DIGITAL TRANSFORMATION OF BUSINESS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT[1]

TRANSFORMAREA DIGITALĂ A BUSINESSULUI ÎN CONTEXTUL DEZVOLTĂRII SUSTENABILE

CZU: 334:004:502.131.1

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ABSTRACT. *The actuality of the topic of this article is indisputable in the context of the digital era in which we live and which is characterized by intense rhythms of the development of information technologies. The digital transformation of business is a process that requires radical changes in the business environment and in the strategies of companies. In this context, companies that do not follow the course of digital business transformation will not stand up to the competition and will have to go out of business. Data on spending on digital transformation technologies and services worldwide and the evolution of the size of the big data analytics market worldwide were used as statistical data. The article also uses the results of the survey performed in the framework of the Erasmus+ CONNECT project in order to assess the importance of know-how in communication and information technologies for entrepreneurship. Following the analysis of the research of other specialists in the field, the article argues the main advantages of web analytics technologies for entrepreneurial activity and the directions of the impact of digital technologies used in business in ensuring the sustainable development of the economy.*

Keywords*: digital technologies, entrepreneurship, marketing, data analytics, sustainable development, resources.*

REZUMAT. *Actualitatea tematicii acestui articol este indiscutabilă în contextul erei digitale în care noi trăim și care se caracterizează prin ritmuri intense de dezvoltare a tehnologiilor informaționale. Transformarea digitală a businessului este un proces care impune schimbări radicale în mediul de afaceri și în strategiile companiilor. În acest context, companiile care nu vor merge pe calea transformărilor digitale a afacerilor sale, nu vor ține piept concurenței și vor fi nevoiți să renunțe la activitatea sa. În calitate de date statistice au fost utilizate datele privind cheltuielile pentru tehnologiile și serviciile de transformare digitală la nivel mondial și evoluția dimensiunii pieței de analiză big data la nivel mondial. Totodată în articol sunt utilizate rezultatele sondajului care a fost efectuat în cadrul proiectului Erasmus+ CONNECT în vederea aprecierii cât de importante sunt cunoștințele în domeniul tehnologiilor de comunicare și informare pentru antreprenoriat. În urma analizei cercetărilor altor specialiști în domeniu în articol sunt argumentate principalele avantaje pe care le oferă tehnologiile de web analytics pentru activitatea antreprenorială și direcțiile de impact a tehnologiilor digitale utilizate în business în asigurarea dezvoltării sustenabile a economiei.*

Cuvinte-cheie: *tehnologiile digitale, antreprenoriat, marketing, data analytics, dezvoltarea sustenabilă, resurse.*

Introduction. Digital transformation of business in the context of sustainable development is a research direction of increasing interest and a global priority. Depending on how it is implemented and managed, the digitisation of business can have both positive and negative effects.

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[1] *The research was conducted within the Erasmus+ Project „Connecting universities-industry through smart entrepreneurial cooperation & competitive intelligence of students in MD, GE and AM (CONNECT)", reference number: 617393-EPP-1-2020-1-MD-EPPKA2-CBHE-JP.*

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Firstly, the digital transformation of business can reduce the time and effort required to perform routine tasks such as managing data or tracking sales. More in-depth information and analysis are now available worldwide, as digitization enables more accurate collection and analysis of data and consumer behavior, so companies can make more informed decisions. There is a clear trend to develop and improve communication through digital channels so that companies can communicate more effectively with customers and employees and better manage their needs and problems.

On the other hand, sceptics are increasingly raising the negative aspects of digitization, which changes the traditional way of life and creates certain risks. In some cases, there is an obvious dependence on technology and if the technology infrastructure is not well managed or secure, digitisation can lead to over-reliance on technology and bring security risks, including data vulnerabilities and the possibility of being targeted by cyber-attacks Certainly the implementation of digital tools is linked to high implementation costs, especially if significant investments have to be made in the infrastructure or in the training of its employees.

Overall, digitisation can bring many benefits to businesses, but it is important to manage it carefully to minimise risks and maximise benefits.

1. Date and methodology

The digital transformation of business is affecting businesses in all sectors, directly contributing to breaking down barriers between people, businesses and things. Organisations tend to integrate digital technologies to transform processes, hire talent and implement new business models to withstand competition and digital transformation (Schwertner K.,2017).

Although there is a lot of talk about the digitisation process these days, some studies confirm the lack of a globally unified definition of the concepts of digitisation, digital transformation, and inconsistencies in the existing literature. At the same time, researchers cite insufficient literature on the transformational effects of digital technologies on different aspects of the firm, and in particular considering their specific impact for different industries (Morakanyane, R., Grace, A., and O'Reilly, Ph., 2017). Another deficiency in this area of study would be the lack of a clear definition of digital transformation and business models, a constructive approach to how to digitally transform business models by phases and by groups of tools (Schallmo, D., Williams Ch. and Boardman, L., 2017).

Digital technologies are the key driver of innovation and change in business models, enabling new ways of creating value. Changes in business models as a result of digitisation can be classified into three broad categories (Feng, L., 2022):

- automation - refers to when a business uses digital technologies to automate or improve
- existing activities and processes;
- extension - illustrates where a firm uses digital technologies to support new ways of doing business;
- transformation - refers to cases where digital technologies are used to enable new ways of doing business to replace traditional ones;

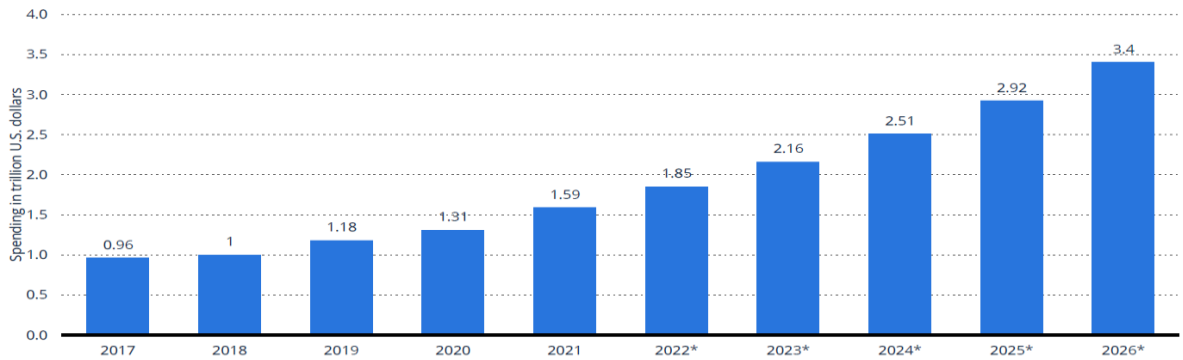


Fig.1. Evolution of the spending on digital transformation technologies and services worldwide from 2017 to 2026

Source: Big data: digital & trends, available on https://www.statista.com/

Taking into account that nowadays there is more and more talk about the digitization of business and the impact of this digitization in the context of ensuring sustainable development, only a few statistical data confirming the above are analysed, thus supporting the opinions of researchers and business representatives.

Figure 1 reflects the evolution of spending on digital transformation technologies and services worldwide .

Spending on digital transformation technologies and services worldwide between 2017 and 2021 increased from USD 0.96 trillion to USD 1.59 trillion. According to STATISTA's forecast, spending on digital transformation technologies and services is expected to grow intensively in the coming years, so that in 2026 this indicator will reach USD 3.4 trillion, which is 2.14 times the actual level in 2021.

Such a significant increase in spending on digital transformation technologies and services globally is due to the positive impact and multiple benefits of their use in business.

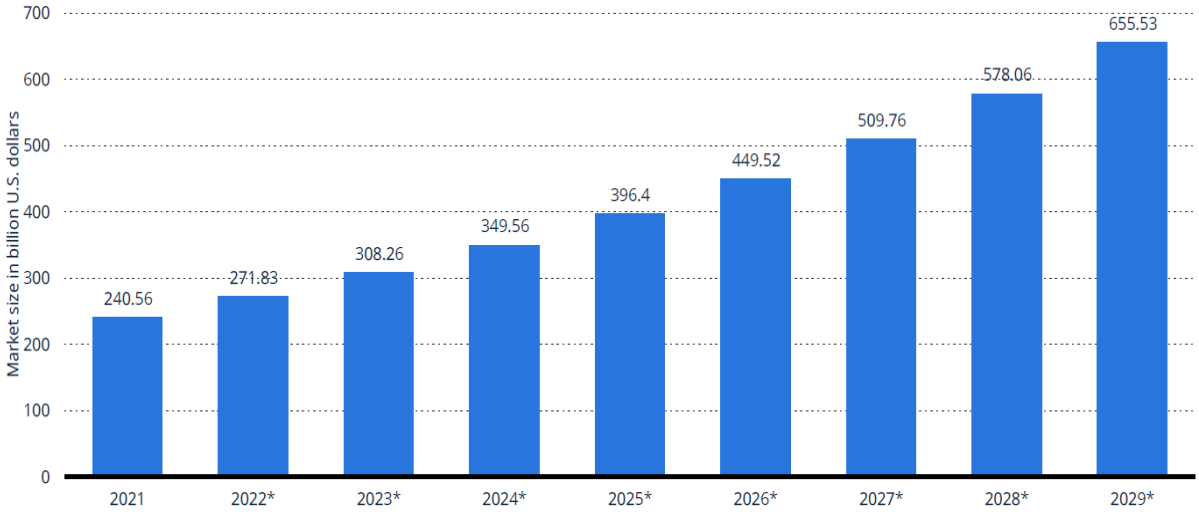


Fig.2. Evolution of the size of the big data analytics market worldwide from 2021 to 2029
Source: Big data: digital & trends, available on https://www.statista.com/

With the increase in spending on digital transformation technologies and services worldwide, the size of the big data analytics market is growing. Figure 2 reflects the evolution of the size of the big data analytics market worldwide from 2021 to 2029, so for the year 2021 the actual level of the indicator is used, and for the following years the data are forecast by STATISTA by applying economic models.

Given the fast pace of development of information technologies, it is not surprising that the size of the big data analytics market worldwide is expected to grow from USD 240.56 billion to USD 655.53 billion in the near future, a 2.72-fold increase over the next 8 years.

Although the volume of data is growing massively the digital revolution in the information society, the use of Big Data an important challenge , but the use of big data, is accessible only to the largest companies, being an effective tool for market research, customer loyalty and predicting consumer behavior (Fernández-Rovira C., Valdés J., BortolóG., Nicolas R., 2021).

Although global trends confirm a positive development with high rates of the size of the big data analytics market worldwide, of the spending on digital transformation technologies and services worldwide and the social media analytics market size worldwide, it is interesting to consult the business representatives' opinion in this regard. The figure below reflects the distribution of the answers of business representatives from the Republic of Moldova obtained from the survey that was conducted in the framework of the Erasmus+ CONNECT project to the question: “How important is knowledge in communication and information technologies for entrepreneurship?”

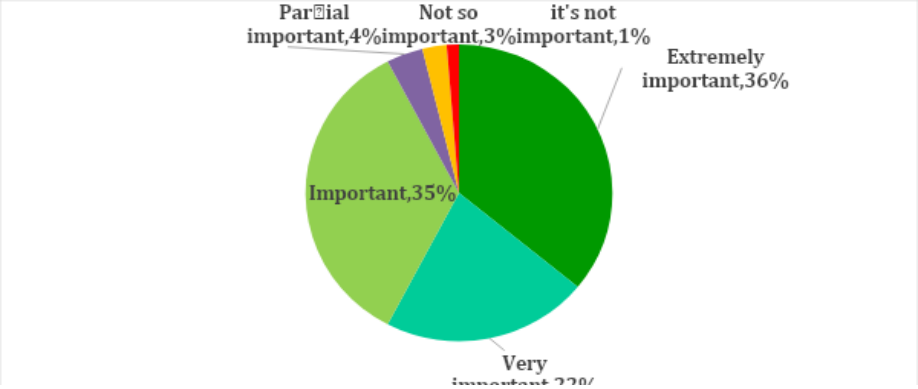


Fig.3. The structure of the companies' answers to the question: „How important is knowledge in communication and information technologies for entrepreneurship?"
Source: Elaborated by the authors based on the results of the survey performed within the Erasmus+ Project CONNECT

As confirmed by the answers of the representatives of the business environment in the Republic of Moldova the knowledges in communication and information technologies are extremely important, very important and important for entrepreneurship, which was confirmed by 92.31% of the respondents. At the same time it should be mentioned that only 1.28% of respondents considered the knowledges in communication and information technologies as not important for entrepreneurship.

Given the relatively low level of digitization of business in developing countries such as the Republic of Moldova, it can be assumed that the business environment in developed countries will appreciate even more the importance of the knowledges in communication and information technologies for entrepreneurship.

2. Discussions and results

Web analytics technologies are important and extremely useful in studying the market and understanding online user behaviour. These technologies collect and analyse data about visitors to a website, such as information about their browsing behaviour, their activity on the website, their geographical location and more. By using these technologies, important information about the target market and existing or potential customers can be obtained, which can help develop marketing and sales strategies.

More research in the field focuses on the fragmentation between descriptive technologies, common platforms and ecosystems and new generic technologies and their impact on industries, identifying areas of business and process transformation (Vaska S, Massaro M, Bagarotto E. and Dal M., 2021).

The main advantages offered by web analytics technologies especially in the field of marketing research and market research are presented in the figure below:



Fig.4. The main advantages of web analytics technologies for entrepreneurship
Source: Elaborated by authors

Overall, web analytics technologies are an important way to understand the market and improve website and business performance. The biggest positive effect of using web analytics technologies for entrepreneurial activity is to use them in marketing campaigns.

Data collected through web analytics technologies can be used to segment target audiences based on criteria such as geographic location, browsing behaviour or interests. Primarily, these techniques allow the identification of users' needs and preferences, so that data collected through web analytics technologies can be used to better understand what users are looking for on the respective website and what interests them most. Analysis of keywords searched for on your website and search engines can provide important insights into users' needs and interests and help develop more relevant and targeted content.

Web analytics technologies allow you to monitor website traffic, so data collected through web analytics technologies can be used to track traffic to your website and identify sources of traffic. Data collected through web analytics technologies can be used to identify user problems and improve the user experience on your website.

Another important direction in fierce competition is that web analytics technologies monitor the competition. Data collected through web analytics technologies can be used to monitor and evaluate competitors and identify business opportunities, as well as to personalise the user experience by offering content and services relevant to their interests and needs. Web analytics technologies can also be used to identify user abandonment points and develop strategies to improve conversions and conversion rates.

In conclusion, web analytics technologies offer a variety of tools for studying the market and improving the user experience, which can contribute significantly to the development and improvement of entrepreneurial activity.

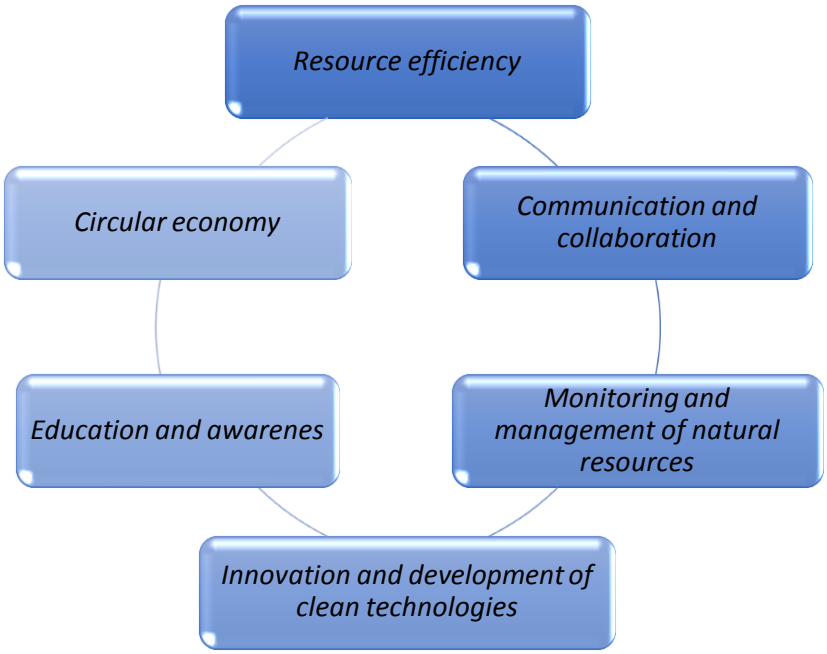


Fig.5. Directions of impact of digital technologies used in business in ensuring sustainable development of the economy
Source: Elaborated by authors

There is a strong link between digital technologies and sustainable development, as digital technologies can be used to support sustainable development goals in a variety of ways.

It is clear that digital technologies can be used to improve the efficiency of resource use, such as energy, water, food and other resources. For example, energy monitoring sensors can be used to identify sources of energy use and identify areas where energy consumption can be reduced. Digital

technologies allow people to communicate and collaborate much more effectively than without them. The situation we faced in the type of COVID-19 pandemic demonstrated that the most effective educational institutions and business representatives were those who quickly oriented and implemented multiple digital technologies and platforms to see their communication and processes through. In the experience of educational institutions, the need for digital transformation was well felt. One of the higher education institutions in the Republic of Moldova that successfully coped with the restrictions related to the COVID pandemic was the Technical University of Moldova, which managed to quickly adapt its mode of operation to ensure the continuity of its activities and to accompany its students in the process of study in an efficient way. (Turcanu, D., Siminiuc, R., Bostan, V., 2020).

On the other hand, digital technologies contribute to tackling global problems such as climate change and environmental degradation by connecting people and sharing knowledge and resources.

An important moment in the context of ensuring sustainable development is the effective monitoring and management of natural resources. Digital technologies such as drones and sensors can be used to monitor natural resources such as forests, waters and soils. They can help to identify problems such as illegal deforestation and pollution and to implement natural resource management measures.

Clearly, digital technologies contribute to innovation and development of clean technologies. In this context it can be concluded that digital technologies can be used to develop new clean technologies and to improve existing ones. For example, artificial intelligence can be used to optimise production processes, thereby reducing energy consumption and greenhouse gas emissions. Digital technologies can also be used to reduce greenhouse gas emissions, monitor and improve public transport infrastructure, including electric trains and buses.

In the field of education and awareness, digital technologies can be used to educate and raise awareness on environmental and sustainable development issues. They can help to develop training and education programmes, as well as to share information and knowledge through social networks and other digital platforms.

And, last but not least, digital technologies can be used to support the circular economy by monitoring and managing waste and other resources efficiently. For example, sensors can be used to monitor the fill levels of waste containers and guide their transport to recycling centres.

Conclusions

Digital technologies thus play an important role in promoting sustainable development and addressing global issues such as climate change, environmental degradation and waste. The use of these technologies can increase the efficiency and sustainability of resource use, improve transparency and collaboration, help develop clean and innovative technologies, and educate and raise awareness of environmental and sustainable development issues.

From the research it can be concluded that it is important for companies to consider both the advantages and disadvantages of digitisation before implementing it and work to maximise the benefits and minimise the risks. Overall, digital technologies can be used to support sustainable development goals by improving efficiency and sustainability of resource use, increasing transparency and collaboration, and developing new clean and innovative technologies.

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