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**SECURITY MANAGEMENT OF THE XXI
CENTURY: NATIONAL AND GEOPOLITICAL
ASPECTS. ISSUE 4**

Collective monograph

In edition D. Diachkov, Doctor of Economic Sciences, Associate Professor



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MANAGEMENT OF DIGITAL TRANSFORMATIONS AT ENTERPRISES AND TERRITORIES FOR SUSTAINABLE DEVELOPMENT

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Introduction. Today, humanity is on the threshold of a new socio-economic formation. The basis of its existence is the production and consumption of information. This formation in scientific publications is called the information or digital society; the process of its building is called digital transformation, or digitalization.

The concept of digital transformation. Digital transformation is a process of transition of social structures to new principles of functioning the production system and social system, the dominant of which is the creation, processing, and consumption of information.

Digital transformation is a systemic social phenomenon, and therefore the concept of digital transformation is much broader than digitalization or digitizing. The latter means the transition from analogue to digital systems for recording information.

Digital transformation is a multifaceted, holistic phenomenon formed on the development and interaction of various process components.

The reproduction of the functioning of socio-economic systems takes place in three key areas: production, consumption and the external environment. The latter creates the conditions for the implementation of the first two areas. The environment itself determines the institutions (legal framework, traditions, social principles) and infrastructure (communications, education, health, law and order, financial institutions, environment, suppliers, competitors).

One way or another, the process of digital transformation affects all three areas. So, managers of enterprises, territories, and business units must consider this factor when planning and exercising control over the digitalization of their structures.

The systemic relationship between all parts of the socio-economic system should be noted. They reproduce the interdependence of the digitalization processes that are taking place.

The critical factor in all these areas is a man. That is why there must be a digital transformation of human capital. It determines the pace and quality of production processes in the manufacturing sector. Human, also acting as a consumer, creates demand for new digitized products and services. And the Human also forms the infrastructure and institutions [6; 11] that determine the conditions and incentives for implementing digitalization processes.

Digitalization tools. Among the main tools of digital transformation are most often called [8, 10]:

- Artificial Intelligence (AI);
- Machine learning;
- Internet of Things (IoT);
- Software-defined networking (SDN);
- AR/VR;
- Software-defined storage (SDS);
- App performance monitoring tech (APM);
- Bots;
- Blockchain [2];
- Microservices/containers;
- APIs/embeddable;
- Cloud technologies;
- Big data/analytics.

• One of the international criteria used to assess the level of digital transformation of countries is Digital Evolutional Scorecard. In 2020, a group of experts studied 90 economies around the world on 160 indicators that form this criterion. These indicators represent four key economic areas [1]:

- Supply Conditions: how developed is the digital and physical infrastructure required to facilitate a digital ecosystem? This could include bandwidth availability, quality of roads necessary for e-commerce fulfilment, etc.

- Demand Conditions: are consumers willing and able to engage in the digital ecosystem? Do they have the tools and skills necessary to plug into the digital economy?

- Institutional Environment: do the country's laws (and its government's actions) support or hinder the development of digital technologies? Are governments investing in advancing digitalization? Are regulations governing the use and storage of data enabling growth or creating barriers?

- Innovation and Change: what is the state of crucial innovation ecosystem inputs (i.e., talent and capital), processes (i.e., collaborations between universities and industry), and outputs (i.e., new, scalable digital products and services)?

These studies considered two key factors: first, the state of digitalization

of the economy, and secondly, the momentum of digital change. Given these two factors, the leaders were South Korea, Singapore and Hong Kong. The most significant achievements demonstrated by the leaders are shown in Table 1.

Table 1

Achieving the digital transformation of the leading countries in 2020

#	Achieving digital transformation
1	Expanding adoption of digital consumer tools (e-commerce, digital payments, entertainment, etc.)
2	Attracting, training, and retaining digital talent
3	Fostering digital entrepreneurial ventures
4	Providing fast, universal, terrestrial (e.g. fibre optics) and mobile broadband internet access
5	Specializing in the export of digital goods, services, or media
6	Coordinating innovation between universities, businesses, and digital authorities

Source: developed on the basis of [1]

Basic principles of digital transformation. Various principles of implementation of business strategies of digital transformation of economic organizations are formulated in scientific works. These principles can be summarized in seven primary areas (Fig. 1).

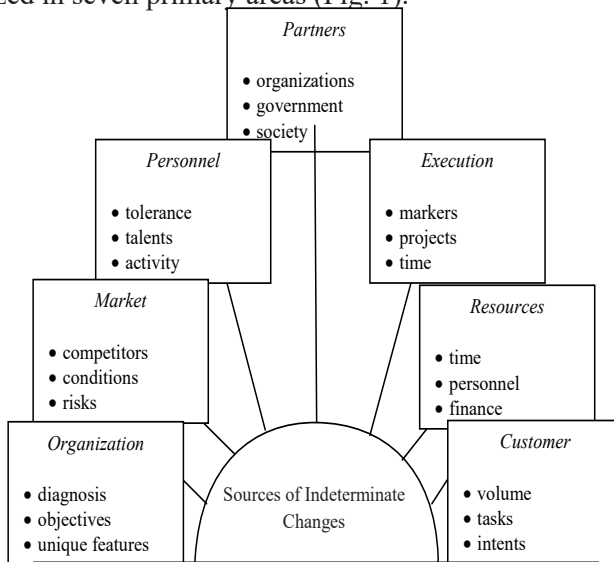


Fig. 1. Principles of digital business strategy

Source: developed on the basis of [3; 8]

Briefly we describe the content of these principles of digital business strategy.

Analysis of the organization for which the business strategy is developed: diagnostics – identification of problems and areas of priority digitalization,

the formation of goals and objectives; identification of unique features of the organization, which can be expected to benefit over other similar organizations.

Consumer products; according to experts, the customer is the primary entity to form a strategy. Its main components include: determining the potential sales volume that can be provided in the case of a digitalization strategy; main tasks for working with the customer (consumer); means of realization of the specified tasks.

Market; it is necessary to coordinate its digitalization policy with three key market factors: general conditions (infrastructure capabilities and existing institutions, including legal norms); competition policy, and digitalization risks in this market sector.

Resource; this section analyses three main types of resources: time (in particular, the required pace of digitalization); quantitative and qualitative indicators of available human capital; financial resources available for mobilization in the appropriate directions.

Personnel; analysed: staff readiness for appropriate transformations and measures to increase this readiness; the potential of employees to achieve the goals of digitalization (if necessary – the possibility of attracting additional employees); measures for the preparation and implementation of digitalization processes.

Implementation; benchmarks and specific projects are planned [7]; achievement of separate events and results depending on available resources is coordinated.

Partners; outlines the range of actors that can facilitate (or hinder) the implementation of digitalization processes: business partners, government sectors and individuals (including local governments), non-governmental organizations and areas, including the media.

Many publications emphasize the need to ensure the dynamism of the process of developing business strategies for digital transformation in organizations. In particular, in [8] it is emphasized that digital transformation is not an event, but a process, a constant movement to new levels of development of digital methods of work.

Forming the strategy of digital transformation of the enterprise, it is necessary to determine the qualitative goals of enterprise development. Digital transformation is not limited to improving the efficiency of the organization's operations, particularly the issues of how to make existing processes faster and cheaper. This is only part of the case. The main goal is to bring the company to a new level of activity and existence in the market. This involves the development of fundamentally new types of products, filling new market sectors and achieving a new atmosphere at the enterprise, which requires new competencies and forms of interaction between employees [5]

Ensuring anti-fragility. A significant result of the digital transformation is achieving the anti-fragility effect of organizations and their activities. American scientist N. Taleb was one of the first to draw attention to the study of the phenomenon of anti-fragility.

Anti-fragility is the property of complex systems to improve the parameters of their state under the influence of adverse factors. Subjects to which the concept of fragility can be applied are: ideas, political views, institutions, innovations, means of production, product samples, management methods, legal principles, behaviours, lifestyles and more [12].

Due to the phenomenon of anti-fragility, there are prerequisites for the progressive development of these structures.

Most often, the property of anti-fragility is demonstrated by information products or information components of material structures – such as enterprises. In particular, many companies that are sensitive to the activity of customers (eg, restaurants, cafes) during the pandemic not only survived but also improved their economic results through the development of new forms of work.

Scientific publications explore approaches to the formation of principles for ensuring the fragility of economic systems [12; 4]. Their analysis makes it possible to formulate several recommendations for forming the anti-fragility properties of enterprises and organizations (Fig. 2). Briefly describe them.

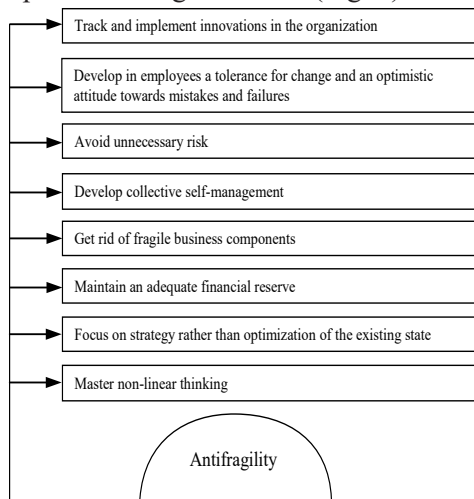


Fig. 2. Recommendation for implementing antifragility of organizations

Monitoring innovations that can be implemented in the organization, allows finding new forms of activity and generating ideas to increase stability and further development.

The development of personnel's tolerance for change creates an atmosphere of calm, optimistic attitude to mistakes and failures.

"Cleaning" the company from fragile components makes it possible to increase the company's stability in the face of adverse external changes, getting rid of the most stress-sensitive components.

Avoidance of excessive risk causes the formation of such a share of the organization's assets (material and information), the loss of which can not critically affect the existence of the enterprise. It is through this share that an organization can take risks in starting innovative activities.

The stock of resources (material, financial, competencies of personnel) ensures the enterprise's survival in case of adverse changes and serves as a springboard for the development of innovative activities.

Focusing on strategies ensures the formation of prospects for enterprise development combined with the reliable operation of current activities, which are already half of the past; striving for the future is better than optimizing the present.

Nonlinear thinking of managers and the whole team gives the organization the flexibility and ability to respond in a non-standard and effective way to adverse factors.

Conclusions. Digital transformation is an unprecedented phenomenon in human history. It means the transition of human civilization from the production and consumption of predominantly material products to the production and consumption of predominantly information. Digital transformation provides the preconditions for the sustainable development of humanity. The result is the solution of global environmental problems, dematerialization of production and consumption (rapid reduction of energy and material consumption of products), a significant increase in the efficiency of economic systems, networking, and solidarity of society. For the person himself, digital transformation will mean the transition to the priority development of the personality.

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