

DIGITAL TECHNOLOGIES AS AN OPPORTUNITY FOR BUSINESS DEVELOPMENT

Vyara Kyurova¹ Dinka Zlateva² Blagovesta Koyundzhiyska-
Davidkova³ Radoslav Vladov⁴ Ion Mierlus-Mazilu⁵

Received: 06.10.2023, Accepted: 02.11.2023

Abstract

In the modern economy and society, the role and importance of digital technologies is constantly growing. Their application by businesses contributes to achieving sustainable growth and high competitiveness. This is the reason why the article discusses the issue of digital technologies as an opportunity for business development. The aim is to clarify the specifics of digital technologies and their role and importance for business. Atlas.ti specialized software was used to achieve the goal. The theoretical aspects of digital technologies have been considered. A classification of digital technologies has been made. The characteristic features of some basic digital technologies have been systematized.

Keywords: digital technologies; business; specifics; application

JEL Codes: L20; O10

1. Role and importance of digital technologies for the business

As a result of significant changes in the business environment, as a consequence of a deep and prolonged crisis, as well as the intensified process of globalization, it is necessary for the business to react and respond adequately to them. This requires the search and implementation of new ways to deal with this situation, as well as for long-term sustainable development. Digital technologies play a decisive role in this process. In support of this, some researchers point out that the use of digital technologies by businesses plays an important role in dealing with crises (Guo, Yang, Huang & Guo, 2020, p. 2). At the same time, digital technologies also change the ways, which turn out to be newer compared to those applied so far, through which

¹ South-West University, Blagoevgrad, Bulgaria, Assoc. Prof., PhD, vvasileva@swu.bg, ORCID ID 0000-0002-9776-3148

² South-West University, Blagoevgrad, Bulgaria, Assoc. Prof., PhD, didi210@swu.bg, ORCID ID 0000-0003-2227-7871

³ South-West University, Blagoevgrad, Bulgaria, Chief Assistant Prof., PhD, vesi_k@swu.bg, ORCID ID 0000-0001-7786-7743

⁴ South-West University, Blagoevgrad, Bulgaria, PhD, radovladov@swu.bg, ORCID ID 0009-0006-7467-6283

⁵ Technical University of Civil Engineering Bucharest, Romania, Assoc. Prof., ion.mierlusmazilu@utcb.ro, ORCID ID 0000-0001-5002-7963

new opportunities are exploited (Nambisan, Wright & Feldman, 2019). It turns out that digital technologies lead, on the one hand, to fundamental changes to business processes, products and services, and on the other to the relationships between business representatives (Nambisan, Wright & Feldman, 2019). In addition, they also contribute to defining the increasingly changing wants and needs of consumers. Moreover, the application of digital technologies specifically focused on the needs of consumers and the dynamics of competitors (Jiao, 2020) provides an opportunity for businesses to achieve accurate determination of diverse consumer needs (Li, 2022). In addition, digital technologies significantly influence the way representatives of a given business interact with its customers and partners, transforming internal processes and creating opportunities to define and use new methods of product placement (Averina, Barkalov, Fedorova & Poryadina, 2021).

The implementation of digital technologies is changing the global economic and business landscape (Kyurova, 2022). It is not by chance that they are rapidly entering the economy and society in today's dynamically changing conditions. In these conditions, the digital economy has a strong impetus in its development, manifested precisely through the active introduction and real application of digital technologies specifically for collecting, storing, processing, transforming and transmitting data in every sphere of human activity (Wetherbe, McLean, Leidner & Turban, 2006). On the other hand, digital technologies push businesses to transform and modernize and at the same time lead to the quality and efficiency of the economy (Chen et al., 2020). At the same time, the digital economy is based on digitization (Mottaeva, Stepanova, Meshkova & Semenova, 2021, p. 706), at the centre of which are digital technologies (Guo, Yang, Huang & Guo, 2020, p. 15). These technologies affect various aspects of society, resulting both in everyday entertainment and communications, but also in such important areas as infrastructure, transportation, healthcare (Given-Wilson, Baranov & Legay, 2020, p. 1199), and, in our opinion, in education too.

In our opinion, it is necessary to pay attention to the fact that digital technologies directly affect both the internal and external business environment. They are directly related to communication. It is no coincidence that the implementation of digital technologies in business activity leads to a significant change in communication methods, both within the organization and with other organizations, customers and various institutions (Soltanifar & Smailhodžić, 2021; Richter et al., 2017; Samara & Terzian, 2021). In addition, these technologies expand the possibilities of communication, as they introduce a new type of communication tools, namely social networks (Atanasova, 2022).

The businesses that are oriented towards the application of digital technologies in their activity are of key importance for the economy and are defined as an important factor in global competition. Moreover, nowadays the businesses applying these technologies are an integral part of the global market (Shkalkenko & Fadeeva, 2020, p.

1194). The application of these technologies by the businesses creates opportunities to increase their competitiveness and to achieve competitive advantages.

Considering the importance and essential role of digital technologies for the development and competitiveness of modern business in a highly dynamic and unpredictable environment, it is necessary for this business to pay attention and know their specifics. This will allow them to make the right choice in terms of timely use and the specific type of technology.

2. Specifics of digital technologies

2.1. Defining the concept of digital technologies

One of the most important issues regarding the operation of modern business is the one related to the knowledge and application of digital technologies. In this context, there is a need to clarify the specifics of digital technologies from the point of view of innovation. In this regard, Wang et al. (2022) emphasized that they are a tool applied in business management in order to effectively solve various problems related to innovation. Moreover, according to some authors, digital technologies even lead to a change in the nature of innovation (Yan et al., 2021). Other authors add that they also increase the potential for innovation (Li et al., 2020; Martínez-Caro et al., 2020). Some authors have a more particular view on the matter, pointing out that digital technologies are a prerequisite for innovation and entrepreneurship mainly by changing the mechanisms of value creation (Bresciani et al., 2018; Brock & Von Wangenheim, 2019; Usai et al., 2021). In addition, some authors argue that these technologies lead to a change in the way value is created (Averina et al., 2021). It is obvious that digital technologies are an important management tool that a business can successfully use in solving innovation problems, to increase innovation potential, as well as to create innovations, which in turn leads to the increase of its competitiveness and the achievement of a higher financial result.

In clarifying the nature of digital technologies, some authors' views are focused on the technologies. According to Stegmann (2020), they should be seen as computer-based technologies that present basic and domain-specific content while allowing interaction with or of the content. Sturgeon (2019) has a more particular understanding of digital technologies. He considers them to be a combination of computerized information and communication technologies (Sturgeon, 2019). In addition, some authors associate digital technologies with products or services that are embedded in either information and communication technologies or integrating information technologies (Fitzgerald et al., 2014). At the same time, Yoo (2010) argues that digital technologies are programmable, addressable, felt, transmittable, memorable, traceable and associable.

The analysis of the scientific literature shows that some researchers, when clarifying the specifics of digital technologies, emphasize the application of data. For example, digital technologies are defined as technologies containing data or executing

algorithms in digital form (Schwab, 2017; Hanelt, Piccinini, Gregory, Hildebrandt & Kolbe, 2015). Moreover, they should be seen as knowledge, skills and know-how to create, process, transmit and use digital data (Lipsmeier, Bansmann, Röltgen & Kürpick, 2018). At the same time, digital technologies are also a key foundation for data acquisition, use and management (Liu et al., 2022). It stands to reason that these technologies are strongly related to data-driven information. This means that providing timely and accurate information is a prerequisite for more efficient business management, for quick resolution of problems, and for successful and correct communication in the organization.

As a result of studies, it has been found that digital technologies are the main means, both for reducing business costs and duplication of effort, and for improving productivity. Businesses can use them as an important resource allocation tool (Liu et al., 2022).

It is obvious that digital technologies play an important role in the optimal running of business processes. To achieve this goal, it is important to know the types of digital technologies. The analysis of the literary sources shows that there is no unified opinion on the issue related to the types of digital technologies. For example, Schwertner (2017) considers that these technologies include cloud computing, the Internet of things (IoT), mobile technology and data analytics and big data. In the same direction are the thoughts of a group of authors who classify digital technologies into the following seven types: social, mobile, big data, cloud computing, IoT, platform development and AI related technologies (Sebastian et al., 2017; Vial, 2019).

2.2. Characteristics of digital technologies

Such representatives of theoretical thought as Yang, Plotnick, Kranz, Maple, Almeida, Gorelik, Manyika, Chui, Brown, Bughin, Dobbs, Roxburgh, Byers, Obeidat, Zolnowski, Hadi, Proaño Maya, Schwertner, Armbrust and others have contributed to clarifying the problem. They were able to bring out the inherent characteristics of some digital technologies. Knowing them is a prerequisite for a more complete and accurate understanding of the specifics of these technologies.

Regarding IoT, some authors point out that the main goal is to share information effectively in real time (Yang, Yang & Plotnick, 2013). At the same time, IoT is a network of physical objects that includes technology and software. This creates the possibility of communication and intelligent interaction inside or outside the Internet (Kranz, 2016). Characteristic of IoT is the potential to disrupt business reality and lead to significant ongoing improvements, thereby offering new services to consumers and high-quality products (Maple, 2017). Moreover, IoT provides the complete transformation of the vision and perception of the activity, thereby achieving more competitive advantages, as well as a deeper and real knowledge of the business (Almeida et al., 2020).

Regarding Big data as an important digital technology applicable in business operations, Gorelik (2019) points out that Big data should be used as a term to denote an extremely broad set of data. The same author points out the need to use special tools for storing, retrieving, organizing and transforming data into information. Also, of interest is the opinion of Manyika, Chui, Brown, Bughin, Dobbs, Roxburgh and Byers (2011), according to whom "Big data refers to a set of data whose size exceeds the capabilities of typical database software tools to capture, store, manage and analyse". Characteristic of Big data is that they provide the possibility to analyse and predict future results and events (Obeidat et al., 2015). In addition, Big data allows managers to acquire more knowledge to use for decision-making, to optimize customer relations and to apply new business models (Zolnowski et al., 2016). It is necessary to keep in mind that some authors direct their searches to the determination of the characteristic features of Big data. In this regard, Hadi et. al. (2015) reveal that they are volume, variety, velocity, veracity and value.

It is of interest to clarify the features of Cloud computing. Some authors' understandings regarding Cloud computing are related to defining it as a system. They come to the conclusion that Cloud computing "is based on the outsourcing of computing resources and can offer various applications and provision of services through the Internet, eliminating physical devices" (Proaño Maya, 2011). A feature of Cloud computing is that it provides convenient network access to businesses, a direct connection to a shared location with adaptive computing resources, which in turn are accessible with little effort in terms of management and communication with suppliers (Schwertner, 2017). Cloud computing plays a key role in the provision of services in the Internet space. Moreover, it is characteristic of Cloud computing that it refers to applications delivered as Internet services, as well as to the hardware and systems software in the data centers (Armbrust et al., 2010).

The clarification of the characteristic features of AI also deserves special attention. Borissova's (2021) conception of AI is that it represents a system. According to the same author, it is inherent to AI "to apply predefined models which the system looks for in the data and automatically take certain actions if they are found, in case of the processing of too much data in a short time" (Borissova, 2021). An important feature of AI is that it allows to analyse the surrounding environment and take actions that would in turn increase the chances of achieving certain goals (Russel & Norvig 2003). At the same time, AI is characterized by the opportunities it provides for analysing large volumes of data to serve as a basis for business decision-making (Artificial Intelligence Innovation Report, 2018).

3. Application of digital technologies and forecasts for the development of the Industry 4.0 market

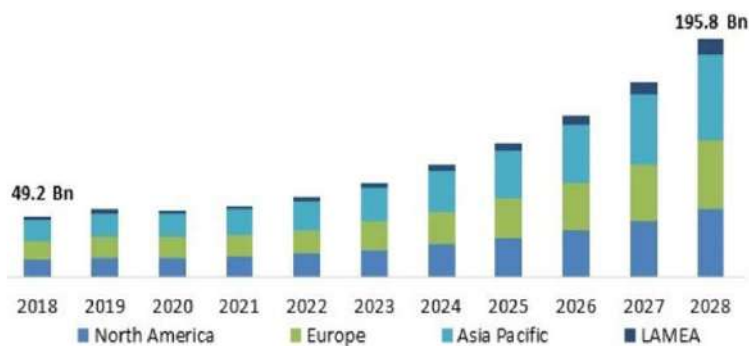
Digital technologies have a serious impact on modern business, which supports various aspects in the operationalization of processes and the construction of

successful company strategies. Digital and artificial intelligence are fundamentally changing the way we live and work. Businesses are aware of these trends, but are increasingly struggling with how to successfully integrate these capabilities to ensure their smooth operation within businesses (McKinsey, 2023). The emergence of cloud technologies, the Internet of Things and the possibility of analyzing huge data sets were the basis of Industry 4.0. It is no coincidence that with the advent of digital technologies, we began to talk about an era of wisdom, because knowledge and creativity are the basis of the investments that the modern organization makes to achieve its goals more effectively. According to Garther's senior director, the analyst Sarah James "increasingly, data and analytics has become a primary driver of business success, and the potential for data-driven business strategies is greater than ever, with further acceleration of digital transformation and data-driven business" (Garther, 2023).

Artificial intelligence is having a major impact on 6 major industries as it improves operations, streamlines work processes and improves customer experience (Sajid, 2023a). According to the author of the article, the most affected industries are marketing, legal services, sales, technology, healthcare and finance.

A study by Knowledge Based Value shows that the Global Industry 4.0 market is expected to reach 195.8 billion by 2028 (see Fig. 1), which shows a sustainable growth trend in the use of digital technologies (KDB Research, 2022).

Figure 1. Industry 4.0 Market Size by Regions 2018-2028



Source: KDB Research, 2022

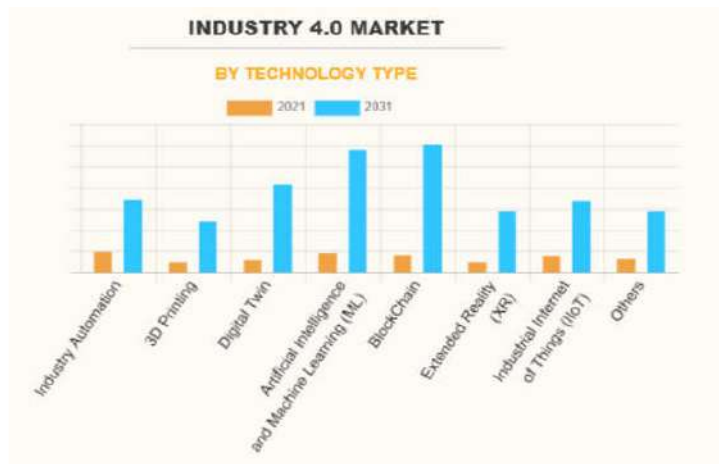
The data illustrates the ever-increasing role of digital technologies and the need for businesses to adapt to the new reality. This is a consequence of the advantages provided by the intelligent technological environment through connectivity, machine

learning, automation in the processing of huge data, forming an integrated ecosystem for companies.

The impetus for the digitization of life was the COVID-19 pandemic. It appeared as a catalyst for changes in the global economic situation, in the context of Industry 4.0. The new circumstances required a rapid transformation of the business and adaptation to the new market environment, the basis of which were the opportunities to implement innovative solutions at all business levels.

However, a study by Allied Market Research (2023) shows that "the high cost of implementing industrial robots and the complications of their integration and interoperability are a barrier to market growth." of Industry 4.0 (Fig. 2). This is to a certain extent compensated by the increasing application of 5 G automation of cloud technologies. In the same study, the Industry 4.0 market is considered on the basis of segmentation by technology type, end user and region, covering a forecast period of 2021-2031.

Figure 2. Forecast for the development of the "type of technology" segment 2021-2031



Source: Allied Market Research, 2023

The data indicates that the industrial automation segment will continue to dominate in the coming years, but the most serious growth is expected in blockchain technologies, the explanation being that this is due to the improved security, privacy and openness of data.

GlobeNewswire forecasts, citing [Market.U.S. research](#), show similar trends, drawing key takeaways for Industry 4.0 and specifically: by technology, the industrial

IoT segment will dominate the market by 2022, with North America having the highest share of digital technology revenue in the industrial sector for the same year. Impressive is the projected growth for Europe, with expectations that it will reach 25% for the period 2022-2032, and for the same period the most significant growth rate will be the Asia-Pacific region (GlobeNewswire, 2023). The report identifies the most important factors that will influence the growth of the global Industry 4.0 market and as such examines: technological advancements, the growing need for data transparency, the focus on sustainability in manufacturing processes, the demand for customized products and the need from operational efficiency.

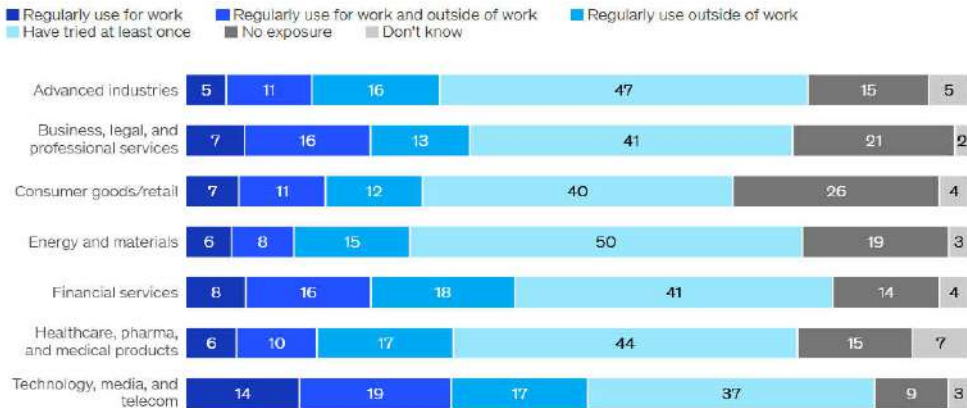
Due to the continuous improvement of artificial intelligence (AI) and machine learning, the Internet of Things (IoT) continues to evolve and expand its scope at a rapid pace. The presence of high-quality suppliers, IoT devices, wearable technologies, 5G networks and other innovative technologies play a key role in the development of smart cities, processing of huge information arrays, smart homes, automation and wider connectivity on a global level (CompTIA, 2022).

A McKinsey report on the state of AI in 2023 says that this is the breakthrough year for Generative AI (McKinsey, 2023b). Less than a year after its appearance, there is a significant increase in companies that regularly use next-generation AI. Over 40% of surveyed organizations intend to increase their investment in gen AI. However, the adoption of this technology also carries certain risks because it will lead to significant changes in the workforce, including layoffs in certain areas and retraining efforts to meet competency requirements. The interest in Gen AI is not abating, on the contrary. Businesses across regions, industries, and the companies with different ranks are using the new technology for work or beyond. The survey was conducted from April 11 to 21, 2023 among 1,684 participants and included representatives of various regions, industries, company sizes, functional specialties and ownership. The data shows increased interest in adopting the new technology. The respondents share that they expect its implementation in their business activities to lead to the transformation of their industries and it is the most preferred among those working in the technology sector (Fig. 3).

The research shows that the widest application of this tool is where it brings the most value: marketing and sales, development of new products and services, including customer service, back-office support, etc. The needs of today's consumers are constantly evolving, expecting businesses to understand, anticipate and even exceed their wants and needs. Therefore, a more precise approach that is tailored to individual preferences is needed (Sajid, 2023b). The new tool, together with software engineering, provides about 75% of the total annual value of the companies that implement it. AI will have a strong impact in professions in which there is a creative process (Profit.bg, 2023). Gen AI can significantly streamline the ideation process in product and service development, for applications in optimizing the product development cycle or improving existing ones, especially those in the AI field.

However, using the superpowers of artificial intelligence is also a great responsibility, as the focus is on the human factor and respect for personal privacy (Digitalk.bg).

Figure 3. Application of gen AI by industry type



Source: McKinsey, 2023b

Artificial intelligence has ushered in a new era of innovation and entrepreneurship across industries. Especially during the COVID-19 pandemic, they played an important role in adapting businesses to new market conditions. It turns out that few companies are fully prepared to use next-generation AI because they are not prepared for the risks these tools can bring (McKinsey, 2023b) (Fig. 4).

Figure 4. Risks companies see from using Gen AI



Source: McKinsey, 2023b

Despite the risk concerns that companies have, more are implementing them, having implemented at least four or more business functions, thereby leveraging the capabilities of artificial intelligence. According to a global survey by MIT Sloan Management Review and Boston Consulting Group of 1.741 managers representing more than 100 countries and 20 industries, organizations are much more likely to derive value from AI when their employees do, too. Rather, AI is seen as a "coworker" at work, not a threat, "when the use of the technology enhances their self-improvement, which includes their competence, autonomy and connectivity" (Boston Consulting Group, 2022).

Artificial intelligence is becoming a natural part of our daily lives. It should not be taken for granted, but ways of combining it with training programs aimed at developing the "soft" skills of employees should be sought (Economy.bg, 2020). Artificial Intelligence (AI) is in the main of the digital transformation of businesses and plays a key role in achieving competitive advantage and innovation progress. Its ability to analyze, interpret and extract valuable information from large volumes of data not only optimizes operations but also helps to take more informed and strategic decisions.

With the help of AI, businesses can automate tasks that previously required a huge number of human resources and time. This automation process reduces human error, increases the efficiency and reliability of operations, and lowers operating costs.

Additionally, AI supports the personalization of products and services by analyzing user behavior and providing tailored solutions and experiences. This increases customer satisfaction and creates closer relationships with them.

Most importantly, AI enables the anticipation of future trends and challenges, allowing businesses to be more agile and adaptable to changes in the rapidly evolving digital environment.

In the world of digital transformation, AI is not just a tool, but a key partner for successful innovation and business development. The integration of artificial intelligence is becoming an increasingly urgent necessity to succeed and survive in the future.

4. Conclusion

The study of digital technologies is currently an extremely important issue of scientific and practical importance, since their in-depth knowledge is an important prerequisite for achieving competitive advantages and long-term sustainable development of business, including the innovation of its activity.

The theory proves that digital technologies are important for business development. They are an important condition for making significant changes to business processes and providing opportunities for more efficient communication with counterparties and users. Knowing the nature and characteristics of digital technologies contributes to business modernization. That is why it is necessary for the

business to direct its efforts and attention to the knowledge and application of digital technologies in its activity.

In the contemporary landscape of the global economy, the inexorable rise of digital technologies has redefined the very essence of business operations, propelling enterprises toward sustainable growth and unmatched competitiveness. This article embarked on an insightful journey into the heart of this digital revolution, meticulously unravelling the multifaceted dimensions of digital technologies and their profound impact on business development.

The fundamental premise of this study was rooted in the recognition of digital technologies as catalysts for transformative change. By delving into the intricate tapestry of these technologies, this research aimed to demystify their nuances and illuminate the path for businesses to harness their unparalleled potential. Employing the sophisticated tools of Atlas.ti specialized software, this study delved deep, unearthing not just the surface-level applications but the intricate threads that weave the fabric of digital innovation.

The theoretical underpinnings explored in this research provided a robust foundation, elucidating the theoretical frameworks that underlie digital technologies. This theoretical grounding served as a springboard, enabling a nuanced classification of digital technologies. Through this classification, a systematic understanding emerged, delineating the diverse landscape of digital tools available to businesses.

In the pursuit of clarity, this study meticulously characterized some of the fundamental digital technologies. By systematically dissecting their features, this research illuminated the unique strengths and applications of these technologies, providing businesses with valuable insights into their potential utility.

The implications of this exploration are profound. In a world where adaptability and innovation are the cornerstones of success, businesses armed with a profound understanding of digital technologies are poised for unparalleled growth. The insights gleaned from this study serve as a guiding light, illuminating the path toward strategic digital integration. By embracing the specificities of digital technologies elucidated herein, businesses can not only streamline their operations but also unlock new avenues for creativity, customer engagement, and revenue generation.

As we draw the curtain on this endeavour, it is evident that the discussion surrounding digital technologies as engines of business development is not merely an academic exercise but a clarion call for action. The businesses of today stand at a critical juncture, where their ability to adapt and innovate in the digital sphere directly correlates with their survival and success. Through the lens of this research, the transformative power of digital technologies comes into sharp focus, urging businesses to not just embrace but actively leverage these tools to sculpt a future that is not just sustainable but thriving.

In essence, this study is not just a culmination of theoretical explorations and empirical analyses; it is a testament to the limitless possibilities that unfold when

businesses recognize digital technologies not as mere tools but as strategic allies. The digital age is here, and as businesses navigate this uncharted territory, the knowledge distilled from this research stands as a beacon, guiding them toward a future where innovation knows no bounds and sustainable growth becomes not just a goal, but a tangible reality.

REFERENCES

- Allied Market Research. (2023). Industry 4.0 Market by Technology Type (Industry Automation, 3D Printing, Digital Twin, Artificial Intelligence (AI) and Machine Learning (ML), BlockChain, Extended Reality (XR), Industrial Internet of Things (IIoT), Others), by End User (Manufacturing, Automotive, Oil and Gas, Energy and Utilities, Food and Beverages, Aerospace and Defense, Others): Global Opportunity Analysis and Industry Forecast, 2021-2031. https://www.alliedmarketresearch.com/industry-4-0-market?fbclid=IwAR3UE9hPZ7YGvbLAgPBmsOVuM7Wt_SwKB5q0_TsuFjFGIfvW1tZg2wRdj3w
- Atanasova, A. (2022). Characteristics of digital entrepreneurship. *Entrepreneurship*, 10(2), 7-21. doi: 10.37708/ep.swu.v10i2.1
- Averina, T., Barkalov, S., Fedorova, I., & Poryadina, V. (2021). *Impact of digital technologies on the company's business model*. E3S Web of Conferences 244, 10002. <https://doi.org/10.1051/e3sconf/202124410002>
- Boston Consulting Group. (2022). 60% of Employees Using AI Regard It as a Coworker, Not a Job Threat. <https://www.bcg.com/press/1november2022-employees-using-ai-regard-as-coworker-not-job-threat>
- Bresciani, S., Ferraris, A., & Del Giudice, M. (2018). The management of organizational ambidexterity through alliances in a new context of analysis: Internet of Things (IoT) smart city projects. *Technological Forecasting and Social Change*, 136, 331–338. doi:10.1016/j.techfore.2017.03.002
- Brock, J. K. U., & Von Wangenheim, F. (2019). Demystifying AI: What digital transformation leaders can teach you about realistic artificial intelligence. *California Management Review*, 61(4), 110–134. doi:10.1177/1536504219865226
- Chen, J., Huang, S., & Liu, Y. H. (2020). Operations management in the digitization era: From empowering to enabling. *Management World*, 36(2), 117-128.
- CompTIA. (2022). 30 Internet of Things Stats & Facts for 2022. <https://www.channelprometwork.com/blog/entry/30-internet-things-stats-facts-2022?fbclid=IwAR0MczR-Fx3vMP4YGeHcAG9tHjk40Ozd5lhyaMdVdceBXuOAbE YYNUU8>
- DigiTalk.bg (2023). However, harnessing AI's superpowers also comes with great responsibility. https://digitalk.bg/izkustven_intelekt/2023/09/21/4517864_ai_v_biznesa_supersila_no_i_goliama_otgovornost/
- Economy.bg (2020). Companies see the most benefits from artificial intelligence when it is combined with talent development. <https://www.economy.bg/innovations/view/39728/Kompaniite-vizhdat-naj-mnogo-polzi-ot-izkustveniya-intelekt-kogato-e-sychetan-s-razvitie-na-talanta->

- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital technology-a new strategic imperative. *MIT Sloan Management Review*, 55(2), 1-12.
- Garther. (2023). 10 Strategic Data and Analytics Predictions Through 2028, Retrieved from: <https://www.gartner.com/en/articles/gartner-strategic-data-and-analytics-predictions-through-2028>
- Given-Wilson, T., Baranov, E., & Legay, A. (2020). Building User Trust of Critical Digital Technologies. IEEE International Conference on Industrial Technology (ICIT), 1199-1204. doi: 10.1109/ICIT45562.2020.9067154
- GlobeNewswire. (2023). Industry 4.0 Market is Probable to Influence the Value of USD 482 Billion by 2032, with Growing CAGR of 20.7% Forecast by 2032; Market.us, Retrieved from: <https://www.globenewswire.com/en/news-release/2023/05/30/2678453/0/en/Industry-4-0-Market-is-Probable-to-Influence-the-Value-of-USD-482-Billion-by-2032-with-Growing-CAGR-of-20-7-Forecast-by-2032-Market-us.html?fbclid=IwAR3YTE3sN-87-yCocXaMcZ5TDoFjb6ALwqNsWmkpuq2kCS8PZicEldra -k>
- Guo, H., Yang, Z., Huang, R., & Guo, A. (2020). The digitalization and public crisis responses of small and medium enterprises: Implications from a COVID-19 survey. *Frontiers of Business Research in China*, 14, 19. <https://doi.org/10.1186/s11782-020-00087-1>
- Hanelt, A., Piccinini, E., Gregory, R.W., Hildebrandt, B., & Kolbe, L.M. (2015). Digital Transformation of Primarily Physical Industries-Exploring the Impact of Digital Trends on Business Models of Automobile Manufacturers. Proceedings of: *Wirtschaftsinformatik*, 1313-1327.
- Jiao, Y. (2020). Digital economy enables the transformation of manufacturing industry: From value reshaping to value creation. *Economist*, 6, 87-94.
- KBV Research. (2022). Global Industry 4.0 Market Size, Share & Industry Trends Analysis Report By Technology (Industrial Sensors, Machine Vision, Industrial Robots, HMI, Blockchain, Industrial 3D Printing, AI in Manufacturing, Digital Twin, Machine Condition Monitoring, and Automated Guided Vehicles), By Regional Outlook and Forecast, 2022 – 2028. https://www.kbvresearch.com/industry-4-market/?fbclid=IwAR0FH3Dwyn7wiHHGwaOS2MdbZbC9gFXgkPKX6jJR_ajEBVfHdtVEG_80tw
- Kyurova, A. (2022). The digital transformation and its impact on small and medium-sized enterprises. *Entrepreneurship*, 10(1), 7-18. doi: 10.37708/ep.swu.v10i1.1
- Li, X.Y. (2022). *Research on the impact and mechanism of digital technology driving enterprise innovation*. East China Normal University.
- Li, Y., Dai, J., & Cui, L. (2020). The impact of digital technologies on economic and environmental performance in the context of industry 4.0: A moderated mediation model. *International Journal of Production Economics*, 229, 107777. doi:10.1016/j.ijpe.2020.107777
- Lipsmeier, A., Bansmann, M., Röltgen, D., & Kürpick, C. (2018). Framework for the identification and demand-orientated classification of digital technologies. IEEE International Conference on Technology Management, Operations and Decisions (ICTMOD), 31-36. doi:10.1109/ITMC.2018.8691135

- Liu, X. X., Yang, Y. Q., & Sun, Z. J. (2022). The construction and evolutionary development of enterprise digital capabilities: A multi-case exploratory study based on leading digital. *Enterprises Reform*.
- Martínez-Caro, E., Cegarra-Navarro, J. G., & Alfonso-Ruiz, F. J. (2020). Digital technologies and firm performance: The role of digital organizational culture. *Technological Forecasting and Social Change*, 154, 119962. doi:10.1016/j.techfore.2020.119962
- McKinsey. (2023a). A manual for digital transformations that work. <https://www.mckinsey.com/featured-insights/themes/a-manual-for-digital-transformations-that-work>
- McKinsey. (2023b). The state of AI in 2023: Generative AI's breakout year. <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai-in-2023-generative-ais-breakout-year>
- Mottaeva, A., Stepanova, J., Meshkova, N., & Semenova, G. (2021). Optimizing the Resultativeness of Adapting an Economic Entity to the Conditions of Digitalization. *European Journal of Sustainable Development*, 10(1), 705. <https://doi.org/10.14207/ejsd.2021.v10n1p705>
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8), 1-9.
- Profit.bg (2023). Faster, better: 3 ways AI is helping content creators. <https://profit.bg/po-barzo-po-dobre-3-nachina-po-koito-ai-pomaga-na-avtorite-na-sadarzhanie/>
- Richter, C., Kraus, S., Brem, A., Durst, S., & Giselsbrecht, C. (2017). Digital entrepreneurship: Innovative business models for the sharing economy. *Creativity and Innovation Management*, 26(3), 300-310. <https://am.booksc.org/book/66703630/3e5ba1>
- Sajid, H. (2023a). The intersection of AI in 6 major industries: Exploring the latest AI applications from a business perspective. <https://www.unite.ai/the-intersection-of-ai-across-6-major-industries-exploring-latest-ai-applications-from-business-perspective/>
- Sajid, H. (2023b). What is AI Hyperpersonalization? Advantages, Case Studies, & Ethical Concerns. <https://www.unite.ai/what-is-ai-hyperpersonalization-advantages-case-studies-ethical-concerns/>
- Samara, G., & Terzian, J. (2021). *Challenges and Opportunities for Digital Entrepreneurship in Developing Countries*. In: Digital Entrepreneurship. Impact on Business and Society. Springer Nature Switzerland AG, 283-302. https://doi.org/10.1007/978-3-030-53914-6_1
- Schwab, K. (2017). *The fourth industrial revolution: Currency*. New York: Crown Business.
- Schwertner, K. (2017). Digital transformation of business. *Trakia Journal of Sciences*, 15(1), 388-393.
- Sebastian, I., Ross, J., Beath, C., Mocker, M., Moloney, K., & Fonstad, N. (2017). How big old companies navigate digital transformation. *MIS Quarterly*, 16(3), 197-213.
- Shkalkenko, A. V., & Fadeeva, E. A. (2020). *Analysis of the Impact of Digitalization on the Development of Foreign Economic Activity During COVID-19 Pandemic*. Advances in Economics, Business and Management Research, volume 138, 2nd International Scientific and Practical Conference “Modern Management Trends and the Digital Economy: from Regional Development to Global Economic Growth”, 1190-1195.

- Soltanifar, M., & Smailhodžić, E. (2021). *Developing a Digital Entrepreneurial Mindset for Data-Driven, Cloud-Enabled, and Platform-Centric Business Activities: Practical Implications and the Impact on Society*. In: Digital Entrepreneurship. Impact on Business and Society. Springer Nature Switzerland AG, 3-22. https://doi.org/10.1007/978-3-030-53914-6_1
- Stegmann, K. (2020). Effekte digitalen Lernens auf den Wissens-und Kompetenzerwerb in der Schule. Eine Integration metaanalytischer Befunde. *Zeitschrift für Pädagogik*, 66(2), 174-190.
- Sturgeon, T. J. (2019). Upgrading strategies for the digital economy. *Global Strategy Journal*, 11(7), 1-24.
- Usai, A., Fiano, F., Petruzzelli, A. M., Paoloni, P., Briamonte, M. F., & Orlando, B. (2021). Unveiling the impact of the adoption of digital technologies on firms' innovation performance. *Journal of Business Research*, 133, 327-336. doi:10.1016/j.jbusres.2021.04.035
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118-144.
- Wang, H. H., Li, Y., & Tan, Y. Y. (2022). The impact of digital transformation on enterprise performance based on meta-analysis. *Journal of System Management*, (1), 112-123.
- Wetherbe, J. C., McLean, E. R., Leidner, D. E., & Turban, E. (2006). *Information technology for management: Transforming organizations in the digital economy*. 5th Edition, J. Wiley.
- Yan, J. Z., Ji, W. Y., & Xiong, Z. (2021). Overview and prospect of digital innovation research. *Scientific Research Management*, (4), 11-20.
- Yoo, Y. (2010). Computing in everyday life: A call for research on experiential computing. *MIS Quarterly*, 34(2), 213-231.