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## Article

# Innovative ecosystem : the role of lean management auditing

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**Abstract:** *The auditing of organizations' activities plays a crucial role in ensuring the direction chosen by top management and identifying early signs of upcoming changes and threats. The audit assesses the efficient use of resources and processes and promotes corporate credibility, which is essential from investors' perspectives, particularly in ecosystems of innovations. Meanwhile, little is known about lean auditing, which is crucial in achieving effective processes. This paper summarises the arguments and counterarguments within the scientific discussion on the issue of auditing. The research's primary purpose is to identify types of waste in auditing and formulate the principles of lean auditing. The systematic literature review and approaches for solving the problem based on grounded theory and triangulation of methods enabled the resolving of research problems. This article analyses the internal auditing standards and guidelines and uses in-depth interviews with 19 internal auditors from different Polish public organizations from 2017 to 2020. The choice of a qualitative approach resulted from the research phenomenon's open nature, with very few studies. It created a need for a reflective approach with respondents simultaneously being key informants and experts. The results of an empirical analysis showed that internal auditors little knew about the lean concept in audit processes. However, they noticed the benefits of using the lean concept in the audit. The research enabled the development of the model of lean auditing. It could help improve the audit process, which is particularly important from the innovation ecosystem perspective. Besides, one determined the waste of auditing and formulated the principles of lean auditing. The research results develop the audit theory and are helpful for practitioners. Improved internal audit better meets stakeholders' expectations regarding the spending of funds and implementation of tasks.*

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**Introduction.** The auditing of business activities plays a crucial role in ensuring corporate governance. Key topics of modern auditing include but are not limited to the financial and innovative ecosystem, regulation and supervision, corporate financial management, including the reliability of financial and non-financial information important for actors of the capital market, stock market, money market, forex market, derivatives market, and investment market. All these issues make one aware that auditing is strongly linked with business, management and accounting. It ensures corporate credibility, which is vital from the rating agencies' perspective. Therefore, one may agree with Cohen and Sayag (2010) and García-Meca et al. (2021) that internal auditing has become an indispensable control mechanism in any organization. However, very few academic studies have been conducted on the lean requirements of the auditing process.

Meanwhile, the audit is costly and time-consuming and influences all aspects of organizational life. This study fills out the identified research gap and formulates crucial research questions. This study could agree with researchers about the importance of creating models in science (e.g., Rosenblueth and Wiener, 1945; Friedman, 1974; Godfrey-Smith, 2009; Guest and Martin, 2021; Caputo et al., 2021). Therefore, this study also aims to create a novel lean auditing model, determine types of waste in auditing, and the benefits of using the lean concept in auditing.

The article structure was assigned to the assumed research goal and research questions. This study presents the literature review on lean management, its methods, and internal audit. Then, the research methodology, findings, discussion, and conclusions resulted from the research. Finally, the paper presents the avenue for future research.

**Literature Review.** The roots of lean management can be traced to the Toyota production system (TPS), a philosophy pioneered by the Japanese engineers Taiichi Ohno and Shigeo Shingo (Arnheiter and Maleyeff, 2005). It is well known that the TPS is also the process in which the just-in-time (JIT) production methods were birthed. Lean production eliminates waste (Muda in Japanese) so that all activities along the value stream create value, recognized as perfection. The reduction of waste is pursued through ongoing improvement (Womack and Jones, 1996; Agyabeng-Mensah et al., 2021). Lean is an approach to operations management. It aims to reduce any resource expended that does not add value to the end customer. Such a reduction is realized through systems redesign using, among others, value stream mapping. Lean management, linked with quality management practices, emphasizes mistake prevention, including a mistake-proofing system (poka-yoke) (Arnheiter and Maleyeff, 2005; Kadarova and Demecko, 2016; Dobrowolska, 2021).

Besides, lean management aims to reduce variability in business processes, including demand variability, manufacturing variability, and supplier variability. Manufacturing variability includes variations of final product or service quality characteristics and variations in task times (e.g., downtime, absence, fluctuation of staff competencies). Lean management tries to reduce this variation by establishing standardized work and by-pass procedures. Supplier variability includes uncertainties in quality and delivery times. The reduction in supplier variability is often achieved through partnerships and other forms of business cooperation. Marketing policy reduces demand variability (Arnheiter and Maleyeff, 2005). Lean management does not mean layoffs. Laying off the experienced employees would be inefficient since a knowledgeable person would no longer be available, and the remaining employees would be reluctant to participate in modernization projects. Hence, layoffs could be appropriate only if it becomes an absolute necessity and every effort to re-assign or re-train the employee fails (Emiliani, 2001).

Lean management uses many methods not only to organize the workplace but also to improve work processes. One of the methods is method 5S (S is an acronym for Japanese words seiri, seiton, seisō, seiketsu, and shitsuke; they could be translated as «sort», «set in order», «shine», «standardise», and «sustain»). Method 5S introduces and maintains order and discipline in the workplace. 5S internships are one of the foundations of creating a work environment conducive to pro-quality activities. It leads to harmonious work and continuous improvement of human relations, which translates into the organization's effectiveness (Gapp et al., 2008; Randhawa and Ahuja, 2017). Value Stream Mapping (VSM) analyses current processes creating value for the customer to improve the flow of value in the organization, both in the production and service areas (Hines and Rich, 1997; Singh et al., 2011; de Assis et al., 2021). Visual management is Masaaki Imai's way of presenting information visibly to employees and management (Bell and Davison, 2012; Tezel et al., 2016; Singh and Kumar, 2021). Work standardization is based on establishing precise procedures for each employee's work in a process, based on three elements:

- time (products or services has to be realized in a process to meet timely customer demand);
- the precise work sequence in which an employee performs planned tasks within a timeframe;
- the standard inventory keeps the process operating without any delay.

Once established, such standardized work is continuously improved through the Kaizen approach (Emiliani, 2008; Pereira, 2016). The Pull system is one of the management methods associated mainly with the concept of Lean Manufacturing. The method consists in replenishing only those materials that would be used up. The primary assumption of this method is to deliver the right amount of material at the right time and place (Kimura and Terada, 1981; Araújo et al., 2021). The business model canvas enables the realization of this assumption (Dobrowolski and Sulkowski, 2021b).

Internal auditing plays a vital role in theory and practice. Researchers emphasize the importance of internal auditing in reducing operational risk, improving processes and structures, and the role of new technologies in strengthening audits (Dittenhofer, 2001; Fadzil et al., 2005; Allegrini et al., 2006; Hass et al., 2006; Lenning, 2018; Pizzi et al., 2021; Chiarini et al., 2021; Dobrowolski, 2022). Besides, the role of external auditing in modern countries is addressed in the literature. Various researchers showed that auditors aim to objectively evaluate State functions (e. g., Mosher, 1979; Blume and Voigt, 2011; Bringselius, 2014; Dobrowolski, 2001, 2003, 2017, 2020, 2021a; Cordery and Hay, 2019; Sulkowski and Dobrowolski, 2021). Auditing as a process is targeted at effectiveness. It means that auditing should enhance the effectiveness of the audited processes, and simultaneously the internal auditing functions should operate effectively (Dittenhofer, 2001; Cook et al., 2016; Dobrowolski, 2021b). Some authors (Karim and Siegel, 1998; Deshmukh et al., 1998; Dobrowolski and Sulkowski, 2020a, 2020b; Dobrowolski et al., 2022) point to the importance of audits in preventing public ethnocentrism, fraud, corruption, and money laundering. Furthermore, by using efficient audit processes, it is possible to reduce reputational risk and attract more socially aware investors (Cayón and Gutierrez, 2021; Kostiukevych et al., 2020), improve the internal customer relationship and overall quality of the corporate governance system (Jerzemowska and Koyama, 2020; Mishchuk et al., 2020). The mere existence of an efficient internal audit system in the organization deters potential perpetrators from committing illegal acts.

The researchers noticed areas of auditing deficiencies. For example, Kaziliunas (2008) argued that the crucial constraint of auditing stems from a lack of auditors' interpersonal skills or experience to effectively engage both leading board directors and the employees in maintaining the quality of production or service according to ISO standards' requirements and quality management principles. Alles et al. (2008) noticed that the ongoing development and implementation of automation in auditing lead to changes in internal audits. The analysis of big data set becomes possible. Bonner (1990) pointed out that the assessment of the correctness of the conducted audit is complex, as there are sometimes no objective criteria for such an assessment. In such situations, the opinion of an experienced auditor is a substitute for objectified audit measures. Auditors achieve their goals and present the research results in written reports. Is the audit process lean since the auditors require it from the audited entities? This question remains unanswered. The lack of objective measures for assessing auditors' work and their effects on the audited organization may lead to irregularities. One of them is avoiding complex problems by auditors, focusing on short-term problems instead of in-depth analyses aimed at long-term improvement of the audited activity (Dobrowolski, 2021).

Internal auditing is carried out in diverse legal and cultural environments within private or public organizations that vary in goal, size, complexity, and structure. Therefore, there is a need to standardize internal audit practices to ensure that internal audit fulfils its requirements in each environment. The Institute of Internal Auditors developed the International Standards for the Professional Practice of Internal Auditing (Standards), enabling the meeting of the responsibilities of internal auditors and the internal audit activity. The purpose of the standards is to:

- 1) determine basic principles that represent the practice of internal auditing;
- 2) provide a framework for performing internal auditing;
- 3) determine the means of evaluating the internal audit performance;
- 4) foster improved organizational processes and operations (The Institute of Internal Auditors, 2016).

The International Standards for the Professional Practice of Internal Auditing (Standards) in Standard 1210 – Proficiency. It informs that internal auditors must possess the knowledge, skills, and other competencies needed to perform their responsibilities. The internal auditors must collectively possess or obtain the knowledge, skills, and other competencies required to fulfil their responsibilities (the Institute of Internal Auditors, 2016). It means identifying the auditors' skills necessary for a given audit task, their scope verified, and auditors should be trained to the required extent, following standardized procedures to select the best training providers (Dobrowolski, 2021).

Standard 1210.A1 - The chief audit executive must provide competent advice and assistance if the internal auditors lack the competencies to perform all or part of the engagement. Implementing this standard requires analysing human resources in conjunction with the planned scope of audit work (the Institute of Internal

Auditors, 2016). Supplementing the potential of the necessary competencies must take place at such a time that it does not interfere with the audit process and at the same time complies with the requirements allowing for the selection of the best (due to previously established criteria) external expert (Dobrowolski, 2021).

Standard 1210.A2 - Internal auditors must have sufficient knowledge to evaluate the risk of fraud and how the organization manages it. Auditors are not expected to have the expertise of a person whose primary responsibility is detecting and investigating fraud. Standard 1210.A3 - Internal auditors must know the key risks of using information technology. However, not all internal auditors are expected to have the expertise of an internal auditor whose primary responsibility is information technology auditing (the Institute of Internal Auditors, 2016). The separation of these two areas of auditors' activity in the set of standards results from the experience of internal auditors. Fraud is almost an everyday reality in business and public organizations. Meeting the requirements set out in the above standards requires training auditors to identify symptoms of fraud and the knowledge of programs used by IT organizations, particularly in the accounting field (Dobrowolski et al., 2022).

Standard 1220 - Due Professional Care - indicates that internal auditors must apply care and a reasonably prudent and competent. However, due professional care does not imply infallibility. 1220.A1 – Professional care could be achieved by: (1) careful analysis of the extent of work needed to achieve the audit objectives; (2) relative complexity, materiality, or significance of matters to which assurance procedures are applied; (3) adequacy and effectiveness of governance, risk management, and control processes; (4) probability of significant errors, fraud, or noncompliance; (5) cost of assurance to potential benefits. 1220.A2 – Internal auditors must consider using appropriate auditing methods and techniques in exercising the requirement of due professional care. 1220.A3 – Internal auditors must consider the significant risks that might affect objectives, operations, or resources. However, even with due professional care, assurance procedures alone do not guarantee that all significant risks will be identified (the Institute of Internal Auditors, 2016).

Standard 1300 – Quality Assurance and Improvement Program. The chief audit executive ensures a quality assurance and improvement program covering all aspects of the internal audit activity. Ongoing monitoring is integral to the day-to-day supervision, review, and measurement of the internal audit activity. Ongoing monitoring is incorporated into the standard policies and practices used to manage the internal audit activity and uses processes, tools, and necessary information to evaluate conformance with the Standards. Besides, the internal audit process should be evaluated during external periodic assessments (the Institute of Internal Auditors, 2016).

According to standard 2000 - the internal audit activity adds value to the organization (and its stakeholders) when it provides an objective and relevant assurance and contributes to the effectiveness and efficiency of risk management, control processes, and governance (the Institute of Internal Auditors, 2016). According to standard 2000, the internal audit activity is effectively managed when: (1) the results of the internal audit activity's work achieve the purpose and responsibility included in the internal audit regulation; (2) the internal audit activity conforms with the definition of internal auditing and the Standards; (3) the individuals who are part of the internal audit activity demonstrate conformance with the Code of Ethics and the Standards; (4) It considers trends and emerging issues that could impact the organization (the Institute of Internal Auditors, 2016).

In interpreting internal audit standards, references to lean management could be found. It is because the standardization itself corresponds to the assumptions of the «work standardization» method. However, there is little research into the applicability of the lean auditing model to internal auditing. There is also a lack of lean auditing principles.

**Methodology and research methods.** The study used the literature review using Google Scholar, Scopus, and Web of Science databases (Snyder, 2019). Besides, one analysed the International Standards for the Professional Practice of Internal Auditing prepared by the Institute of Internal Auditors (revised in 2016). One analysed auditing standards and guidelines to determine whether these standards include the lean auditing concept. It enabled one to find the research gap (Xiao and Watson, 2017) and formulate the research questions.

RQ1: Whether internal auditors use the lean concept in audit processes?

RQ2: What are the principles of lean auditing?

RQ3: What is audit waste?

This study used interpretivism or symbolic interactionism (Sulkowski, 2012; Burrell and Morgan, 2017) and chose a qualitative approach because of the research phenomenon's open nature, with very few studies. It creates a need for a reflective approach with respondents simultaneously being key informants and experts. The necessity is assumed to be necessary to follow the participant's perspective and on the participant's terms



to understand the participant's world (Denzin, 1989; Robertson and Boyle, 1984; Wildemuth, 2016). Following Minichiello et al. (1990) assumptions, the research tool is in-depth interviews, as those in which the answer categories are not predetermined. Following Punch (1998), the study focused on understanding the auditor's practice without imposing any a priori categorization, which might limit the field of inquiry. Besides, one analysed auditors' work, which has a confidential nature. Auditors usually examine matters covered by the company secret, and their documents, such as audit plans or working papers, may not be available to the public. The study's rigor is based on open questions and a comparison of the answer of respondents. One used data and methods triangulation to get a broader context of the studied issues (Campbell and Fiske, 1959; Greene et al., 1989). The data was collected from two primary sources: in-depth interviews and documents (audit standards and guidelines).

The list of the open questions was formulated after a literature review and has been tested by five in-depth interviews conducted with key informants (Patton, 2002; Faifua, 2014). One used in-depth interviews with 19 internal auditors from different Polish public organizations from 2017-2020. A small research sample of auditors did not cause an obstacle in conducting the study. One assumed that in-depth interviews might lead to subjectivity based on the interviewees' engagement. However, it is possible in qualitative research (Clark, 2010). In order to ensure the accuracy of statements, one had to keep the anonymity of the respondents. The respondents were informed that the interviews were anonymous. The transcripts of the interviews with respondents were analysed using the Nvivo14 software. It did not provide data on organizations from which interviewed people came because it was not significant from the point of view of the research problem.

**Results.** Based on the literature review on lean management, one can formulate the original definitions of lean auditing.

- Lean auditing is an approach to managing an auditing process and organization (which provides audit services) that supports the concept of ongoing improvement, a long-term approach to work aimed to systematically achieve changes and improve audit quality, including efficiency, effectiveness, and transparency. The primary purpose of lean auditing is to produce value for the stakeholder by optimizing available resources and creating a steady workflow based on real stakeholders' demands. Lean auditing seeks to eliminate the waste of human and financial resources by identifying each step in an auditing process and then revising or eliminating those parts that do not create value-added.
- Value-added in an audit is the difference between the incremental improvements of an audited organization and the total cost of auditing inputs – the sum of labour, materials, and services – purchased from others within an analysed period.

First, the auditors were asked whether they apply lean auditing in their professional practice. None of the auditors interviewed used this concept. They were asked if they had heard during their meetings with other auditors (conferences, training courses) or if other auditors used lean auditing. The auditors said they had not heard of internal auditors applying this concept. For example, Auditor No 3 said: «If other auditors used the concept of lean auditing, there would immediately be a lot of conferences and training on this topic. I did not hear about such an issue at the conferences I participated in or my colleagues».

To exclude the situation that auditors' lack of understanding of the term «lean auditing» influenced their answers, before one asked the auditors about lean auditing, one explained to them: 1) what does it mean lean management, which created the basis of the lean auditing concept; 2) what does it mean lean auditing. Next, the auditors were asked about the usefulness of this concept for auditors' practice. All interviewed auditors said that the lean auditing concept could be helpful for auditors. For example, Auditor No 6 said: «I never heard of lean auditing. I do not know much about lean management. After your explanation, I think the lean concept could help improve auditing performance. We should focus more on the effective usage of our financials. Do we need fieldwork for so long? Maybe it better prepare ourselves to planned audit». Auditor No 14 said: «I think the concept could be helpful for me. Sometimes I waste time because I am waiting for documents. I need better determine audit constraints before the audit start». Auditor No 11 said: «Generally, the idea is good. I should be an example for auditees».

Based on previous research on the lean management concept (see references) and the work of Womack and Jones (1996), the study presents five principles by which lean audit should operate (Table 1).

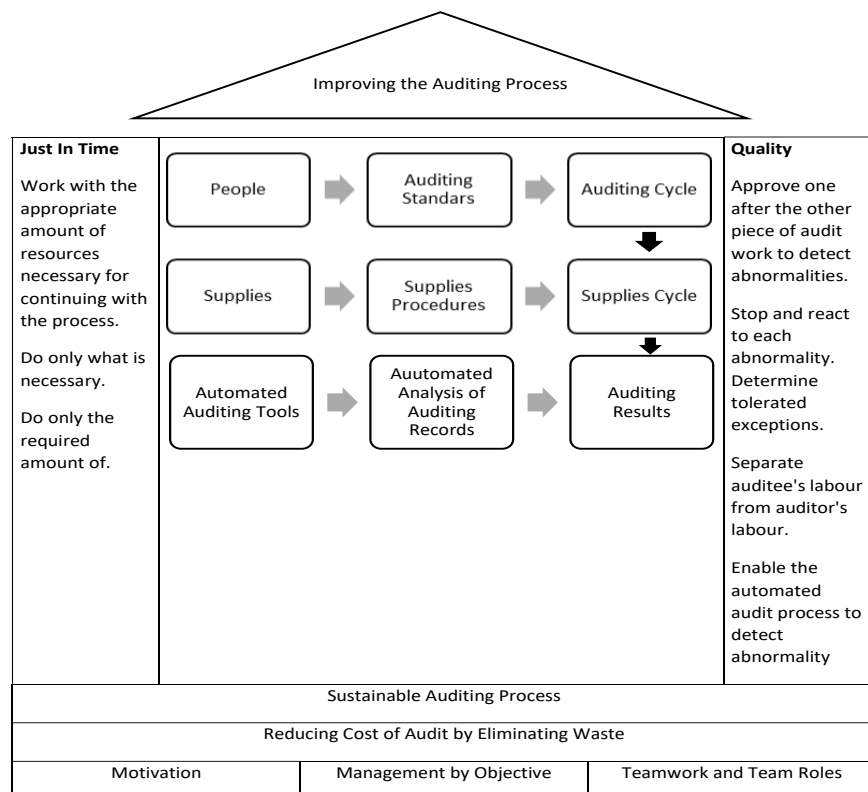
One may generalize from the above principles that an internal audit is essential for stakeholders, not only from its contribution to the improvement of the audited activity. It is also crucial in terms of continuously improving the internal auditing process. It reduces audit waste and increases public confidence in the internal audit institution, which may increase the effectiveness of its preventive function.

**Table 1. The principles of lean auditing**

Principle	Explanation
Specify audit value	Determining what stakeholder sees as the value in an audit is crucial in lean auditing. It eliminates activities that do not add value (waste). The value for stakeholders is quality, timeliness, comprehensibility, predictive nature of audit studies, and availability of the audit at a given place and time.
Identify the value stream	Creating and delivering an audit to a stakeholder requires many related activities and operations. Value stream covers both material and information processing. Taking the value stream perspective means analysing all activities in the stream, from commissioning the audit to delivering the report to the final client. Activities that do not add value must be eliminated.
Flow	There is a need to ensure continuous flow in lean operations. It is about delivering the service as smoothly as possible, allowing the audit to be delivered quickly and without disruptions or downtime.
Pull	Audits should be provided to the stakeholders according to their needs, i.e., exactly when they are needed and in the scope. The pace at which the audit is carried out must match actual demand. The audit demand causes the launch of subsequent process stages, each triggered by a signal from the preceding process. It contrasts with the traditional model of providing a service in a push manner (it consists of carrying out an audit without stakeholder orders, most often based on the forecasted demand for the audit, determined by the auditor).
Perfection	Maintaining the introduced improvements is a continuous improvement of all audit processes.

Sources: developed by the authors based on studies presented in the references.

Based on the review of the International Standards for the Professional Practice of Internal Auditing (The Institute of Internal Auditors, 2016), the following model could be formulated to improve the internal audit process (Figure 1).



**Figure 1. Auditing model**

Sources: developed by the authors based on studies presented in the references.

Based on a Lean Auditing Model, this study could generalize:

- The scope of planned audit work should be adjusted to the number of available auditors.
- The labour intensity of individual parts of the tasks should be determined.

- The stages of acceptance of individual audit tasks constituting the entire audit task should be determined.
- Human resources should be balanced with the financial and material budget.
- The benefits of the audit must be greater than the expenditure incurred on the audit.
- There is a need to implement management by objectives where the individual objectives of auditors must correspond to the objectives of the audit engagement and the objectives of the organization of which the internal audit team is part.
  - There is a need to determine a set of measures to assess the degree of achievement of the assumed goals.
  - Performing audit tasks requires motivating auditors, matching their values with the values of the audit team and the organization, and establishing team roles so that individual team roles preferred by auditors complement each other.
  - Auditors should plan their work in such a way as to perform only the activities necessary to achieve the objectives and tasks of the audit. This conclusion also applies to financial, technical, and external expert resources. Auditors should have a specified tolerance for errors. However, these errors may not affect the audit result and the image of the internal auditors. In addition, when planning the audit, one should separate the limitations resulting from the lack of knowledge, skills, availability of auditors, and restrictions of the auditee (for example, a vacation break excludes obtaining explanations from the audited within a specified period).

The interviewed auditors identified the following audit waste:

- failure to adjust the audit scope or timeframe to the actual needs of the organization covered by the audit and stakeholders;
- extensive audit scope in the audit request;
- wrong usage of the software that allows audit sampling;
- the lack of knowledge and skills of auditors allows for detailed examination of some areas of the audited activity;
- inadequate sharing of knowledge and experience between audit teams;
- downtime during the audit performance due to the lack of coordination of the activities of the auditors.

For example, Auditor No 8 said: «There is a lack of professional meetings where I really can exchange experience with others. I need to know how to resolve a particular problem. Sometimes I call my colleague – an auditor in another city and ask how to resolve the audit problem». Auditor No 11 said: «I think the good idea is to create an e-guide available to auditors and provide that it includes sound audit methodology. We should determine how to avoid mistakes during audits». Auditor No 1 said: «Sometimes I am afraid of my superiors - heads of audit teams. They focus more on writing the audit report than on the audit findings. I mean that there is an exaggeration of attention to the stylistics of sentences. If the supervisor has never done the audit, he clings to the style of writing the audit report». Auditor No 9 said: «Sometimes I prefer not to see something than describe it in the report and then have only trouble. When I ask for legal aid to determine whether the case is analysed correctly, this help is not available. Help appears after I describe the matter in the report. And then, it turns out the audit findings are incomplete, and I am guilty. This lack of proper cooperation is discouraging». Auditor No 12 said: «I believe we should use audit sampling to a greater extent than at present. Training and IT programs that read the language of accounting programs are needed». Auditor No 6 said: «First my superiors send me to training, and then I do not use it. I feel that the training is not always fully adjusted to the needs of the auditors».

Based on the responses of interviewed people and the literature study (Kadarova and Demecko, 2016), the study formulated the following audit waste categories (Table 2).

**Table 2. Audit waste categories**

<b>Waste</b>	<b>Examples of audit process</b>
<b>1</b>	<b>2</b>
Defects	Data errors, Missing information. Low reliability of audit findings, conclusions, and recommendations. Poorly mapped user needs.
Overproduction	Doing work that is not requested. Audit recommendations that no one is using. Unnecessary sampling procedures or missing statistical sampling. Auditors unnecessarily analyse the entire auditing population. Unnecessarily high priority in addressing requirements in the field of stylistic of words. Unused auditing application functionality.



Continued Table 2

1	2
Waiting	Unnecessary approval cycles. A poorly adjusted collaboration between audit teams. They must wait for work before other auditors finish their audit tasks. Besides, inappropriate contracts with suppliers, including external experts (use in audit process). Downtime because of audit application failures. Slow application response.
Transport	Unnecessary process steps. The use of multiple data formats and the need for their interconnection. Lack of automated data processing system, including the audit reviewing process. Proprietary systems without the possibility of sharing data.
Over-processing	Creating audit reports that no one reads and keeping audit working papers, which contain many copied documents. Meanwhile, these documents are available in the audited organization.
Inventory	The unused excess capacity – underused audit servers. Underused subscription of software. Unused Licenses.
Motion	Lack of Knowledge Management. Not updated database of known audit findings and recommendations. Not updated follow-up process and status of open recommendations.
Talent	Unused human potential. Wrong people in job positions. Not established team roles. High employee turnover.

Sources: developed by the authors on the basis of (Kadarova and Demecko, 2016).

**Conclusions.** Theorists and practitioners well recognize the lean management concept. However, undoubtedly little was known about the lean auditing concept. This novel research enabled one to resolve the research questions. The study showed that internal auditors did not use the lean concept in the audit process. However, internal auditing standards fit lean management because the standardization of audit processes may help add value by eliminating audit waste.

Based on this study, this paper created an original lean auditing model and determined lean auditing principles. When defining the basic building blocks of lean auditing, one modified the approach used in the case of the Toyota Production System and the Healthcare System presented by Kadarova and Demecko (2016). The results identified waste in the internal audit process. Such identification is necessary to plan how to eliminate them.

Although the study used a small sample size of interviewed internal auditors, it did not reduce the possibility of determining the lean audit model and its principles. However, that future audits should cover a much larger population of internal auditors. Besides, the research should be continued in other countries. The future study should also determine whether external auditors, including those who work in the supreme audit institutions, use the lean auditing concept in their practices. Therefore, this study could not generalize the findings to all auditors and only perceive our findings as contributing to the better diagnosis of the stage where the organization is building the quality of its internal auditing process.

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**Інноваційна екосистема: роль аудиту у контексті ощадливого управління**

У статті систематизовано аргументи та контраргументи у рамках наукової дискусії щодо особливостей проведення аудиту. Аудиторська діяльність організації сприяє досягненню цілей, встановлених вищим керівництвом, а також виявленню змін та загроз на початковому етапі. Аудит дозволяє здійснити оцінку ефективності використання ресурсів та процесів, а також сприяє підвищенню довіри до компанії, що є важливою умовою для залучення інвесторів, особливо в інноваційних екосистемах. Авторами наголошено на наявності теоретичних прогалин у дослідженні питань аудиту ощадливого управління, який необхідний для підвищення ефективності процесів управління. Метою статті є ідентифікація витрат у процесі проведення аудиту та формування принципів аудиту ощадливого управління. Для досягнення поставленої мети авторами систематизовано науковий доробок з означеної тематики. У статті проаналізовано стандарти та керівництва з внутрішнього аудиту. Для дослідження авторами застосовано рефлексивний підхід, за якого респонденти є інформантами та експертами. Емпіричне дослідження проведено з використанням глибинного інтерв'ю 19 внутрішніх аудиторів, які працюють в державних організаціях Польщі. Період дослідження обрано з 2017 по 2020 роки. За результатами аналізу встановлено, що внутрішні аудитори мають обмежені знання щодо застосування концепції аудиту ощадливого управління, тоді як вони знають про її переваги. У роботі розроблено модель аудиту ощадливого управління, яка сприяє покращенню процесу аудиту, що є важливим з точки зору екосистеми інновацій. Авторами визначено витрати від аудиторської діяльності та сформовано принципи аудиту ощадливого управління. Отримані результати мають теоретичну цінність. Крім цього, результати дослідження можуть бути корисними практикам при удосконаленні внутрішнього аудиту, що у більшій мірі відповідатиме очікуванням зацікавлених сторін у відношенні використання ресурсів та виконання задач.

**Ключові слова:** теорія аудиту, внутрішній аудит, ощадливе управління, корпоративне управління, бізнес, менеджмент та аудит.