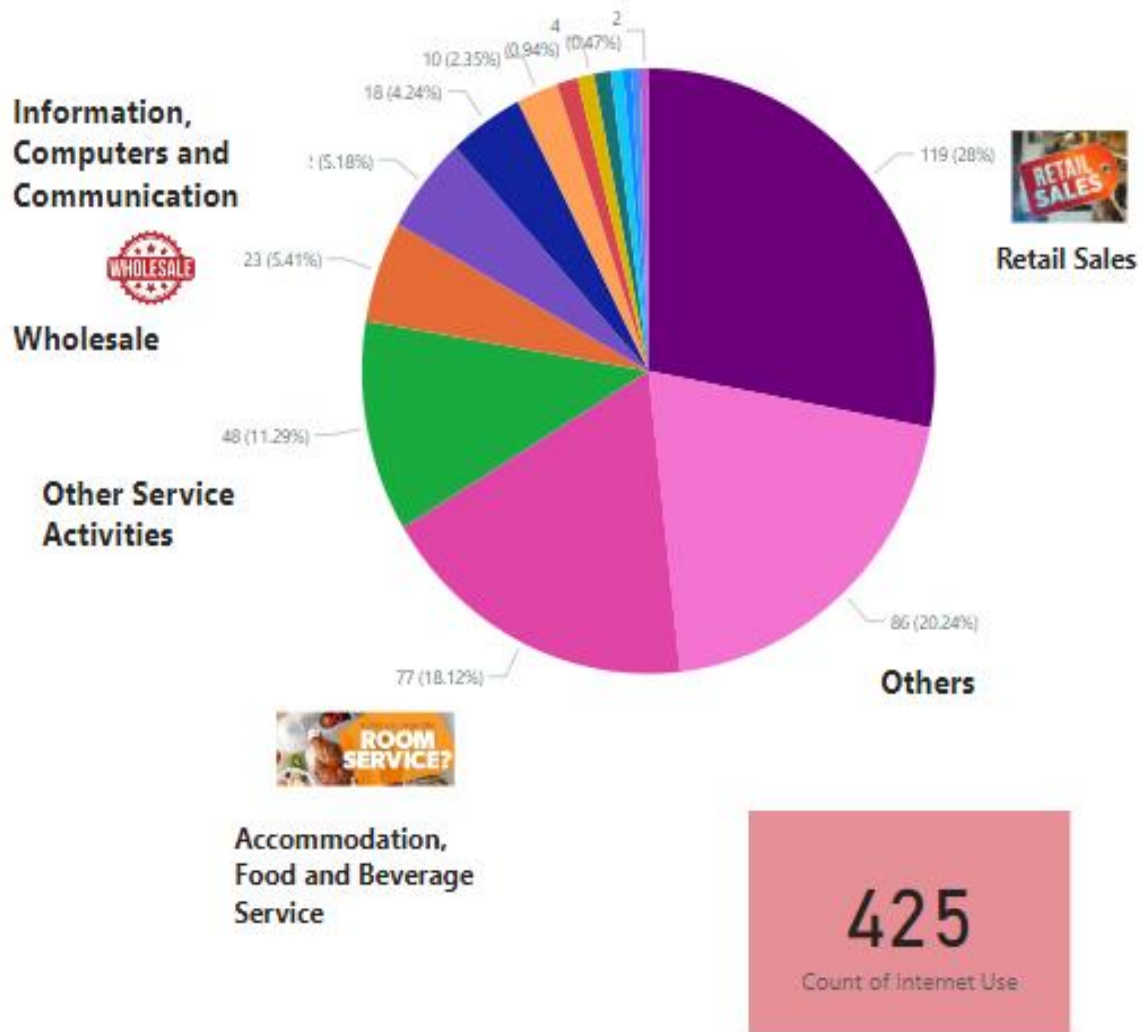
Figure 4: Count of Internet Used

As illustrated in Figure 4, many SMEs have turned to digital technologies and solutions to adapt to the crisis caused by COVID-19 and to remain operational. A significant number of SMEs have shifted their sales online to continue reaching customers during lockdowns and social distancing measures. This has allowed them to continue generating revenue and avoid the closure of physical stores, particularly in the retail sector, as shown in the figure. Out of the 506 companies surveyed, 425 of them used the internet in their business and only 81 firms did not use it. The descriptive data shows that the retail sector had the highest percentage of companies using the internet in their business (28.00%), followed by other sectors such as eyeglass shops (20.24%), accommodation, food and beverage service (18.12%), other service activities (11.29%) and wholesale (5.40%) respectively. As we would expect, SMEs have had to rapidly adapt to the crisis by turning to digital technologies and solutions to continue operating and reaching customers. With physical interactions and events limited during the crisis, many SMEs have turned to digital marketing to reach customers and promote their products or services. This includes using social media, email marketing, and online advertising to reach their target audience and share their expertise, they have turned to virtual events and webinars to provide valuable content and generate leads. These responses have allowed them to continue generating revenue, keep employees safe, and keep in touch with their target audience during the crisis.
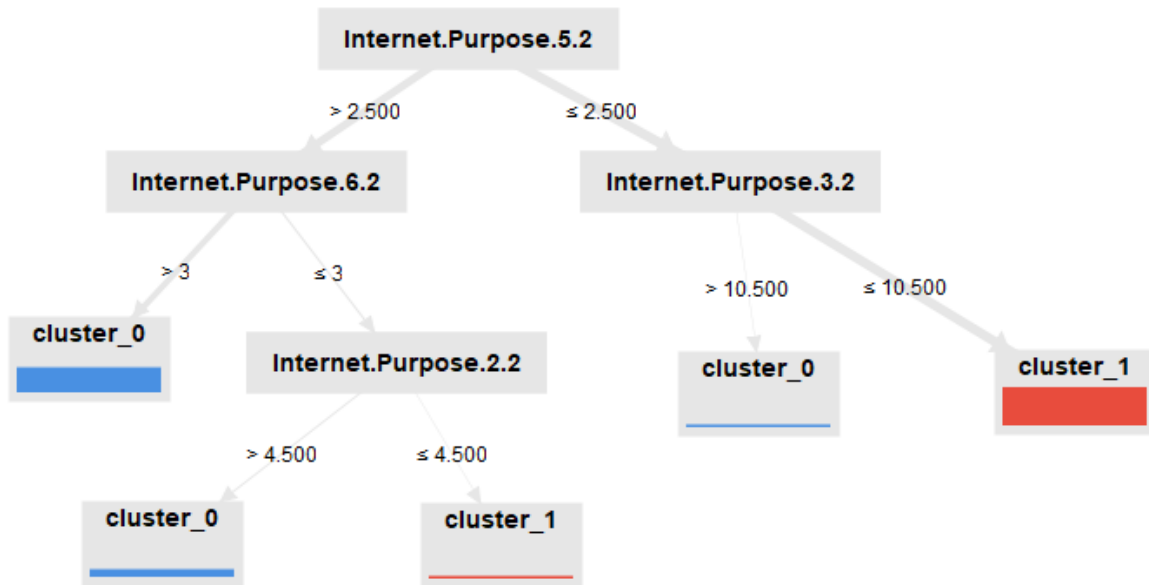
4.2. Commonly used ICT applications

Figure 5: K-Mean- Cluster Tree

In Figure 5, the tree representation shows the clusters formed, and the observations are represented by leaf nodes. This tree can be used to explore and understand the structure of the data and to identify patterns and relationships within the clusters. The figure demonstrates that most firms in the survey mainly focused on operational and functional tasks such as buying and selling goods and services or conducting business with partners (Internet Use Purpose 5.2), providing online delivery of digital services (Internet Use Purpose 6.2) and searching for information from government agencies (Internet Use Purpose 3.2). Notably, the task of finding information about a product or service (Internet Use Purpose 2.2) was prevalent across all sectors, as well as the use of ICT for sending emails (Internet Use Purpose 1). Having said this, the COVID-19 crisis has greatly impacted the way Small and Medium-sized Enterprises (SMEs) operate, forcing many to adapt and turn to digital technologies to reach customers and generate revenue. The pandemic has accelerated the need for digital transformation in SMEs, as physical interactions and events have been limited. As a result, many SMEs have shifted their sales online and increased their use of the internet for conducting business with partners and offering online delivery of goods and services. This has enabled them to continue operating and reaching customers during lockdowns and social distancing measures.

4.3. Opportunities for SME in Songklha
From the survey, we identified a number of several opportunities for SMEs. SMEs can leverage ICT to enhance their digital presence and reach new customers through e-commerce and digital marketing. With the increasing use of online platforms for shopping and searching for products and services, it is essential for SMEs to have a strong online presence in order to stay competitive with larger companies. They can also use ICT to improve their supply chain management, which can help them to more effectively manage their inventory and logistics, leading to cost savings and improved efficiency. In addition, from surveyed data, the lack of a collaborative information systems (CIS) and CRM system in place for SMEs in Songklha can hinder their ability to effectively manage customer interactions and data. This can result in missed sales opportunities, poor customer service, and an inability to identify and target high-

value customers. As shown in the figure 5, many SMEs only use ICT for specific single tasks such as searching for information or buying and selling goods and services. Without a CIS and CRM system, SMEs are unable to share information and collaborate with partners, suppliers, and customers in real-time, which can negatively impact their ability to build stronger relationships with customers and partners, leading to decreased loyalty and repeat business.

5. DISCUSSION AND CONCLUSION

As previously noted in literature on SMEs, the level and nature of ICT investments are often determined by the owner/manager. In many cases, these individuals lack a strong background in ICT or the necessary skills to assess the potential of such investments. Furthermore, they may be uninformed about the various support resources and mechanisms offered by regional and national agencies for SMEs. This lack of knowledge and capability is compounded by the absence of internal ICT advocates within the SME organization. The research findings indicate that Small and Medium-sized Enterprises (SMEs) need to be more strategic in their approach to utilizing Information and Communication Technologies (ICTs). The data suggests that SMEs are lagging behind larger companies in terms of utilizing ICTs effectively. In addition, agencies tasked with supporting the development of SMEs should reevaluate their strategies to address the lack of knowledge and expertise in ICTs that is prevalent among SME owner/managers.

5.1. Limitation and Future Work

This report may contain some inaccuracies, including sampling errors and discrepancies caused by other factors. Sampling errors may occur due to inaccuracies in the sample selection process, while non-sampling errors can include respondents providing untruthful information, incomplete answers to the questionnaire, and incorrect coding or data recording. Future research in this area should consider expanding the scope of the study to other cities and countries in Southeast Asia to identify regional variations in ICT adoption. Additionally, it would be beneficial to investigate the use of advanced technologies such as data mining and machine learning, and how they are being implemented by SMEs in Songkhla to improve their operations and competitiveness.

LITERATURE:

1. Ali, M.H., Suleiman, N., Khalid, N., Tan, K.H., Tseng, M.L. and Kumar, M., 2021. Supply chain resilience reactive strategies for food SMEs in coping to COVID-19 crisis. Trends in food science & technology, 109, pp.94-102.
2. Amage, N. and Thudam, P., 2023. Adaptation Potential of Small Business Entrepreneurs to Support Trade Liberalization in ASEAN Economic Countries. Case Study: Songkhla Province. Princess of Naradhiwas University Journal of Humanities and Social Sciences, 10(1), pp.315-333.
3. Baldwin, R. and Tomiura, E., 2020. Thinking ahead about the trade impact of COVID-19. Economics in the Time of COVID-19, 59, pp.59-71.
4. Bilan, Y., Mishchuk, H., Samoliuk, N. and Grishnova, O., 2019. ICT and economic growth: Links and possibilities of engaging. Intellectual Economics, 13(1), pp.93-104.
5. Chanin, O., Phooma, J., Somsuk, S., Temprasiri, P. and Chanin, C., 2016. Guideline to Thailand-Malaysia border SME entrepreneurs' management capacity to create competitive advantage for Songkhla province, Thailand. International Journal of Innovation, Management and Technology, 7(4), pp.153-156.
6. Chertchom, P., Yoshii, S., Charoenpong, P. and Yatsungnoen, T., 2019. Strategic approach to adopt ICT in SMEs. Journal of Engineering and Digital Technology (JEDT), 7(1), pp.73-80.

7. Harindranath, G., Dyerson, R. and Barnes, D., 2008. ICT adoption and use in UK SMEs: a failure of initiatives? Electronic journal of information systems evaluation, 11(2), pp91-96.

8. Islam, N., 2016. The use of information and communication technology (ICT) and business management: Contemporary issues and challenges. Available at SSRN 2856262.

9. Karsten, H., 1999. Collaboration and collaborative information technologies: A review of the evidence. ACM SIGMIS Database: the DATABASE for Advances in Information Systems, 30(2), pp.44-65.

10. Kazakov, S., Ruiz-Alba, J.L. and Muñoz, M.M., 2020. The impact of information and communication technology and internal market orientation blending on organizational performance in small and medium enterprises. European Journal of Management and Business Economics.

11. Li, J., Li, Q., Liu, C., Khan, S.U. and Ghani, N., 2014. Community-based collaborative information system for emergency management. Computers & operations research, 42, pp.116-124.

12. Mushtaq, R., Gull, A.A. and Usman, M., 2022. ICT adoption, innovation, and SMEs' access to finance. Telecommunications Policy, 46(3), p.102275.

13. National statistical office Thailand, NSO. (2021). Number of small and medium enterprises in 2021. Retrieved 18.01.2023 from https://data.go.th/en/dataset/https-sme-go-th-th-page-php-modulekey-348

14. Open Government Data of Thailand. (2022). The 2021 Establishment Survey on the Use of Information and [communication Technology. Retrieved 28.12.2022 from https://www.nso.go.th/ sites/2014/Pages/สำรวจ/เทคโนโลยีสารสนเทศ/เทคโนโลยีประกอบการ.aspx.

15. Rizki, M., Joewono, T.B., Irawan, M.Z., Belgiawan, P.F., Bastarianto, F.F. and Prasetyanto, D., 2023. Investigating influencing factors for ICT adoption that changes travel behavior in response to the COVID-19 outbreak in Indonesia. Case Studies on Transport Policy, p.100947.

16. Saka, A.B., Chan, D.W. and Wuni, I.Y., 2022. Knowledge-based decision support for BIM adoption by small and medium-sized enterprises in developing economies. Automation in Construction, 141, p.104407.

17. Singh, A., Yadav, A. and Rana, A., 2013. K-means with Three different Distance Metrics. International Journal of Computer Applications, 67(10).

18. Singh, R.K., Luthra, S., Mangla, S.K. and Uniyal, S., 2019. Applications of information and communication technology for sustainable growth of SMEs in India food industry. Resources, Conservation and Recycling, 147, pp.10-18.

19. Varajão, J., Magalhães, L., Freitas, L., Ribeiro, P. and Ramos, J., 2018. Implementing Success Management in an IT project. Procedia Computer Science, 138, pp.891-898.

20. Wójcik, D. and Ioannou, S., 2020. COVID-19 and finance: market developments so far and potential impacts on the financial sector and centres. Tijdschrift voor economische en sociale geografie, 111(3), pp.387-400.

THE PRIORITIZATION OF SUSTAINABLE DEVELOPMENT GOALS (SDGS) AMONG STUDENT OF SRIPATUM UNIVERSITY IN THAILAND

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ABSTRACT

The Sustainable Development Goals (SDGs) are a universal action to ensure peace and prosperity by 2030 by rising to meet various challenges. Achieving the SDGs requires every party to take part, including unversity students. This research aimed to study prioritization of SDGs and identify knowledge, perceptions and awareness about the SDGs among students at Sripatum Univesity in Thailand. The research instrument is divided into 2 parts: 1) priority level 17 goals of SDGs 2) Opinions about knowledge, perceptions and awareness. The data was collected using online questionnaire from 125 first-year students from 2 clusters. Statistics used in data analysis were frequency, percentage and standard deviation. The result showed that most of the respondents were male, 83 people of 66.4%. The age range is 18 -21 years old, 94 people, representing 75.2%. Clusters are science and engineer of 53 people accounted for 42.4% and social science of 72 people accounted for 57.6%. The top 5 SDGs according to mean were SDg4: Quality Education (mean = 4.51), SDG13: Climate Action (mean = 4.50), SDG3: Good Health and Well-Being (mean = 4.49), SDG8: Decent Work and Economic Growth(mean = 4.47), SDG5: Gender Equality (mean = 4.33). Of the total respondents, They believed that it is necessary to know about the SDGs 91.2 %, to perceive 92.0% and to aware 93.6%.
Keywords: SDGs, prioritization, knowledge, perception, awareness

1. INTRODUCTION

On 25 September 2015, the United Nations (UN) General Assembly adopted the 2030 Agenda for Sustainable Development, a general pledge to „transform our world" and "leave no one behind" in terms of the economic, social and environmental dimensions of sustainable development (UN, 2015) . Since the Sustainable Development Goals (SDGs) are voluntary, lack sanctions and have few mechanisms to ensure their achievement, the 2030 Agenda is a form of "soft" international law (van Zanten & van Tulder, 2018:212). The SDGs are a global 2030 agenda. The SDGs contain 17 goals for the 2015-2030 implementation period.Thailand has been actively involved in various both national and international forums in annouce of SDGs with the formulation of SDGs at the global level. Therefor Thailand has already compiled Strategic Planning 20 years and the thirteenth (2022-2025) Natinal Economic and Social Development Plan which in line with SDGs. The SDGs involves a five "Ps" agenda: people, prosperity, planet, peace and partnership and these five "Ps" are for all countries and peoples of the world, as seen in Figure 1, the following:

- People (social dimension) covering SDGs-1 to SDGs-6
- Prosperity (economic dimension) covering SDGs-7 to SDGs-10
- Planet (environment dimension) covering SDGs-11 tp SDGs-15
- Peace covering SDGs-16
- Partnership covering SDGs-17

Figure 1: Alignment of the sustainable development goals with the 5P

And from Sustainable Development Report (SDR), Thailand ranked 41st int the world which was the result of development in accordance with 4 of 17 sustainable development goals: SDG1 no poverty, SDG6: Clean Water and Sanitation, SDG8: Good Jobs and Economic Growth and SDG9: Innovation and Infrastructure.(Seangyai and Wisutthirattanakun, 2021) Then ranking in 2022 result found that Thailand was 44 in 163 country in the world and 3 in Asia and 1 in Asean member states which the fifth year in a row. Universities are institutions of higher education that are often considered centers of education. So teaching and learning about SDGs is important in a university setting. (Leal et al. 2019) Each Universiy in Thailand has supported of action SDGs without constrained by time and place for participate of each mission. Such as provide knowledge about sustainable development, learn and develop skill from closely unsustainable solution, bulid innovation and solutions though the SDGs, create current and future SDG implementers, demonstrate how to support etc. Miqdad (2020) said student as successors and agent of change in the nation are expected to have perceptions that can make a real contribution in the future. The purpose of this study was conducted in order to study prioritization of SDGs in opinion' s student and identify knowledge, perceptions and awareness about the SDGs among students at Sripatum Univesity in Thailand.

2. LITERATURE REVIEW
Sustainable Developmet Goals (SDGs) or the 2030 Agenda for sustainable development initiated by the United Nations has been a global agenda for a better future, covering 17 goals, namely:
1) No Poverty
2) No Hunger
3) Good Health
4) Quality Education
5) Gender Equality
6) Clean Water and Sanitation
7) Renewable Energy
8) Good Jobs and Economic Growth
9) Innovation and Infrastructure
10) Reducing Inequalities
11) Sustainable Cities and Communities

12) Responsible consumption
13) Climate Action
14) Life Below Water
15) Life on Land
16) Peace and Justice and
17) Partnerships for the Goals

The SDGs are a comprehensive and ambitious agenda for sustainable development, aimed at ending poverty, protecting the planet, and ensuring that all people have access to peace, justice, and prosperity. The priorities of the SDGs include ending poverty, protecting the planet, promoting peace and justice, and ensuring access to quality education and decent work opportunities. Implementing these goals will require the cooperation and commitment of all actors, including governments, the private sector, civil society, and individuals.

3. RESEARCH METHOD

The study was carried out at Sripatum University in Bangkok, Thailand. The private university is two clusters: science and engineer and social science in 5 colleges, 10 faculties, 65 curriculums. Data for the study were collected in November 2022 by an online questionnaire. Firstly, researcher team would describe objective in this study to the students for understanding by clearly and give list theree major part. As follow:

- The first part invoved basic information of students which were analysed as frequencies and percentages.
- The second part was involved the opinion of the participants in 17 goals sustainable development. This tool would give 5 scale of finding as following: 1 mean this SDG was more least important , 2 mean this SDG was least important, 3 mean this SDG was moderate important, 4 mean this SDG was important and 5 mean this SDG was most important. A total of 125 participants's opinion would be analysed as mean and standard deviation.
- The last part was made to check the knowledge, perception, and awareness of SDGs in 2 choice: neccessary and unnecessary.

4. RESULT AND DISCUSSION Characteristic of respondents

One hundred and twenty five students were responded to this research. The table of repondents' characteristics is shown in Table 1. Most of respondents were 83 (66.4%) male and 42 (33.6%) female student. In this research, the majority of participants were young (between 18-21 years, 75.2%) and young adults (between 22-26 years, 23.2%) There were from the science and engineer cluster (42.4%) and the social science and humanities (57.6)

Variables	Frequency	Percentage (%)
Gender		
Male	83	66.4
Female	42	33.6
Age		
18-21 years	94	75.2
22-26 years	29	23.2
More than 27 years	2	1.6
Cluster		
Science and Engineer	53	42.4
Social Science and Humanities	72	57.6

Table 1: Repondents' characteristics (n = 125)

4.1. Prioritization of SDGs

The result of priority of SDGs was shown in Table 2. From the student's opinion showed that SDG4: Quality Education was the first SDG which was important, the second was SDG13: climate action, the third was SDG3: good health and well-being, the fourth was SDG8: decent work and economic growth and the fifth was SDG5: gender equality. Beside the students showed that 5 last priority were SDG17: partnerships for the goals, SDG1: no poverty, SDG15: Life on Land, SDG14: life below water, SDG10: reducing inequalities, respectively.

17 Goals of Sustainable Development	Mean	SD	Prioritization
SDG1: No Poverty	4.03	.933	14
SDG2: Zero Hunger	4.17	1.003	10
SDG3: Good Health and Well-Being	4.49	.867	3
SDG4: Quality Education	4.51	.930	1
SDG5: Gender Equality	4.33	1.120	5
SDG6: Clean Water and Sanitation	4.31	.978	6
SDG7: Renewable Energy	4.25	.938	8
SDG8: Decent Work and Economic Growth	4.47	.845	4
SDG9: Innovation and Infrastructure	4.10	.999	12
SDG10: Reducing Inequalities	3.89	.904	17
SDG11: Sustainable Cities and Communities	4.25	.979	8
SDG12: Responsible Consumption	4.29	.947	7
SDG13: Climate Action	4.50	.936	2
SDG14: Life Below Water	3.98	.028	16
SDG15: Life on Land	3.99	.020	15
SDG16: Peace and Justice	4.11	.951	11
SDG17: Partnerships for The Goals	4.06	.938	13

Table 2: Prioritization of 17 goal of sustainable development from opinion of students

4.2. Knowledge, perception, and awareness

As seen in Table 3, Of the 125 students who participated in the survey, 114 showed that access to knowledge of SDGs were necessary (91.2%) but 11 were different because they thought that access to knowledge of SDGS was unnecessary (8.8%). As same as opinion of 115 student showed that perception of SDGs were necessary (92%) but 10 were different thinking because they thought that perception of SDGS was unnecessary (8.0%). And awareness of SDGs, 117 showed that SDGs were necessary (93.6%) but 8 students (6.4%) thought different.

Variables	Frequency	Percentage (%)
Knowledge		
Necessary	114	91.2
Unnecessary	11	8.8
Perception		
Necessary	115	92.0
Unnecessary	10	8.0
Awareness		
Necessary	117	93.6
Unnecessary	8	6.4

Table 3: Knowledge, perception and awareness of student about SDGs (n = 125)

5. DISCUSSION

In Thailand everyone has known "Philosophy of Sufficiency Economy" from King Bhumibol Adulyadej of Thailand in 1997. And now the term "Sufficiency Economy Philosophy" has become poular in the world and seen as an alternative framework for all country in the future.

Sufficiency Economy comprises three main elements: 1) moderation 2) reasonableness and 3) self-immunity, and two conditions: knowledge and morality. In addition, the King offers an alternative development aiming to reach three aims: unity, balance and sustainability. Before going this study researcher team ask about SDGs from the first year student, more than 95 % were unaware of them. On the contrary if researcher team used "Sufficiency Economy Philosophy", all of them knowed and implement some. After more than six years, the students had studied sufficiency economy subject by learning and implementation in secondary education. When researcher teams told them to answer online questionnaire, first time they heard new word SDG, University students generally must said that they do not know the SDGs. So this research study showed that the majority of students had a positive knowledge of SDGs (91.2%), perception of the SDGs (92%) and awareness of SDGs (93.6%). This is also what has been a concern for research on sustainable reports disclosed by university (Ceulemans, Molderez and Van Liedekerke, 2015). The priority of SDGs from this research had gotten the student's opinion by need. SDG4: Quality Education, SDG13: climate action, SDG3: good health and well-being, SDG8: decent work and economic growth and SDG5: gender equality respectively were the top 5 SDGs. As closely as Maarten, Eric and Maria (2022) found that ranking the sustainable development goals were SDG2: No Hunger, SDG3: good health and well-being, SDG4: Quality Education, SDG8: decent work and economic growth and SDG9: Innovation and Infrastructure. This result describe that same 3 SDG (SDG3: good health and well-being, SDG4: Quality Education, SDG8: decent work and economic growth) but different 2 SDG (SDG2: No Hunger and SDG9: Innovation and Infrastructure) because of different location, this research studied in Thailand but Maarten, Eric and Maria's research had studied in small island state as said by Maarten, Eric and Maria that University learners' ranking of the SDGs revealed diferent valuations of sustainability domains, operationalized as Economy, Governance, Planet and Society. SDG3: Quality Education was the first priority important which participants choosed. We can describe that youths which 18-21 years want to be good future and good work or Decent Work and Economic Growth so they selected SDG8 and SDG3 too. The SDGs aim to ensure that all people have access to quality education and decent work opportunities. This includes ensuring that all children have access to free, equitable, and quality primary and secondary education, and that all youth and adults have access to relevant and quality technical, vocational, and tertiary education, including university education. Additionally, the SDGs aim to promote inclusive and sustainable economic growth, full and productive employment, and decent work for all. This study was interesting that participant choose gender equality which been substantial potential (Bina. 2018) and this year 2022 Thailand had gotten to accept free gender equality and reveal more. However the result in this study from the opinion of student had be interested SDG13: climate action which we can describe that this SDGs is to protect the planet. This includes taking urgent action to combat climate change, protecting biodiversity, and ensuring the sustainable use of natural resources. It also includes taking measures to improve air and water quality, and to reduce waste and pollution. This goal is critical in order to create a sustainable future and ensure that the planet is able to support human life for generations to come.

6. CONCLUSION

In conclusion our study participants demonstrated that need and necessary about knowledge, positive perception and awareness of the SDGs. The youths which was the first year student was been quality education for decent work and economic growth with good health and well-being and they wanted free gender equality. The finding are as same as other student but different country. Therefore, youth need only 3P: people, prosperity and planet.

LITERATURE:

1. United Nations. (2015). The Millennium Development Goals Report 2015. New York: United Nations.
2. United Nations. (2015). Transforming our world: The 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. A/RES/70/1 Un Gernal Assembly, Seventieth Session. Agenda items 15 and116. New Yorks: United Nations.
3. Novieastari, E., H.Pujasari, L.O.A.Rahman, A.Ganefianty and M.P. Rerung. (2022). Knowledge, perception, and awareness about sustainable development goals (SDGs) among students of a public university in Indonesia. *International Journal of Health Promotion and Education.*60:4, 195-203. Doi:10.1080/14635240.2022.2066557.
4. Krishna, S.H., G. Ilankumara, C.Balakrishnan, K.Aute and S.R. Patil. (2022). Knowledge, perception and awareness about sustainable development goals (SDGs) among students of Indian Public University. *Journal of positive school psychology.* 6: 5, 2501-2511 from htpp:/journalppw.com.
5. Ceulemans, K., Molderez, I. and Van Liedekerke, L. (2015). Sustainability Reporting in higher Education: A Comprehensive Review of the Recent Literature and Paths for Further Research. Journal of Cleaner Production. 106: 127-143. Doi: 10.1016/j.jclepro.2014.09.052
6. Omisore, A.G., Babarinde, G.M., Bakare, D.P. and Asekun-Olarinmoye, E.O. (2017). *Ethiop Journal Health Science.* 27: 6, 669-676. Doi: 10.4314/ejhs.v27i6.12.
7. Jati, H.F., Darsono,S.N.A.C., Hernawan, T., Yudhi W.A.S., and Rahman, F.F. (2019).Awareness and knowledge assessment of sustainable development goals among university students. *Jurnal Ekonomi & Studi Pembangunan.* 20:2, 163-175. Doi: 10.18196/jesp.20.2.5022.
8. Wahyu, S., Tri, P., Samudra, S., Aninda, R. and Erna, S. (2021). Dissemination of sustainable development goals through knowledge management systems utilization. *ICIC Express Letters.* 15:8, 877-886.
9. Christian, B., and Fernando, A. S. (2019). Knowledge management, the missing piece in the 2030 agenda and SDGs puzzle. *International Journal of Sustainability in Higher Education.* 20:5, 901-916. Doi: 10.1108/ijSHE-01-2019-0019.
10. Leal, F.W., Skanavis, A., Kounani, L.L., Brandli, C., Shiel, A, Do Paco, P, et al. (2019). The Role of Planning in Implementing Sustainable Development in a Higher Education Context. *Journal of Cleaner Production.* 235, 678-687. Doi: 10.1016/j.jclepro.2019.06.322.
11. Miqdad, M., E.G.Anugerah, A.B. Sulistyo and O.A.Wardhaningrum. (2020). An Assessment on Faculty Sustainability Reporting Guideline (FRSP): Indonesia's Sustainable Development Goals for Higher Education. *International Journal of Research in Business & Social Science.* 94-105. Doi: 10.20525/ijrbs.v9il.578.
12. Sangyai, K. and Wisutthirattanakun, S. (2021). The Achievement of the Sustainable Development Goals for the Development of Thailand. *Rajapark Journal.* 15:43, 14-24.
13. Maarten, B.E., Eric N.M. and Maria, J.S. (2022). Ranking the sustainable development goals: perceived sustainability priorities in small island states. *Sustainability Science.*17: 1537-1556. Doi: 10.1007/s11625-022-01100-7.
14. Bina, A. (2018). Gender equality, food security and the sustainable development goals. *Current opinion in Environmental Sustainability*. 34: 26-32.
15. Van Zanten, J.A. and Van Tulder, R.(2018) Multinational enterprises and the sustainable development goals: An institutional approach to corporate engagement. Journal of International Business Policy. 1: 208-233.