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## Article

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## Importance of Strategic Management of SMEs in E-commerce<sup>1</sup>

Veronika SVATOŠOVÁ\*

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### Abstract

*With the development of e-commerce, the area of interest of entrepreneurs and academics is focused on opportunities and strategic approaches to enhancing the competitiveness of enterprises that primarily trade electronically. This paper focuses on evaluating the importance of determinants of strategy and strategic management in the long-term development of small and medium-sized enterprises that primarily trade electronically and then to evaluate the importance of these determinants into the whole process of strategic management of enterprises primarily focused on e-commerce. The main aim of the paper is fulfilled through research carried out in several phases between a selected sample of small and medium enterprises oriented primarily on e-commerce. The collection and analysis of data from the research is realized by using the method of personal interviewing and the methods of statistical induction and descriptive statistics for the verification of the formulated main and partial hypotheses. The contribution of the paper is based on the identification of the importance of strategic management evaluated by SMEs focusing primarily on e-commerce, influencing their strategic position and the possibility of further development.*

**Keywords:** *small and medium-sized enterprises, strategy, strategic management, e-strategy, e-commerce*

**JEL Classification:** M00, M10, M19

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## Introduction

The area of small and medium-sized entrepreneurship is emerging and gaining popularity with its increasing importance in across the whole business field and economy (Cravo, Becker and Gourlay, 2015). The research (Koráb and Poměnková, 2014) investigates whether small and medium-sized enterprises in the Czech Republic, Slovakia, Poland and Hungary experienced a decline in access to external financing during the financial crisis. These firms are more likely to be affected by financing constraints than large, listed firms (Lamont, Polk and Saá-Requejo, 2001).

The research (Andries et al., 2016) has revealed that credit supply factors played the most important role in credit availability to small firms. According to Durgulu et al. (2016), SMEs are increasingly compelled to develop strategies to increase their effectiveness and sustainability, in order to gain financial and performance goals.

The paper focuses on the evaluation of the importance of strategic management in e-commerce. SMEs primarily focused on e-commerce reflect the same characteristics as the general level of small and medium-sized enterprises (Kunešová and Eger, 2017). These enterprises are exciting as many are highly entrepreneurial and are often involved in exploiting new innovations (Anvari and Norouzi, 2016). Due to the narrow specialization of the products and services offered, small and medium-sized enterprises in e-commerce can more precisely identify the target group of customers, including their specific needs (Feindt, Jeffcoate and Chappell, 2002). SMEs in e-commerce typically do not have a specific strategy defined for e-commerce and lack a conceptual and strategic approach to business development in the virtual environment (Grandon and Pearson, 2004, Grandon, Nasco and Mykytyn, 2011). E-commerce has been expanded in the short term, and new e-commerce businesses are emerging as well (Tu, 2016).

SMEs are known to face a much easier market failure than large enterprises in obtaining and processing the information needed to define their goals and strategies (Broome, 2016). SME managers have realized that e-commerce allows them to bring innovations to the market and to increase their competitive advantage more effectively (Villa et al., 2018).

There are three barriers to the development of e-commerce in small and medium-sized enterprises: high IT costs, a lack of financial resources and limited technical knowledge in enterprises (Choshin and Ghaffari, 2017). E-commerce will not succeed if people lack the required knowledge, fail to understand IT and e-commerce and lack the necessary standards, ideas and labels (Leung et al., 2018).

## Theoretical Framework

The research in the field of SMEs (Stokes and Wilson, 2010; Analoui and Karami, 2003; Deakins and Freel, 2012; Pavlák, 2013) shows that the success of SMEs depends more on business policy than on external pressures and factors affecting them. According to research (Holátová Březinová and Kantnerová, 2015), most Czech SMEs surveyed (60%) have a formulated strategy. Other research (Skokan, Pawliczek and Piszczur, 2013) performed among 677 SME from the Czech Republic and Slovakia confirmed that bigger enterprises pay more attention to strategic management and more often have made a full detailed strategy (strategic document). Aragon-Correa et al. (2008) confirmed the existence of a direct and positive relationship between financial performance and environmental strategies concerned with the development of preventive and innovative practices and eco-efficient practices. Strategy in SME is defined as a set of (Burke and Jarratt, 2004): planned activities being carried out to achieve stated objectives, resources and capabilities being deployed to action strategic decisions, market being entered, environments providing signals filtered through personal and entrepreneurial networks. According to Zich (2010), strategic continuity of level of goals has several important aspects. Defining goals must be based on the overall imagination of the development of company.

An e-commerce strategy is not only for online businesses. It defines both short-term and long-term e-business and e-commerce goals and includes careful and qualified planning (Hernández, Jiménez and Martín, 2009; Yoon and Chae, 2009; Raisinghani, Meade and Schkade, 2007). Strategic management therefore means introducing any measures within the organization to implement these strategies and all work-related activities, including the e-commerce strategy (Halici and Erhan, 2013). It is also important to define the methods of implementation and the evaluation of e-strategy (Chen, Pan and Ouyang, 2014). E-strategy also influences the traditional marketing mix as the product can also be expanded online as well as on the purchase site, not to mention the price of websites, online promotions and people who serve websites and so on (Chaffey and Smith, 2013). Managers should distinguish more types of customers and know how to deal with them to consolidate the loyalty of their customers and build brand and image, especially in competing industries (Ballestar, Grau-Carles and Sainz, 2018).

Lam and Harrison-Walker (2003) report that fifty models were developed to deal with strategic and decision-making processes for e-commerce ten years ago. Kao and Decou (2003), in their strategic management process in e-commerce model, highlight the main dimensions that influence the design and implementation of an e-strategy. Chang and Graham (2012) summarize the key critical success factors that affect strategic e-commerce projects: providing quality

information, a well-formulated plan, stakeholder acceptance, suitable staff, internal communication, and interactive feedback. Oliva, Sterman and Giese (2003) emphasize that the creation and implementation of an effective e-strategy should be fully subordinated to online and offline customers and should take into account current trends in the virtual environment. Power (2005) highlights the importance of resources (material, information, staff, capital) that are necessary to create a successful e-commerce strategy. Jiang and Yu (2009) emphasize that an e-strategy should be an exclusive part of the business strategy and cannot currently be overlooked in business development. On account of the specific determinants of strategic development and other specificities that arise from the virtual environment, phases and aspects of strategic management are identified for e-commerce (Fatta, Patton and Viglia, 2018).

## Material and Methods

The main aim of the research is to evaluate the importance of determinants of strategy and strategic management in the long-term development of small and medium-sized enterprises in e-commerce and then to evaluate the importance of these determinants into the whole process of strategic management of SMEs in e-commerce. The partial aim is to evaluate the strengths and weaknesses of selected SMEs in e-commerce in comparison with large enterprises in e-commerce in the process and stages of strategic management in e-commerce. The following empirical research methods are used: Method of personal interviewing – quantitative research in the form of a questionnaire survey. The questionnaire was then sent to owners or top managers of the selected enterprises electronically. Method of personal interviewing – qualitative research in the form of semi-structured interviews between selected enterprises primarily focused on e-commerce. Selected methods of statistical induction and descriptive statistics for the verification hypotheses formulated. Nonparametric tests are used to verify the research hypotheses (Kruskal-Wallis test (ANOVA), Friedman's test, Nemenyi's multiple comparison method).

The research aims to answer the following main research questions:

1. *What are the main determinants of strategic e-commerce management that determine the long-term strategic development of enterprises primarily focused on e-commerce?*
2. *What is the importance of determinants of strategy and strategic e-commerce management that is evaluated by SMEs primarily focused on e-commerce?*

The main hypotheses have been formulated to meet the main and partial aims of the research:

- *MH1: Enterprises primarily focused on e-commerce do not apply a comprehensive approach to the process of strategic management in the Czech e-commerce environment.*

- *MH2: There is a relationship between the size of enterprises and the size of the assets of enterprises primarily focused on e-commerce and the importance of the strategy, the determinants of strategic development and the determinants of strategic management in e-commerce.*

## **Research Sample**

A research sample of enterprises was identified according to the following criteria: Enterprises belonging to the category: SMEs primarily focused on e-commerce (with affiliated stone shops). SMEs are then compared to large enterprises. Enterprises that trade mainly through websites. Enterprises selling predominantly on the B2C market. Enterprises offering physical products. Registered main seat in the Czech Republic. Legal form of business: Joint Stock Company, Limited Liability Company. Existence of the enterprise on the market – at least 7 years (i.e. established in 2011 and earlier). A prerequisite is the trustworthiness and reliability of the enterprise (membership in the Association for Electronic Commerce or certification of a customer-verified award by Heuréka.cz). Enterprises that have at least one or more full-featured e-shop.

Studying the environment of Czech e-commerce has shown there is no comprehensive database of enterprises primarily focused on e-commerce. Therefore, the database was created on the basis of the restrictive criteria defined above. Each individual enterprise was searched for on the basis of the following main sources: List of Members of the Association for Electronic Commerce (APEK, 2018), Basic data from the Commercial Register (OR, 2018), Data from the Administrative Register of Economic Subjects (ARES, 2018). Based on the above-mentioned restrictive criteria, the research frame of enterprises consists of 367 enterprises. An electronic questionnaire was sent to them after a phone call. Due to the sensitivity of the data, anonymity was ensured for the enterprises. Semi-structured interviews were conducted with the eight selected representatives of the enterprises from the research sample to refine and supplement the results of the questionnaire survey, (Svatošová, 2019).

The research sample consists of 209 enterprises that responded to all inquiries in the questionnaire survey. The return of questionnaires was therefore 56.9%. According to Raosoft (2018) at a 95% confidence level and 5% error tolerance, a representative sample of 188 respondents is recommended. The representativeness of the research sample is therefore ensured. The results of the questionnaire

survey are broken down by enterprise size into the following categories: micro enterprises (up to 10 employees), small enterprises (up to 50 employees), medium enterprises (up to 250 employees), large enterprises (up to 500 employees) and large enterprises + (over 500 employees). Furthermore, the research sample is divided according to the size of the assets of enterprises into the following categories: A: up to 10,000 thous. CZK, B: up to 50,000 thous. CZK, C: up to 100,000 thous. CZK, D: up to 200,000 thous. CZK, E: up to 300,000 thous. CZK, F: up to 500,000 thous. CZK, G: up to 1,000,000 thous. CZK, H: over 1,000,000 thous. CZK.

## Results and Discussion

### *Results from the Quantitative Research*

Table 1 summarizes the importance of strategy in e-commerce evaluated by enterprises primarily focused on e-commerce in the long-term development, broken down by enterprise size (micro, small, medium, large, large +). Altogether, 76 enterprises, i.e. 36.36%, identified the implementation of e-commerce strategy in the long-term development as very important, 66 enterprises as significant, i.e. 31.58% of enterprises, 42 enterprises as less significant, i.e. 20.1% of enterprises, and 25 enterprises as insignificant, i.e. 11.96%. Altogether, 85, i.e. 40.67% of enterprises, formulate an e-commerce strategy in written form, see Table 2. The larger the enterprise size, the higher the likelihood that the enterprise will have an e-commerce strategy formulated in written form. The results confirm the outcomes of the secondary surveys (Srpová and Řehoř, 2010; Blažková, 2007, Šebestová and Nowáková, 2013, AMSPŽ, 2011, Holátová, Březinová and Kantnerová, 2015; Nadeem et al., 2018; Prashant, 2009; Richard et al., 2010; Leung et al., 2018) that only minority enterprises choose to design and implement a systematic approach to create and implement an e-commerce strategy.

Table 1  
Importance of Strategy in E-commerce

Importance of strategy in e-commerce	None	Less important	Important	Very important	Total
Micro enterprises	7	11	17	16	51
Small enterprises	10	17	26	32	85
Medium enterprises	4	10	13	14	41
Large enterprises	2	1	3	6	12
Large enterprises +	2	3	7	8	20
Enterprises in total	25	42	66	76	209
Enterprises in total (in %)	11.96	20.10	31.58	36.36	100

Source: Oown processing.

Based on previous results of secondary researches (Svatošová, 2016; Skokan, Pawliczek and Piszczur, 2013; Pavlák, 2013; Halici and Erhan, 2013; Zich, 2010; Nadeem et al., 2018; Prashant, 2009; Richard et al., 2010; Leung et al., 2018) that for SMEs in e-commerce, the strategy could be considered as unimportant or less important (almost 30% cases). There are also interesting findings that 25% of large enterprises have the same meaning. These results may be a consequence of incorrect formulating and implementing the strategy into business processes as the other secondary results provided (Holátová, Březinová and Kantnerová, 2015; Skokan, Pawliczek and Piszczur, 2013; Blažková, 2007; Šebestová, 2005; Šebestová and Nowáková, 2013; Kunešová and Eger, 2017; Marković, Čavoški and Novović, 2016). The same interesting results occurred in case of the strategy formulation in the written form. Although the key success factor of the successful strategy implementation is its formulation in the written form (Blažková, 2007; Srpová and Řehoř, 2010; Analoui and Karami, 2003; Carter and Jones-Evans, 2012), almost 60% of surveyed enterprises do not formulate the strategy in the written form as the previous researches confirmed. Although 9 of large enterprises consider the strategy in e-commerce as very important or important (from the total 12 enterprises, only 6 of them have formulated the strategy in the written form. In the practise, written systematic document about strategy is many cases missing as personal interviewing confirmed.

Table 2

**Formulation of an E-commerce Strategy in Written Form**

Formulation of an e-commerce strategy in written form	Yes (absolute frequency)	No (absolute frequency)	Yes (relative frequency) (in %)	No (relative frequency) (in %)
Micro enterprises	20	31	23.53	25.00
Small enterprises	28	57	32.94	45.97
Medium enterprises	18	23	21.18	18.55
Large enterprises	6	6	7.06	4.84
Large enterprises +	13	7	15.29	5.65
Enterprises in total	<b>85</b>	<b>124</b>	<b>40.67</b>	<b>59.33</b>

Source: Own processing.

Another question of the questionnaire survey is to find out how much of a priority the focus of the e-commerce strategy is. The following Table 3 lists the results broken down by enterprise size. In total, 31 enterprises, i.e. 14.83%, do not have a strategy specified, 47 enterprises, i.e. 22.49%, focus the strategy on quality, 41 enterprises, i.e. 27.27%, focus the strategy on stabilization and 33 enterprises, i.e. 15.79% focus the strategy on maximizing profit. Micro enterprises focus the strategy on quality, small enterprises focus the strategy on stabilization and development, while medium and large enterprises focus the strategy on development. Only 14.83% of enterprises have no strategy in e-commerce

specified, and most enterprises focus their strategy in e-commerce on development without the distinction of the enterprise size. The most of large enterprises focus their strategy on stabilization and development, as the sign of a certain business and economic development of the enterprise. This statement was also confirmed in personal interviewing with selected surveyed enterprises. The SMEs focus their strategy mostly on quality and stabilization that reflect the most obvious position of SME on the market in general and in practise.

Table 3

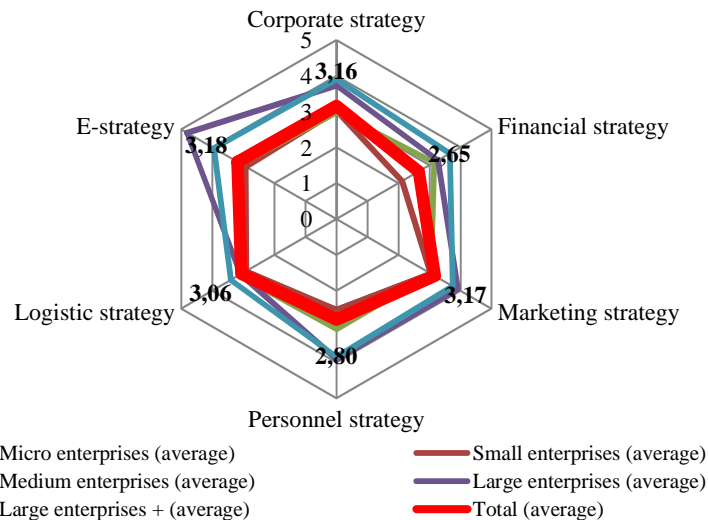
**Prioritization of the E-commerce Strategy**

<b>Prioritization of the e-commerce strategy</b>	<b>Not specified</b>	<b>On quality</b>	<b>On stabilization</b>	<b>On development</b>	<b>On maximizing profit</b>	<b>Total</b>
Micro enterprises	8	14	12	10	7	51
Small enterprises	17	16	19	19	14	85
Medium enterprises	6	6	4	15	10	41
Large enterprises	0	6	0	4	2	12
Large enterprises +	0	5	6	9	0	20
Enterprises in total	<b>31</b>	<b>47</b>	<b>41</b>	<b>57</b>	<b>33</b>	<b>209</b>
Enterprises in total (in %)	<b>14.83</b>	<b>22.49</b>	<b>19.62</b>	<b>27.27</b>	<b>15.79</b>	<b>100</b>

Source: Own processing.

Another part of the survey focused on the importance of individual functional strategies evaluated by enterprises primarily focused on e-commerce on the rating scale 1 – 5 (1 – the least significant, 5 – the most significant). The following Figure 1 (based on the arithmetic mean) shows the aggregate evaluation broken down by enterprise size. The most significant is the overall strategy in e-commerce (e-strategy) – 3.18, marketing strategy – 3.17 and corporate strategy – 3.16. The least significant on average is the financial strategy – 2.65 and the personnel strategy – 2.80. From the overall evaluation, it is clear that the larger the size of the enterprise is, the more important the functional strategies are evaluated: the most obvious is in the case of the financial strategy and personnel strategy. Consequently, smaller enterprises do not consider the area of financing and human resources to be equally important in strategic management. The functional strategies should be equally important in any enterprise regardless their strategic priority, size or scope of the activity (Blažková, 2007; Srpová and Řehoř, 2010; Analoui and Karami, 2003; Carter and Jones-Evans, 2012; Brončková and Bernátová, 2005). Based on personal interviewing, for SMEs in e-commerce financial and personnel management and strategy is not considered as priority, obviously because of limited number of employees in the field of HR and financing. Based on personal interviewing, SMEs have obviously in the field of HR and financing limited financial resources and lack of experience and knowledge. Among large enterprises this phenomenon has not been observed.

Figure 1

**Average Evaluation of the Importance of Functional Strategies by Enterprise Size**

Source: Own processing.

Another part of the questionnaire survey focused on the importance of the determinants of strategic development in e-commerce for the long-term development of enterprises on the scale 1 – 5 (1 – the least significant, 5 – the most significant). Determinants were identified based on previous research broken down by enterprise size (Svatošová, 2016).

In the *General aspects of strategic management* (i.e. Mission and vision, Situational analysis, Strategic planning, Formulation of corporate strategy, Implementation of corporate strategy, Strategic control), overall strategic planning (3.12) and the formulation of the corporate strategy (3.25) are best evaluated, missions and vision (2.24) and strategic control (2.44) are the least significant. In the category *Internal determinants of strategic development* (i.e. Corporate culture, Quality of top management, Marketing management and strategy, Financial management and strategy, Personnel management and strategy, Logistics management and strategy, Competitive advantage, Flexibility, Innovation ability, Financial condition, Security of e-commerce, Technological advancement of e-commerce, Payment systems in e-commerce, Web design, Reputation and brand), the technological advancement (3.12) and logistics management and strategy (3.10) are on average the most significant. On the other hand, financial management and strategy (3.37), personnel management and strategy (2.59) and corporate culture (2.58) were evaluated as the least significant. In the category *External Determinants of Strategic Development* (i.e. Orientation in the industry,

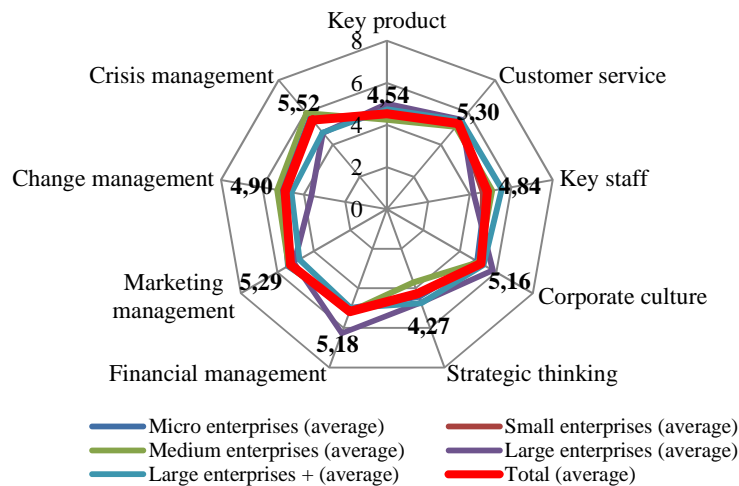
Ability to work with legislation, Negotiation with customers, Negotiation with suppliers, Struggle with the competition, Online shopping behaviour), the most important is the negotiation with customers (3.12) and online shopping behaviour (3.12); the least important is the ability to work with legislation (2.95). In summary, it can be said that the larger the enterprise is, the more significant the determinants of strategic development are.

In summary, that the larger the enterprises is, the more significant it assesses the individual determinants of strategic development. The results of the research again confirmed the results of secondary researches (Holátová, Březinová and Kantnerová, 2015; Šebestová and Nowáková, 2013; Skokan, Pawliczek and Piszczur, 2013; AMSPŽ, 2011; Halici and Erhan, 2013; Anvari and Norouzi, 2016; Roztocki and Weistroffer, 2015; Marković, Čavoški and Novović, 2016; Prashant, 2009; Richard et al., 2010; Leung et al., 2018) that in practice there is mostly underestimated the process of strategic analysis, the importance of mission and vision and strategic control. The personnel management and strategy and financial management and strategy are among the surveyed enterprises deeply underestimated regardless their size. Based on survey, the area of financial and personnel management and strategy are the weakest part of their strategic management. This may be caused by absence of qualified personnel in the surveyed area. Enterprises in e-commerce mostly focus their effort on IT quality personnel for their long-term business based on qualitative survey in the form of personal interviewing realized along with questionnaire survey (Svatošová, 2019).

In addition, the questionnaire survey identified the order of importance of key elements of strategic management in e-commerce for long-term development (1 – least significant, 9 – most significant). This ordering from 9 to 1 provides the information if all surveyed enterprises in summary consider these elements as equally important and if the surveyed enterprises use the systematic and comprehensive approach in the process of strategic management. Figure 2 provides a summary of descriptive statistics of the order of importance of the individual elements of strategic management (arithmetic mean). It is already clear that these elements are not valued by enterprises in the same way. The key elements of strategic development were identified on the basis of previous research (Svatošová and Svobodová, 2014). These elements are not equally important for enterprises. Theory and practice show (Blažková, 20007; Srpová and Řehoř, 2010; Analoui and Karami, 2003; Carter and Jones-Evans, 2012; Brončková and Bernátová, 2005; Marković, Čavoški and Novović, 2016; Prashant, 2009; Richard et al., 2010; Leung et al., 2018) that the definition key elements of strategic management should be evaluated equally important, into the process of strategic management. However, the surveyed enterprises also underestimate this area.

Figure 2

### Evaluation of the Importance of the Key Elements of Strategic Management by Enterprise Size



Source: Own processing.

The last part of the questionnaire survey deals with the importance of the determinants of individual phases of strategic management in e-commerce on the rating scale 1 – 5 (1 – least significant, 5 – most significant). Phases with determinants are following: *Analysing* (i.e. Analysis of online customer and online shopping behaviour, Analysis of the competition, Analysis of suppliers, Risk analysis, Analysis of the external environment of e-commerce, Analysis of the internal environment of e-commerce, Financial analysis), *Preparation and formulation of the strategy* (i.e. Determination of the mission and vision, Design and testing of strategic variants (creation of scenario), Determination of the business and corporate strategy, Determination of the strategy in e-commerce, Determination of the marketing strategy, Determination of the logistics strategy, Determination of the financial strategy, Determination of the personnel strategy), *Planning* (i.e. Determination of strategic business goals, Determination of the functional strategic goals, Determining partial strategic tasks, Determination of key competences, Determination of key staff, The identification of projects to implement the strategy, Identification of the available and necessary financial and material resources, Setting a timetable, Setting the evaluation and measurement criteria to meet strategic goals, Identification of data, information and knowledge to meet strategic goals, Creating the functional, or process strategic plans), *Implementation* (i.e. Allocation of financial and material resources, Implementation of projects, Measures to meet strategic business goals, Measures to meet functional strategic goals, Action to modify the plan to meet strategic

goals), *Control* (i.e. Monitoring, evaluation and measurement of the fulfilment of strategic business goals, Monitoring and evaluation of the fulfilment of functional strategic goals, Determination of the measures to update or change the strategy), *Any phase* (i.e. Key managerial competences, Delegation and decentralization, Flexibility, Vision of the future and prediction of development, Teamwork, Decision-making, Communication and motivation, Key staff).

Determinants were compiled on the basis of literary research (see Svatošová, 2016). Findings of the survey show that enterprises primarily focused on e-commerce do not evaluate all phases of strategic management as equally important. In the Analysis phase, online customer analysis (3.44) is the most significant, on the other hand, the analysis of the external environment (2.61) is the least significant. In the Preparation and formulation of the strategy phase, the determination of the strategy in e-commerce (3.12) is the most significant, on the other hand, the determination of the mission and vision (2.24) is the least significant. In the planning phase, the definition of key competencies (3.12) is the most significant, on the other hand, the determination of strategic business goals (2.24) is the least significant. Only the Implementation phase is, on average, almost equally significant. Conversely, the Control phase is on average level and the comparison with the other phases is considered to be the least significant. For each stage, teamwork is the most significant (3.12), while the key managerial competencies are the least significant (2.74). In general, all phases in strategic management are not evaluated with the same priority regardless the size of enterprise. Based on these results and from the hypotheses verification, e-commerce-oriented enterprises do not provide a systematic and comprehensive approach to the process of strategic management in e-commerce. In general, the situational analysis, mission and vision, determinants in control phase, financial and personnel issues in management and strategy are underestimated regardless the size of enterprise. In general the phase Analysis and Control is the whole process underestimated that may cause possible long-term ineffectiveness in the process of strategic management in e-commerce.

### ***Results from the Qualitative Research***

Eight enterprises in the survey were selected from the research sample to equally represent enterprises by size (micro, small, medium and large enterprises) to compare and trace common features and differences, strengths and weaknesses in strategic management in e-commerce. *All enterprises surveyed have common features in the process of strategic management process in e-commerce:* their priority is oriented on needs and wishes of the customer, there is an important role of personalization, a certain form of interactive communication with the

customer can be traced, all enterprises use social networks to promote and communicate with customers, in all enterprises, the e-commerce strategy focuses on stabilization, development and quality, for all enterprises, the high quality of products and services is a priority, each enterprise offers some added value (loyalty program, discounts, regular events etc.), for each enterprise, a strategic approach to solving the problem and form of strategic thinking can be traced, all enterprises use multi-channel sales (online and offline), both offline and online sales are all considered as equally important, the security and trustworthiness of e-commerce is a priority, all enterprises combine both online and offline marketing forms of support, all of them have built up a good reputation and stable position in the online and offline markets, all enterprises apply a certain strategic approach to management and e-commerce strategy development and implementation.

In summary, from the personal interviewing, micro and small enterprises primarily oriented on e-commerce are more specialized in a particular market, and focuses on quality and stabilization more than on development. However, the process of strategic management is less sophisticated and not systematically and comprehensively addressed in enterprises. Medium enterprises have a similar strategic approach to small businesses, but they are more focused on strengthening strategic market positions. The process of strategic management is more sophisticated in medium enterprises, but there are some shortcomings based on the non-conceptual approach. For the comparison, the large enterprises in the e-commerce were selected, in which the sophisticated system of strategic management process and unique e-strategy defined the position of the best e-sellers. Unique e-commerce strategies help them to progress and strengthen their strategic position.

### ***Main Research and Partial Hypotheses Verification***

The following chapter verifies the main and partial research hypotheses of the research. The verification of hypotheses is performed at a significance level of  $\alpha = 0.05$ . The rejection or non-rejection of the verified hypothesis is decided on the basis of a comparison of the significance levels  $\alpha$  and the p-value, which is the minimum level of significance, for which the zero hypotheses can be rejected. Shapiro-Wilk's test confirmed that the selection does not come from the normal probability distribution at a significance level  $\alpha = 0.05$ , since  $p \leq \alpha$ . Therefore, the following nonparametric tests are selected for hypothesis testing: Kruskal-Wallis test (ANOVA), Friedman's test, Nemenyi's multiple comparison method. Hypotheses verification is performed by using the Statistica program (Kubanová, 2004).

An example of how to calculate and verify partial research hypotheses is given in the following case: *All phases of the process of strategic management in e-commerce are equally important.* This hypothesis is verified by using

Friedman's test. Since  $p \leq \alpha$ , i.e.  $p = 0.00$ , see Table 4. This hypothesis cannot be confirmed, so it can be stated that the phases of the process of strategic management are not considered equally important.

Table 4

**Friedman's Test**

The importance of phases of strategic management in e-commerce	Friedman's test (Phases of strategic management) ANOVA chi-qu. (N = 209, sv = 4) = 76.23337 p = 0.00000 Compliance coefficient = 0.09119, r = 0.08682			
	Average order	Sum of order	Average	Standard deviation
Analysis	3.25119617	679.5	3.02392344	0.577503658
Preparation and formulation of strategy	2.72009569	568.5	2.78648325	0.530980996
Planning	3.20334928	669.5	2.91474554	0.464155038
Implementation	3.50717703	733	3.05358852	0.635639474
Control	2.31818182	484.5	2.57256778	0.844269426

Source: Own processing (in Statistica program).

The zero hypotheses was rejected, therefore the multiple comparisons are being made to determine which pairs caused the hypothesis to be rejected. Thus, Nemenyi's multiple comparison method is used, which compares the sum of order (see the second column in Table 5) obtained for the Friedman test.

Table 5

**Neményi's Multiple Comparison Method**

Phases of strategic management		Analysis	Preparation and formulation of strategy	Planning	Implementation	Control
	Sum of order	679.5000	568.5000	669.5000	733.0000	484.5000
Analysis	679.5000	0	111	10	53.5	195
Preparation and formulation of strategy	568.5000	111	0	101	164.5	84
Planning	669.5000	10	101	0	63.5	185
Implementation	733.0000	53.5	164.5	63.5	0	248.5
Control	484.5000	195	84	185	248.5	0

Source: Own processing (in Excel).

Red-highlighted values are indicated for those pairs of phases that caused the hypothesis to be rejected. The hypothesis rejection was caused by two phases of analysis and preparation and formulation of the strategy, analysis and control, preparation and formulation of the strategy and planning, preparation and formulation of the strategy and implementation, preparation and formulation of the strategy and control, planning and control, implementation and control.

Table 6

**Main Research Hypotheses (MH) and Partial Research Hypotheses (PH) of the Research**

Main research hypothesis			Conclusion of hypothesis verification
<b>MH1: Enterprises primarily focused on e-commerce do not apply a comprehensive approach to the process of strategic management in the Czech e-commerce environment.</b>			<b>Not rejected</b>
Partial research hypothesis		Method of hypothesis verification	Conclusion of hypothesis verification
PH1a):	All determinants of strategic development in e-commerce are considered to be equally important by enterprises primarily focused on e-commerce.	Friedman's test	Rejected
PH1b):	The key elements of strategic management in e-commerce are equally important and evenly distributed.	Friedman's test	Rejected
PH1c):	The determinants of the individual phases of strategic management are considered equally important by enterprises primarily focused on e-commerce.	Friedman's test	Rejected
PH1d):	All phases of the process of strategic management in e-commerce are equally important.	Friedman's test, Neményi's multiple comparison method	Rejected
Main research hypothesis			Conclusion of hypothesis verification
<b>MH2: There is no relationship between the size of enterprises and the size of the assets of enterprises primarily focused on e-commerce and the importance of the strategy, the determinants of strategic development and the determinants of strategic management in e-commerce.</b>			<b>Not rejected</b>
Partial research hypothesis		Method of hypothesis verification	Conclusion of hypothesis verification
PH2a):	There is no relationship between the importance of the strategy in e-commerce and the size of enterprises primarily focused on e-commerce.	Kruskal-Wallis ANOVA	Not rejected
PH2b):	There is no relationship between the importance of the strategy in e-commerce and the size of the assets of enterprises primarily focused on e-commerce.	Kruskal-Wallis ANOVA	Not rejected
PH2c):	There is no relationship between the importance of functional strategies in e-commerce and the size of enterprises primarily focused on e-commerce.	Kruskal-Wallis ANOVA	Rejected
PH2d):	There is no relationship between the importance of functional strategies in e-commerce and the size of assets of enterprises primarily focused on e-commerce.	Kruskal-Wallis ANOVA	Rejected
PH2e):	There is no relationship between the importance of the determinants of strategic development in e-commerce and the size of enterprises primarily focused on e-commerce.	Kruskal-Wallis ANOVA	Rejected
PH2f):	There is no relationship between the importance of the determinants of strategic development in e-commerce and the size of assets of enterprises primarily focused on e-commerce.	Kruskal-Wallis ANOVA	Rejected
PH2g):	There is no relationship between the importance of determinants of individual phases of strategic management in e-commerce and the size of enterprises primarily focused on e-commerce.	Kruskal-Wallis ANOVA	Rejected
PH2h):	There is no relationship between the importance of determinants of individual phases of strategic management in e-commerce and the size of assets of enterprises primarily focused on e-commerce.	Kruskal-Wallis ANOVA	Rejected

Source: Own processing (in the Statistica program).

Moreover, the results of the sum of the order clearly show that the phases of the preparation and formulation of the strategy and control are significantly underestimated by enterprises compared to other phases of strategic management in e-commerce. The main and partial research hypotheses are presented in Table 6 and are verified by using selected methods of statistical induction.

### ***Final Discussion***

In summary, the results of the research confirm the results of the secondary researches (Blažková, 2007 Holátová, Březinová and Kantnerová, 2015, Šebesťová and Nowáková, 2013; Skokan, Pawliczek and Piszczur, 2013; AMSPŽ, 2011; Halici and Erhan, 2013; Anvari and Norouzi, 2016; Roztocki and Weistroffer, 2015; Marković, Čavoški and Novović, 2016; Prashant, 2009; Richard et al., 2010; Leung et al., 2018; Brončková and Bernátová, 2005), i.e. the strategy is generally underestimated among small and medium-sized enterprises and only a minority of them choose a systematic approach to creating and implementing the strategy. Although all functional strategies should be considered as equally important by enterprises in the process of strategic management of e-commerce, the surveyed enterprises determined significant differences between the defined functional strategies. The surveyed enterprises do not recognize the same importance for the determinants of strategic development, although they should be considered equally important in the process of strategic management. The surveyed enterprises do not evaluate all phases of strategic management as equally important. The e-commerce-oriented enterprises regardless their size do not apply a comprehensive approach in the process of strategic management in the Czech e-commerce environment.

### **Conclusions**

On the basis of all the parts of the research, it is possible to answer the following main research questions set out in the research methodology:

1. *What are the main determinants of strategic e-commerce management that determine the long-term strategic development of enterprises primarily focused on e-commerce?*

The determinants of strategic development in e-commerce were divided into the general aspects of strategic management, internal determinants of strategic development, and external determinants of strategic development that significantly influence the process of strategic management in e-commerce. The process of strategic management in e-commerce is divided into five phases: *Analysing*,

*Preparation and formulation of strategy, Planning, Implementation, Control.* In each phase, determinants have been identified that form and influence each phase. All identified determinants should be considered equally important in the process of strategic management in e-commerce. Research based on both qualitative and quantitative research has shown that surveyed enterprises attribute different meanings to different determinants in the process of strategic management. The results of research show that the surveyed enterprises most underestimate the following determinants of strategic development and the process of strategic management in e-commerce: mission and vision, strategic situational analysis, strategic control, corporate culture, personnel management and strategy, financial management and strategy, corporate culture, ability to work with legislation.

2. *What is the importance of determinants of strategy and strategic management in e-commerce that is evaluated by SMEs primarily focused on e-commerce?*

Although most enterprises consider the e-commerce strategy as very important or important, they do not apply a comprehensive approach to the process of strategic management in e-commerce. These enterprises do not give the determinants of strategic development and individual phases of strategic management in e-commerce the same meaning, although these determinants should be considered as equally important. Most often, these enterprises focus their strategy on development. Only two fifths of enterprises have an e-commerce strategy formulated in writing. Based on the results of the qualitative research, it was found smaller enterprises have greater shortcomings in the strategic management of e-commerce than larger ones. Smaller enterprises focus their strategy in e-commerce on quality and stabilization, larger enterprises focus their strategy in e-commerce on stabilization and development.

Based on the results of the qualitative and quantitative research, the following critical areas can be defined in the process of strategic management in e-commerce, regardless of the size of the selected enterprises: not applying a comprehensive and systematic approach to the process of strategic management in e-commerce; the determinants of strategic management and strategic development in e-commerce are not considered equally important; underestimation of the role and importance of mission and vision; a considerably underestimated strategic situational analysis, possibly supplier and competitor analysis or market analysis; situational analysis tools are not used in strategic management in practice; most enterprises lack a detailed written document dealing with the process of designing and implementing the e-commerce strategy; absence of a long-term strategic plan for business development; strategic planning is underestimated; a lack of comprehensive financial management and financial strategy; a lack of a comprehensive approach to managing financial policy; underestimation of the

role of personnel policy and personnel strategy; a lack of a systematic approach to innovation management and long-term business development, a lack of a comprehensive approach to change management; strategic control is underestimated in enterprises, it is limited to the evaluation of economic results; a lack of a system approach to building a corporate culture.

The Czech electronic market is undergoing constant growth and further growth potential. This potential should be used in the formulation and practical implementation of an e-commerce strategy focused on development and further expansion. The paper identified the common and distinctive features of small and medium-sized enterprises compared to large enterprises primarily focused on e-commerce, including the importance of the process of strategic management for the further development of e-commerce. All these pieces of knowledge can be used by the surveyed enterprises in their strategic management and their strategic position in e-commerce. The results of this research have been used for modelling and simulating the process business model of strategic management in e-commerce (Svatošová, 2019).

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