

METHODS OF INTRODUCING DIGITAL TRANSFORMATION INTO THE ORGANIZATIONS DEVELOPMENT

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The processes of development of organizations are considered in two aspects: information (process) and human-centred (behavioural). The information approach involves codification of facts based on certain procedures using appropriate technologies of exchange, distribution and reuse of data. The behavioural approach states that actions of users to place information according to certain rules allow them to successfully transform accumulated knowledge and experience into company profit. The article shows that the introduction of new technologies should be considered from the standpoint of a fundamentally new paradigm – as a convergent science of organizations development.

1. Problem formulation

In today's world digitalization has affected all business sectors, as well as the methodology of managing organizations. Since technology has provided humanity with an unprecedented level of communication between itself and the whole world, the implementation of new business models in practice changes all components of economic activity, which makes it possible to build local, national and global economies based on new values. Thus, the development of new digital tools increasingly requires managers for innovative modelling technologies, big data analysis, the proliferation of social networks and educational platforms – all this opens up unlimited possibilities for virtual management and communication with customers. Now project managers can quickly present their products and services to all stakeholders at the touch of a key. In addition, through the use of comprehensive cloud storage, stakeholders can be quickly integrated into the decision-making process. All this allows us to quickly calculate potential changes and, thus, save resources. At the same time, the new digital approach in no way rejects the achievements of classical management, but only helps to understand its deep aspects.

2. Analysis of recent researches and publications

With the current rapid changes in the environment, modern enterprises face an acute problem of improving their own management system [1]. For a long time, functional and process approaches were used to analyse the development of systems [2, 3]. However, over time, experts have come to the conclusion that the

entrepreneurs who pay less attention to financial indicators and concentrate more on creating organizational value get better results [4, 5].

Burdened by the legacy of old technologies and bureaucratic constraints, incumbents are already facing serious challenges on the path of digital transformation [6]. We expect corporate entrepreneurship to add a more holistic view of internal aspects during the digital transformation process, such as enhancing the impact of knowledge and organizational learning.

Technology as a major determinant of organizational form and structure has been well recognized by scholars for a long time after a significant decline in interest in these relationships until the mid-1990s [7]. Digital technologies are considered the main asset for organizational transformations, given their disruptive nature and systemic effects [8]. To achieve successful digital transformation, changes must occur at different levels of the organization, including adaptation of the core business [9], sharing resources and opportunities [10], intertwining processes and structures [11], adjustments in leadership [12].

Thus, digital transformation is a reality that is becoming increasingly complex due to the special place occupied by knowledge, science, technology and innovation. Both in the field of production and in the service sector, business development increasingly depends on the knowledge generation, qualified information, skills and integral competencies of managers. Here, integral competence is defined as a convergent (consolidating) phenomenon and a significant component of modern economic and technical power, material well-being and sustainable development.

In the process of European integration of various systems into a single global space, a convergent analysis of these systems is very important. It is necessary to look for common ground in perception and approaches, with different ways of thinking, goals, values, directions for further development of the personality and educational systems in which it is formed [13]. Convergence in education is a stabilizing factor that contributes to the selection of optimal components, tested in the process of long-term practice. A critical approach to convergence is characteristic of all countries, forms the basic requirements for science – the preservation and enrichment of human values.

In recent years, there has been intense debate about the importance of knowledge management in our society. Researchers and observers in the field of economics and management science agree that there has been an information transformation and «knowledge» has come into the spotlight [14]. As digital transformation involves the integration of digital technologies into all aspects of business operations to improve products and services, and introduce new revenue

streams, digital transformation has become a major strategy for organizations seeking to reimagine their operations and business models for the modern business era [15-16]. Digital transformation is an organization-wide strategy that aims to use digital technology to modernize key business processes and introduce new services that better engage customers, support employees, improve operations, and add business value. The aspect of strategic renewal in corporate entrepreneurship has different names such as strategic changes, revival, project transformation, reorganization or organizational renewal, which provides a promising direction for digital transformation [17–18].

The article is aimed at studying the manifestations of technological breakthroughs in digital transformation and their impact on the development of technology implementation methodology and the creation of new knowledge on the ways of organizations development.

3. Main part

The theory of project management and the organizations development are closely related, as they are used in the transformation process of the system's transition from one state to another. This process can be considered in two aspects: informational (process) and human-centred (behavioural). The information (process) approach involves the codification of facts on the basis of certain procedures using appropriate technologies of exchange, distribution and reuse of data. The weakness of this approach is that it is not very effective when it is necessary to obtain new knowledge on the basis of facts. The application of IT technologies to knowledge management directs the actions of users to place information according to certain rules that allow us to successfully find and use it in the future. However, in the absence of social interaction, new knowledge does not arise only due to the processing of known information.

The behavioural approach focuses on building a working environment in the company, in which the processes of knowledge exchange and assimilation are facilitated. Looking at what is happening now in the information environment, everyone understands that people are the bearers of knowledge. It is the value of their accumulated knowledge and experience that ultimately translates into the company's profit. Professional communities act as informal groups of people who meet regularly to exchange ideas and knowledge.

In general, when reviewing and analysing the existing literature, it is possible to divide all articles as having been written in two dimensions: technological and behavioural. Now let's consider digital transformation as human organizational

change and information transformation caused by the implementation of digital technology. The result of such a consideration can be presented as the main topics image of digital transformation research (Fig. 1). Such duality reaffirms the principle that certain objects, systems, or theories can be viewed from two different, often opposing, perspectives that are equal and complementary. This does not imply conflict or contradiction, but rather the ability to see the same phenomenon from different perspectives. Such point of view can be useful for both researchers and practitioners, which will allow a more complete understanding of the features of digital transformation.

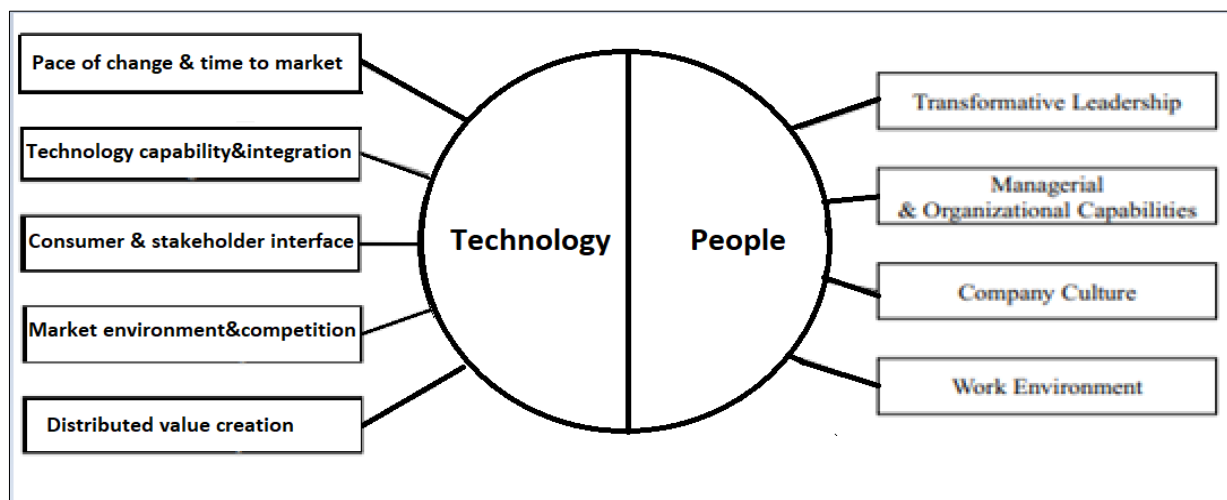


Fig. 1. Two dimensions of Digital transformation

On the technological side the impact of digital technologies is aimed mainly at the consumer interface and market environment. At the same time, understanding the pace of change in times of digital transformation and its direct impact on officials is not yet given enough attention. On the human-centred side researchers mainly focus on leadership and development opportunities in a digital context, while company culture and work environments are still not well understood.

At the macro level, technological aspects are concentrated to digital transformation tools and new business models. Today, innovative ideas can be implemented within a few days, and companies are created literally «overnight». In this sense, in the digital world, the desire to «be the first» and the idea that «winner takes all» has become more important for incumbent firms, since they now have much less time to respond to such threats. Digital companies such as Facebook, Google or Amazon have significantly increased the speed of product launches [19]. With continuous improvements in hardware, software, and communications, such companies are setting the pace for a series of product launches in a short time.

Thus, companies in the digital world are under tremendous pressure to accelerate the adoption of their products as well. In a digitally transformed market, control over the speed of product development and launch is increasingly shifting to an «innovation ecosystem» in the sense of a network of entities with complementary products and services. Many of the authors who represent the technology-focused side emphasize the diffusion of digital technologies as a factor driving business transformation. Such digital technologies can include big data, mobile devices, cloud computing, or search-based applications. Thus, Hess et al. [20] point out that digital transformation «is related to the changes that digital technologies can bring about in the company's business model, which lead to changes in products or organizational structures or to the pace of change and time to market, distributed value, creation and capture of technology».

From other point of view, the human-centred approach emphasizes the role of the individual (manager) in facilitating transformation processes, while facing the problem of balancing at the same time between research and exploitation of resources. At the same time the leaders must believe in the value and benefits of new IT technologies and support their implementation.

We are now seeing some variety of methodologies that digital transformation managers rely on. To bridge the digital divide, various theories are proposed, for example, configuration theory, resource-oriented view, dynamic modelling or business process reengineering. There are other theoretical approaches, such as the view from the perspective of corporate governance and technological breakthroughs through projects. We can see how an exchange of various studies helps to bridge technological gaps. Although we observe that technology-focused research is mostly conceptual, and works focused on human behaviour mainly use case studies. In general, there is little quantitative empirical data in the research literature. This is like a strong indicator for the early stage of digital transformation methodology research.

Historically, digital business transformation began with the implementation of enterprise management information systems, such as enterprise resource planning (ERP) or customer relationship management (CRM). These transformations were usually limited to improving business processes within firms [21]. Today, the possibilities of digital technologies in terms of information processing are incomparably more powerful than in previous time.

Summing up, the current state of digital transformation research can be noted two main events. First, digital transformation restores, blurs, and even dissolves existing industry boundaries, which can lead to cross-industry competition [22].

The old sectoral logic no longer works in times of digital transformation. With the advent of new business models, residents begin to undermine new markets. For example, Google is undermining the mobility sector with its self-driving car subsidiary Waymo, and Amazon has introduced AmazonFresh as a grocery delivery service seen as a potentially tough competitor to supermarkets [22]. Secondly, we see that new sectors of the economy bring new specifics to the market, where old approaches are not applicable, and modern ones become necessary. New creative industries are emerging, characterized by a large number of microbusinesses in the design, cultural, entertainment and media sectors. As different types of innovative networks emerge, new properties of digital infrastructure are needed to support each network. Digital technologies increase the heterogeneity of innovative knowledge networks [23]. The data structure for the technology-oriented dimension is shown in Fig. 2.

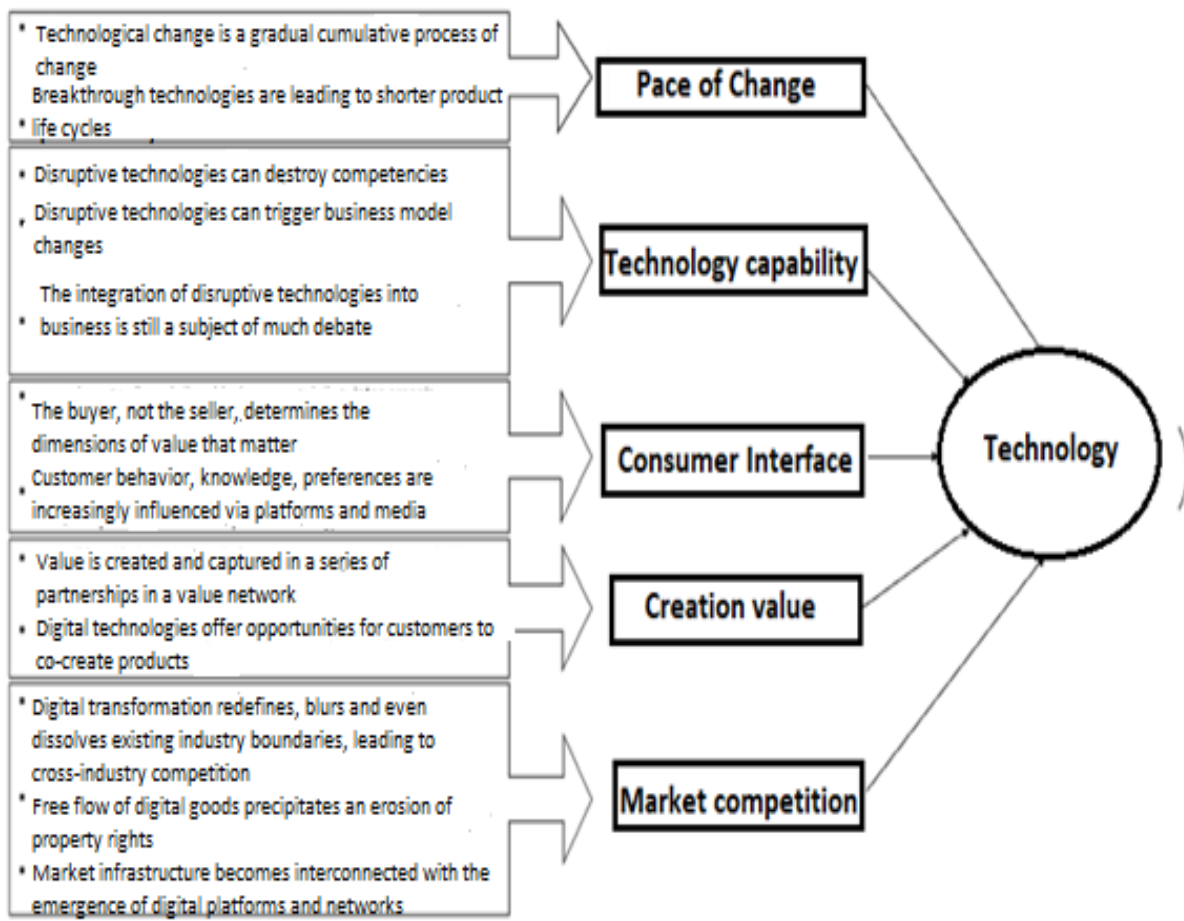


Fig. 2. Data structure for the technology-oriented dimension of disruption

Technologies that drive transformation go far beyond internal process optimization, as they potentially cause drastic changes in business models, organizational strategy, and corporate culture [24]. The role and importance of human

resources are changing, and personal data has become one of the most powerful assets in the digital age [25]. In fact, the impact of the massive increase in the quantity and quality of data generated every day is a game-changer and the possibilities of big data analytics that have yet to be fully felt and understood by society, the economy, and scientists. With regard to the process of dematerialization of tangible products and objects caused by the transformative capabilities of digital technologies, the most remarkable is that in many cases, digital substitutes, such as e-books, demonstrate higher productivity and higher customer benefits than their physical counterparts [26]. Considering the main directions of technology integration most researchers note the importance of new corporate platforms and the scalability of the operational framework as part of a flexible digital infrastructure. The old paradigms of technology integration are no longer effective. It is now necessary to achieve a methodological understanding of how the integration of technologies and transformational measures should be embedded in the organizational structures of existing enterprises. Since it is now the buyer, not the seller, who determines the measurements of the value of goods, companies need to interact with their customers at every stage of the value creation process. In addition, the strong impact of digital technologies on value chains implies a certain degree of deviation from classical analogue business. Now we need new competencies related to the product, platform capabilities, and data value architecture. In addition, modern managers must be ready for new forms of monetization in the digital market. The data structure for the human-centred dimension is shown in Fig. 3.



Fig. 3. Data structure for the people-oriented dimension of technological disruption

4. Conclusions

The focus of digital transformation at the organizational level does not fully reflect the consequences of the digital revolution, as it touches on various aspects of modern life that have not yet been mentioned in our study. Considering the duality of existing research on digital transformation, we find that in the management of organizational development, duality manifests itself as two approaches: technological (informational) and behavioural (human-centred). Their combination opens up significant opportunities for the creation of **a new convergent science. So**, analyzing the directions of future research, we propose to combine information technology and the human approach as two cumulative dimensions of the convergent science of management.

From a macro-level perspective, the literature on digital transformation discusses the topics of changing markets, clusters, and the use of big data. In addition, we note a certain variety of theoretical foundations based on the human-centric approach. We hope that an important contribution of our work is to unite different aspects of digital transformation by integrating knowledge from related disciplinary areas. We hope to continue our research to build a strong methodological foundation for digital business transformation.

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