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DIGITAL TECHNOLOGIES AS A DRIVER OF EFFECTIVENESS IN MANAGERS' PROFESSIONAL ACTIVITIES

The introduction of digital technologies allows business processes to be changed according to the principles of lean manufacturing and makes them more flexible and efficient. This process reduces internal costs and increases efficiency, allowing competitive advantages to be gained within the existing business model. In this work, the authors have explored the theoretical aspects of the development of digital technologies as a driver of managerial efficiency. Based on the results of a bibliometric study, (n=1353) documents focusing on the digital skills of managers were analysed. The scientific clusters formed indicate that scientists mostly describe: digital transformation, entrepreneurship, digital skills and technologies, as well as changes caused by Industry 4.0. Such views allow us to develop the scientific idea that it is important for managers not only to use digital technologies, but also to understand how to integrate them into current business processes in order to achieve organisational goals, which in turn makes digital competencies a key component of professional success. Using a questionnaire survey of respondents, it was possible to analyse the current state of digital technologies as a driver of managerial professional performance. The level of awareness of

digital technologies, the prospects for the development of managers' digital skills, and the obstacles hindering their professional development were identified.

The thematic map of digital technologies in the manager's working environment covers technologies, opportunities, processes, and strategies for improving the integrated working environment. Proposals from top management and IT services contributed to the formation of effective directions for the development of business processes. The map takes into account supporting technologies and key trends in digital transformation in the manager's working environment.

The adaptation of the presented technologies will contribute to the adoption of optimal decisions when using digital skills in any area of business management. The results obtained can be useful for enterprise managers in analysing and developing measures for the development of digital technologies. This, in turn, will ensure the formation of an effective communication infrastructure between enterprises and stakeholders, as well as strengthen consumer confidence.

Keywords: management, skills, digitalisation, performance, business digitalisation, strategy, digital marketing, design

JEL classification*: D83, G30, G32*

Впровадження цифрових технологій дозволяє змінювати бізнес-процеси за принципами ощадливого виробництва та зробити їх більш гнучкішими та ефективнішими. Цей процес зменшує внутрішні витрати та підвищує ефективність, дозволяючи отримати конкурентні переваги у рамках існуючої бізнес-моделі. Метою представленої роботи є дослідження впливу цифрових технологій на розвиток професійних навичок менеджера, виявлення можливих перешкод та формування стратегій для цифрової трансформації бізнесу.

Для досягнення визначеної мети було вирішено завдання: проаналізовано роль цифрових технологій у роботі менеджера за допомогою бібліометричного огляду; досліджено цифрові навички менеджера та можливості імплементації цифрових технологій у його професійній діяльності; сформовано тематичну карту цифрових технологій у робочому середовищі менеджера.

В цій роботі автори поглибили теоретичні аспекти розвитку цифрових технологій, як драйверу ефективності професійної діяльності менеджера. На основі результатів бібліометричного дослідження опрацьовано (n=1353) документів у яких зосереджено увагу на цифрових навичках менеджера. Сформовані наукові кластери свідчать про те, що науковці здебільшого описують: цифрову трансформацію, підприємництво, цифрові навички та технології, а також зміни, викликані *Industry 4.0*. Такі погляди дозволи розвинути наукову думку про те, що для менеджера важливо не лише користуватися цифровими технологіями, а розуміти, як інтегрувати їх у поточні бізнес-процеси, щоб досягати організаційних цілей, що у свою чергу робить цифрові компетенції ключовою складовою професійного успіху. За допомогою анкетного опитування респондентів вдалося проаналізувати наявний стан цифрових технологій як драйверу ефективності професійної діяльності менеджера. Виявлено рівень обізнаності цифровими технологіями, перспективи розвитку цифрових навичок менеджера та перешкоди, що заважають його професійному розвитку.

Сформована тематична карта цифрових технологій у робочому середовищі менеджера охоплює: технології, можливості, процеси та стратегії для удосконалення інтегрованого робочого середовища. Пропозиції представників топ-менеджменту та ІТ-служб сприяли формуванню дієвих напрямів для розвитку бізнес-процесів. Представлена карта враховує допоміжні технології та ключові тенденції цифрової трансформації у робочому середовищі менеджера.

Адаптація представлених технологій сприятиме ухваленню оптимальних рішень під час використання діджитал-навичок, у будь якій сфері управління бізнесом. Отримані

результати можуть стати у нагоді керівникам підприємств для аналізу та розробки заходів з розвитку цифрових технологій. Це, у свою чергу, забезпечить формування ефективної комунікаційної інфраструктури між підприємствами та стейкхолдерами, а також зміцнить довіру споживачів.

Ключові слова: управління, навички, диджиталізація, результативність, цифровізація бізнесу, стратегія, диджитал-маркетинг, проєктування

JEL classification*: D83, G30, G32*

Introduction. The degree of involvement in digital technologies is constantly growing, and the balance between human and technological resources continues to change. Under the influence of technology, the requirements for managers in any field of economic activity are also changing. One need only look at how modern civil societies use smart devices for communication compared to how it was 10–20 years ago to understand that we are participating in this "quiet" information revolution (Piwowar-Sulej et al. [31]). Technologies are developing and changing each other at an ever-increasing pace, but resource management and consumer satisfaction remain important.

In modern business, it is not enough to be a skilled organiser, as it has long been necessary to use tools for rapid data analysis, process automation and effective communication in a hybrid environment (Furman et al. [21]). Civil society has entered an era of innovation where business analytics and BI tools; project management in environments such as Trello, Asana, and Jira; digital marketing and SMM tools (Aarabe et al. [1]) modern CRM systems; working with ERP solutions (Ginsberg and Harris [22]); business analytics using Excel, Google Sheets, Power BI; the basics of artificial intelligence in management (Singh et al. [39]; Schweitzer et al. [37]); the use of cloud technologies for teamwork – these are common approaches to analysis and management decision-making. That is why the combination of management and digital technologies opens up new opportunities for effective managers. A modern manager is not only a coordinator but also a strategist who: makes quick decisions based on analytics; automates routine tasks through: CRM, ERP, task trackers (Salvador et al. [35]); manages teams online through modern platforms; uses digital marketing to promote brands; implements innovations – from AI assistants to business analytics in Power BI.

Whatever responsibilities a management professional has, technology will play a significant role in their work. It is important to master the necessary tools and apply them skilfully in your work. As companies increasingly use technology as a source of commercial advantage, it is important to recognise the importance of its correct application and its impact on financial and operational processes. In addition, it is important to combine the specifics of technology use, business processes and technological tools. It is necessary to understand how data is structured and recorded in tables and how databases work.

The purpose of this paper is to study the impact of digital technologies on the development of professional skills of managers, identify possible obstacles and formulate strategies for digital business transformation.

To achieve this goal, the following tasks have been formulated:

– to analyse the role of digital technologies in the work of a manager using a bibliometric review;

– to study the digital skills of a manager and the possibilities of implementing digital technologies in his professional activities;

– to form a thematic map of digital technologies in the working environment of a manager.

Today, digital tools, as part of a manager's work, allow you to: reduce costs and increase efficiency; respond instantly to market changes; personalise customer service; scale your business in a few clicks; build a transparent team management system. It is precisely these digitally flexible, creative and strategy-oriented digital tools that are of interest to the modern labour market. A clear understanding of how to use technology and data is key to the development of a company's digital performance and the economic environment of the state.

Literature review A literature review reveals a significant number of scientific works in which authors research, analyse and provide strategies for developing managers' skills and capabilities in the context of digital transformation. Singh et al. [39] describe the benefits of integrating artificial intelligence into managerial work using technologies such as machine learning, natural language processing, and robotic process automation to improve environmental, social, and managerial efficiency in business operations. The advantages and prospects of artificial intelligence for managerial work are identified, and the benefits of combining artificial intelligence with sustainable development indicators in the high-tech sector of the economy are confirmed.

In turn, Xiong et al. [45] describe approaches to management using artificial intelligence. The glossary compiled by the authors focuses on the development of communication processes in investment activities, the possibility of prioritising artificial intelligence over specialists, and the formation of strategic flexibility in any area of economic activity. The work focuses on the use of artificial intelligence as an innovative technology in management. Such approaches are relevant for international managers because they accelerate data processing, information search, and management decision-making at the global level. Vallone et al. [44] also examine the work of international managers and the factors that contribute to foreign investment management. This study shows that companies operating in different international markets through their subsidiaries will be subject to different national requirements, which vary depending on the regulatory framework of a particular country. Such requirements inevitably necessitate the use of digital technologies to simplify document management and communication processes.

In the scientific work of Stor and Haromszeki [43], the main focus is on analysing and diagnosing the relationship between employer branding and the professional performance of managers in transnational companies. The study contains a large number of methods and technologies that should be adapted to digital technologies in the work of a human resources manager. Based on the results of the study, practical recommendations have been formulated for business practitioners and managers, business partners and directors.

Researchers Del Gesso and Parravicini [19] focused on education and training programmes for managers. The results of the study emphasise the targeted training of such professions as: sustainable development managers and business consultants; accountants specialising in sustainable development; circular economy specialists and a number of new niche positions. Such research needs

to be further developed in order to identify digital technologies and knowledge for the specialists described. Methodological recommendations for universities could also be developed to rethink business education in the context of digital transformation and Industry 5.0.

Aarabe et al. [1] focused on the growth of digital technologies and the proliferation of customer base data as the basis for artificial intelligence in the service sector. Chatbots and virtual assistants are changing the capabilities of artificial intelligence, which allows companies to better understand the needs and preferences of their customers, enabling them to provide a more personalised and effective customer experience.

Misra et al. [26] also focus on the relevance of implementation and the possibilities of applying artificial intelligence in their study. It should be noted that artificial intelligence in digital transformation helps managers solve problems and offers possible solutions. Thus, managers can more quickly perform tasks that usually require human intelligence and significantly more time, namely: reasoning, problem solving, and effective management decisions. The application of artificial intelligence in relations with civil society and professional communications is explored by Bowen [13], who, after an extensive review of the literature, offers recommendations for a more reliable system of artificial intelligence ethics.

The aim of the study by Delke et al. [20] is to examine the impact of technological progress, which is changing the drivers of efficiency under the influence of digitalisation, robotisation and other new technologies in business. The authors found that critical areas requiring adaptation to change are inter-organisational relationships between buyers and suppliers, which are managed by procurement and supply management (PSM) specialists. This leads to changes in responsibilities and skills, and therefore it is appropriate to focus attention and develop ideas about smart supply chain management as part of the digital transformation process carried out by managers.

Rapid changes in the business environment, accelerated dynamics and the growing complexity of business processes have led to the emergence of modern concepts of human resource management. This is discussed in Piwowar-Sulej et al. [31], who consider changes in skills under the influence of the Management 3.0 concept. Shpak et al. [38] identify and characterise the features of domestic IT companies. These characteristics are considered in the context of applying elements of the business model in terms of creating value for customers of digital services and products.

Pitman and Reilly [30] offer an interesting opinion that digital technologies and artificial intelligence can be used to resolve conflicts within a company's team. This is a key priority for the work of a human resources manager. Rafiq et al. [33] also describe the role of artificial intelligence in their work, but using the example of Asian companies. Such scientific works indicate that the use of digital technologies is similar, but different countries and regions have different implementation capabilities, which is related to the economic situation in the country or other factors. This is confirmed by the study by Biclesanu et al. [8], in which the authors focused their research on understanding the factors that shape the views and decisions of business students in the modern business environment, using Austria and Hungary as examples.

Digital technologies are important in any field of business and management. The paper has already mentioned international management, logistics and human resource management. It is worth noting relatively new areas such as category management and pharmaceutical management. Bairagee et al. [6] explore blockchain technology in healthcare to improve business processes, reduce costs and ensure better use of healthcare-related data. Biliavska et al. [11] describe category management technologies in pharmacy retail business processes, which require appropriate managerial skills and the use of digital technologies for data processing.

Thus, based on the literature review, we can draw a certain conclusion about the need to develop science in the field of digital technology research as a driver of managerial efficiency. Digital transformation is rapidly being applied in the business environment because it involves the introduction of new technologies that will significantly improve business processes, which will directly affect the capitalisation of the enterprise. At the same time, IT managers believe that business representatives will be involved in reengineering business processes. Business management believes that IT sector employees should implement the latest IT technologies that will affect: an increase in enterprise revenue, a reduction in costs, and the possibility of reducing the share of risk.

Methods of scientific research of digital technologies in the field of management combine general scientific approaches, such as analysis, synthesis, system analysis and generalisation, with specialised tools, in particular: Process Mining, Digital Twins technology and modelling methods. This makes it possible to study the impact of digital tools (AI, IoT, Big Data) on business processes, human resource management systems (HR-tech), as well as on the quality and effectiveness of management decisions. To assess the practical application of such technologies, both qualitative approaches (case studies and surveys) and quantitative methods (modelling and experiments) are used, allowing their advantages and real effectiveness to be evaluated.

In order to identify keywords containing the digital skills of a manager, bibliometric analysis was applied to scientific publications indexed in the Scopus database. The search term “manager AND digital skills” was used to select documents, which allowed us to identify (n=1353) documents. The use of VOSviewer software made it possible to generalise keywords into scientific clusters and form a visualisation map.

To study digital technologies as a driver of managerial performance, a survey was conducted involving 219 respondents from 45 Ukrainian companies of various forms of ownership and economic sectors. The collected data was summarised and processed using MS Excel software. The methods used make it possible to assess the impact of digital technologies, such as social networks, the Internet of Things, and cloud services, on labour productivity indicators, work quality, interaction, HR processes, and the overall competitiveness of the enterprise. This contributes to the formation of effective digitalisation strategies.

Analytical thinking, as well as historical and logical generalisations, were used to create a thematic map of digital technologies in the manager’s working environment. Economic and statistical methods, including selective observation, comparative and technical-economic analysis and grouping, served as tools for the visual presentation of research results.

Research results. The current development of digital technologies has a significant impact on the nature of business processes, scientific research, production organisation, as well as education, social interaction and civil society in general. This trend has a direct impact on the content of management systems in the business environment, which is due to significant technical and technological achievements, the emergence of new knowledge, innovative goals, standards of living and professions. The digital transformation of business structures manifests itself through the integration of various activities aimed at increasing the competitiveness of the enterprise, optimising costs, and creating and delivering added value to the consumer.

In the digital business ecosystem, a key factor for successful transformation is the active involvement of managers from different areas in the process of forming a new understanding of their tasks, assimilating digital culture and applying the capabilities of the system to ensure timely, accurate, confidential and complete information retrieval.

From a scientific point of view, authors often focus their work on researching the digital skills, knowledge, and abilities of managers. Analysis of publications in the Scopus database has made it possible to create a map visualising keywords related to the digital skills of managers by cluster (Fig. 1).

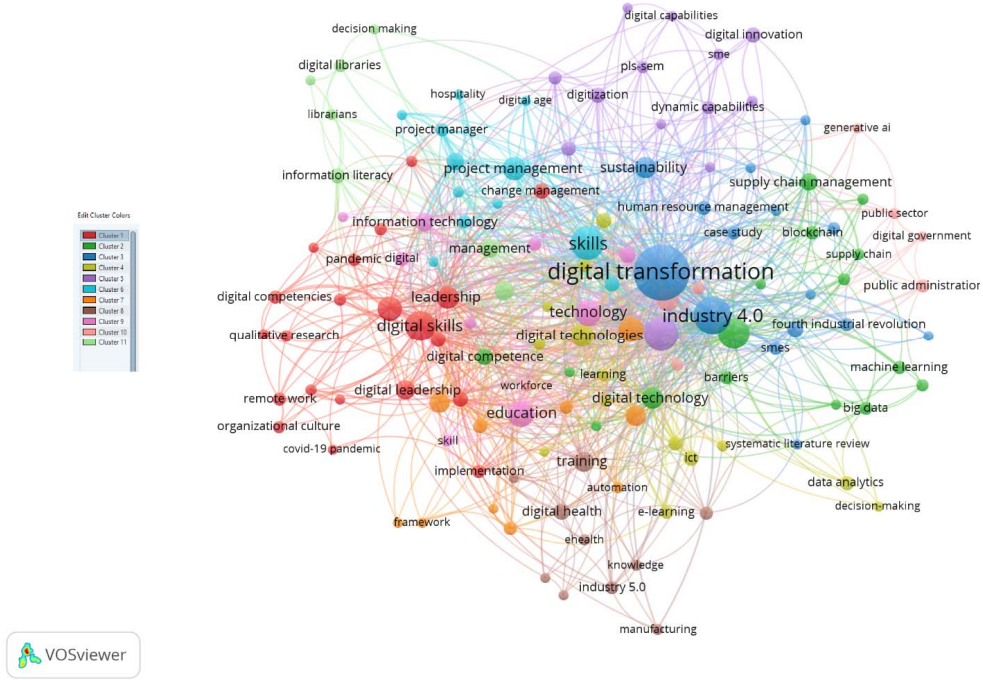

Fig. 1. Visualisation map of keywords containing digital skills for managers
Source: compiled based on Scopus database data using VOSviewer software

Based on the results of bibliometric analysis and with the help of software, we identified 11 scientific clusters covering digital skills for managers. In the red cluster, the key focus is on researching digital skills and entrepreneurship. The

following keywords also predominate: digital competence; digital strategy; qualitative research; social media. The green cluster contains keywords that are more focused on information technology: big data; blockchain; business intelligence; data management; machine learning; digital maturity; digital technology; digital competence; circular economy. As can be seen from the visualisation map, the blue cluster contains the keywords with the highest relative weight, as evidenced by the size of the circle for keywords such as digital transformation and industry 4.0. The study showed that the keywords in this cluster reveal the interests of scientists in areas such as business model research, quality and stability management, and industrial development. There are significantly fewer keywords in other clusters, but they are important areas in the work of a manager: data analytics; digital divide; e-learning; ICT; digital capabilities; digital innovation; digital marketing; digital age; gamification; automation; digital health; technology; digital literacy; information management.

The role of digital technologies, as revealed by the keywords, is confirmed by scientific works. Hasani [23] identifies factors that influence the implementation of digital marketing by small and medium-sized enterprises through the knowledge and skills of managers. The authors also examine digital innovation strategies, such as: the basis for the development of digital products and services (Nylén and Holmström [27]); the role of leadership in the digital world (Cortellazzo et al. [16]); employee competence and digital roles in professional activities (De Mauro et al. [18]). Particular attention is focused on changes brought about by artificial intelligence (Brock and Von Wangenheim [14]) and the transition to Industry 4.0 (Bag and Pretorius [4]; Biletskyi et al. [9]).

Sousa and Rocha [42] analyse the concept of skills needed to create and manage innovative digital businesses that are emerging as a result of the evolution of the IT sector. Understanding the role of employees in digital transformation: conceptualising digital literacy of employees as a multidimensional organisational capability was the subject of research by Cetindamar Kozanoglu and Abedin [15], and the analysis of barriers to the implementation of digital transformation using the interpretive structural modelling approach by Agrawal et al. [2].

Using the keywords “manager AND digital skills”, 1353 scientific works were identified and analysed, including articles, conference proceedings, books, reviews and surveys. The bibliometric review found that managers’ digital skills are considered in various subject areas: Business, Management and Accounting (n=465); Social Sciences (n=456); Computer Science (n=418); Engineering (n=269); Economics, Econometrics and Finance (n=186); Decision Sciences (n=134); Medicine (n=125) and others.

Based on the review, a hypothesis was formulated about the need to take into account the opportunities provided by technology and digitalisation. For the professional orientation of managers, this hypothesis determines the effect of the following factors:

1. Speed. Rapid business development where innovative technologies, knowledge and change management are needed to increase the competitiveness of enterprises.

2. Value. Demand for information, analysis and forecasting of data flows; the need for better understanding and modelling of business and use of data to ensure greater, faster and more relevant support in making effective management decisions.

3. Volume. Increased transaction volumes and, as a result, the impact on data flow from the number of connected devices used to conduct business are becoming increasingly significant.

4. Reliability. The need for accurate data, timely information, adherence to ethical values and data security.

5. Diversity. Technology encourages the use of diverse systems, different data sources, and management models (CRM, Agile, Kanban).

The combination of these factors contributes to changes in the working environment itself and, consequently, changes the role that managers play in enterprises. Effective digital transformation is a combination of aspects such as technology, values, and development. Although technology is likely to be a significant part of this process, it can play a supporting role. Enterprise transformation must be based on a reliable data model. Modelling facilitates access to the products and services that the customer or consumer wants.

Digital skills are an integral part of a specialist in any field of economic activity of an enterprise, and managers are no exception. This has been significantly influenced by evolutionary changes and the rapid development of business digitalisation. In order to examine digital technologies in the professional work of managers, a survey was conducted among 219 respondents from 45 enterprises in Ukraine of various forms of ownership and economic sectors. Managers of different age categories (from 20 to 65 years old) and professional fields were selected for the survey, Fig. 2.

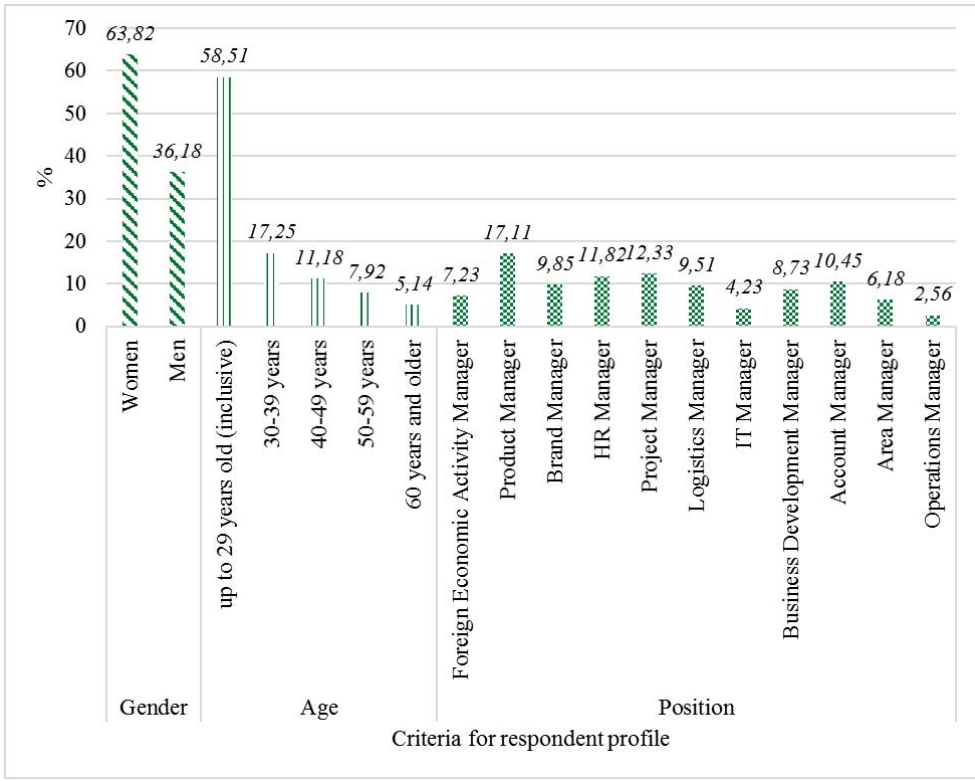

Fig. 2. General characteristics of respondents who participated in the survey
Source: compiled based on the results of a questionnaire survey of respondents

During the survey conducted as part of this study, it was found that the vast majority of respondents consider digital skills to be important, while without their application, it is impossible to conduct full-fledged financial and economic activities. The respondents' answers contained additional justification taking into account age characteristics. Thus, there was an assumption about different levels of computer literacy and digital competencies, taking into account age characteristics or generational change. There is a perception that members of the so-called "digital generation" are more technologically savvy, but it is important to determine whether this is true for all respondents. It is important to consider certain factors when interpreting the results obtained from different generations. For example, for representatives of the baby boomer generation, the key platform may be LinkedIn or Facebook, while for the zoomers generation, it may be Instagram. Each generation will have its own benchmarks, its own reference points in the digital environment, and this will have a significant impact on the change in professional skills. Each generation can learn from others, but it is the combination of diverse experiences that is particularly valuable. The survey results show that the 55+ age group has a lower level of confidence in their digital skills and usually requires the involvement of an additional IT specialist.

However, as the economically active period of life increases (the so-called phenomenon of "four or five generations in the workplace"), it is appropriate for this group of people to invest in the development of their digital skills, just like any other age group. Again, the reason for the lower score may be the perception that young people have more digital experience and are perceived as more confident in using technology. However, the reality is that new entrants to the workforce may distrust the technologies that surround them at work or the possibility of risks that affect their performance. Analysis of the survey results shows that a significant number of respondents (62.56%) are confident in their digital skills for conducting their professional activities. The detailed results of the survey are presented in Table 1.

The survey results show that 89.04% of respondents constantly use their digital skills because they are important for their work. Given that certain positions require constant communication with people (HR Manager, Brand Manager), digital technologies can be used, to a lesser extent, only for summarising information. However, it is quite difficult to imagine the work of a Logistics Manager or Operations Manager without the constant use of software.

In addition, priority areas of work were considered in which managers need digital technologies. These include transformation management skills such as project and programme management (comprehensive management of a number of projects that form the basis of the transformation process), as well as aspects of data and technology management. Clearly, preference is given to a certain level of skills, namely: the use of working data 17.35%; data management 16.44%; and software management 16.44%. Managers obtain data for their work from many sources, namely: internal or external, structured or unstructured – where the key is the ability to manage data integrity. Therefore, a manager is a specialist who cares about: the completeness, availability and accuracy of data. The use of digital technologies as a tool that promotes business development shows that managing this resource is becoming increasingly important for modelling business processes, as well as for developing and evaluating investment projects.

Table 1

Analysis of the results of the survey "Digital technologies as a driver of managerial performance"*

Questions	Answers	Number of respondents	% of responses
1. Considering your position as a manager, do you think you have sufficient digital skills?	Yes	137	62.56
	No	67	30.59
	Difficult to answer	15	6.85
2. How often do you need to use digital skills in your professional activities?	Constantly, because they are important in my professional activities as a manager	195	89.04
	Sometimes	24	10.96
3. Which of the following areas are priorities in the work of a manager?	Project management	28	12.79
	Software management	36	16.44
	Information technology management	18	8.22
	Data Management	36	16.44
	Use of working data	38	17.35
	Real-time data visualization	27	12.33
	Data queries	21	9.59
	Code development and AI agent engagement	15	6.85
4. Which of the following elements of a digital technology development strategy are necessary for a manager?	IT strategy	47	21.46
	Target operating model and processes	45	20.55
	Financial systems development strategy	31	14.16
	Digital transformation	18	8.22
	Data utilization strategy	37	16.89
	Digital culture	41	18.72
5. In which areas might you need to develop skills to perform your job in the next three to five years?	Data analytics	26	11.87
	Spreadsheets	37	16.89
	Project management	49	22.37
	Cloud computing	23	10.50
	Artificial intelligence	16	7.31
	Data management	18	8.22
	Cybersecurity and data protection	11	5.02
	Impact of mobile applications	18	8.22
	Software management	10	4.57
	Use of robotics	11	5.02

End of Table 1

Questions	Answers	Number of respondents	% of responses
6. Which of the following challenges do you face as a manager in developing digital skills?	Individual lack of ability	8	3.65
	Lack of personal interest	10	4.57
	Lack of relevant information	10	4.57
	Lack of a working group of informed colleagues	12	5.48
	Lack of opportunities for continuous learning	28	12.79
	Lack of time	15	6.85
	Lack of access to resources	25	11.42
	Lack of corporate priority	35	15.98
	In my opinion, this is not important in my work	10	4.57
	Low priority compared to studying other aspects of my immediate functional responsibilities	48	21.92
	I do not encounter any difficulties	18	8.22
7. Does your company have an action plan for managing digital business transformation?	Yes	101	46.12
	No	22	10.05
	Unknown	11	5.02
	Formed promptly	85	38.81
8. What are the factors for successful digital transformation in a company?	Improvement of knowledge and development of digital skills	51	23.29
	Development of organizational culture	34	15.53
	Digital partnership and international cooperation	48	21.92
	Infrastructure development	51	23.29
	Innovative approaches to management	35	15.98

**Source: compiled based on the results of a questionnaire survey of respondents*

In order to work correctly with data sources, it is important to understand how Agile approaches affect data flows. Despite the fact that 21.46% of respondents believed that they should focus on implementing an IT strategy (perhaps due to the rapid development of Industry 4.0/5.0, the emergence of Digital Twins, or the transition to 5G), only 8.22% considered a full-fledged digital transformation to be appropriate. However, digital culture (18.72%), data utilisation strategy (16.89%) and financial systems development strategy (14.16%) are also important for a manager's professional activities. As the interconnection between short-term projects with flexible management and overall organisational goals intensifies, programme management methods are becoming increasingly important in the context of transformation processes.

Respondents were asked to evaluate a number of methods that they could use in their work in the coming years. The selected practical methods can potentially be used for digital business transformation. According to the survey results, the key ones are: project management (22.37%), spreadsheets (16.89%), data analytics (11.86%) and working on cloud platforms (10.50%). These skills contribute to a deeper understanding and improvement in the quality of work performed.

It should be noted that, according to the survey results, 21.92% believe that digital technologies are secondary and highlight the need to study other aspects of their functional responsibilities. The study also showed that companies lack opportunities for continuous professional development, as noted by 17.79% of respondents, and a lack of corporate priority, as noted by 15.98% of respondents. This is due to the fact that for enterprise management, the key task is to achieve the mission, while the formation of an effective corporate culture and professional development of personnel are only periodic measures to strengthen the image of the enterprise. The survey also found that most companies have an action plan for managing digital business transformation (46,12%) or have quickly developed one (38.81%) under the influence of business digitalisation.

It can be assumed that the proposed success factors of digital transformation have practically the same response rates among respondents, namely: improving knowledge and developing digital skills, as well as developing infrastructure (23.29%); digital partnerships and international cooperation (21,92%); development of organisational culture (15.53%) and innovative approaches to management (15.98%).

Thus, practical methods of using digital technologies include a range of skills that facilitate not only the use of technologies, but also the management of business risks. However, first and foremost, the use of digital resources must be aligned with the strategic goals of the enterprise. A manager engaged in economic activity should understand how modern technologies and digital transformation contribute to the implementation of the strategy, including to improve the efficiency of his professional activities. A characteristic feature of any successful enterprise should be the implementation of integrated technologies. The strategy should be based on organisational culture and its response to transformation. One of the financial directors who participated in the questionnaire survey believes that organisational culture is becoming increasingly important in the work of modern enterprises.

An important aspect is that digital technologies are a driver of efficiency for both consumers and businesses. Digital evolution will continue, and new technologies will require not only the development of knowledge and skills, but also the formation of innovative business models in management. It is important for managers to be able to assess the risks that may arise, for example, as a result of the use of digital technologies. Entities and objects of economic activity must understand how technologies affect business models and data processing. This will help to understand how successfully the enterprise is evolving. Digital and technological awareness are extremely important in the context of business model transformation. Fig. 3 shows how managerial skills are becoming increasingly important for future work, as complex data is shared more quickly and efficiently, taking into account technology, processes, capabilities and strategies. The views of IT managers and senior management were taken into account when creating an integrated working environment. IT managers are mostly keen to implement innovative technologies, which is the task of digital business transformation,

combined with the professional work of managers, where the key task is to reengineer business processes. However, quite often during the digital transformation of a business, obstacles may arise, such as: delays in implementation (with a rapid transition to digital transformation, it is quite difficult to overcome resistance to change quickly, efficiently, economically and with limited risks); low level of interest among managers, who believe that all the work should be done by IT staff. In turn, top management representatives try to focus their attention on the maximum development of technologies, as they are the key to the competitiveness of the enterprise.

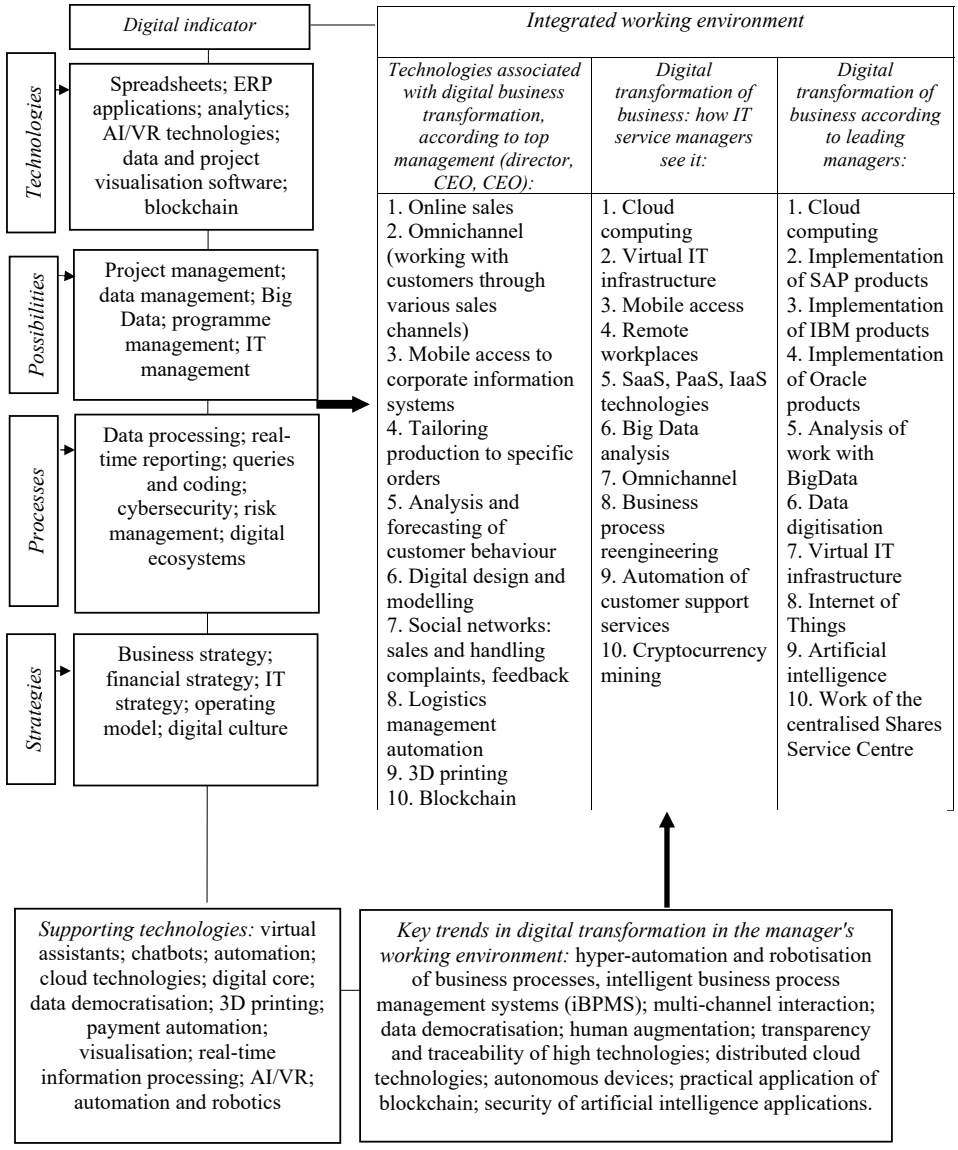

Fig. 3. Thematic map of digital technologies in the manager's working environment
Source: developed by the authors

The above priorities for the implementation of digital transformation technologies are based on data obtained from a questionnaire survey. It should be noted that each enterprise may require adjustments depending on its life cycle stage or financial capabilities, and it is important to be able to assess the benefits, costs, risks and priorities, taking into account the specifics of the industry environment.

The thematic map of digital technologies in the working environment presented here shows that managers do not necessarily need to be experts in IT, but they do need to speak the language of data and technology in a way that facilitates their full participation in the future operating model of the enterprise. Therefore, successful enterprises that follow this path bring together multifunctional teams with flexible thinking, capable of responding to market trends by analysing the data available to them in real time. Such an interdisciplinary environment requires the use of common approaches to solving specific tasks between teams that are able to understand problems and propose solutions using the data available to them (Biliavskyi et al. [12].

The development of digital skills and digital business transformation may raise certain doubts in the mind of a manager about the advisability of their implementation (in terms of introducing these solutions and, as a result, increasing the capitalisation of the enterprise). In this case, the following hypotheses should be considered.

Hypothesis 1. The company is undergoing a phase of digital transformation.

Hypothesis 2. Refusal to transition to digital transformation and continuing to work with existing business processes.

To develop each of these hypotheses, a short-term strategy should be formulated and possible changes expected in the main types of activity should be anticipated, namely: how consumer behaviour will change and what innovations the enterprise's management will propose. Therefore, a comprehensive analysis allows us to find a specific answer to the question of whether digital business transformation is necessary.

Discusion. As is well known, there are many publications in scientific literature where authors have researched the issues of digital technologies. Thus, it has been found that the tasks of digital business transformation are relevant for any sphere of economic activity, namely: the financial sector, retail, logistics, marketing, industry, etc.

It should be noted that in everyday life, both in professional activities and in personal affairs, people use a large number of services and products that have appeared thanks to digital transformation. The importance of digital transformation for business cannot be overestimated, and therefore it requires further scientific justification and development. The work focused on digital technologies as a driver of managerial efficiency. Successful enterprises need skilled employees who know how to work with and use digital technologies to achieve their goals.

The study found that digital skills need to be constantly improved. That is why companies invest significant resources in training and upgrading the skills of their staff. Digital skills increase work efficiency through process automation. This allows all company staff to focus on more complex tasks. Digital technologies help managers make informed management decisions because they allow them to collect, analyse and interpret data more accurately.

The results of this study are consistent with existing scientific approaches, but to a certain extent have been further developed.

1. In-depth analysis and interpretation of data, which is the focus of their work (Smutny [40]; Ziniuk et al. [46]; Xiong et al. [45]). Thanks to data analysis, managers are able to identify hidden trends and patterns that allow them to make more informed management decisions, set future goals, evaluate achieved results, and adjust strategies where necessary. However, working with data requires a significant investment of time and resources. To automate processes and better understand changes in results, managers need to learn how to use specialised services and software. This is confirmed by a questionnaire survey of respondents, where data management is identified as a strategic direction and a necessity for doing business.

2. Digital marketing is one of the most effective modern tools for brand and business development and, accordingly, for setting tasks for brand managers, PR managers, and category managers. A marketing strategy focused on the digital environment contributes to an increase in the number of customers and sales, as well as to brand awareness (Amanova et al. [3]; Smutny and Sudzina [41]). Typically, top management becomes the face of the brand, representing it both in real life and in the online environment. Therefore, it is important for them to understand how social networks, search engine algorithms, and influencer marketing tools work (Romat and Biliavska [34]). Such views prove the need to develop digital technologies focused on: data usage, digital culture of working with artificial intelligence programmes, and the ability to manage social networks.

3. Digital communication. With the transition to remote working due to the pandemic and war, there is an urgent need to ensure effective remote communication in order to maintain quality and productivity. In this regard, modern managers need to master the skills of conducting virtual meetings, using platforms for communication between different departments, as well as professional use of email and messengers (Santos and Almeida [36]; Basri and Siam [7]). These tools are becoming critically important not only for internal processes, but also for operational work with clients and business partners. This is confirmed by the thematic map, which identifies key trends in digital transformation in the manager's working environment.

4. Cybersecurity basics. Digital technologies are convenient to use, but they remain vulnerable to external threats (Biliavska et al. [10]). A single cyberattack can be enough to cause significant damage to a business, which is why cybersecurity is so important. Knowledge of the basic principles of this field helps managers effectively protect their businesses from phishing, data leaks, and other dangers (Panetta and Leo [29]; Cremer et al. [17]). In addition, top managers should encourage their employees to raise their awareness of cybersecurity, which will help reduce the potential risks to businesses. During a questionnaire survey of respondents, it was found that cybersecurity plays a key role in the application of digital technologies by managers.

5. Strategic leadership. Modern technologies have the potential to revolutionise business, but their use requires the development of an effective strategy (Olivieri and Testa [28]; Poberezhna et al. [32]). Managers need to understand how digital technologies can help their company achieve its goals and develop strategies that

contribute to the realisation of these goals. This ability of managers to develop and implement strategies contributes to the success of the company. Therefore, in today's digital world, strategic leadership is important and in demand.

6. Information management. Managers must make management decisions based on facts, not intuition. Information management skills will help them access the necessary information, evaluate it, and use it to make effective management decisions (Bai et al. [5]; Smutny [40]; Biliavska et al. [10]). Information management includes: understanding search engine optimisation (SEO), using databases, creating bookmarks, using cloud storage and digital tools for note-taking.

7. Project management. Managers are usually responsible for the successful implementation of projects, and modern digital technologies can greatly simplify this task. Digital project management involves the use of various services and programmes for effective planning, workflow organisation, resource allocation, performance monitoring, and other important aspects (Hlushko et al. [24]).

8. Coding and programming. In today's digital environment, coding and programming skills are key to success in any field. It is important for top managers to understand the principles of technology, as this allows them to make informed management decisions regarding its implementation and use (Ibrahim et al. [25]). Studying coding and programming will contribute to a deeper understanding of basic processes.

Thus, promising areas for further scientific research related to the digitalisation of management may include: the development of mechanisms for flexible innovative management and the adaptation of managers to the implementation of an expanded digital space and digital technologies, which will increase the expertise of specialists; forecasting digital resources, digital services, and digital entrepreneurship in the digital management system.

It should be noted that acquiring digital skills is a continuous process that requires managers to be willing to learn new technologies and be open to self-study. At the same time, it is an investment that can significantly improve both personal career and business efficiency. A manager with digital competencies is able to make more informed management decisions through skilful data collection and analysis, increase productivity through task optimisation and automation, ensure effective communication both within the enterprise and with business partners, and develop innovative products and services that meet the current needs of customers.

Conclusions. Based on the research conducted, it has been established that digital technologies are an important component of enterprise development due to the development of managers' skills and software updates.

Bibliometric analysis helped to identify the role of digital technologies and skills in the professional activities of managers. Digital technologies and skills have become indispensable for modern managers, as they automate processes, provide detailed data for informed decision-making, facilitate effective communication and customer engagement, thereby increasing the competitiveness of the enterprise. However, the use of such technologies requires investment in employee training and addressing digital security issues. Managers must not only master working with data and tools, but also understand how digital technologies affect business in

order to effectively optimise processes and implement innovative approaches. The role of digital technologies in a manager's activities covers several key aspects: data analysis; automation; decision-making; communication and collaboration. Key digital skills for managers include: information and communication; project management; analytics; cyber hygiene and information security skills; adaptability.

For a manager to be successful, a certain balance of indicators is necessary, and although respondents focus on the digitalisation of the working environment, the conditions for applying digital skills remain of paramount importance. An important aspect of a manager's professional activity is the use of emotional intelligence to perform analytical work or to convey analytical information.

The inclusion of digital indicators in the overall set of managerial skills can only be considered in conjunction with business objectives and how those objectives are achieved. Survey participants identified the obstacles they encounter when implementing digital technologies. In addition to a significant lack of time, respondents indicated that more significant problems in the development of digital skills are a lack of resources and opportunities for continuous learning. The digital indicator can be viewed as an indicator that includes a range of different skills and their levels of development. The survey assessed the degree of significance of each of the potential components in order to determine the potential limits of this indicator.

The resulting thematic map of the manager's working environment shows how the implementation of new technologies will enable managers to become more forward-thinking and capable of analysing their knowledge. It is important to take into account the development of tools that enable data management and further analysis. There is a growing need to raise managers' awareness of business applications based on new digital technologies. The range of new technologies will continue to expand. The emergence of 5G telecommunications technologies and the possibilities of the Internet of Things define the next step in digital transformation. Such technologies make it possible to collect ever-increasing amounts of data from devices in real time, which in turn expands the application of data analytics. It should be remembered that the rapid development of digital technologies requires skills in managing them to ensure the competitiveness and efficiency of the enterprise.

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DIGITAL TECHNOLOGIES AS A DRIVER OF EFFECTIVENESS IN MANAGERS' PROFESSIONAL ACTIVITIES

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The introduction of digital technologies allows business processes to be changed according to the principles of lean manufacturing and makes them more flexible and efficient. This process reduces internal costs and increases efficiency, allowing competitive advantages to be gained within the existing business model. In this work, the authors have explored the theoretical aspects of the development of digital technologies as a driver of managerial efficiency. Based on the results of a bibliometric study, (n=1353) documents focusing on the

digital skills of managers were analysed. The scientific clusters formed indicate that scientists mostly describe: digital transformation, entrepreneurship, digital skills and technologies, as well as changes caused by Industry 4.0. Such views allow us to develop the scientific idea that it is important for managers not only to use digital technologies, but also to understand how to integrate them into current business processes in order to achieve organisational goals, which in turn makes digital competencies a key component of professional success. Using a questionnaire survey of respondents, it was possible to analyse the current state of digital technologies as a driver of managerial professional performance. The level of awareness of digital technologies, the prospects for the development of managers' digital skills, and the obstacles hindering their professional development were identified.

The thematic map of digital technologies in the manager's working environment covers technologies, opportunities, processes, and strategies for improving the integrated working environment. Proposals from top management and IT services contributed to the formation of effective directions for the development of business processes. The map takes into account supporting technologies and key trends in digital transformation in the manager's working environment.

The adaptation of the presented technologies will contribute to the adoption of optimal decisions when using digital skills in any area of business management. The results obtained can be useful for enterprise managers in analysing and developing measures for the development of digital technologies. This, in turn, will ensure the formation of an effective communication infrastructure between enterprises and stakeholders, as well as strengthen consumer confidence.

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