SUSTAINABILITY OF DIGITAL BUSINESS. ADVANTAGES OF ADOPTION OF BUSINESS MODELS BASED ON THE DIGITAL ECONOMY

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Abstract
In the digital age, technological transformation is associated with organizational performance, economic growth, environmental protection, and social welfare, being an integral part of the business model. Innovation is no longer just an element of the product created by the company, the way we create the product, can represent the created product itself. Large companies in the market for the last 30 years are companies creating digital products. Adopting the latest technologies is imperative for companies for which the main purpose is to remain or become competitive. The widespread implementation of digital solutions will contribute to sustainable development. Regarding the adoption of technology, it is certain that organizations embrace the implementation of digital tools, but the question that arises and which we want to answer through this study concerns the benefits of their use for the environment and society.

Key words: *benefits; digital; digital economy; digital transformation; innovation; sustainability*.

JEL clasification: *L86; M10; M14; M21*.

I.INTRODUCTION

In light of the growing scarcity of resources, and the degradation of the environment and the environment, sustainability has become an increasingly widespread word in modern society and has developed into a real phenomenon. It is imperative to understand the current state of one's own life and that of others, as well as the earth. All inhabitants of the planet must adopt natural responsibility and not be transposed unless something is returned in return; there must always be a balance between these perspectives, otherwise, the imbalance can cause major problems.

Within a company, sustainability means " company management in such a way that it can offer future generations firm social and environmental programs " (Danciu, 2013).

There is an upward trend in the digitalization of the economy, a variety of new technologies are forming a set of digital tools that promise to contribute to sustainable development. Digital transformation is a trend specific to the contemporary world that impacts people, companies, the global economy, and large-scale society. In this context, this study aims to capture the benefits of using technologies in the work of organizations and how innovations can develop sustainable business strategies. The research also aims to provide an overview of the phenomenon of digitization and the relationship between digitalization, sustainability, and the digital economy.

Thus, the study was approached on two levels. The first aims at a qualitative analysis of the literature, which had as sources of documentation databases, articles, studies, and specialized books. Following the documentation, we made a synthesis of scientific materials for the conceptual basis of the research topic. The second level is based on a series of studies that have identified the main advantages of using digital tools. The results of the data and information analysis were presented in the form of text.

II. SPECIALITY LITERATURE RETENTION

Digitization is considered „ one of the largest and most sustainable changes in today's society, which influences many areas of our lives „ (Susanne, Othmar, et.al., 2021). Robots have become ubiquitous and have shaped the way we live and carry out our activities.

Digitization is „ the process of transforming processes through digital transformation and automation " (Susanne, Othmar, et.al., 2021) to „ increase performance and expand the company's activity object " (Rachinger, Rauter, et.al., 2018). The literature (Verhoef, Broekhuizen, et.al., 2021) addresses three phases of digital transformation: „ digitization (e.g. automation of routine activities or conversion of analog information into digital format), digitization (e.g. use of robots in production, the introduction of digital distribution and communication channels) and digital transformation (which consists of the introduction of new business models, such as the delivery of a product as a service, digital platforms, etc) ".

In this case, the digital transformation of the company involves „ changing the way it adapts to the requirements of the digital economy " (Rachinger, Rauter, et.al., 2018) with the intention of „ to achieve superior performance and a sustained competitive advantage " (Ismail, Khater, et. al., 2017).

In the organizational landscape, digital transformation is applied when innovative solutions are found to solve problems, by adjusting both technology and business strategies, to produce radical changes by adapting to existing technologies (Tugui, Jeflea, et.al., 2022).

Therefore, we can say that the digital economy represents " a significant paradigm shift towards the classical economy, through the high degree of automation of production processes, but also the creation of digital products and markets, they bring digital to the ubiquitous level of man " (Barefoot, Curtis, et.al., 2018).

A recent study (Deloitte, 2022) reports that the digital economy is represented by „ economic activity resulting from billions of daily online connections between people, companies, devices, data and processes, the key elements of the digital economy are considered hyperconnectivity, ie a constantly growing connectivity, resulting mainly from the integration of the Internet of Things (IoT) in economic processes ".

In terms of digital economy design, „ three " interactive operating levels „ the first level is that of the market and industries, (respectively of the interaction between suppliers and customers, as the main economic actors generating value), the second level is intended „ platforms and technologies " and provides skills for economic actors involved in market advancement, „ environment " is the third level of the digital economy and guarantees the circumstances of the advancement of platforms and technologies. (Bershadsky, Bozhday, et.al., 2017).

The influence of digital technologies „ has an impact on the creation and development of values, as digital products become more of a rule than an exception " (Hausberg, Liere-Netheler, et.al, 2019). Instead, the digitization process can bring other benefits, such as protecting the environment through the use of smart equipment and machinery, expanding the possibilities for efficient use of resources, reducing the amount of waste, and promoting sustainable development. (Bonilla, Silva, et. al. 2018). According to another study (Deloitte, 2021), conducted among 2,750 private companies around the world, digital transformation has become both a priority in the context of the „ 70% pandemic% of the companies significantly accelerating this approach, as well as a growth strategy for the next two years for over 40% of the companies ". The main technological areas in which private companies intend to invest are: „ information security and cyber security (39%), data analysis (37%), customer relationship management systems (34%), artificial intelligence (33%), automation of business processes (32%), Internet of Things (30%) ".

Business owners and top management teams participating in the study expect investments in technology to bring important benefits to their organizations, such as improving customer relations, increasing sales volumes, and increasing the capacity to manage and reduce costs. It can be seen how the convergence between sustainability and digital imperatives has gained ground and it is a certain fact that many companies are in the process of digital transformation because they create digital products or incorporate a high degree of automation in classic products, not only for their survival but also for business sustainability (Yo, Kim, 2018; George, Merrill, et.al., 2021).

In this regard, we can define digital sustainability as ,, the result of those organizational activities that aim to promote sustainable development goals through the creative implementation of digital technologies " (Ismail, Khater, et. al., 2017). The contribution of companies to a sustainable future must be the result of their increased favorable impact on the company (Danciu, 2013), and this objective can only be achieved if the companies „ adopt a significant paradigm shift towards the classical economy, through the high degree of automation of production processes, but also the creation of digital products and markets " (Rachinger, Rauter, et.al., 2018). The digital nature of these activities allows organizations to be less constrained by geographical boundaries and improves scalability, (Ismail, Khater, et. al., 2017) remarkably contributing to maintaining and improving the quality of life, as a result of initiatives and activities that provide the necessary resources for future generations (Danciu, 2013).

In our exploratory research, we found that one of the correlative goals of businesses and entrepreneurs encompassing digital technologies is to meet sustainability goals as well. They initiated this approach, not only through technological innovation of existing business models, which become more automated in manufacturing processes, but also through the development of new business models, called digital business.

Digitization is also considered an incentive to achieve sustainability within an organization and is used by managers to improve processes and workflows. The digital business contributes to the development of the digital economy.

III. ADVANTAGES OF DIGITAL BUSINESS

In this section, we summarize the advantages that new digital business models bring to increase the level of organizational sustainability.

→ To solve mass communication problems, some companies use digital tools to communicate simple and exciting messages about sustainability. These activities are often based on ” gamification ” processes, transposing sustainability behaviors into fun, social and competitive environments, by contextualizing micro-commitments in an encouraging game (Yoo and Kim, 2018). Behavioral changes can be measured and quantified, in such a way as to create and develop a user base by providing a combined simple service and a clear message of environmental protection. This business model generates a positive impact on people and helps to develop sustainable behavior in terms of conservation of natural resources.

→ A multinational in the field of agro-business automates the process of initiating cocoa crops in its global network. Farmers connect with mobile phones to the digital sales platform, thus eliminating pricing intermediaries that offer farmers higher prices. To develop this platform, managers used a user-centered design method to learn from farmers what intermediate value added is created (largely by assessing the value of the crop and estimating transaction costs) and how it should adjust its supply chain operations. Multinational managers, in collaboration with scientists, digitized the evaluation of the cocoa tree based on the moisture content using image recognition and automatic learning, so that it can create a real-time pricing tool that would make farmers' incomes more predictable and make prices more transparent and more transparent unlikely to the bargaining and bargaining power of intermediaries. Through digital reintermediation, the company can offer a higher price for products purchased directly from farmers, moreover, can improve the stability of the offer and expand the margins while encouraging „ digital locking ” on the platform. (George, Merrill, et.al., 2021).

→ For efficient animal welfare management, a group of farmers uses the PLF monitoring system (microphone, camera, and sensor), in real-time. Each animal on the farm has a monitoring device installed.

With this system, you can find real-time data such as: if an animal has left the perimeter of the farm, data about their behavior (aggressive or not) and animal welfare, and productivity management, health, and well-being becomes feasible (Norton, Chen, et.al., 2019). Thus, the use of technology contributes to the growth of animals according to plan and can provide the key to sustainable animal production in the future.

→ Another digital business model is carried out in the Italian food sector and is based on an alternative power supply network called the “ Food Assembly ” hybrid, through which organic food is marketed. Customers order products online, after which they pick them up weekly from a farmers' market. This business model combines the culture of social entrepreneurship and digital innovation to achieve sustainability and a high social impact. The coexistence of a digital platform and a weekly market for farmers triggers mechanisms for the exchange of knowledge and self-organization within this network. Thus, shared information spreads quickly through the digital platform, customers have easy access to food information, and farmers' sales incomes are increasing. On the other hand, the exchange of information has produced a positive impact on sustainable behavior for both buying and consuming. Through physical interaction, the farmer can receive feedback from the customer offering refunds or exchanges, if a product has not met the consumer's expectations. The economic activity carried out through the “ Food Assembly ” network supports Italian local producers and positively influences sustainable behavior in terms of purchasing and consumption practices (De Bardi, Bertello, et.al., 2019).

In the current context, at the global level, states and organizations are facing a double transformation, which is interdependent: a digital transformation that can facilitate another transformation - the adoption of business models based on the digital economy, to achieve sustainable development. The presentation of business models resulted in several advantages generated by the use of digital tools in organizations, respectively:

- helps reduce the consumption of resources needed for a business; increases the ability to anticipate and respond effectively to subsequent needs;
- allow an easier analysis and control over activities; innovation is easier and easier to achieve;
- replaces the repetitive tasks of employees, so their work becomes more efficient; contributes to obtaining an important competitive advantage;
- increases the degree of satisfaction for both customers and employees; increases sustainable production and contributes to the scaling of the business;
- protects the environment and increases the quality of life; contributes to increasing economic performance.

IV.CONCLUSION

New technologies have been, are, and will be key factors for the development of modern society. However, to create a sustainable world, we need to look beyond technology. The use of digital tools is perceived as an investment process to achieve agility and mobility, especially in difficult economic times, but also to support the progress of innovative approaches. The result of these investments is an important component of profit growth.

By using digital innovations, companies will have new opportunities to develop a sustainable economy, promote an open and democratic society, and ultimately, contribute to the fight against climate change and the realization of the ecological transition.

The transition to the information society will separate businesses into traditional businesses and modern organizations that use digital tools. The main feature of the digital economy is the implementation and use of digital technology.

Developing and implementing a strategy that uses technology to encourage global sustainability must be one of the goals of organizations. This responsibility is enormous, but the opportunity to discover new sources of value and pave the way for a more sustainable future is even greater.

V. REFERENCES

1. Barefoot, B., Curtis, D., Jolliff, W., Nicholson, JR, Omohundro, R. (2018). "*Defining and Measuring the Digital Economy. US Department of Commerce from Bureau of Economic Analysis".* Retrieved May 2023, from: https://www.bea.gov/sites/default/files/papers/defining-and-measuring-the-digital-economy.pdf.
2. Bershadsky, A.; Bozhday, A.; Evseeva, Y.; Gudkov, A. & Vardan, M. (2017). *Techniques for adaptive graphics applications synthesis based on variability modeling technology and graph theory. Communications in Computer Science and Information Science.* Retrieved May 2023, from: https://www.researchgate.net/publication/319145067_Techniques_for_Adaptive_Graphics_Applications_Synthesis_Based_on_Variability_Modeling_Technology_and_Graph_Theory.
3. Bonilla, S., Silva, H., Terra Da Silva, M., Franco Goncalves, R. and Sacomano, J., (2018) .Industry 4.0 and Sustainability Implications: A Scenario-Based Analysis of the Impacts and Challenges. *Sustainability*, [e-journal] 10, 3740. Retrieved May 2023, from: https://www.mdpi.com/2071-1050/10/10/3740.
4. Danciu.V.(2013) "*Întreprindrea sustenabilă. Noi provocări și strategii pentru crearea sustenabilității corporative*" Economie teoretică aplicată, pp.4-24.
5. De Bernardi Paola, Alberto Bertello, and Francesco Venuti. 2019. "*Online and On-Site Interactions within Alternative Food Networks: Sustainability Impact of Knowledge-Sharing Practices*" *Sustainability* 11, no. 5: 1457. Retrieved May 2023, from: Disponibil la: https://www.mdpi.com/2071-1050/11/5/1457.
6. Deloitte Private Survey (2021), *Deloitte survey: private companies around the world expect the pandemic impact to be felt for the next several years and are rather cautious about hiring plans for the next year.* Retrieved May 2023, from: https://www.amcham.ro/business-intelligence/deloitte-survey-private-companies-around-the-world-expect-pandemic-impact-to-be-felt-for-the-next-several-years-and-are-rather-cautious-about-hiring-plans-for-the-next-year.
7. Deloitte. (2022*). What is the digital economy?* Retrieved May 2023, from: https://www2.deloitte.com/mt/en/pages/technology/articles/mt-what-is-digital-economy.html,
8. George, G., Merrill, R. K., & Schillebeeckx, S. J. D. (2021). Digital Sustainability and Entrepreneurship: *How Digital Innovations Are Helping Tackle Climate Change and Sustainable Development. Entrepreneurship Theory and Practice*, *45*(5), 999–1027. Retrieved May 2023, from: https://journals.sagepub.com/doi/full/10.1177/1042258719899425.
9. Hausberg, J.P., Liere-Netheler, K., Packmohr, S. et al.*" Research streams on digital transformation from a holistic business perspective: a systematic literature review and citation network analysis. J Bus Econ 89", 931–963 (2019).* Retrieved May 2023, from: https://link.springer.com/article/10.1007/s11573-019-00956-z.
10. Ismail, M.H., Khater, M. and Zaki, M., 2017. Digital business transformation and strategy: *What do we know so far? Working paper. The University of Cambridge*. [online]. Retrieved May 2023, from: https://cambridgeservicealliance.eng.cam.ac.uk/system/files/documents/2017NovPaper_Mariam.pdf.
11. Leitner-Hanetseder, Susanne & Lehner, Othmar & Eisl, Christoph & Forstenlechner, Carina. (2021), "*A profession in transition: actors, tasks, and roles in AI-based accounting*". Journal of Applied Accounting Research. Retrieved May 2023, from: https://www.researchgate.net/publication/349292091_A_profession_in_transition_actors_tasks_and_roles_in_AI-based_accounting.
12. McKinsey & Company, 2020. *Shaping the digital transformation in Europe. Final Report*.[online]. Retrieved May 2023, from: https://www.ospi.es/export/sites/ospi/documents/documentos/Sstudy_Shaping_the_digital_transformation_in_Europe_Final_report_20 2009.pdf.
13. Norton, T., Chen C., Larsen M.L.V., Berckmans D., (2019)." *Precision livestock farming: building digital representations to bring the animals closer to the farmer*" The Animal Consortium. Retrieved May 2023, from: https://www.sciencedirect.com/science/article/pii/S175173111900199X.
14. Rachinger, M., Rauter, R., Müller, C., Vorraber, W. and Schirgi, E., 2018.Digitalization *and its influence on business model innovation.* Journal of Manufacturing Technology Management, [e-journal] 40(2), pp.16-24. Retrieved May 2023, from: https://www.researchgate.net/publication/326877023_Digitalization_and_its_influence_on_business_model_innovation,
15. Seok-Keun Yoo; Bo-Young Kim;(2018), " *A Decision-Making Model for Adopting a Cloud Computing System*", Journal Sustainability Retrieved May 2023, from:: https://www.mdpi.com/2071-1050/10/8/2952.
16. Tugui, A.; Jeflea, F.V.; Opariuc, C.; Filipeanu, D.; Agheorghiesei, D.T. Societal transformations in Romanian society: humanity interaction with artificial intelligence towards the technological singularity. *Transform. Bus. Econ.* 2022, *21*, 435–461.

Verhoef, P.C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J.Q., Fabian, N., and Haenlein, M., 2021. Digital transformation: A multidisciplinary reflection and research agenda. Journal of Business Research, [e-journal] 122, pp.889-901. Retrieved May 2023, from: https://www.sciencedirect.com/science/article/pii/S0148296319305478,