The WSB University in Poznan
Research Journal
2022, Vol. 97, No. 2

The business ecosystem in the context of the digital transformation: New challenges

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, t. 97, nr 2

Ekosystem biznesu w warunkach transformacji cyfrowej. Nowe wyzwania

redakcja naukowa
Wiesława Caputa i Svitlana Ishchuk

Wydawnictwo
Wyższej Szkoły Bankowej w Poznaniu

Poznań 2022

The WSB University in Poznan
Research Journal
2022, Vol. 97, No. 2

The business ecosystem in the context of the digital transformation: New challenges

edited by

Wiesława Caputa and Svitlana Ishchuk

The WSB University in Poznan Press

Poznan 2022

Czasopismo umieszczone w bazach Index Copernicus, BazEkon, PBN, CrossRef, ERIH Plus.
Czasopismo recenzowane według standardów Ministerstwa Edukacji i Nauki.
Lista recenzentów na stronie www.wydawnictwo.wsb.poznan.pl
oraz w ostatnim numerze czasopisma z danego roku.

Journal included in the following databases: Index Copernicus, BazEkon, PBN, CrossRef, ERIH Plus.
Journal reviewed in compliance with the standards set forth by the Ministry of Education and Science.
A list of referees is available at www.wydawnictwo.wsb.poznan.pl
and published in the last issue of the Journal each year.

Procedura recenzowania / Review procedure
https://znwsb.publisherspanel.com/resources/html/cms/FORAUTHORSINFO

Redaktorzy naukowi (tematyczni) / Scientific (Theme) editors
dr hab. Wiesława Caputa, prof. WSB w Poznaniu
prof. dr hab. Svitlana Ishchuk, State Institution "Institute of Regional Research n.a. M.I. Dolishniy of NAS of Ukraine", Lviv (Ukraine)

Weryfikacja abstraktów angielskich i tłumaczenie wstępu na język angielski /
English abstracts revised and the Introduction translated by
Grzegorz Grygiel

Redakcja, korekta, skład i łamanie / Copyedited and typeset by
Elżbieta Turzyńska

Projekt okładki / Cover design by
Jan Ślusarski

Publikacja finansowana przez Wyższą Szkołę Bankową w Poznaniu.
Publication financed by the WSB University in Poznan.

Wersja pierwotna – publikacja elektroniczna / Source version – electronic publication

ISSN 2719-6798

Wydawnictwo Wyższej Szkoły Bankowej w Poznaniu
ul. Powstańców Wielkopolskich 5, 61-895 Poznań, tel. 61 655 32 48
e-mail: wydawnictwo@wsb.poznan.pl
znwsb.publisherspanel.com, www.wydawnictwo.wsb.poznan.pl

Contents

Introduction (*Wiesława Caputa, Svitlana Ishchuk*) 9

Iryna Bryl, Yaroslav Bryukhovetsky
Intellectual capital of the business ecosystem
in the context of the digital transformation 13

Natalya Bryukhovetskaya
Management, motivation and interaction in the context of remote work. 33

Ivan Buleev
Optimal models for the socio-economic development
of transformational economies 47

Anna Kernytska
Current business process management trends in the Ukrainian industry 57

Tetyana Korytko, Samira Piletska, Olha Bohutska
A mechanism for managing the innovation potential of enterprises
in the digital economy. 71

Nataliya Ryvak
The need to implement Industry 5.0 in Ukraine
in the face of modern challenges 81

Angelika Kaczmarek, Agata Linkiewicz, Makowski Łukasz
Personal brand building: The case of Nicole Sochacki-Wójcicka, MD 95

Agnieszka Ziółkowska
Innowacyjność w zarządzaniu zrównoważonymi projektami architektonicznymi . 109

Rafał Bielawski
Współczesna kontrola działań marketingowych z perspektywy marketingu 5.0 . . 117

Editorial requirements 131

Spis treści

Wstęp (*Wiesława Caputa, Svitlana Ishchuk*) 9

Iryna Bryl, Yaroslav Bryukhovetsky
Kapitał intelektualny ekosystemu biznesowego
w kontekście transformacji cyfrowej 13

Natalya Bryukhovetskaya
Zarządzanie, motywowanie i interakcja w kontekście pracy zdalnej 33

Ivan Buleev
Optymalne modele rozwoju społeczno-gospodarczego
dla krajów przechodzących transformację gospodarczą 47

Anna Kernytska
Aktualne trendy zarządzania procesami biznesowymi
w sektorze przemysłowym Ukrainy 57

Tetyana Korytko, Samira Piletska, Olha Bohutska
Mechanizm zarządzania potencjałem innowacyjnym przedsiębiorstw
w warunkach gospodarki cyfrowej 71

Nataliya Ryvak
Potrzeba wdrożenia koncepcji przemysłu 5.0 w Ukrainie
w obliczu współczesnych wyzwań 81

Angelika Kaczmarek, Agata Linkiewicz, Makowski Łukasz
Budowa marki osobistej na przykładzie lek. Nicole Sochacki-Wójcickiej 95

Agnieszka Ziółkowska
Innowacyjność w zarządzaniu zrównoważonymi projektami architektonicznymi . 109

Rafał Bielawski
Współczesna kontrola działań marketingowych z perspektywy marketingu 5.0 . . 117

Wymogi edytorskie 133

Introduction

Sudden and unpredictable changes that have recently taken place in the business environment have considerably accelerated the digital transformation. For people and firms, the digital space has become the main sphere for establishing private and business relations. As a result, the economy, companies and individual members of society have had to adapt their models of behaviour to make sure they can effectively pursue their goals.

The articles in this volume address some of these problems and focus on:

– identifying relationships between the digital transformation, intellectual capital and business ecosystems;
– problems of effective management of remote work;
– analysing the most popular models of economic development;
– current trends in business process management;
– improving the innovation potential of enterprises;
– the role of Industry 5.0 in the face of modern challenges
– the creation of a personal brand;
– innovative management of sustainable architectural projects
– modern marketing control in the context of marketing 5.0.

The first problem is analysed in the article by Iryna Bryl and Yaroslav Bryukhovetsky, entitled *Intellectual capital of the business ecosystem in the context of the digital transformation*. The authors define the key concepts and highlights the role of intellectual and human capital in the business ecosystem. They analyse global and domestic practices undertaken by large enterprises with regard to the digital transformation and offers recommendations for improving intellectual capital in Ukraine's business ecosystem to facilitate the digital transformation of the country's economy. Intellectual capital is acquired and developed by hiring new employees, in the course of work and by managing relationships with employees. In the face of the recent changes affecting Ukraine's political, economic and social situation (the pandemic, global economic changes and the war with Russia), it is necessary to improve digital skills of employees and their motivation so that the productivity of the business ecosystem can be increased.

In her article entitled *Management, motivation and interaction in the context of remote work* Natalya Bryukhovetskaya investigates the phenomenon of remote work in Ukraine from the perspective of employee management, employee motivation and interactions between employees. The author identifies various difficulties associated with remote work, especially in wartime, and offers practical tips for remote workers regarding time management, self-discipline and healthy self-care.

The article entitled *Optimal models for the socio-economic development of transformational economies*, by Ivan Buleev, provides an overview of the most common models of development of capitalist economies and their socio-spiritual transformation. Each model is characterised using several features and information about its implementation in the world and its performance in the light of economic indicators. The author gives arguments in favour of bringing the subject of political economy back to curricula of economic social studies in Ukraine for the benefit of the country's future economic recovery. In particular, he emphasises the role of large companies in technological development and questions the current trend of minimising the state's involvement in the economy. The article ends with recommendations for the revival of the Ukrainian economy and industry.

Anna Kernytska's article entitled *Current business process management trends in the Ukrainian industry* argues that the digital transformation of the Ukrainian industry can contribute to the growth of the scientific and technical potential of the state and will affect its competitive position. The author evaluates the level of implementation of new technologies in the organisation of production and the use of innovative business management methods in the Ukrainian industrial sector across the country's 24 regions. The evaluation is based on the ratio between the number of industrial enterprises that implemented innovative technological, organizational, and marketing methods in a given region in the period 2016-2020 and the national average. The analysis conducted for the period 2016-2020 reveals positive but uneven changes. Several institutional, financial and infrastructural obstacles are identified, which require a balanced and effective state policy at all management levels and interaction between all representatives of society.

In their article entitled *A mechanism for managing the innovation potential of enterprises in the digital economy*, Tetyana Korytko, Samira Piletska, and Olha Bohutska focus on factors that can improve the innovation potential of Ukrainian enterprises. The Ukrainian economy is undergoing a transformation towards a model of development based on innovation in an effort to strengthen the position of the national industry so that it can compete with foreign manufacturers. The authors use various international indicators and indices to assess the level of innovation of the Ukrainian economy and propose a conceptual model of a mechanism for managing the innovation potential of industrial enterprises. The

model is based on methodological principles and includes various organizational and economic tools of influence.

In her article entitled *The need to implement Industry 5.0 in Ukraine in the face of modern challenges*, Nataliya Ryvak argues that the idea of Industry 5.0 is particularly relevant for the reconstruction of the Ukrainian economy in the post-war period. Prerequisites for the implementation of Industry 5.0 are presented, which include digitization and the adoption of technologies of the fourth industrial revolution, and a national policy aimed at increasing productivity and competitiveness by improving high-tech skills of the workforce. The author provides arguments supporting the need for an industrial transformation in Ukraine where changes are implemented taking into account human-centeredness, resilience and sustainability.

In the article entitled *Personal brand building: the case of Nicole Sochacki-Wójcicka, MD*, Angelika Kaczmarek, Agata Linkiewicz and Łukasz Makowski identify key factors in the personal branding process, using insights from a successful personal brand activity online and offline. The analysis is based on data from non-participatory observation and the study of informal documents. By analysing examples of successful personal branding strategies, the authors draw conclusions and offer guidelines for how to establish a personal brand, highlighting aspects that need to be considered at early stages and steps required to maintain a strong market position.

Agnieszka Ziółkowska's article, entitled *Innovation in the management of sustainable architectural projects*, discusses practical aspects of innovative management of architectural and construction projects with sustainable features and identifies modern IT tools used in architectural design. These tools facilitate cooperation between architects and designers from other branches of the construction industry (engineers, constructors, etc.) at every stage of the construction process and throughout the entire life cycle of a building.

In the article entitled *Modern marketing control in the context of marketing 5.0*, Rafał Bielawski addresses the modern tendency to extol the benefits of new technologies without a deeper reflexion on its long-term impact. He offers a critical analysis of marketing 5.0 indicating some of its controversial aspects. The problem of marketing control is discussed in the light of challenges that marketing 5.0 poses to modern organizations and their possible effects, especially with regard to social well-being and sustainability.

Although the articles presented in the current volume address only some of the problems related to the main subject, they provide an interesting overview and present findings that may be of interest not only to scientists and students, but also to entrepreneurs. They can also inspire new research by representatives of different disciplines.

Wiesława Caputa and Svitlana Ishchuk

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 13-31
https://doi.org/10.58683/01.3001.0016.2087

Iryna Bryl
Institute of Industrial Economics
of the National Academy of Sciences
of Ukraine, Kyiv (Ukraine)
Department of Enterprise Economy Problems
orcid.org/0000-0003-1526-0094
email: Bryl.irina@gmail.com

Yaroslav Bryukhovetsky
Institute of Industrial Economics
of the National Academy of Sciences
of Ukraine, Kyiv (Ukraine)
Department of Enterprise Economy Problems
orcid.org/0000-0002-0663-9337
email: Bryukhovetsky_Ya@nas.gov.ua

Intellectual capital of the business ecosystem in the context of the digital transformation

Abstract*. The article provides an analysis of the relationship between digital transformation, intellectual capital and business ecosystems. The author defines the key concepts and highlights the role of intellectual and human capital in the business ecosystem. In the face of the recent changes affecting Ukraine's political, economic and social situation (the pandemic, global economic changes and the war with Russia), it is necessary to improve digital skills of employees and their motivation so that the productivity of the business ecosystem can be increased. The author analyses global and domestic practices undertaken by large enterprises with regard to the digital transformation and offers recommendations for improving intellectual capital in Ukraine's business ecosystem to facilitate the digital transformation of the country's economy.*

Keywords*: digitization, digital transformation, intellectual capital, business ecosystem, motivation, efficiency, competitiveness*

1. Formulation of the problem

Digital transformation takes place both at the global level and at the level of individual enterprises and companies. The study of this process is quite relevant, as domestic and international companies are trying to implement the latest technologies and move to new levels of business management, taking into account digital processes. Transforming their own business processes, and one of the most important in this should be considered the development of intellectual capital, enterprises, first of all, strengthen their positions in the market and create technological barriers that may not be able to overcome their competitors. Now the digital economy is an integral part of the functioning of enterprises, as well as entire

states, so old and established norms are radically changing and a completely new, effective competitive management is emerging.

Let's consider the main positions of the research according to their composition and essence.

The *intellectual capital* of the enterprise includes: human capital (knowledge, skills, experience, skills, ability to learn, features of memory, namely various memorization possibilities, etc.), structural capital (licenses, patents, trademarks, contracts – all documented value of the enterprise), client or business capital (earnings of the enterprise over the entire history of its existence in relation to the client database: developed partnership relations, information database of clients, relations with suppliers and buyers), organizational (includes work motivation, corporate culture, value orientation enterprises), innovative capital (activities of the R&D department – development of new ideas, creative work), process and market capital (Bryl, 2007, p. 166). At the same time, it should be noted that a person cannot have intellectual capital without human capital, as the existence of a mutual direct and reverse relationship between them has been confirmed.

Digitalization is the introduction of digital technologies into all spheres of life: from interaction between people to industrial production, from household items to children's toys, clothes, etc. This is the transition of biological and physical systems into cyber-biological and cyber-physical ones (combination of physical and computational components). Transition of activities from the real world to the virtual (online) world. Digitization is the saturation of the physical world with electronic and digital devices, means, systems and the establishment of electronic communication interaction between them.

In addition, the following terms and concepts that appeared, extend the essence of this direction: *digital technologies*; *consumers of digital technologies* – the state, business, citizens; *digital economy*; *digital society*; *digital transformation* is the transformation of existing analog (sometimes electronic) products, processes and business models of the organization, which is based on the effective use of digital technologies; Industry *4.0* – digital transformation of production processes (digitalization at enterprises); *digital infrastructures*; *digital divide* (*digital inequality*); a *digital leap* is a development that means a rapid change made by an enterprise, society, field or country to move to a higher level of development thanks to technology, bypassing the intermediate stages that are natural in other cases.

There is no single universally recognized and commonly used term "digital transformation" today, quite often digital transformation and digitization are used interchangeably.

In the context of definitions within the scope of the research topic: digital transformation (digitalization) is the process of transition to a digital business, which consists in the use of digital technologies to change business processes at

the enterprise, optimize production and provide new opportunities for obtaining additional income and development prospects.

The interest of researchers all over the world is attracted by new forms of business organization as well as by the use of examples of the activities, which are important and promising in the development of the economy in a dynamically changing world. An important factor that accelerates the formation of ecosystems – systems of interconnections of all businesses, at present, can be considered a sharp jump and promotion of digital approaches in connection with the conduct of military operations. The concept of "business ecosystem" has been gaining popularity recently and is attracting theoretical interest in management practice. On the one hand, this trend is facilitated by various challenges of modern markets, which require the search for new mechanisms of interaction between participants of economic relations, on the other hand, information is already appearing about the successful experience of companies, obtained as a result of building business ecosystems.

2. The purpose of the work and research methodology

The purpose of the work is to determine the relationship between intellectual capital, digitalization and business ecosystems in the process of researching global and domestic experience of digital transformation of industrial enterprises.

Research methods: dialectical method of cognition; analysis and synthesis; epistemological analysis (analytical, logical, generalization, scientific abstraction); complex and systemic approaches; quantitative analysis of financial and economic indicators, method of factor and statistical analysis; optimization and also expert evaluations.

Calculations carried out in the work were carried out using data from accounting and statistical reports; Indexes of human development (HDI), compiled by the UN and presented in the annual reports of the organization's Development Program (UNDP); of the results of the report on Global Competitiveness (Global Competitiveness Index, GCI); World Economic Forum (WEF); Index of digital transformation 2021, compiled by the European Business Association in partnership with companies Huawei Ukraine and SAP Ukraine; rating of the world's most expensive high-tech companies by brand capitalization, presented by the agency Brand Finance; information statistical collections of the State Statistics Service of Ukraine.

3. Analysis of publications of the problem

Humanity begins to use the term of intellectual capital (IC) actively from 90s of the 20th century. There are investigators all over the world, who make significant contribution to the development, identification of the effectiveness of this

concept, its composition and structure. They are: T. Stewart (1999), E. Brooking (2001), L. Edvinsson (2000), N. Bontis (2002); in Ukraine: O. V. Berveno (2000), A. A. Chuhno (2002), V. P. Antonyuk (2017); and others (Buleev et al., 2013, p. 207; Bryl & Bryukhovetsky, 2018, 2019; Bryl, 2018).

The researchers substantiated the essence and structure of the concept of intellectual capital, the processes of its formation at the enterprise in the conditions of digitalization and the development of the knowledge economy, the motivational mechanism, methods of determining intellectual capital, its influence on increasing capitalization and ensuring the competitiveness of the enterprise.

A similar topic of research areas is taken up in the works of I. Yepifanova & D. Hladka (2021), B. M. Kudła (2021), K. Zavrazhnyi (2020).

"Ecosystem" as the term was introduced by the English botanist Arthur Tansley in 1935, who first formulated the definition of the concept "ecosystems" as a basic unit in ecology, which is understood "a single natural complex limited in time and space, formed by living organisms and their environment, in which living and non-living components are interconnected by metabolism and energy flow distribution" (Danilov-Danylyan & Reif, 2010).

In economics, the term "ecosystem" was introduced by J. Moore, who defined it "as a system of relationships between all businesses and other agents of the business environment" (Moore, 1993, pp. 75-86).

World and domestic scientists pay attention in their research to questions of the origin, composition, and development features of ecosystems:

– in Ukraine: Y. M. Bazhal (2017), S. A. Davymuka, L. I. Fedulova (2016) and others;

– in the USA: J. Moore (introduced the concept and developed the concept of strategic planning of business ecosystems used by high-tech companies) (Moore, 2013), D. Izenberg (concept of development of entrepreneurial ecosystems, founder and manager Manizales-Mas and other ecosystems Scale Up) (Stern strategy group. Daniel Isenberg, n.d.).

In economic science and practice, such concepts as "socio-economic ecosystem" (Kleyner, 2018), "innovative ecosystem", "business ecosystem" (Doroshenko & Shelomentsev, 2017), "digital ecosystem" ("Tsifrovaya ekosistema – novyy shag promyshlennosti", 2019), or "digital platform ecosystem" (Ukrayina 2030E – krayina z rozvytoyu tsyfrovoyu ekonomikoyu, n.d.).

4. Main results of the study and discussion

The most vivid examples of the world's digital ecosystems, which allow you to use one login and password to enter various services and switch between them without re-verifying credentials – are Apple ID, account Google, account Microsoft and other (Barchuk, 2021).

Recently, the digital ecosystem has achieved rapid commercial success in Amazon. The company starts to rent the power of servers to other enterprises, that leads to the appearance of Amazon Web Services (AWS), and the great ecosystem preserved to this day. The company uses its own infrastructure AWS not only to provide other companies with infrastructure services, but also as a start for all other services such as Amazon Prime Videos, Prime Music, Studio and others. This led to the rapid creation of services in the Amazon universe and also for a kind of blocking for many users. The benefits of this services is that main users can receive packages faster, have access to Amazon music, can watch series and films from the main library. Later, Amazon attracted many third-party companies to participate in its ecosystem. Just as with e-commerce, the company Amazon was the first to open and allow even competitors to use the infrastructure of its services and tools, which brought them enormous success and commercial profit. There are over 40 Amazon affiliates today, with more to come (Talin, 2021).

These examples make it possible to argue that the digital ecosystem is focused on creating additional value for customers by optimizing data and work processes coming from various internal departments, tools, systems, and even from customers, suppliers and external partners. It should eliminate obstacles on the way of the client and enable each member of the ecosystem to use modern technologies and systems to meet their individual needs. In the economy there are such concepts as "venture ecosystem", "financial ecosystem", "banking ecosystem" and others.

The ecosystem can be considered from different points of view:

1. Ecosystem as a set of participants – participants interacting with the organization and directly or indirectly participating in "value chain" (universities, agents for the sale of goods and services, communities), as well as clients.

2. Ecosystem as a platform of goods and services (marketplace) – a platform where various integrated goods and services are offered, providing the widest possible range of client needs of the same profile.

3. Ecosystem as a self-developing organization – an organization that uses innovative approaches to management and considers the company as a "living organism".

And the ecosystem of the enterprise is the interaction of all managerial external and internal processes that take place in it: development of intellectual capital, professional development, motivation and stimulation of the workforce, its micro climate, partnership relations, development of business qualities, interaction of the team and management, taking into account the experience of remote work, providing access and practice (skill) of network work of company employees using digital platforms, increasing the level of emotional intelligence (author's definition). All the above-mentioned provisions become more relevant considering the forced work of employees of enterprises in force majeure conditions that have occurred recently.

The necessity and relevance of the process of digital business transformation of any enterprise or company consists of individual interrelated elements, and is reflected (stands out) in the management of changes in customer needs, actions of competitors, contributes to the emergence of new technologies and services. Therefore, it is very important, first of all, to pay attention to critical areas of business, optimization of work with clients, external and internal operational processes and business management models.

An important role for revealing the essence of the research is the normative and legal support of operations in the field of digitization. In Ukraine, the regulation of these issues at the legislative level began in the 1990s with the Law of Ukraine "On the Protection of Information in Information and Telecommunication Systems", No. 80/94-BP, dated July 5, 1994, continued with the development and adoption of various Laws, Concepts, regulatory acts, etc., and ends at the moment with the process of digitization of all public services, provision of online services. The state in a smartphone: Ukraine presented the state application "Action" (action-law, action-education, action-state, action-health and others), which was presented on February 7, 2020, the purpose of which is to implement the national digital literacy program ("Derzhava u smartfoni": v Ukrayini prezentuvaly dodatok "Diya", 2020).

4.1. Digital transformation of business in Ukraine

Many Ukrainian companies have been coping with new market challenges for several years, increasing efficiency, competitiveness and capital due to the implementation of digital transformation.

The term "digital transformation" refers to the use of modern IT solutions to simplify, automate and increase the efficiency of absolutely all business processes. The issue of digital transformation concerns any business from various spheres of activity.

The Microsoft Ukraine partner ecosystem includes more than 1,200 Ukrainian IT companies that adapt the corporation's cloud solutions to the needs of individual enterprises, develop their own solutions on the Azure cloud platform and implement them in their clients' businesses. This is how hundreds of companies in Ukraine receive the necessary tools for their own digital transformation. Let's consider some of them.

Kernel. The largest agricultural holding is a producer of sunflower oil in Ukraine. The company was found in 1994. It works under the trademarks "Schedry Dar", "Stozhar" and "Chumak Zoloto", exports oil and grain all over the world, provides storage of grain and seeds. Over the past 5 years the agricultural holding undergoes a fundamental transformation, implementing the #DigitalAgriBusiness project, aimed at increasing the internal efficiency of agribusiness, and

the #OpenAgriBusiness project – at creating an external ecosystem of agro-producer partners.

Kernel project team with external partners created a "brain" for managing production processes – Farming Management Information System – #DigitalAgriBusiness, which carries out the most accurate planning in the section of each field. Thanks to this, a transparent process of purchasing and supplying goods to a network of 160 warehouses, accurate management and monitoring of operations in the fields, including monitoring of the development of crops in each field, was built.

100% of 7426 Kernel fields are covered by weather monitoring and monitoring with the help of satellite images and drones. Logistics processes are monitored using BigData technologies to analyze deviations online.

In fact, the company is already moving to online agribusiness management.

In 2019, agribusiness brought Kernel a record $182 million in profit. Over the past two years, at least $25 million in profit has been obtained as a result of using digital systems and precision farming technologies.

Implementation of the #DigitalAgriBusiness project, constant training and professional development of employees and using Microsoft products – all this is at the basis of the successful transformation of the largest agricultural holding in Ukraine.

BKW Group. A large holding has transformed the communication process into a common Microsoft Teams workspace. It brought together chats, meetings, Office 365 documents, notes and attachments in one working platform. As a result, the work efficiency and flexibility of 27 regional offices, 34 warehouses, 140 managers and about 1,700 personnel increased.

Ukrnafta. The country's oil industry leader with more than 20,000 employees launched a transformation in 2017. It all started with the use of the Microsoft Teams platform by some departments. The IT department conducted an awareness campaign for employees to explain to everyone how to use the tool. After a number of such activities, 77% of users who have an Office 365 license are actively using Teams as of the 3rd quarter of 2019. Now in the company, the platform for unified communication has solved the problem of informing, training and supporting personnel in the implementation of various projects. During the implementation of the ERP system (enterprise resource planning), Ukrnafta also used the capabilities of the Azure cloud platform for the first time.

Raiffeisen Bank Aval. One of the largest Ukrainian banks undergoes a complete digital transformation nowadays. The bank introduces new service models and automates processes simultaneously with the transformation of traditional banking products into electronic ones. For digital transformation, the company decided to use Microsoft's "cloud", which the Ukrainian offices switched to in less than 6 months. Such results were achieved through continuous training of employees, involvement of top management and high-quality internal communi-

cation. Currently, more than 7,000 people work in the "cloud" of the Ukrainian office. During the entire period of using cloud technologies, Raiffeisen Bank Aval did not receive any negative feedback about the transition from employees.

Metinvest Digital. Metinvest Digital is the IT business partner of Metinvest, an international vertically integrated mining and metallurgical group of companies. Being the only center of IT expertise of the Group, the company implements digital transformation projects for more than 30 enterprises of the holding around the world.

Metinvest Group has been actively using innovative Microsoft services and products for over 12 years. Thus, as part of digital transformation projects in 2019, Metinvest Digital migrated to Microsoft Azure cloud infrastructure from 60 servers of local data centers and users of all Metinvest enterprises in Italy, Great Britain, Bulgaria, Switzerland and the USA. In addition, the company continues the project of complete migration of the centralized infrastructure of two local data centers (data centers) to the Microsoft Azure cloud, which is one of the largest data migrations not only in Ukraine, but also in Central and Eastern Europe ("Tsyfrova transformatsiya biznesu…", 2020).

According to Serhiy Detyuk, CEO of Metinvest Digital, digital transformation is not only the introduction of technologies, but also primarily a change in corporate culture. Only 16% of projects achieve their goals. The top reasons leading to success include a correct assessment of the role and importance of culture, as well as active involvement in the top management process.

Digital technologies have penetrated all spheres of economic life, and they have not bypassed the labor market either. The introduction of digital technologies in the labor market has its positive and negative consequences. On the one hand, they contribute to the growth of labor productivity, on the other hand, they significantly influence the formation of jobs and employment of the population.

The most important point that must be paid attention to when analyzing the labor market in the conditions of the digital economy is the loss of jobs by employees. As a result of the technological progress taking place within the framework of Industry 4.0, there is a reduction in the number of employees required to perform certain work tasks. The results of artificial intelligence take jobs, thereby liberating human labor and keeping workers from their jobs.

4.2. Determining ways to improve the quality of intellectual capital development, training personnel in digital support, to increase the labor productivity of enterprises

The main wealth of enterprises, organizations, companies, along with their financial resources, is intellectual capital, and its carriers are people – employees of the enterprise, therefore recently the processes of employment, qualification

of personnel of enterprises engaged in digitization and industry in general have become especially relevant.

The right of a citizen to work, which includes the opportunity to earn a living by work that he freely chooses or freely agrees to, is established by the Constitution of Ukraine.

One of the main problems of human capital management of enterprises is the problem of high-quality, effective motivation.

Motivation is an integral part of the human capital management system, aimed at encouraging the internal motives of the company's employees to achieve the goals and objectives of the strategy and tactics of the company's development.

A developed system of motivation at the enterprise will allow:

– make reasoned decisions about the need to invest in the development of certain employees;

– successfully form an effective personnel policy;

– legally justified to carry out staff rotation of employees;

– to plan the creation of management teams to perform tasks of increased complexity (Friman & Friman, 2018, p. 579).

The following should also be included among the problems that an enterprise may face during the management of human capital:

– reformulation of the company's strategic goals for the purpose of each employee's work;

– motivating employees to achieve these goals;

– motivation of employees of all personnel of the enterprise to increase the overall productivity of its activities;

– even if certain categories of workers have standards (for example, production personnel), their implementation does not guarantee that the enterprise as a whole will become profitable;

– the enterprise may have a motivation system, but it is disconnected from the economy of the enterprise in general, the employee may receive a bonus, while the overall result of the business is not achieved;

– questions are often raised that business processes at the enterprise are not effective, technology and equipment need to be changed, but discussions do not reach concrete actions, because there is no incentive and motivation to change something (Barbarskaya, 2015, p. 120).

The process of building an effective personnel management system of enterprises should include the following stages:

– diagnostics of the existing system and methods of personnel management of the company;

– study of internal factors of the enterprise;

– analysis of external factors;

– development of HR policies and HR strategies;

– development of targeted HR processes;

– training and improvement of the qualification level of personnel specialists, regulation and implementation of procedures;

– introduction of a system for monitoring the performance indicators of the personnel management system (Jamaluddynova et al., 2019).

Five key interdependent areas of sustainable employment in industry can be distinguished:

1) digitization and digital transformation of industrial enterprises to increase their competitiveness,

2) transformation of existing and creation of new workplaces that meet the modern and prospective requirements of Industry 4.0 and 5.0,

3) appropriate training of new and retraining of existing personnel,

4) retention of qualified (from the standpoint of the requirements of the digital economy) personnel (primarily young people),

5) adaptation (retraining) of laid-off workers in order to ensure their sustainable employment in other sectors of the economy.

In view of the above, in the process of human capital management of enterprises, it is necessary:

– to form active and dedicated employees of the enterprise,

– coordinate the criteria of personnel motivation with the goals of the enterprise,

– create conditions for the freelance career of employees,

– to create a high-quality system of motivation of human resources, since labor motivation is a component of the personnel management system, which is the key to the effective functioning of the enterprise, especially in the conditions of digitalization, its long-term existence, development, and competitiveness.

The development and preservation of the intellectual capital of the enterprise in the conditions of the COVID-19 pandemic and martial law in Ukraine leads to the closure, repurposing of activities and reduction of jobs and wages. Another important problem is the transition to remote working conditions with a mandatory reduction in wages – provision of psychological, economic, social support for employees. Treat each employee with care and value. In the current conditions, it is necessary to ensure legal protection of the employee from outside, from the country and inside the organization – from aggression, pressure, psychological harassment of unbalanced, inadequate, unfriendly managers at the enterprise. Managers, their deputies, heads of departments, other managers should keep themselves in their hands and be responsible for every rudeness, rudeness towards a subordinate or colleague, not to create a tense situation against the background of the events taking place in the country. This responsibility should be of an administrative nature and affect the reputation of the employee who is a source of negativity and cannot keep himself within the framework of corporate courtesy.

All these massive negative force majeure moments will not happen in the country forever, and therefore the most important thing for the management of enterprises, organizations, companies is to preserve the collective.

4.3. World and domestic experience of digitalization of enterprises

The analysis of the global experience of digital transformation of industry confirms that such concepts as Industry 4.0 are leading in this direction (Industry 4.0), Smart production (Smart Manufacturing), Digital production (Digital Manufacturing), Internet in industry (Internet of Manufacturing), Open production (Open Manufacturing).

These concepts served as the basis for the emergence of such major technological trends in the field of digital transformation of industry as:

1) mass introduction of intelligent sensors into equipment and production lines (Industrial Internet of Things technologies);

2) transition to unmanned production and mass introduction of robotic technologies;

3) transition to information storage and computing from own capacities to distributed resources ("cloud" technologies);

4) end-to-end automation and integration of production and management processes into a single information system ("from equipment to the ministry");

5) use of the entire mass of collected data (structured and unstructured information) for the formation of analytics ("big" data technologies);

6) transition to mandatory digitized technical documentation and electronic document management ("paperless" technologies);

7) digital design and modelling of technological processes, objects, products throughout the entire life cycle from idea to operation (application of engineering software);

8) application of technologies for increasing materials instead of cutting them ("additive" technologies, 3D printing);

9) application of services for automatic ordering of consumables and raw materials for production of products and automatic delivery of finished products to the consumer, bypassing intermediary chains;

10) application of unmanned technologies in transport systems, including for the supply of industrial goods;

11) application of mobile technologies for monitoring, control and management of processes in life and at work;

12) transition to the sale of industrial goods via the Internet.

Among the initiatives available today regarding the digitization of the economy of Ukraine, two projects deserve attention: "Digital Agenda – 2020" (Proekt

Tsyfrova adzhenda Ukrayiny – 2020, 2016), developed by the NGO "High Tech Office" and "Strategy for the development of the industry of Ukraine" (The project "Strategy for the development of the industrial complex of Ukraine for the period until 2025"), its development is coordinated by the Ministry of Economic Development and Trade of Ukraine. The "Digital Agenda – 2020" project is general and it needs to be specified in all directions of digitalization of the economy specified in it, definition of spheres of economic activity and development of detailed plans (road maps) for their digital transformation. The project "Strategy for the development of the industrial complex of Ukraine for the period until 2025" is an initiative that supports (does not contradict) the "Digital Agenda – 2020", but considers only the sphere of industry and defines key accents for its development, in particular, the implementation of the Industry 4.0 concept. The essence of the term "Industry 4.0" is the digitization of all physical assets and integration into digital ecosystems and value chains of partners. The concept of Industry 4.0 considers the digital ecosystem and approaches to its development.

Both considered projects should be approved at the government level and used as reference documents for the development of the Economy Digitalization Strategy of Ukraine, the Strategy of Digital Transformation of the Industry of Ukraine, regional and branch digitalization programs, etc. An important addition to the above-mentioned projects is the determination of priority areas of digital transformation.

For the first time, the European Business Association conducted a study of the current state of digital transformation at the private and public levels – the Digital Transformation Index 2021. The research was conducted in partnership with companies Huawei Ukraine and SAP Ukraine ("Indeks tsyfrovoyi transformatsiyi vid EBA…", 2021).

The integral indicator of the Index is 2.81 points out of 5 possible. The study participants are 130 general, operational and technical directors of member companies of the European Business Association.

Index components (points):

– volume and quality of provision of state electronic services – 2.63,
– the overall level of development of digital inclusion in Ukraine is – 2.46,
– the overall level of digital infrastructure development in Ukraine is – 2.60,
– the overall level of digital transformation of industries – 2.97,
– the overall level of digital transformation of companies is – 3.40.

Barriers to the development of digital transformation in business are considered by company directors to be:

– regulatory and ineffective legislation – 45%,
– insufficient funding – 31%,
– lack of digital literacy – 31%,
– outdated IT infrastructure – 28%,

– cyber security and privacy issues – 25%.

41% of directors rate the level of digital literacy of their employees as moderate, and 13% consider it low. Another 46% rate their team's digital literacy at a high level.

Level of development of digital infrastructure:

– 47% of respondents rate the development of digital infrastructure as moderate,

– 42% – as low or very low,

– 54% rate the level of digital inclusion as low or very low, 32% as moderate.

The development of digital infrastructure, improving access to the use of modern technologies is a priority task of the state.

Traditionally, the Brand Finance agency presents an annual ranking of the world's 500 most expensive brands ("500 naydorozhchykh brendiv svitu", 2022).

Apple takes first place in the ranking of the world's 500 best brands. According to analysts, Apple grows by 35% over the year – up to $355 billion. The second place is taken by Amazon – $350 billion, and the third – by Google ($263 billion). Both companies grow by 38% during the year. The top five also includes Microsoft ($184 billion) and Walmart ($112 billion).

TikTok is for the first time in the ranking and it is called the fastest company in the world and a revolutionary in media. In one year, TikTok grows by 215% – from $18.7 billion to $59 billion. In the rating, the company takes 18th place.

Below is information from the ranking of the first 10 brands and their capitalization value for 2021 (Table 1).

Table 1. The most valuable brands in the world by capitalization in 2021

No.	Company	Branch	Country	Brand value, billion dollars	Cange in capitalization % (to the previous year)
1.	Apple	Technologies	USA	355	+ 35
2.	Amazon	E-commerce platform	USA	350	+ 38
3.	Google	Internet search	USA	263	+ 38
4.	Microsoft	Software	USA	184	+ 31
5.	Walmart	Network of wholesale and retail trade	USA	112	+ 20
6.	Samsung	Manufacturer of high-tech components	South Korea	107	+ 5
7.	Facebook	Social network	USA	101	+ 24
8.	ICBC	Commercial bank	China	75	+ 3
9.	Huawei	Telecommunications	China	71	+ 29
10.	Verizon	Telecommunications	USA	69	+ 1

Source: Developed independently according to: Brand Finance. Global 500 2022.

According to Brand Finance, the technology sector is the leader in brand capitalization. 50 technology companies made it to the rating. The most successful among them are Apple, Microsoft and Samsung Group.

Retail, which took second place, grew by 46% during the pandemic. Its capitalization is more than $1 trillion. In third place is pharmaceuticals. Capitalization of this industry increased by 94% to 54.0 billion.

The most economically strong countries are the USA and China. Two thirds of all global brands are concentrated in these countries.

In addition to TikTok, two more media brands are named the fastest growing. They are Snapchat (up 184% to $6.6 billion) and the South Korean Internet brand Kakao (up 161% to $4.7 billion).

Streaming (TV and music online services) services are also growing. The following are included in the rating:

– Disney (grew by 11%, up to $57 billion),
– Netflix (18% – up to $29.4 billion),
– YouTube (38% – up to $23.9 billion),
– Spotify (13% – up to $6.3 billion).

Warner Bros is the fastest-declining brand. Its value falls by 33%, to $6.8 billion. This decline is attributed to the fact that traditional media are becoming less and less popular. Internet media are currently leading the way.

Separately, Brand Finance singles out the strongest brands. WeChat ranks first for the second year in a row, followed by Coca-Cola, Google, YouTube and NAVER (the most popular search engine in South Korea). The brand that is most often called "cool" in different countries of the world is Porsche.

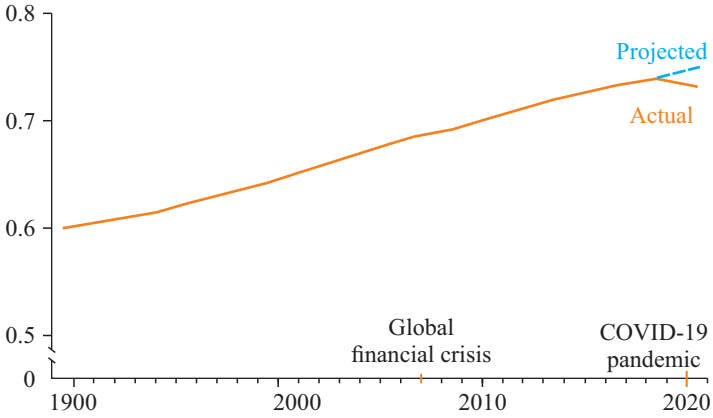
According to the United Nations Development Program (UNDP), decades of progress in terms of life expectancy, education and economic prosperity begin to crumble since the pandemic. It is stated in a new UN report (Hegarty, 2022). It notes that over the past two years, nine out of ten countries drop their positions on the UN Human Development Index.

Calculations of the Human Development Index (HDI), which also determines intellectual capital and the degree of its development, were developed in order to go beyond GDP as a measure of well-being.

According to 2021 data, the first place in the UN Human Development Index is occupied by Switzerland (HDI – 0.962), with a life expectancy of 84 years, an average of 16.5 years of education and an average salary of $66,000. In this ranking, Ukraine currently ranks 77th (HDI in values: 2021 – 0.773; 2020 – 0.775), life expectancy is 71.6 years, an average of 15.0 years of education and an approximate average salary (GNI at per capita) in 13,256 dollars.

At the bottom of the scale at 191 is South Sudan (HDI 0.385), where life expectancy is 55 years, people spend only 5.5 years in school on average and earn $768 a year.

Chart. 1. Dynamics of the Global Human Development Index, 1990-2020



Source: based on Hegarty, 2022.

Failures in most of the 191 countries included in the index, particularly in life expectancy, have returned development levels to 2016 levels, reversing a 30-year trend (Chart 1).

Forecasts for 2022 are bleak, as more than 80 countries face problems paying off their public debt.

The main reasons for the decline in global development and the fall in HDI are the COVID-19 pandemic, the war in Ukraine, and global climate change. Changes in the positions of the above indicators highlight not only the general state of the country, but also the competitiveness and economic activity of enterprises and affect the development of intellectual capital and processes of digitalization of the enterprise's business ecosystem.

5. Conclusions

The conducted research carries out within the framework of the GDR theme of the department of enterprise economics problems of the Institute of Industrial Economics of the National Academy of Sciences of Ukraine "Transformation of the management of industrial enterprises in the conditions of digitalization of the economy".

The main idea is achieved in the work, namely, the existence of the relationship between intellectual capital, digitalization and business ecosystems was proved in the process of researching the global and domestic experience of digital transformation of industrial enterprises.

A new form of business organization, which is considered a promising direction in the development of the economy in the world and arouses the interest of

researchers, is an ecosystem – a system of interconnections of all brands, different lines of business belonging to the same company and functioning as separate branches with their production of goods or services and profit from this economic activity, but under the same trademark.

Such concepts as "socio-economic ecosystem", "innovation ecosystem", "entrepreneurial ecosystem", "digital ecosystem", or "ecosystem of digital platforms" are known in the theory and practice of economics.

It has been proven that the ecosystem of an enterprise is the interaction of all external and internal processes that occur at all levels of management and communication in the course of its economic activity.

The digital transformation of business in Ukraine is considered. The term "digital transformation" refers to the use of modern IT solutions to simplify, automate and increase the efficiency of all business processes. It is known that many Ukrainian companies of any business from various fields of activity have been coping with new market challenges for several years, increasing efficiency, competitiveness and capital due to the implementation of digital transformation.

Analyzing the labor market in the conditions of the digital economy, it is essential that workers lose their jobs due to the reduction in the number of employees needed to perform certain work tasks, because the results of artificial intelligence take jobs, thereby liberating human labor and leaving workers in their jobs. In the process of building an effective digital ecosystem, it is necessary to pay attention to the definition of new (digital) competencies of the workforce of enterprises with the parallel formation of new educational programs with the aim of adopting and operating digital technologies and ensuring the compliance of educational services with the needs of industry.

Ways to improve the quality of development of intellectual capital, training of personnel in digital support, motivation of employees to increase labor productivity of enterprises have been identified. It has been established that the main wealth of enterprises, organizations, companies, along with their financial or raw material resources, is intellectual capital and its carriers are people.

The research substantiates the need to support professional, business ethics of communication at all levels of the workforce, from management to rank-and-file employees of the enterprise in the course of its activity.

The global and domestic experience of the practice of digitalization of enterprises is analyzed, the main result of which is the determination of the reasons for the decline in global development and the decline of the economy according to various indices, namely the COVID-19 pandemic, the war in Ukraine, and global climate change. The dynamics of indicators of the general state of the country affects the development of intellectual capital and processes of digitalization of the enterprise's business ecosystem, highlights its competitiveness and efficiency of economic activity.

References

500 naydorozhchykh brendiv svitu [500 most expensive brands in the world]. (2022, January 28). Ukrayins′kyy Spektr. https://uaspectr.com/2022/01/28/500-najdorozhchyh-brendiv-svitu/ [In Ukrainian].

Antonyuk, V. P. (2017). Strukturni zrushennya v natsional′niy ekonomitsi yak zahroza dlya staloho rozvytku Ukrayiny [Structural shifts in the national economy that threaten the sustainable development of Ukraine]. *Visnyk ekonomichnoyi nauky Ukrayiny*, *2*(33), 7-12. [In Ukrainian].

Barbarskaya, M. N. (2015). Sushchnost' protsessa upravleniya personalom gosudarstvennoy organizatsii na sovremennom etape [The essence of the personnel management process of a state organization at the current stage]. *Osnovy ekonomiki, upravleniya i prava*, *4*(16), 118-122 [In Russian].

Barchuk, I. (2021, May 21). *Chto takoye tsifrovaya ekosistema?* [What is a digital ecosystem?]. https://rb.ru/opinion/what-is-digital-ecosystem/ [In Russian].

Bazhal, Y. M. (2017). Realizatsiya modeli "potriynoyi spirali" v innovatsiyniy ekosystemi Ukrayiny [Implementation of the "triple spiral" model in the innovative ecosystem of Ukraine]. *Ekonomika i prohnozuvannya*, *3*, 124-139. http://nbuv.gov.ua/UJRN/econprog_2017_3_11 [In Ukrainian].

Berveno, O. V. (2000). Intellektual'nyy kapital: ot iyerarkhii k partnerstvu [Intellectual capital: from hierarchy to partnership]. In: H. V. Zadorozhnyy (Ed.), *Sotsial'ne partnerstvo ta yoho rol' v stanovlenni rynkovoyi ekonomiky v Ukrayini* (pp. 91-96). Kharkivs′kyy in-t biznesu i menedzhmentu [In Ukrainian].

Bontis, N. (2002). Assessing knowledge assets: a review of the models used to measure IC. *International Journal of Management Reviews*, *3*, 41-60. https://doi.org/10.1111/1468-2370.00053

Brand Finance. Global 500 2022. Annual report on the world's most valuable and strongest brands. https://brandirectory.com/rankings/global/

Brooking, E. (2001). *Intellektual'nyy kapital* [Intellectual capital]. Trans. with English. Ed. L. N. Kovachyn. Piter [In Russian].

Bryl, I. V. (2007). Osoblyvosti strukturuvannya intelektual′noho kapitalu pidpryyemstv [Peculiarities of structuring the intellectual capital of enterprises]. *Visnyk Donets'koho universytetu ekonomiky ta prava*, *1*, 159-168. [In Ukrainian].

Bryl, I. V. (2018). Intelektual′nyy kapital yak faktor dodanoyi vartosti shchodo zabezpechennya pidvyshchennya investytsiynoyi aktyvnosti v derzhavi [Intellectual capital as a factor of added value to ensure increased investment activity in the state]. *Ekonomichnyy visnyk Donbasu*, *2*(52), 191-200. [In Ukrainian].

Bryl, I. V., & Bryukhovetsky, Y. S. (2019). Rozvytok intelektual′noho kapitalu pidpryyemstva yak dominanta stanovlennya tsyfrovoyi ekonomiky Ukrayiny [Development of the intellectual capital of the enterprise as a dominant factor in the formation of digital economy in Ukraine]. In: *Materialy mizhnarodnoyi naukovo-praktychnoyi konferentsiyi "Sfera zaynyatosti dokhodiv v umovakh tsyfrovoyi ekonomiky: mekhanizmy rehulyuvannya, vyklyky ta dominanty rozvytku", zb. tez dopovidey uchasnykiv mizhnar. nauk.-prakt. konf.; 23-24 zhovt. 2019 r.* (pp. 117-120) [Materials of the international scientific and practical conference "Sphere of income employment in the conditions of the digital economy: regulation mechanisms, challenges and dominants of development"]. Kyyivs′kyy natsional′nyy ekonomichnyy universytet [In Ukrainian].

Bryl, I., & Bryukhovetsky, J. (2018). Definition of the intellectual component in the management and capitalization of the enterprise. In: *European Integration of Economics, Education and Law: Proceedings of the International Scientific Conference* (pp. 74-77). Eridia Sp. z o. o.

Buleev, I. P., Bersutsky, A. Ya., & Bryl, I. V. (2013). *Stratehiya upravlinnya intelektual'nym kapitalom pidpryyemstv* [Strategy of intellectual capital management of enterprises]. NAN Ukrayiny. In-t ekonomiky promyslovosti [In Ukrainian].

Chuhno, A. A. (2002). Intelektual′nyy kapital: sutnist′, formy ta zakonomirnosti rozvytku [Intellectual capital: essence, forms and patterns of development]. *Ekonomika Ukrayiny*, *11*, 48-55 [In Ukrainian].

Danilov-Danylyan, V., & Reif, I. (2010). Trayektoriya ekologicheskoy mysli. Na puti k sovremennomu ponimaniyu biosfery [Trajectory of ecological thought, On the way to a modern understanding of the biosphere]. *Nauka i zhizn*, *3*. https://elementy.ru/nauchno-populyarnaya_biblioteka/431019/Traektoriya_ekologicheskoy_mysli_Na_puti_k_sovremennomu_ponimaniyu_biosfery [In Ukrainian].

Davymuka, S. A., & Fedulova L. I. (2016). *Rehional'ni innovatsiyni ekosystemy: napryamy rozbudovy v umovakh yevropeys'koyi intehratsiyi* [Regionalinnovativeecosystems: directionsofdevelopmentintheconditionsofEuropeanintegration]. DU Instytut rehional′nykh doslidzhen′ imeni M.I. Dolishn′oho NAN Ukrayiny. http://ird.gov.ua/irdp/p20160701.pdf [In Ukrainian].

"Derzhava u smartfoni": v Ukrayini prezentuvaly dodatok "Diya" (2020). [The state in a smartphone: Ukraine presented the state application Diya]. *The Village*. https://www.the-village.com.ua/village/city/city-news/294013-derzhava-u-smartfoni-v-ukrayini-prezentuvali-dodatok-diya [In Ukrainian].

Doroshenko, S. V., & Shelomentsev, A. G. (2017). Predprinimatel'skaya ekosistema v sovremennykh sotsioekonomicheskikh] [Entrepreneurial ecosystem in modern socio-economic research. *Zhurnal ekonomicheskoy teorii*, *4*, 212-221. https://www.elibrary.ru/item.asp?id=30684927 [In Russian].

Edvinsson, L. (2000). Some perspectives on intangibles and intellectual capital 2000. *Journal of Intellectual Capital*, *1*(1), 12-16. https://doi.org/10.1108/14691930010371618

Friman, I. M., & Friman, E. M. (2018). Otsenka chelovecheskogo kapitala kak faktora povysheniya pribyl'nosti i urovnya konkurentosposobnosti promyshlennogo predpriyatiya [Estimation of human capital as factor of increase of profitability and level of competitiveness of industrial enterprise]. *Ekonomika i suspil'stvo*, *18*, 574-579. https://doi.org/10.32782/2524-0072/2018-18-80.

Hegarty, S. (2022). *UN sees life expectancy, education and income fall*. BBC. https://www.bbc.com/news/world-62824357

Indeks tsyfrovoyi transformatsiyi vid EBA – doslidzhennya stanu tsyfrovoyi transformatsiyi na pidpryyemstvakh. (2021). [Digital transformation index from EVA – research on the state of digital transformation at enterprises]. https://business.diia.gov.ua/cases/tehnologii/indeks-cifrovoi-transformacii-vid-eba-doslidzenna-stanu-cifrovoi-transformacii-na-pidpriemstvah [In Ukrainian].

Jamaluddynova, M. Yu., Chartaeva, Sh. Sh., & Abdulaev, A. M. (2019). Problemy upravleniya chelovecheskimi resursami gosudarstvennykh rossiyskikh predpriyatiy i napravleniya ikh razvitiya [Management problems of human resources of state-owned Russian enterprises and directions for their development]. *Regional'nyye problemy preobrazovaniya ekonomiki*, *10*, 233-239. [In Russian].

Kleyner, G. B. (2018). Sotsial'no-ekonomicheskiye ekosistemy v svete sistemnoy paradigmy [Social and economic ecosystems in the light of the system paradigm]. In: G. B. Kleyner, S. Ye. Shchepetova (Eds.), *Sistemnyy analiz v ekonomike – 2018: Sbornik trudov V Mezhdunarodnoy nauchno-prakticheskoy konferentsii – biyennale (21–23 noyabrya 2018)* (pp. 5-14). Prometey. https://doi.org/10.33278/SAE-2018.rus.005-014 [In Russian].

Kudła, B. M. (2021). Human resource management in the contemporary enterprises. *VUZF Review*, *6*(3), 59-65. https://doi.org/10.38188/2534-9228.21.3.07

Moore, J. F. (1993). Predators and prey: A new ecology of competition. *Harvard Business Review*, *71*(3), 75-86. https://www.researchgate.net/publication/13172133_Predators_and_Prey_A_New_Ecology_of_Competition

Moore, J. F. (2013). *Shared purpose: A thousand business ecosystems, a connected community, and the future*. Create Space Publishing Platform.

Proekt Tsyfrova adzhenda Ukrayiny – 2020 (2016). [Digital Agenda – 2020 project]. («Tsyfrovyy poryadok dennyy» – 2020). Kontseptual′ni zasady (versiya 1.0). Pershocherhovi sfery, initsiatyvy, proekty «tsyfrovizatsiyi» Ukrayiny do 2020 roku. Hitech Office. https://ucci.org.ua/uploads/files/58e78ee3c3922.pdf [In Ukrainian].

Stern strategy group. Daniel Isenberg (n.d.). https://sternstrategy.com/speakers/daniel-isenberg/

Stewart, T. (1999). Intellektual'nyy kapital. Novyy istochnik bogatstva organizatsiy [Intellectual capital. New source of wealth of organizations]. In: V. L. Inozemtsev (Ed.), *Novaya postindustrial'naya volna na Zapade: Antologiya* (pp. 372-401) [New post-industrial wave in the West: Anthology]. Academia [In Ukrainian].

Talin, B. (2021, October 21). *Chto takoye tsifrovaya ekosistema? – Ponimaniye naiboleye vygodnoy biznes-modeli* [What is a digital ecosystem? Understanding the most profitable business model]. https://morethandigital.info/ru/chto-takoye-tzifrovaya-ekosistyema-ponimaniye-naiboleye-viguodnoy-biznyes-modyeli/ [In Russian].

The project "Strategy for the development of the industrial complex of Ukraine for the period until 2025". www.me.gov.ua

Tsifrovaya ekosistema – novyy shag promyshlennosti. (2019, December 2). [The digital ecosystem is a new step in the industry]. Neftegaz.ru. https://neftegaz.ru/analisis/companies/510758-tsifrovaya-ekosistema-novyy-shag-promyshlennosti/ [In Russian].

Tsyfrova transformatsiya biznesu: yak tseroblyat′ kompaniyi v Ukrayini? (2020, February 12). [Digital transformation of business: how do companies in Ukraine do it?]. https://ua.interfax.com.ua/news/press-release/640817.html [In Ukrainian].

Ukrayina 2030E – krayina z rozvytoyu tsyfrovoyu ekonomikoyu (n.d.). [Ukraine 2030E is a country with a developed digital economy]. Ukrayins′kyy instytut maybutn′oho https://strategy.uifuture.org/kraina-z-rozvinutoyu-cifrovoyu-ekonomikoyu.html [In Ukrainian].

Yepifanova, I., & Hladka, D. (2021). Methodical approaches to evaluation of intellectual capital of enterprises. *VUZF Review*, *6*(3), 145-153. https://doi.org/10.38188/2534-9228.21.3.16

Zavrazhnyi, K. (2020). Automation of budgeting of industrial enterprises as the basis for digitalization of internal communication business processes. *VUZF Review*, *5*(1), 31-37. https://doi.org/10.38188/2534-9228.20.1.04

Kapitał intelektualny ekosystemu biznesowego w kontekście transformacji cyfrowej

Streszczenie. *Artykuł prezentuje analizę zależności zachodzących między transformacją cyfrową, kapitałem intelektualnym i ekosystemami biznesowymi. Autorzy definiują kluczowe pojęcia i podkreśla rolę kapitału intelektualnego i ludzkiego w ekosystemie biznesowym. W obliczu ostatnich zmian wpływających na aktualną sytuację polityczną, gospodarczą i społeczną Ukrainy (pandemia, globalne zmiany gospodarcze i wojna z Rosją) konieczne jest podnoszenie kompetencji cyfrowych pracowników oraz ich motywacji w celu zwiększania produktywności ekosystemu biznesowego. Autorzy analizują światowe i krajowe praktyki podejmowane przez duże przedsiębiorstwa w zakresie transformacji cyfrowej i dają zalecenia dotyczące poprawy kapitału intelektualnego w ekosystemie biznesowym Ukrainy, aby ułatwić transformację cyfrową krajowej gospodarki.*

Słowa kluczowe: *cyfryzacja, transformacja cyfrowa, kapitał intelektualny, ekosystem biznesowy, motywacja, efektywność, konkurencyjność*

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 33-45
https://doi.org/10.58683/01.3001.0016.2110

Natalya Bryukhovetskaya

Institute of Industrial Economics of National Academy
of Sciences of Ukraine, Kyiv (Ukraine)
Department of Enterprise Economy Problems
orcid.org/0000-0002-6652-4523
email: N.Bryukhovetskaya@gmail.com

Management, motivation and interaction in the context of remote work

Abstract. *The article investigates the phenomenon of remote work in Ukraine from the perspective of employee management, employee motivation and interactions between employees. The author identifies various difficulties associated with remote work, especially in wartime, and offers practical tips for remote workers regarding time management, self-discipline and healthy self-care. Challenges associated with the management of remote workers are discussed on the basis of insights from a survey of employees of a scientific institution in Kiev who have been working remotely for more than 8 years. The author provides guidelines for how to build an effective management system for remote workers and how to facilitate employee interaction.*

Keywords: *remote work, management, interaction, motivation of remote workers*

1. Introduction

In COVID-19 times, against the background of active digitalization processes, the number of remote workers has increased in a short period of time.

According to ILO estimates (Bonnet et al., 2020), about 260 million people (approximately 7.9% of the total workforce) worked remotely in the world before the pandemic.

According to McKinsey ("What 800 executives envision for the postpandemic workforce", 2020), a survey of 800 companies worldwide, 85% of respondents have significantly accelerated the adoption of digital employee collaboration technologies through video conferencing and file sharing. About half of the respondents noted the growth of digitization of customer channels, in particular through e-commerce, mobile applications, chatbots. During the pandemic, the in-

troduction of automation technologies, including robotics, artificial intelligence software has accelerated, although to a lesser extent than digitization. Company executives gained experience in the effective implementation of new interaction technologies in a short time.

Active military operations on the territory of Ukraine and huge migration flows have further accelerated the appeal of employees and employers to remote work. Therefore, the most significant reasons for the spread of remote work at present are the following:

1. Development of IT technologies and availability of network resources.
2. Martial law and scattered territorial location of employees.
3. COVID-19 restrictions.

Remote work significantly changes the activities and interaction in the company. It is important for the manager to study in detail the motives of employees working remotely, to find ways to intensify their activities in order to reduce their stress and anxiety. An employee's stay abroad or staying on the territory of Ukraine, where martial law is in force, affects his/her feelings of security and work efficiency.

The purpose of the article is to identify the problems of remote work for the employee and management, to investigate the prerequisites for their occurrence in the conditions of a prolonged period of forced remote work, to substantiate the ways of establishing team interactions by management based on the motives of employees.

For this purpose, the following tasks have been solved:

– the definition of remote work, its organization and remote personnel management is provided;

– the reasons for the spread of remote work in modern conditions of Ukraine are identified;

– the difficulties of remote work for employees, in particular in wartime, are identified;

– the problems of the employee are outlined and practical recommendations for self-organization and healthy self-care are substantiated;

– the results of a survey of employees of the department of a scientific institution are presented, which confirmed the general problems and patterns of remote work;

– as a conclusion, guidelines for building an effective system of interaction based on the motives of employees are provided.

2. Material and methods

To obtain scientifically sound results, the article uses the dialectical method of transition from the abstract to the concrete and vice versa, the historical and logical method. The application of the method of comparison allowed to identify

the main problems of employees, management, their interaction in remote work with the use of Internet technologies. In order to identify the problems of self-organization of employees and management of the institution working remotely for more than 8 years, the survey method was used according to the developed questionnaire.

The method of generalization allowed us to provide conclusions about the change in the orientations of employees and management to preserve the labor potential and efficiency of the institution.

3. Literature review

The development of Internet technologies and business attempts to maintain production volumes and achieve high profitability contributed to the growth of remote work. The COVID-19 restrictions have significantly stimulated them. The experience of remote work has intensified research into the problems of employees, management, motivation and interaction of staff. These and other issues are reflected in the research of scientists from different countries.

The concept of remote employment and remote work emerged in the 1970s in the form of telecommuting. Its active implementation is associated with the use of information and communication technologies by employees of the IT industry in California in order to work remotely from home (Halaz & Mandrysh, 2021).

The first attempts to create a regulatory framework for remote work in the United States were made in 1990 (Halaz & Mandrysh, 2021). The federal law in 2010 (Telework Enhancement Act of 2010) provided for the development and implementation of a policy that allowed remote work for each head of the executive body. A year later, in 2011, there were about 26 million regular and irregular remote workers in the country.

In the European Union was adopted in 2002 ("Framework agreement on telework", 2002).

In post-Soviet countries, remote work with the use of information and telecommunication technologies is regulated at the level of labor codes or the law governing the conclusion of employment contracts. For example, in Kazakhstan – since 2015, in Russia – since 2013, in Estonia – since 2009 (Halaz & Mandrysh, 2021).

The scientific team of the Institute of Industrial Economics of the National Academy of Sciences of Ukraine has been studying the issues of motivation, interaction and management of personnel for a long time (Buleev et al., 2012) The importance of the factor of employee involvement in the corporate culture of the organization in achieving the company's productivity has been proved (Bryukhovetskaya & Chorna, 2015).

Jumbo (2021) investigated the impact of remote work on employee productivity. At the beginning of the transition to remote work, there is indeed a decrease in productivity. This is due to the lack of remote work skills. It takes time, training and company support.

Some researchers have identified the technological stress of employees during remote work and identified the impact of technogenic factors – techno-overload and techno-invasion (Soumya, 2020). Technology helps organizations and teams to work remotely, hold meetings, exchange documents, and perform work tasks. However, the constant use of technology without personal interactions has potentially negative physical and mental consequences.

The pandemic has led to the destruction of the business world and contributed to the creation of new business models. Many researchers note the fundamental impact of communication and social interactions in remote work. The factor of employee involvement in the work process and organizational culture has proven to be important (Nimmi & Anjali, 2020).

Swedish scientists Dryselius & Pettersson (2021) contributed to the understanding of threats and opportunities during forced remote work. They investigated the nature of motivation of those who work remotely in knowledge-intensive firms dominated by human capital. The transfer of work to the home has dramatically changed individual working conditions and employee motivation. Experts believe that the motivation system is directly related to the productivity and income of employees. Therefore, the question for the management of the organization is how to provide motivation in the conditions of remote work in order to maintain the productivity and well-being of their employees. Based on interviews with employees of five companies in knowledge-intensive sectors, seven key factors of remote work impact on motivation were identified. These are:

1) lack of social interaction,
2) level of information transparency and support,
3) work-life balance,
4) shifting responsibilities between managers and employees,
5) opportunities for consultation and support,
6) digital technologies, and
7) networking and training for remote workers.

Kelley (2022) notes the critical importance of interactions with other people. He believes that a good organizational culture, in which people feel involved, connected and motivated, helps to achieve financial success for each employee and the company.

The scientific novelty of the study (Spagnoli et al., 2021) is the justification of the feasibility of changes in organizational culture in remote work, which can prevent and/or limit any psychosocial risks (e.g., workaholism and technostress).

The article (Deepali Mam, 2021) aims to understand the phenomenon of remote work during the COVID-19 pandemic and its impact on employee morale in the IT/ITES (IT and Information Technology Enabled Services) industry. Organizations have provided digital technology, connectivity, flexible working arrangements and managerial support. However, adaptation to the new working environment increased stress, which affected the morale and performance of employees. A model of favorable conditions was developed, its parameters were determined – flexible working environment, organizational communications and digital technologies. An attempt was made to test their impact on achieving a balance between work, life and morale of employees.

Some researchers (Larson et al., 2020) warn that productive employees, when they start working remotely, may face a deterioration in productivity and engagement, especially in the absence of training and education. In these circumstances, managers need to understand the challenges and factors of managing remote work, and they themselves need training.

The results of the study (Pitkänen, 2021) showed that the main three factors affecting employee motivation in remote work and which can be improved by management are: trust between employees and management, communication and social interactions. This involves providing the right working conditions, discussing plans and goals together, investing in communication and making managers available.

Indeed, our experience with telecommuting shows that it is a challenge to keep the team on track.

Storozhuk (2021) came to the conclusion about the crisis of motivational support of labor activity in a pandemic. She believes that personal or group egoism becomes a priority instead of the motives of public recognition of work; employees tend to rely on a sense of community, belonging to a team (Storozhuk, 2021, pp. 212-213). To maintain interaction between employees, the need for corporate training has increased (Storozhuk, 2021, p. 218).

In terms of motivation of employees and management, it is interesting to work on the values of the company's personnel (Esmerova & Stojcevska, 2022). The system of values determines the priorities of the personality, its behavior, is the basis for understanding the interactions and motivation of people. Esmerova & Stojcevska (2022) believe that it is necessary to take into account that a person tends to preserve the values acquired in early life. Since values are related to the age and the period of formation of a person as a personality, this serves as a kind of explanation why the older generation of employees has a different attitude to work than younger people. This idea should be used by managers in their management work to solve the general tasks of the company.

Yakovenko (2022) determines that remote work transforms personnel management in terms of planning, selection, organization, management, motivation and communication.

A number of problems of a remote worker have been identified that require manager intervention and measures to eliminate them (Halaz & Mandrysh, 2021):

1. Overwork (continuous working day, holding too many online meetings).
2. Insufficient physical activity during work.
3. Feeling isolated, insufficient communication with colleagues.
4. Unexpected (specific) problems (technical problems, lack of mobile communication, Internet access, etc.).

Kyryliuk & Ryabokon (2021) showed the role of the social sphere in ensuring the quality of working life in the context of the spread of the pandemic. Indeed, the social sphere contributes to the reproduction of human capital, raising living standards, and the realization of employees' values, which directly affects the rate of economic growth and development of the company. For the purposes of our study, the following indicators of the quality of working life are important: the level of income of employees; the level of work organization; meaningfulness of work; opportunities for promotion; development of industrial democracy; respect for the individual, etc.

4. Results and discussion

Remote work is a new form of labor relations, the work of employees outside the office premises using electronic communication and communication systems.

Remote work has the following characteristic features in the organization. In particular, it is the following:

1. Location of the employee – outside the office.
2. A radical change in the interaction of employees with each other and with management due to the employee's participation in Internet communications.
3. Setting a work schedule – a clear definition of the time of contact and the ability to work at any time of the day.
4. Absence of a mandatory dress code.

For the employee, each of these characteristics has its own content and consequences in well-being, productivity, and opportunities for professional development.

Research and experience show that remote work allows remote adjustment of the work process, contributes to the preservation of business activity and employment in times of crisis. For business owners, the first argument for the transition of employees to remote work outside the office was the possibility of significant savings in material and financial resources for the creation and maintenance of the workplace.

It is groundless to claim that remote work has only positive aspects and no negative consequences. In reality, employees have significant difficulties. The

main of them is that the assimilation of information transmitted through the means of communication is more difficult than in personal communication. Social interactions are disrupted. Lack of real contacts with colleagues can lead to feelings of loneliness and isolation of employees. Often there is a decrease in employee engagement. The fragmentation of communications, difficulties in obtaining information, difficulties in communicating and perceiving the company's mission and objectives by employees reduce the effectiveness of remote work organization. At the same time, excessive control of the management or, on the contrary, the lack of any control can have a negative impact on employees and their work efficiency.

With the outbreak of hostilities, a significant number of employees in Ukraine were forced to flee from the mortal threat, some left in a state of panic, others wanted to take the opportunity to improve their material conditions abroad. After the first shocks, the work process began to stabilize, as evidenced by the problems of remote work in wartime, the prerequisites for their occurrence (Table 1).

As a rule, the company's management understands the importance of staff retention, qualification of employees. Therefore, the issues of physical, material

Table 1. Problems of remote work of employees in wartime and prerequisites for their occurrence in the organization (company)

The problem	Reasons for its emergence
Additional costs of employees to create and maintain a job	Use of personal housing as a workplace.
Social isolation and loneliness of workers	The organization has not created a culture of virtual cooperation, does not support connections, communication, exchange of information between employees.
Deepening social inequality among workers by the criterion of readiness for digitalization	The presence of employees who are not ready for digitalization, those who study less, who are not inclined to adapt to Internet technologies.
Changes and stresses in forced remote work	Forced adaptation to new conditions.
Lack of personal interactions	Contacts using digital tools form a virtual experience of communication.
Anxiety, active search for meanings, lack of emotional security	Uncertainty, uncertainty, difficulties of adaptation. Unclear prospects for the terms of remote work.
Lack of physical security, forced escape from mortal danger	Either living in a military conflict zone or emigration, change of residence.
Responsibility, self-organization and workflow planning	Self-organization is the result of lifestyle choice. Failure to meet deadlines, violation of agreements indicates poor self-organization and low self-esteem, lack of understanding of the mechanisms of healthy self-care.

Source: Author's development.

and psychological state of the employee are important management actions. The identified problems and ways to solve them are presented in Table 2.

Confirmation of changes in the motivation and interaction of employees in remote work were the results of a survey of employees of the subdivision of the scientific institution, who have been working remotely for 8 years: the benefits of remote work were felt by all the surveyed employees when the Institute moved to another city, and not all had the opportunity to go to the new location of the Institute. Especially the advantages are noted by those who have small children and have to spend a lot of time with their children in the conditions of distance learning. Employees were divided into two groups: those who have the opportunity and periodically stay at the workplace in the building of the Institute, and those who are unable to travel to Kyiv and stay at work. The former feel involved, they have higher salaries, they have no lack of communication, they receive all the information necessary for their work. Others feel lack of attention from the management, emphasize the need for a professional environment where they can test their results and participate in discussions. Remote workers spend their money to buy computers and other means of communication.

Almost all experience difficulties in the distribution of work and personal time. They expect from the management equal opportunities for professional development, timely, streamlined information flow, application of corporate culture tools aimed at developing a sense of care for the team and involvement in the Institute.

Table 2. Problems and ways of employee self-organization in remote work

No.	Problems of the employee when working remotely	Ways of employee self-organization in remote work
1.	Difficulties in the distribution of work and personal time, processing of working time	Establish the mode of work – make a schedule of work and rest.
2.	Decrease in physical activity	Choose ways to switch between working and free mode and vice versa – change of clothes, walks, etc.
3.	Lack of live communication and emotional contacts, social isolation and loneliness	For emotional security, arrange live meetings with colleagues, friends, acquaintances.
4.	Physical and psychological overload, fatigue	Separate professional activity and personal life on the principle of honesty, healthy self-care and respect for others.
5.	Lack of a favorable psychological climate	Manage working time effectively, show respect for personal and working time of colleagues.
6.	Difficulties in determining the work schedule and distribution of tasks independently	Separate a place for work and rest in the room.

Source: Author's development.

Research and experience show that despite the complexities and difficulties, the company's management can organize a normal work process even when working remotely. The task of management becomes the following – using electronic means of communication and digital technologies, to provide competent management decisions on the effective use of time and space limited resources, redistribution of economic, financial, reputational risks, creation of a system of labor motivation and establishing interactions in remote work. Ways to establish interactions in a team of remote workers are shown in Figure 1.

5. Conclusions

1. Remote, remote work is a new form of labor relations, according to which there is a radical change in the interaction of employees with each other and with management through participation in Internet communications; work of employees outside the office and the ability to perform work at any time of the day; a clear definition of the time of contact is established.

2. When working remotely, social interactions are disturbed, the assimilation of information transmitted through communication means is more difficult than in personal communication. Lack of real contacts with colleagues can create a sense of loneliness and isolation of employees. Often there is a decrease in employee engagement.

3. As a result of the analysis and generalization of experience, the difficulties of remote work were identified. These include: a possible decrease in labor productivity; difficulties in organizing work control; additional psychological burden on the leader and his ability to communicate with the "remote" employee; limited opportunities for sharing experience; poor career prospects for "remote" employees; limited communication and reduced stress resistance of employees; loss of corporate culture of the enterprise by employees.

4. The problems of the employee in remote work were identified. In particular, these are difficulties in the distribution of work and personal time, processing of working time, reduced physical activity, lack of live communication and emotional contacts, physical and psychological overload, fatigue, lack of a favorable psychological climate, social isolation and loneliness, difficulties in determining the work schedule and distribution of tasks, increased responsibility, difficulties in organizing and planning work independently, setting priorities.

5. The establishment of a workplace outside the office often creates a situation where additional costs for the creation of a workplace – the purchase of Internet communications and their maintenance – have to be spent by the employees themselves, not the organization. This situation undermines the basis of fair remuneration for work based on its results.

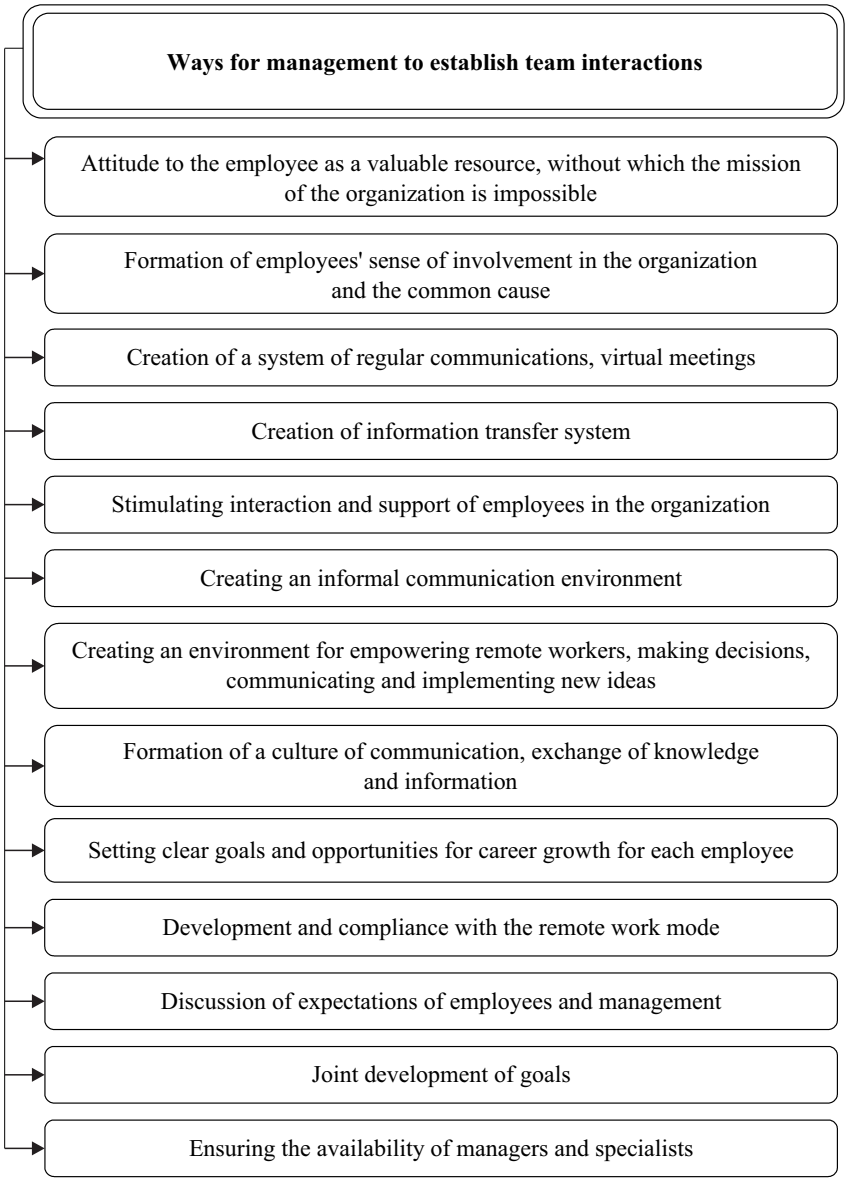


Figure 1. Ways to establish team interactions by management

Source: Author's development.

6. Practical recommendations for self-organization and healthy self-care of a remote worker are substantiated. The main ones are the desire to separate professional activity and personal life on the principle of honesty, healthy self-care and

respect for others, to arrange live meetings with colleagues, friends, acquaintances for emotional security. Compliance with these recommendations will allow you to preserve labor potential for a long time and maintain its effectiveness.

7. The volume of remote work is not decreasing. Organization of work processes in companies requires additional efforts from the company's management. The task of management is to use electronic means of communication and digital technologies to provide competent management decisions on the efficient use of limited resources, redistribution of economic, financial, reputational risks, creation of a system of motivation of remote workers. Experience shows that even with remote work it is possible to organize a normal work process.

6. Prospects for research

The penetration of the digital environment into business, the economy and the organization of production requires the development of digital competencies of management and employees. This involves the creation of a system of training specialists with digital competencies in the company. The system of staff motivation for productive work should include such external and internal incentives that encourage employees to continuously learn, acquire new digital skills and competencies, and the ability to work remotely in conditions of constant change.

HR management during remote work should be aimed at mitigating the risks of physical and psychological health, reducing the negative impact of remote work. The need for corporate training will grow, which requires thorough research to improve corporate culture in remote work, deepening the interaction between employees and management.

References

Bonnet, F., Soares, S., & Berg, J. (2020, May 11). *Working from home: Estimating the worldwide potential.* https://cepr.org/voxeu/columns/working-home-estimating-worldwide-potential

Bryukhovetskaya, N. Yu., & Chorna, O.A. (2015). *Upravlinnia rozvytkom liudskoho kapitalu pidpryiemstv: instytutsionalnyi aspekt* [Management of the development of human capital of enterprises: institutional aspect: monograph]. Kyiv: In-t ekonomiky prom-sti NAN Ukrainy [In Ukrainian].

Buleev, I. P., Buleev, E. I., Atamanchuk, G. S., & Revva, A. N. (2012). *Motivatsiya truda v promishlennosti: teoriya i praktika* [Labour motivation in industry: theory and practice]. Donetsk: In-t ekonomiki prom-sti NAN Ukraini [in Russian].

Deepali, Mam. (2021). *Impact of remote working on employee morale*. https://www.researchgate.net/publication/352413718_Impact_of_remote_working_on_employee_morale

Dryselius, A., & Pettersson, J. (2021). *Motivation in the remote workplace. Understanding the threats and opportunities to motivation during enforced remote work*. Degree project in industrial management, second cycle, 30 credits: Stockholm, Sweden, https://www.diva-portal.org/smash/get/diva2:1530501/FULLTEXT01.pdf

Esmerova, E., & Stojcevska, I. (2022). Values of the managers within their environments. *VUZF Review*, *7*(1), 129-141. https://doi.org/10.38188/2534-9228.22.1.13

Framework agreement on telework (2002). European Trade Union Confederation. https://www.etuc.org/en/framework-agreement-telework

Halaz, L. V., & Mandrysh, O. O. (2021). Osoblyvosti korporatyvnoho menedzhmentu v umovakh viddalenoyi roboty. *Scientific Notes of Lviv University of Business and Law*, *28*, 16-26. https://nzlubp.org.ua/index.php/journal/article/view/382 [In Ukrainian].

Jumbo, G. S. (2022). The effect of remote working on employee productivity. *International Journal of Management and Business.* https://www.researchgate.net/publication/358343640_The_Effect_of_Remote_Working_on_Employee_Productivity

Kelley, P. Jr. (2022, March 22). Why in-person interaction remains critical in the age of remote work. *Global Trade Daily*. https://www.globaltrademag.com/why-in-person-interaction-remains-critical-in-the-age-of-remote-work/

Kyryliuk, V., & Ryabokon, I. (2021). Role of social sphere in ensuring quality of working life. *VUZF Review*, *6*(3), 66-77. https://doi.org/10.38188/2534-9228.21.3.08

Larson, B. Z., Vroman S. R., & Makarius, E. E. A. (2020). Guide to Managing Your (Newly) Remote Workers, *Harvard Bisiness Review*. https://hbr.org/2020/03/a-guide-to-managing-your-newly-remote-workers

Nimmi, P. M., & Anjali, J. (2020). *Organisational engagement during Remote work – HR perspectives*. Conference: International Social Science Research Colloquium, SCMS. Kochi, https://www.researchgate.net/publication/346941174_Organisational_engagement_during_Remote_work_-HR_perspectives.

Pitkänen, T.-T. (2021). *Leading and motivating. Employees in a remote work. Environment*. Bachelor's thesis, Bachelor's Degree in International Business. https://www.theseus.fi/bitstream/handle/10024/498570/Pitkanen_Tia-Tuulia.pdf?sequence=3&isAllowed=y

Soumya, P. V. (2020). Impact of technostress on employees during remote work. *SDMIMD Journal of Management.* https://www.researchgate.net/publication/354238046_Impact_of_Technostress_on_Employees_during_Remote_Work

Spagnoli, P., Manuti, A., Buono, C., & Ghislieri, C. (2021). The good, the bad and the blend: The strategic role of the "middle leadership" in work-family/life dynamics during remote working. *Behavioral Sciences*, *11*(8), 112. https://doi.org/10.3390/bs11080112

Storozhuk, O. V. (2021). Kryza motyvatsiinoho zabezpechennia trudovoi diialnosti v umovakh pandemii, yii vplyv na rozvytok personalu v Ukraini i v sviti [The crisis of motivational support of labor activity in a pandemic, its impact on the development of personnel in Ukraine and in the world]. In: M.V. Semykina, S.V. Dudko, A.A. Orlova et al., *Profesiinyi rozvytok personalu pidpryiemstv v systemi motyvatsiinoho menedzhmentu* (pp. 212-224) [Professional development of enterprise personnel in the system of motivational management]. KOD [In Ukrainian].

Telework Enhancement Act of 2010. https://www.govinfo.gov/app/details/PLAW-111publ292

What 800 executives envision for the postpandemic workforce. (2020, September 23). McKinsey Global Institute. https://www.mckinsey.com/featured-insights/future-of-work/what-800-executives-envision-for-the-postpandemic-workforce

Yakovenko, O. I. (2022). Osoblyvosti dystantsiynoho upravlinnya personalom v suchasnykh umovakh [Features of remote personnel management in modern conditions]. *Vcheni zapysky Tavriys'koho natsional'noho universytetu imeni V.I. Vernads'koho. Seriya: Derzhavne upravlinnya*, *33*(72), no. 1, 34-39. https://doi.org/10.32838/2523-4803/72-1-6 [In Ukrainian].

Zarządzanie, motywowanie i interakcja w kontekście pracy zdalnej

Streszczenie. *Artykuł jest poświęcony zjawisku pracy zdalnej w Ukrainie z punktu widzenia zarządzania pracownikami, ich motywacji oraz interakcji z innymi pracownikami. Autorka wskazuje różne trudności związane z pracą zdalną, zwłaszcza w czasie toczącej się wojny, oraz podaje praktyczne wskazówki dla pracowników zdalnych dotyczące zarządzania czasem, samodyscypliny i zdrowej dbałości o siebie. Wyzwania związane z zarządzaniem personelem pracującym zdalnie omówiono na podstawie wyników ankiety przeprowadzonej wśród pracowników instytucji naukowej w Kijowie, którzy od ponad 8 lat pracują zdalnie. Autorka podsumowuje swoje rozważania, podając zalecenia na temat budowy efektywnego systemu zarządzania pracownikami zdalnymi oraz działań, które mogą ułatwić interakcję między członkami zespołu.*

Słowa kluczowe*: praca zdalna, zarządzanie, interakcja, motywacja pracowników zdalnych*

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 47-56
https://doi.org/10.58683/01.3001.0016.2111

Ivan Buleev

Institute of Industrial Economics of National Academy
of Sciences of Ukraine, Kyiv (Ukraine)
Department of Enterprise Economy Problems
orcid.org/0000-0002-7912-3649
email: buleev.i.p@nas.gov.ua

Optimal models for the socio-economic development of transformational economies

Abstract. *The purpose of the article is to analyse the most common models of development of capitalist economies and their socio-spiritual transformation. Each model is characterised in terms of several indicators, such as underlying ideology, attitudes towards religion or the dominant form of ownership, together with information about its implementation in the world and its performance in the light of economic indicators. Different methodological approaches to economic models are also discussed. The author emphasises the need to bring the subject of political economy back to curricula of economic social studies in Ukraine for the benefit of the country's future economic recovery. In particular, he emphasises the role of large companies in technological development and questions the current trend of minimising the state's involvement in the economy. The article ends with recommendations for the revival of the Ukrainian economy and industry.*

Keywords: *transformational economies, development models, convergence, role of the state in the economy, investment, spirituality, faith*

1. Introduction

The majority of the world's population live and work in a socio-economic system dominated by capitalism. By its very nature, capitalism is dynamic, aggressive, quite efficient in the process of realizing its main goal of profit maximization, renewed in developed countries, involving developing and post-socialist countries in its system. In this regard, almost all countries have transformational type economies. They are based on different models whose structure and content have not been sufficiently explored, and the directions for their improvement need more in-depth theoretical development.

In this article, an economic model is understood to be an abstract generalization of systematic ideas about individual processes and phenomena in the economy, and the direction of their development.

2. Analysis of publications

The most widespread models of development of the 1980s-2020s are: liberal-economic (credit-emission); planned-directive (Soviet) and the concept of the Washington Consensus. The following models are at the stage of theoretical development and mastering: directive capitalism and New Integralism (NIU) (Table 1).

The models shown in Table 1 are reflected in publications on modern capitalism. The definition of capitalism formed in the 19th and early 20th centuries no longer fully reflects its essence at the beginning of the 21st century.

For example, E. Bregel notes that "capitalism is the third and last form of class society, based on the exact ownership of the exploitation of man by man" (Bregel, 1968, p. 7).

"Capitalism is a social system where there is private ownership of capital, an activity aimed at profit through commodity production, which is determined by such factors as labour, land and money... This is normal capitalism" – writes S. Mizobata (2014, p. 23), director of the Institute of Economic Research at Kyoto University (Japan).

Table 1. Economic models for the development of modern economies

The models	Countries of implementation
1. The liberal-economic (credit emission) model:	USA, G7 countries
• priorities for the development of the real economy (Good old America)	The US until the 70s of the 20th century
• "New America" (finance priorities)	USA from 1971 20th century to the present
2. State socialism (the planned-directive Soviet-type model)	USSR, socialist camp countries (up to 1990s of the 20th century)
3. The concept of the Washington Consensus	Developing world, post-socialist countries, Ukraine
4. Convergence model	Individual elements are present in all countries
5. Inclusive capitalism	WEF (Davos), Club of Rome hypothesis prepared for practical implementation by countries, EU
The New Integral World Economy	China, India, South Korea, Singapore, Vietnam, etc.

Source: compiled from: Bregel, 1968; Chukhno, 2006; Fursov, 2021; Galbraith, 1969; Lvov, 2002; Mizobata, 2014; Mochernyi, 2000; Schwab & Wanham, 2021; Soras, 1999; Stiglitz, 2020; Zakiyanov, 2020; with clarification by the author.

It is easy to see that classical political economy provides a more comprehensive definition of capitalism, while modern scholars have sometimes successfully supplemented it, taking time lags and territorial expansions into account.

3. Research results

It should be added (restored) to the definition of capitalism that capitalism enters the "monetary civilization", develops it, preserving the quality of its (capitalist, bourgeois) socio-economic (spiritual) formation (OEF-ODF), preserves, and sometimes revives, the institutions of slave– and/or feudal OEF, creates preconditions for the formation of new OEF models (communist or similar socialized OEF) (Buleev, 2020, 2022; Katasonov, 2015; Kulikov & Sergeytsev, 2017, Schumpeter, 2001; Sorokin, 1997).

Capitalism:

– develops the market to a global scale and in doing so confronts it within the framework of nation-state withdrawal;

– develops technology as far as possible to the point of monopoly and then can contain its growth;

– a global structure capable of preserving and reproducing on a local scale previous OEFs and creating the preconditions for future development patterns;

– an aggressive, expansive, 2-3-class structure that creates a middle class and then destroys it itself;

– a structure that develops spirituality, faith, values quantitatively, but reduces and even destroys their role, values, faith, qualitatively;

– the driving force of development is not so much the struggle of classes as the struggle of elite groups, clans, oligarchic groupings;

– has creative and destructive competition, cycles of crises against the background of both growth and decline in the rate of development;

– undergoes (by basic, technological) stages (stages) of entrepreneurial, industrial, post(hyper)industrial competition and monopolism;

– creates supranational structures (open and closed), diverse institutions, morality, values that are creative and destructive to society;

– is efficient and rational at the level of economic agents (individual, small, medium-sized and large businesses in the real economy), and can be wasteful and destructive at the national and international levels

– develops the social sphere, science, culture, education, incomes of the population within the necessary limits to maximize profits, limiting or abandoning them when this does not ensure the growth of income of the ruling class, its elite, clan groups;

– has the object of appropriation – capital, but, if necessary, does not abandon the objects of appropriation of other OEF (physical man – slave-holding OEF, land – feudal OEF, human intellect – hyper-capitalism, post-capitalism).

Capitalism uses any value (capital) that can and does produce surplus value, surplus labour, distributed to the owners of capital etc.

The main indicators of the models of economic development used (wholly or partly) by capitalism are shown in Table 2. This Table introduces the characteristics of 5 models out of the 6 models named in Table 1. The Convergence model is excluded, which has the positive qualities that all 5 models have (Table 2). The Washington Consensus model has lost its value, as it has yielded negative results in developing countries of Latin America, Africa, the Middle East and almost all post-socialist countries. The authors of the model are trying not to mention it either.

Development models are being refined by refining, developing the liberal economic model, forming the NIWEO (NIU) model, and learning the hypothesis of an inclusive capitalism model.

"State socialism" (a planned-directive model in the form of Soviet socialism) under conditions of digitalization, computer technology, artificial intelligence can become effective, having recovered from the moral losses associated with the destruction of the world socialist system and the Union of Soviet Socialist Republics.

Some of its elements are now being used in NIWEO (NIU) in China, India and a number of other countries (Buleev, 2020; Glazyev, 2016; Khazin, 2019; Wasserman, 2014).

The socialist model can be used in the context of digitalization of society, which makes it possible to realize its merits. This model attracted the attention of A. Einstein (Glushkov & Valakh, 1981) a number of scientists economists, cyberneticists of developed countries and the world as a whole (Einstein, 1949; Khazin, 2019; Zakiyanov, 2020) and is partially implemented in a number of countries.

The calculations (Glazyev, 2016) allow us to compare the liberal-economic models (according to the US and EU centers) and the New Integral Pattern (according to China and India centers) shown in Table 3. The indicators in Table 3 show the advantage of the New Integral Pattern (NIC) model.

Nowadays, the economy of economic entities (CAPs) and from the individual activity to the national level) is increasingly dependent on factors outside the economy itself. Therefore medium-sized and small states (in terms of territory, population, resources, GNP, etc.) are striving to unite around great powers, alliances, associations, etc. The world is being transformed from a unipolar one into a system of large regions, with 5-6 mega-regions, each region having a population of at least 500 million people. The centers of such regions could be the US, the PRC, the EU, India and some other countries or alliances.

Table 2. Indicators of development models for transformational economies

Indicators	The models				
	the liberal economy	the Washington Consensus	state socialism	inclusive capitalism	NIWEO*
The representative country	USA	Ukraine	USSR	–	China
The dominant economic theory	liberalism	monetarism	Marxism	neoliberalism	dynamic conservatism
The ideology	bourgeois-economic	petty-bourgeois	Marxist	the liberal democratic	historical materialism
The purpose of production	profit	profit	production growth	added value	increasing the welfare of the people
Relationships in production, in society	inequality, exploitation, competition	exploitation, inequality, competition	cooperation, competition	cooperation, competition	cooperation, competition
Attitudes towards faith, religion	Protestantism, sectarianism	Christianity, Protestantism	atheism, orthodoxy	atheism, polytheism	world religions
The dominant forms of ownership	oligarchic, private	private, publicly owned	public, state	private, hidden in networks and foundations	collective, public, private
The dominant interest	private	private	public	private, oligarchic, collective	common, collective, private
Forms of labour involvement	economic, non-economic, exploitation	economic coercion	moral and material incentives	distribution by labour and by property	distribution by labour and its efficiency
Elites, the dominant groups	oligarchs	parties created by elites	communist and socialist parties	ruling class parties	communist and democratic parties
Sources of funding, development	credit-issue (fiat) money	foreign direct investment	internal resources	domestic and FDI	internal and borrowed resources
The economy	wasteful	wasteful	resource-saving	wasteful	resource-saving
Spirituality, faith	reduced	reduced	growing	reduced	growing

* NIWEO – a new integrated world economic order

Source: compiled by the author on the basis of a critical analysis of Wasserman, 2014; Sorokin, 1997; Danilyshyn, 2022; Buleev, 2022; Katasonov, 2015.

Table 3. Comparative GDP (PPP) of the core American (liberal) and Asian (integral) capital accumulation cycles (% of world GDP)

Centres and individual countries	1930	1950	1973	2000	2010	2020	2030
US and EU	54.7	54.4	49.2	43.4	36.5	32.4	18.2
Chinaand India	16.3	8.8	7.7	17.0	28.7	44.1	52.0
Japan	2.6	3.0	7.8	7.2	5.4	4.4	3.2
USSR – RF*	8.5	9.0	9.7	2.1	2.47	2.7	3.0
Total	82.1	75.8	75.8	69.7	73.0	83.6	76.4

* USSR – 1930-1973; RF – 2000-2030.

Source: China specialists' calculations based on Maddison, 2012; Glazyev, 2016; finalised by the author.

Ukraine, in order to implement Articles 1, 3, 5 of Constitution of Ukraine as of 30 September 2016 (Konstytutsiia Ukrainy stanom na 30 veresnia 2016 roku): namely, sovereign and independent; democratic, social (Article 1), where "the human being, his life and health, honour and dignity, inviolability and security are determined by the highest social value" (Article 3), where "the bearer of sovereignty and the sole source of power is the people" (Article 5), should also join some mega-region. As of today, this combination vector is oriented towards the European Union (EU), the US and the UK.

To this end, a transformation of the state and the economy is underway. An improved liberal-economic model combined with a new integrated way of life should be taken as a benchmark for internal restructuring.

The result could be a people's state, which many countries around the world aspire to (Kulikov & Sergeytsev, 2017; Buleev, 2022).

The aim of the people's state is the formation of a society with an average scientifically justified level of income, high scientific and technological self-sufficiency, a high level of spirituality and education, art, culture, real democracy, political and defence sufficiency.

In specific areas of the economy it is necessary to implement the strategic directions that exist in the projects of public administration bodies, in scientific refinements of institutes of the National Academy of Sciences of Ukraine and universities of the Ministry of Education and Science of Ukraine, adding updates to them. The concept of the Washington Consensus should be definitively abandoned, the leading role of the state in economic transformations should be acknowledged, and some indicators for assessing economic performance, especially GDP, should be changed or clarified by supporting them with indicators in physical terms.

In some countries, the GDP indicator is complemented by what is known as the Goods and Services Output Index of Basic Economic Activities, which includes:

– the key sectors that form the main contribution to the economy,

– mining and quarrying: manufacturing; electricity, gas and steam supply; water supply; utilities; construction; transport; retail and wholesale trade, etc., in both monetary and physical terms.

And it is important, because the modern economy of a number of highly developed countries is built on the principles of exchange of labor results, and it is reasonable to reorient it to the processes of labor, technology, providing NTP and give up to 90% of economic growth. Such a direction in Ukraine's economy should be followed by the human (spiritual-bio-social in nature) and the human being.

In formulating plans for the economic recovery of Ukraine, the study of the political economy should be reinstated, and unwarranted scientific judgments about the role of large enterprises, small and medium-sized businesses, and the role of the state should be discarded.

Academician of the National Academy of Sciences of Ukraine B. Danilishin (2022) notes that pushing the state out of the economy is unreasonable and inefficient. According to the World Bank, the share of the state sector in poor countries is up to 20%, in middle countries – 20-30%, in developed countries 30-40%. The so-called "Asian tigers" had a state share of more than 40% in the economy during the years of rapid growth. Therefore, the desire of officials to privatize everything in Ukraine is not productive.

According to McKinsey Global Institute (Danilyshyn, 2022) out of 70 countries surveyed, 7 countries where the share of large businesses (assets exceeding $1 billion) has been twice the average of the median share of countries over the last 50 years have been the most successful. It is large enterprises that form "long technology chains" – "science – design – pilot production – mass production – logistics – trade", replacing the chaos of competition with planned production within ARD.

It is difficult to expect significant breakthrough technology from small businesses (MB). It happens quite rarely. MB solve social functions (employment, jobs, production of medium technology goods, economy of simple things, etc.). They will be successful if, in the first years, the state does not tax them, but trains, provides them with resources, state orders, etc.

In current times, it is difficult to expect FDI to come into the country. Therefore, it is necessary to have a unifying strategy, a common ideology, and the trust of the population in the government and of the government in science. This will give hope for the population to participate in the revival of the economy, for the wealthy citizens to invest their money in the development of the country's economy.

Theoretical developments, the unification of society on the basis of generally accepted ideologies, spirituality, Faith as a component of the economy can give real positive results. It is necessary to fill material interests and incentives with spirituality.

In the book *The invisible struggle* our compatriot by birth I. I. Sikorsky wrote (1947): "The world, which relies only on the material side to the detriment of spirituality – has no future... The main cause of instability, destruction, crises should be sought in the internal deep disorder in the spiritual and material spheres of life" (Sikorski, 2004).

There are other challenges to building new models of economic transformation.

4. Conclusions

1. New models of development of transformational economies absorb the positive experience of the past, the convergence of existing models and progressive hypotheses of restructuring, spirituality, Faith and responsibility.

2. The basis of society (nation-states) are spirituality and traditional values. Man is recognized as a spiritual-bio-social subject by nature, public interests have more weight in relation to the interests of individual, egoistic, the state is an active subject of production and economic relations.

3. The new model of development should be the basis of economic revival on the principles of self-sufficiency, independence, spirituality, high technology and digitalization.

5. Directions for further research

Elaboration of mechanisms for the implementation of modern models of development in the economy and social processes of the state economy. Refinement of indicators for assessing the efficiency of modern production, focusing primarily on the real sector of the economy, natural evaluation indicators and digitalization.

References

Bregel, E. J. (1968). *Politicheskaya ekonomika kapitalizma* [The Political Economy of Capitalism]. International Relations [In Russian].

Buleev, I. P. (2020). Struktura obshchestva i sredniy klass: sostoyaniye, perspektivy razvitiya [The structure of society and the middle class: state, development prospects]. *Ekonomichnyi visnyk Donbasu*, *3*(61), 11-29 [In Russian].

Buleev, I. P. (2022). Suspilnyi podil pratsi v suchasnii ekonomitsi: stan ta napriamy rozvytku [Social division of labor in the modern economy: state and directions of development]. *Ekonomichnyi visnyk Donbassu*, *1*(67), 4-15 [In Ukrainian].

Chukhno, A. A. (2006). *Tvory.* Vol. 3 [Works. In 3 volumes]. NAS of Ukraine [In Ukrainian].

Danilyshyn, B. (2022, July 15). Yaka chastka derzhavy v ekonomitsi potribna Ukraini. Ekonomichna pravda [What share of the state in the economy Ukraine needs]. *Economichna pravda*. https://www.epravda.com.ua/rus/columns/2022/07/15/689200/index.amp [In Russian].

Einstein, A. (1949, May). Why socialism? *Monthly Review*.

Fursov, A. (2021, November 3). *16 ulovok Novogo Kapitalizma, kotorie nuzhno znat i uchitivat kazhdomu* [The Age of Oversight Capitalism. 16 tricks of the new capitalism that everyone should know and take into account]. https://www.youtube.com/watch?v=XWLj2dIUDvw [In Russian].

Galbraith, J. (1969). *Novoe industrialnoe obshchestvo* [The New Industrial Society]. Translated from English. Progress [In Russian].

Glazyev, S. (2016). *Ekonomika budushchego. Yest li u Rossii shans?* [The Economy of the Future. Does Russia Have a Chance? The economy of the future. Does Russia have a chance?]. Knizhnyy mir. https://glazev.ru/images/books/%D0%AD%D0%BA%D0%BE%D0%BD%D0%BE%D0%BC%D0%B8%D0%BA%D0%B0%20%D0%B1%D1%83%D0%B4%D1%83%D1%89%D0%B5%D0%B3%D0%BE.%20%D0%95%D1%81%D1%82%D1%8C%20%D0%BB%D0%B8%20%D1%83%20%D0%A0%D0%BE%D1%81%D1%81%D0%B8%D0%B8%20%D1%88%D0%B0%D0%BD%D1%81.pdf [In Russian].

Glushkov, V. M., & Valakh, V.M. (1981). *Chto takoe OGAS?* [What is the OHAS?]. Nauka [In Russian].

Katasonov, V. Y. (2015). *Kapitalizm. Istoriya i ideologiya "denezhnoi tsivilizatsii*" [Capitalism. History and Ideology of the "Monetary Civilisation"]. Institute of Russian Civilisation [In Russian].

Khazin, M. (2019). *Vospominanie o budushchem. Idei sovremennoi ekonomiki* [Memory of the future. Ideas of the modern economy]. Gruppa Kompanii "RIPOL klassik"/ "Sfera" [In Russian].

Konstytutsiia Ukrainy stanom na 30 veresnia 2016 roku [Constitution of Ukraine as of 30 September 2016]. Kharkiv "Pravo" [In Ukrainian].

Kulikov, D., & Sergeytsev, T. (2017). *Mirovoi krizis: Vostok i zapad v novom veke* [World Crisis. East and West in the New Century]. EKSMO [In Russian].

Lvov, D. S. (2002). *Ekonomika razvitiya* [The Economics of Development]. Examen [In Russian].

Maddison, E. (2012). *Konturi mirovoi ekonomiki v 1-2030 gg. Ocherki po makroekonomicheskoi istorii* [The contours of the world economy in 1-2030. Essays on Macroeconomic History]. Translated from English. Publishing house of Gaidar Institute [In Russian].

Mizobata, S. (2014). V poiskakh paradigmi "sravnitelnoi ekonomiki". [In Search of a "Comparative Economy" Paradigm]. *MNO Zhurnal "Mir peremen*", *3*, 22-27 [In Russian].

Mochernyi, S. V. (2000). *Yekonomichna yentsiklopediya* [Economic encyclopedia]. Vol. 1. Academia Publishing House [In Ukrainian].

Schumpeter, J. (2001). *Istoriya ekonomicheskogo analiza* [History of Economic Analysis]. Vol. 1. Translated from English. Ekonomicheskaya shkola [In Russian].

Schwab, K., & Wanham, P. (2021). *Participatory capitalism: A global economy that works for the progress of people and the planet.* Gildan Media Corporation.

Sikorski, I. I. (2004). *Nezrimaya borba* [The invisible struggle]. https://www.fatheralexander.org/booklets/russian/nevidimaia_borba_sikorskij.htm [In Russian].

Soras, J. (1999). *Krizis mirovogo kapitalizma. Otkritoe obshchestvo v opasnosti* [The crisis of global capitalism. The Open Society in Peril]. Translated from English. INFRA-M [In Russian].

Sorokin, P. A. (1997). *Glavnyye tendentsii nashego vremeni* [The Main Trends of Capitalism of Our Time]. Translated from English. Nauka [In Russian].

Stiglitz, J. (2020). *People, power and profit: Progressive capitalism in an age of mass discontent.* Alpina Publisher.

Wasserman, A. A. (2014). *Chem sotsializm luchshe kapitalizma* [What is socialism better than capitalism?]. Moscow: AST, 384 [In Russian].

Zakiyanov, D. (2020, January 23). *"Kapitalizm mertv!", ili 10 glavnykh messedzhey Davosa* [Capitalism is dead or the 10 main messages of Davos]. https://mind.ua/ru/publications/amp/20206914-kapitalizm-mertv-ili-10-glavnyh-messedzhej-davosa/ [In Russian].

Optymalne modele rozwoju społeczno-gospodarczego dla krajów przechodzących transformację gospodarczą

Streszczenie. *Celem artykułu jest analiza najbardziej rozpowszechnionych modeli rozwoju gospodarki kapitalistycznej i ich transformacji społeczno-duchowej. Poszczególne modele scharakteryzowano pod kątem wielu wskaźników, takich jak: wyznawana ideologia, stosunek do religii czy dominująca forma własności, oraz przedstawiono informacje o tym, w jakich krajach modele te zostały wdrożone i jak funkcjonują w świetle wskaźników ekonomicznych. Omówiono również różne podejścia metodologiczne do modeli ekonomicznych. Autor podkreśla potrzebę przywrócenia przedmiotu ekonomia polityczna do programów studiów ekonomiczno-społecznych w Ukrainie z myślą o przyszłym odrodzeniu gospodarczym kraju. W szczególności podkreśla rolę dużych firm w rozwoju technologicznym i kwestionuje obecną tendencję do minimalizowania zaangażowania państwa w gospodarkę. Artykuł kończy się zaleceniami autora co do sposobów ożywienia ukraińskiej gospodarki i przemysłu.*

Słowa kluczowe: *gospodarki transformacyjne, modele rozwoju, konwergencja, rola państwa w gospodarce, inwestycje, duchowość, wiara*

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 57-69
https://doi.org/10.58683/01.3001.0016.2112

Anna Kernytska

State Institution "Institute of Regional Research Named
after M.I. Dolishniy of NAS of Ukraine" , Lviv (Ukraine)
Department of Problems of Real Sector of Regions Economy
orcid.org/0000-0001-6543-7914
email: a.kernytska7@gmail.com

Current business process management trends in the Ukrainian industry

Abstract*. The digital transformation of the Ukrainian industry can contribute to the growth of the scientific and technical potential of the state and will affect its competitive position. The author evaluates the level of implementation of new technologies in the organisation of production and the use of innovative business management methods in the Ukrainian industrial sector across the country's 24 regions. The evaluation is based on the ratio between the number of industrial enterprises that implemented innovative technological, organizational, and marketing methods in a given region in the period 2016-2020 and the national average. The analysis conducted for the period 2016-2020 reveals positive but uneven changes. Several institutional, financial and infrastructural obstacles are identified, which require a balanced and effective state policy at all management levels and interaction between all representatives of society.*

Keywords*: the industrial sector, business process, technological management methods, organizational management methods, marketing management methods*

1. Introduction

Technological modernization of industry based on the concepts of "Industry 4.0", "Smart Manufacturing," "Digital Manufacturing", "Internet of Manufacturing", and "Open Manufacturing" provides an active introduction of technologies for production automation and digitization, which will be managed in real-time by intelligent systems in constant interaction with the external environment. The improvement of the production process through the organization of additive manufacturing, the introduction of the Industrial Internet of Things, and the widespread use of robotics become the determining factors of the increase in production efficiency, providing additional competitive advantages and ensuring

the transition of industrial enterprises to a qualitatively new level of development. In turn, the digital transformation of the industry will contribute to the rapid accumulation of the scientific and technical potential of the state and will determine its competitive position, in particular, in national security and the population's welfare. In this connection, there is a need to monitor the region's current state from the point of view of assessing the readiness of the industrial sector for new prospects.

2. Analysis of research and publications

Complex studies of the industry digital transformation features and its role in the modernization of the industrial potential of Ukraine's economy are conducted at the institutes of the National Academy of Sciences. Thus, a group of authors of the Institute of Industrial Economics under the leadership of V. Vyshnevskyi (2019) published a monograph in which a complex of theoretical provisions, scientific and methodological approaches, and practical recommendations regarding the formation of smart industry in Ukraine are substantiated. Scientists of the Institute of Regional Research have prepared a scientific report, which outlines the potential directions of implementing the best examples of European practice in applying the smart strategizing toolkit of regional development in Ukrainian realities (Storonianska, 2021). In particular, the research work of S. Ishchuk and L. Sozansky (2022) is related to the search for ways to ensure the competitiveness of the industrial sector of the regional economy and the development of methods for evaluating the effectiveness of its functioning. T. H. Vasyltsiv (2021, pp. 119-131) assessed the state and dynamics of key parameters of knowledge-intellectual and digital development of the regions of Ukraine as one of the prerequisites for implementing smart specialization. In addition, the leading researcher of the industrial policy department of the Institute of Economics and Forecasting, I. Ianenkova (2017), highlighted the fundamental points of the digital transformation of Ukraine's industry.

Paying tribute to the existing scientific developments, it is worth noting that the business process management system in the regional industrial sector should be oriented both to the constant introduction of new technologies and to ensure the identification, implementation, and development of the intellectual potential of the population that is involved in the functioning of industry and lives in the region. The implementation of these tasks is embedded in the concept of subject-oriented management, which was proposed in the 2000s for the management of an enterprise's business processes (Fleischmann, 2010). In particular, the introduction of subject-oriented management involves the implementation of large-scale organizational innovations associated with changes in the organizational structure

and organizational culture of industrial enterprises. The goal of transformations in the organizational structure is to create a flat organizational structure based on dynamically reconfigured command processes. Changes in corporate culture are aimed at forming the motivation of employees of enterprises to regularly identify the causes of inefficient execution of processes and independently search for ways to solve them, as well as to ensure monitoring and a high level of satisfaction of customer needs (Buchwald, 2010). In this regard, the statistical indicators that will allow evaluating the application effectiveness of new methods of production organization (new technologies), organizational and marketing methods of managing business processes in the industrial sector of the region can be indicators of the specific weight of enterprises that carried out innovative approaches, as well as indicators specific weight of enterprises that implemented organizational and marketing innovations. Therefore, the purpose of the article is to determine modern trends in the application of new methods of business process management in the industrial sector of the regions of Ukraine.

3. Results of the research

Thus, process innovation is the introduction of a new or significantly improved way of producing or delivering a product, which involves significant changes in technology, production equipment, and/or software (State Statistics Service of Ukraine, 2022). In particular, according to the data in the Table 1, we can conclude that during 2014-2020, a generally positive trend regarding implementing innovative processes in the industrial sector of the regions of Ukraine was outlined. If in 2014-2016, there were only 4 such regions, i.e., the overwhelming minority (16.67%), and 3 regions had a nationwide level of implementation of process innovations; in 2016-2018, the number of regions with a high level increased to 7, and to 6 regions with an average level; then in 2018-2020, the number of regions, where the specific weight of the number of enterprises that implemented process innovations, increased to 16, which made up the vast majority of them (66.67%). At the same time, in 2014-2020, the group with a high level of implementation of innovative processes consistently included Kharkiv and Ternopil regions, in 2016-2020 – Ivano-Frankivsk, Kirovohrad, and Zakarpattia regions. It is noteworthy that the Lviv and Zaporizhzhya regions in 2016-2018 partly lost their high positions – they moved to groups with a medium and low level of application of process innovations, but in the following years, they recovered them. In contrast, the rating of the Zhytomyr region in 2016-2018, in relation to the relative number of enterprises implementing innovative processes, was high, and in 2018-2020, the value in the region relative to the average value in the country decreased to the smallest. It should be noted that in 2014-2020, the industrial enterprises of the

Table 1. Grouping of regions of Ukraine according to the specific indicator of the number of enterprises that implemented innovative processes

Years 2014-2016		Years 2016-2018		Years 2018-2020	
Donetska	0.51	Chernivtsi	0.32	Zhytomyr	0.56
Zakarpattia	0.51	Rivne	0.34	Donetska	0.64
Poltava	0.57	Chernihiv	0.56	Kherson	0.81
Luhansk	0.65	Vynnytsia	0.72	Volyn	0.85
Khmelnytsk	0.72	Odesa	0.73	Cherkassy	0.89
Cherkassy	0.73	Khmelnytsk	0.76	Odesa	0.92
Volyn	0.77	Donetska	0.8	Khmelnytsk	0.96
Dnipropetrovsk	0.77	Zaporizhzhia	0.83	Luhansk	0.99
Chernihiv	0.78	Cherkassy	0.88	Poltava	1.08
Rivne	0.79	Poltava	0.90	Kyiv	1.09
Vynnytsia	0.81	Mykolaiv	0.91	Kyrovohrad	1.10
Kyrovohrad	0.81	Kherson	0.96	Rivne	1.11
Chernivtsi	0.81	Sumy	0.98	Dnipropetrovsk	1.15
Ivano-Frankivsk	0.83	Dnipropetrovsk	0.99	Mykolaiv	1.16
Kyiv region	0.91	Kyiv	0.99	Chernihiv	1.17
Kherson	0.91	Lviv	0.99	Sumy	1.19
Mykolaiv	0.93	Luhansk	1.01	Zakarpattia	1.23
Zhytomyr	0.95	Ivano-Frankivsk	1.11	Lviv	1.23
Sumy	0.95	Volyn	1.12	Chernivtsi	1.27
Odesa	0.98	Zhytomyr	1.14	Vynnytsia	1.29
Ternopil	1.17	Zakarpattia	1.23	Kharkiv	1.29
Zaporizhzhia	1.22	Kharkiv	1.62	Zaporizhzhia	1.57
Lviv	1.23	Kyrovohrad	1.66	Ivano-Frankivsk	1.95
Kharkiv	2.10	Ternopil	1.74	Ternopil	2.20

First group – low level of implementation of innovative processes ($K < 1.0$).
Second group – medium level of implementation of innovative processes ($K \approx 1.0$).
Third group – high level of implementation of innovative processes ($K > 1.0$).

Note. The normalized coefficient ($K_{inn.pr.}$) was calculated by comparing the value of the specific indicator of the number of enterprises that implemented innovative processes in the region to the particular indicator of the number of enterprises that implemented innovative processes in Ukraine.

Since 2015, the frequency of submission of form No. 1-innovation has been changed from "annual" to "once every two years", so all periods were aggregated.

Source: State Statistics Service of Ukraine (2022).

Sumy region managed to realize their potential for the implementation of process innovations, and in 2016-2020 – also in the Dnipropetrovsk and Kyiv regions, as evidenced by the movement of the mentioned regions in the grouping from the second group to the third. In addition, Vinnytsia, Mykolaiv, Poltava, Rivne,

Chernihiv, and Chernivtsi oblasts made a significant jump in the development of process innovations, as evidenced by a positive change in the ranking – from the first to the third group.

It is also possible to assess the effectiveness of using modern methods of managing business processes in the industrial sector of the region based on the analysis of the presence and rates of organizational and marketing innovations changes, which will allow determining the level of use of non-technological innovations at industrial enterprises. In particular, organizational innovation is the implementation of a new organizational method in enterprise (organization) activities, in the organization of workplaces, or external relations (State Statistics Service of Ukraine, 2022). Yes, the data in Table 2 show that in 2013-2020 there was an increase in the number of regions with a high level of the specific indicator of the number of industrial enterprises that implemented new organizational methods, from 8 to 12, or by 1.5 times. However, the indicated trend is uneven, since in 2016-2018, compared to 2013-2014, a two-fold decrease in the number of regions where enterprises implemented organizational innovations were recorded, and in 2018-2020, an increase in the pace of mastering new organizational methods has already been observed, which contributed to the rise in the number of regions of the third group by 3.0 times. In the analyzed period, the number of regions that are assigned to the second group (from 1 to 4), those that have a specific indicator value that corresponds to its national level, also increased. During 2013-2020, only the Zaporizhzhia region maintained its high position in the implementation of organizational innovations. From 2016-2020 such regions were Lviv and Kyiv regions. During the same period, Vinnytsia and Dnipropetrovsk regions increased their positions. Industrial enterprises of Zakarpattia, Odesa, and Ternopil regions acquired a high level of mastery of organizational innovations. Ivano-Frankivsk, Mykolaiv, Kharkiv, and Chernivtsi regions lost their positions in 2016-2018.

Marketing innovation is the introduction of a new sales method, which involves significant changes in the design or product packaging, its storage, promotion to the market, or in the assignment of the selling price, which generally contributes to better satisfaction of consumer needs, opening of new markets, or winning new market positions for the company's products to increase sales (State Statistics Service of Ukraine, 2022). Thus, based on the results of comparing the specific indicator of the number of enterprises that implemented new marketing methods in the region and the similar specific indicator in Ukraine as a whole (Table 3), it is possible to state the fact of an increase in the number of regions with a high level of implementation of marketing innovations during 2013-2020 from 9 to 14, which is 55.56%. However, as in the case of organizational innovations, in 2016-2018 there was a slowdown in the pace of implementation of marketing innovations at industrial enterprises, which caused the number of regions to decrease to 4. In addition, a second group appeared – regions with an average level of application

Table 2. Grouping of regions of Ukraine according to the specific indicator of the number of enterprises that implemented new organizational methods

Years 2013-2014		Years 2016-2018		Years 2018-2020	
Volyn	0.16	Donetsk	0.51	Volyn	0.41
Zakarpattia	0.17	Mykolaiv	0.58	Zhytomyr	0.42
Kherson	0.19	Cherkassy	0.65	Luhansk	0.56
Dnipropetrovsk	0.21	Odesa	0.71	Poltava	0.64
Khmelnytsk	0.24	Rivne	0.71	Kherson	0.67
Kyiv	0.30	Poltava	0.72	Donetsk	0.79
Cherkassy	0.37	Luhansk	0.78	Kyrovohrad	0.83
Poltava	0.39	Chernivtsi	0.78	Cherkassy	0.88
Lviv	0.60	Zhytomyr	0.80	Chernihiv	0.95
Donetsk	0.72	Khmelnytsk	0.83	Sumy	0.99
Odesa	0.72	Volyn	0.89	Rivne	1.00
Rivne	0.72	Chernihiv	0.90	Khmelnytsk	1.02
Ternopil	0.72	Zakarpattia	0.91	Kharkiv	1.06
Vynnytsia	0.80	Kherson	0.91	Vynnytsia	1.08
Luhansk	0.84	Kharkiv	0.92	Odesa	1.08
Zhytomyr	1.03	Ivano-Frankivsk	0.94	Dnipropetrovsk	1.17
Mykolaiv	1.22	Ternopil	0.94	Zaporizhzhia	1.26
Chernihiv	1.22	Vynnytsia	0.96	Lviv	1.26
Chernivtsi	1.41	Dnipropetrovsk	1.02	Zakarpattia	1.33
Ivano-Frankivsk	1.44	Sumy	1.03	Mykolaiv	1.4
Sumy	1.49	Zaporizhzhia	1.06	Ivano-Frankivsk	1.48
Kharkiv	1.68	Kyrovohrad	1.06	Chernivtsi	1.51
Zaporizhzhia	2.32	Lviv	1.12	Kyiv	1.56
Kyrovohrad	2.87	Kyiv	1.17	Ternopil	1.90

First group – low level of new organizational methods ($K < 1.0$).
Second group – medium level of new organizational methods ($K \approx 1.0$).
Third group – high level of new organizational methods ($K > 1.0$).

Note. The normalized coefficient (K_{org}) was calculated by comparing the value of the specific indicator of the number of enterprises that implemented new organizational methods in the region to the specific indicator of the number of enterprises that implemented new organizational methods in Ukraine.

Since 2015, the frequency of submission of form No. 1-innovation has been changed from "annual" to "once every two years", so the periods "2016-2018" and "2018-2020" are presented as grouped. The indicator of the number of enterprises that implemented new organizational methods in the regions of Ukraine in 2015 was not presented by the State Committee of Statistics, and the total indicator for 2013-2014 was calculated on the basis of data from the State Committee of Statistics (State Statistics Service of Ukraine, 2022).

Source: State Statistics Service of Ukraine (2022).

of new marketing innovations methods in the practice of industrial enterprises, which served as a basis for further positive changes. For example, Dnipropetrovsk and Sumy regions in 2018-2020 moved from the second to the third group. It is also

Table 3. Grouping of regions of Ukraine according to the specific indicator of the number of enterprises that implemented new marketing methods

Years 2013-2014		Years 2016-2018		Years 2018-2020	
Luhansk	0.19	Donetsk	0.51	Volyn	0.35
Dnipropetrovsk	0.26	Mykolaiv	0.58	Donetsk	0.56
Zakarpattia	0.27	Cherkassy	0.65	Zhytomyr	0.59
Khmelnytsk	0.29	Odesa	0.71	Luhansk	0.78
Kyiv	0.36	Rivne	0.71	Odesa	0.81
Rivne	0.46	Poltava	0.72	Poltava	0.90
Cherkassy	0.49	Luhansk	0.78	Cherkassy	0.91
Volyn	0.52	Chernivtsi	0.78	Kherson	0.93
Poltava	0.55	Zhytomyr	0.8	Kyrovohrad	0.96
Kyrovohrad	0.61	Khmelnytsk	0.83	Vynnytsia	1.01
Kherson	0.61	Volyn	0.89	Mykolaiv	1.05
Donetsk	0.64	Chernihiv	0.90	Dnipropetrovsk	1.06
Chernihiv	0.70	Zakarpattia	0.91	Khmelnytsk	1.10
Vynnytsia	0.75	Kherson	0.91	Zakarpattia	1.12
Sumy	0.79	Kharkiv	0.92	Rivne	1.12
Odesa	1.15	Ivano-Frankivsk	0.94	Kharkiv	1.15
Ternopil	1.15	Ternopil	0.94	Chernihiv	1.24
Lviv	1.26	Vynnytsia	0.96	Lviv	1.26
Zhytomyr	1.46	Dnipropetrovsk	1.02	Kyiv	1.49
Mykolaiv	1.56	Sumy	1.03	Sumy	1.52
Chernivtsi	1.62	Zaporizhzhia	1.06	Zaporizhzhia	1.56
Kharkiv	1.78	Kyrovohrad	1.06	Ivano-Frankivsk	1.59
Ivano-Frankivsk	2.08	Lviv	1.12	Chernivtsi	1.61
Zaporizhzhia	2.16	Kyiv	1.17	Ternopil	2.93

First group – low level of implementation of new marketing methods ($K < 1.0$).
Second group – medium level of implementation of new marketing methods ($K \approx 1.0$).
Third group – high level of implementation of new marketing methods ($K > 1.0$).

Note. The normalized coefficien (K_m) was calculated by comparing the value of the specific indicator of the number of enterprises that implemented new marketing methods in the region to the particular indicator of the number of enterprises that implemented new marketing methods in Ukraine.

Since 2015, the frequency of submission of form No. 1-innovation has been changed from "annual" to "once every two years", so the periods "2016-2018" and "2018-2020" are presented generally. The indicator of the number of enterprises implementing new marketing methods in the regions of Ukraine in 2015 was not presented by the State Committee of Statistics, and the total indicator for 2013-2014 was calculated on the basis of data from the State Committee of Statistics (State Statistics Service of Ukraine, 2022).

Source: State Statistics Service of Ukraine (2022).

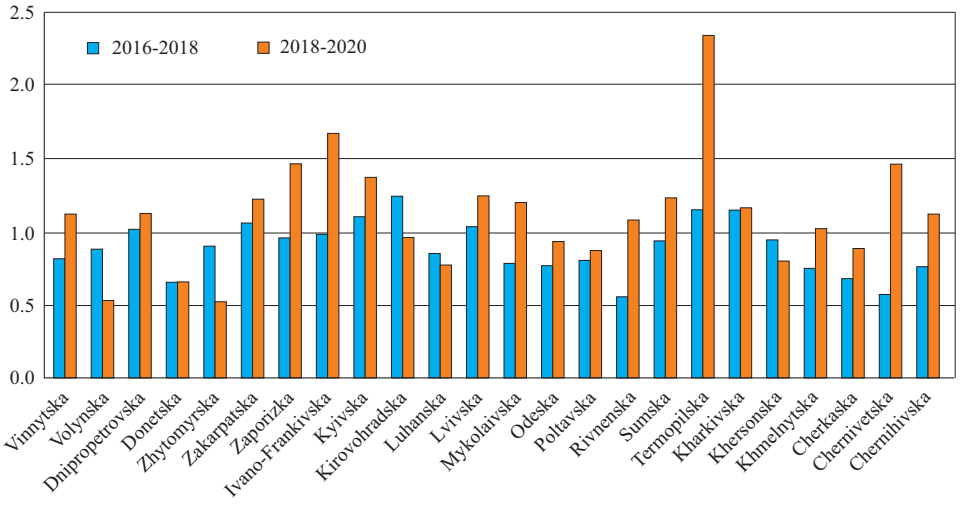
notable that for eight years, high positions in the grouping of Ukrainian regions according to the specific indicator of the number of enterprises implementing new marketing methods were held by Zaporizhzhya and Lviv regions, and for five

years by the Kyiv region. From 2016-2020, the Kirovohrad region somewhat lost its high position, and the Vinnytsia region had a stable average level.

The overall assessment of the effectiveness of using the above-mentioned business process management methods in the industrial sector for each region (K_{ave}) will be determined on the basis of the arithmetic mean of the normalized coefficients of indicators characterizing the level of implementation of technological ($K_{inn.pr.}$) and non-technological innovations (K_{org}; K_{m}) (Chart 1).

Therefore, in 2016-2020 the Ukrainian economy has seen an increase in the number of regions with a high level of application of process, organizational and marketing innovations in the activities of industrial enterprises. Thus, in 2018-2020 there were 2.33 times more such regions than in 2016-2018. The group with a high level of innovation implementation both in 2016-2018 and in 2018-2020 included Zakarpattia, Lviv, Kyiv, Ternopil and Kharkiv regions. Activation of innovation processes is observed in Rivne and Chernivtsi regions, which had the last ranking positions in 2016-2018. In addition, in 2018-2020, Chernihiv, Vinnytsia, and Sumy regions, which in the previous period had indicators below the national average, joined the group with a high level of implementation of technological and non-technological innovations. The innovativeness of the industrial production of enterprises in the Dnipropetrovsk, Ivano-Frankivsk, and Zaporizhia regions was strengthened, as evidenced by the increase in the level of the specific indicator of the number of industrial enterprises that implemented the specified types of innovation, from the national average to the high level.

Chart 1. The level of assimilation of technological, organizational, and marketing methods of business process management in the industrial sector of the regions of Ukraine in 2016-2020 (based on K_{ave})



Source: calculated and built by the author.

In general, it should be concluded that the assimilation of technological, organizational, and marketing methods of managing business processes in the industrial sector of the regions of Ukraine during 2016-2020 is taking place with positive dynamics but unevenly. In particular, in 2018-2020 the three leading regions are Ternopilska (K_{ave} = 2.34), Ivano-Frankivsk (K_{ave} = 1.67), Zaporizhzhya (K_{ave} = 1.46) and Chernivtsi (K_{cep} = 1.46) regions. The outsider regions were Zhytomyr (K_{ave} = 0.52), Volynska (K_{cep} = 0.54) and Donetska (K_{ave} = 0.66) regions. At the same time, the aggregate indicator for the Ternopil region several times exceeds not only the aggregate indicators of the regions with the last positions in the rating but also significantly exceeds the aggregate indicators of the regions of the third group to which it belongs.

4. Conclusions

Therefore, based on the results of research, it is possible to assert the existence of significant interregional disparities in the assimilation of technological, organizational and marketing methods of managing business processes in the industrial sector of the regions of Ukraine in 2016-2020, which is due to the presence of problems of an institutional, financial, informative, infrastructural nature.

In particular, for many years, Ukraine has not had effective development strategies in the field of innovation, digitalization, industry, development of small and medium-sized enterprises (SMEs), etc., which would be recognized and supported not only by domestic innovators, but also by foreign expert communities. For example, in 2021, the "National Economic Strategy 2030" was adopted (Natsionalna ekonomichna stratehiia iz zminamy, vnesenymy zghidno z Postanovoiu KM, no. 202 vid 10.03.2021). However, as noted by domestic experts, it contains only some specified aspects and is more declarative than practical (Iurchak, 2022). The lack of a clear line of strategic behavior and real mechanisms for the implementation of strategies for the development of the country's economy and its sectors led to the fact that starting from 2014 to the present, the level of innovation production in Ukraine relative to European countries has a downward trend. Thus, according to the "European Innovation Scoreboard" report, during 2014-2021, the total innovation index decreased by 5 points (from 39 in 2014 to 34 in 2021) against the background of a 12.5% increase in the innovation efficiency of the EU in 2021 compared to 2014.

The lack of a clear line of strategic behavior in the development of the industrial sector determines the presence of different goals and priorities of stakeholders in the innovative development of industry in the regions. Thus, investors mainly implement strategies for quick payback of investments in simple high replicated

innovations in those sectors of the economy in which innovative infrastructure does not require significant capital investments. In this regard, innovations in trade, finance, health care, and automation of business processes in any sphere were widely used at the level of software development. At the same time, the share of startups in the industrial segment is no more than 5-10% (Ohliad ekosystemy startapiv Ukrainy, n.d.). This state of affairs is explained, among other things, by the complexity and uniqueness of innovative solutions, which is due to the technological features of production and requires several years to acquire the capacity for industrial application. Therefore, innovations in the industrial sector almost do not meet the criteria of scalability and high replication. They ensure the return of capital in the long term, which does not attract most private investors, and thus inhibits industrial development based on innovation.

The high risk of financing is one of the main obstacles to the innovative development of the industrial sector. At the same time, there are real innovation support funds in Europe, particularly the "Horizon 2020" program with a science-intensive development fund of more than 100 billion euros, the "I4MS" subprogram for digitization of industrial SMEs, etc. However, units of Ukrainian SMEs participate in such competitions. In contrast, the number of SMEs from neighboring countries in Eastern Europe is ten times greater. For example, only 79 domestic SMEs participated in the Horizon 2020 program in 2014, while there were 520 Polish and 378 Czech participants (Iurchak, 2022). Therefore, solving the problem of the lack or insufficiency of financial funds for the implementation of innovation and investment projects in the industrial sector is connected, among other things, with increasing the effectiveness of information support for industrial SMEs regarding the available financial opportunities in particular, the promotion of innovation funds and grants. In addition, the mechanism of assimilation of financial resources, and the formation of demand for innovations in SMEs, need to be improved, since in 2014 only large enterprises were recorded among the top winners of various competitions.

Fragmentation of the state's efforts in implementing strategic development of the industrial sector on an innovative basis did not contribute to the strengthening of relevant institutions and infrastructure. So, on the one hand, state support for the implementation of startups through the creation of the Ukrainian Startup Fund, more than 10 separate incubators and accelerators, as well as the Lviv School of Startups made it possible to promote many innovative initiatives. On the other hand, special stands were not organized in Ukraine, where it is possible to test and experiment with complex modern technologies for industry, which would allow industrial SMEs to demonstrate the practical application of innovative solutions, the possibility of reducing risks in their prototyping and testing. They would also contribute to the formation of trust relations between all parties interested in implementing startups. For example, in Ukraine, there are only 3 special Centers

of applied expertise, in particular, Digital Innovation Hubs, while in the EU, there are more than 600 (Iurchak, 2022). Therefore, the presence of only innovative ideas and highly qualified IT specialists along with morally and physically outdated or generally undeveloped innovative infrastructure did not significantly change the national industrial sector and the economy. As a result, on the global map of startups in 2021, Ukraine ranks 12th in Eastern Europe and 50th in the world. At the same time, only Kyiv (93rd place), Odesa (742nd place), Lviv (749th place) and Kharkiv (855th place) made it to the 1000 best cities in the world (Ohliad ekosystemy startapiv Ukrainy, n.d.). Therefore, increasing the activity of SMEs in the implementation of industrial innovations requires the consolidation of efforts of all actors in innovation development and the adoption of a single digital or innovation strategy at the state level with a practical mechanism for its implementation in the regions.

The insufficient level of support for the development of industry innovations is observed not only by state and regional authorities but also by international institutions. As noted by the Association of "Industrial Automation Enterprises of Ukraine" (APPAU), international donors do not pay due attention to the activities of Ukrainian institutions of civil society ("Asotsiatsiia 'pidpryiemstv promyslovoi avtomatyzatsii Ukrainy'", n.d.). Thus, since 2016, APPAU has been attracting funds from international donor organizations to develop domestic Industry 4.0, particularly from international organizations such as OSCE, EU (Horizon 2020 / EaP Plus programs), USAID, GIZ, UNDP, UNIDO. During this period, APPAU completed more than 10 projects of various levels in such areas as the development of strategies and individual provisions of Industry 4.0 and industrial development, development of Centers 4.0, standardization, clustering, smart specialization, improvement of international cooperation, etc. At the same time, during 2016-2021, the portfolio of investment and innovation projects of Ukrainian Industry 4.0 turned out to be underfunded due to the lack of coordination of relevant policies at the level of the Ukrainian government and their integration into a single strategy. In fact, only UAH 6 million was received from the required amount of UAH 30 million for the implementation of the 2019-2021 strategy projects, so many of the APPAU mini-projects were implemented with their own funds.

Thus, despite the positive developments in some regions regarding the introduction by enterprises of new technological, organizational, and marketing methods in the industrial sector, there is an urgent need to form an effective state policy of digitization of the economy and an effective mechanism for its implementation at all levels of management: national, branch and regional (territorial). At the same time, an important aspect is the establishment of a mutually beneficial partnership between representatives of business, authorities, scientific and technical institutions, and the public.

References

Asotsiatsiia "pidpryiemstv promyslovoi avtomatyzatsii Ukrainy". (n.d.). *Donoram* [Donors], https://appau.org.ua/donors/ [In Ukrainian].

Buchwald, H. (2010). The power of as-is processes. In: Buchwald, H., Fleischmann, A., Seese, D., Stary, C. (Eds.), *S-BPM ONE – Setting the stage for subject-oriented business process management* (pp.13-23). Springer-Verlag. https://doi.org/10.1007/978-3-642-15915-2_2

Fleischmann, A. (2010). What is S-BPM? In: Buchwald, H., Fleischmann, A., Seese, D., Stary, C. (Eds.), *S-BPM ONE – Setting the stage for subject-oriented business process management* (pp. 95-106). Springer-Verlag. https://doi.org/10.1007/978-3-642-15915-2_7

Ianenkova, I. H. (2017). Tsyfrova transformatsiia promyslovosti Ukrainy: kliuchovi aktsenty [Digital transformation of Ukrainian industry: key highlights]. *Problemy ekonomiky*, *4*, 179-184 [In Ukrainian].

Ishchuk, S. O., & Sozanskyi, L. Y. (2022). Metodychnyi pidkhid do kompleksnoho otsiniuvannia funktsionuvannia promyslovoho sektoru ekonomiky na mezorivni [A methodical approach to the comprehensive evaluation of the functioning of the industrial sector of the economy at the meso level]. *Rehionalna ekonomika*, *1*, 62-71 [In Ukrainian].

Iurchak, O. (2022). *Innovatsiinyi rozvytok v promyslovosti – shcho maie zminyty viina?* [Innovative development in industry – what should war change?]. https://www.industry4ukraine.net/publications/innovaczijnyj-rozvytok-v-promyslovosti-shho-maye-zminyty-vijna/[InUkrainian].

Natsionalna ekonomichna stratehiia iz zminamy, vnesenymy zghidno z Postanovoiu KM, no. 202 vid 10.03.2021 [National economic strategy with changes introduced in accordance with Resolution of the Cabinet of Ministers No. 202 dated 10.03.2021], 2021. https://zakon.rada.gov.ua/laws/show/179-2021-%D0%BF#n25 [In Ukrainian].

Ohliad ekosystemy startapiv Ukrainy. (n.d.). [Overview of the startup ecosystem of Ukraine]. https://www.startupblink.com/startup-ecosystem/ukraine [In Ukrainian].

State Statistics Service of Ukraine (2022). http://www.ukrstat.gov.ua [In Ukrainian].

Vasyltsiv, T. H. (2021). Intelektualizatsiya ta tsyfrovizatsiya rehional′noho rozvytku u fokusi novykh perspektyv smart-spetsializatsiyi [Intellectualization and digitalization of regional development in the focus of new perspectives of smart specialization]. In: I. Z. Storonianska (Ed.), *Terytorialnyi rozvytok i rehionalna polityka. Stymuliuvannia rozvytku rehioniv na zasadakh smart-spetsializatsii: Bariery ta mekhanizmy implementatsii* [Territorial development and regional policy. Stimulating the development of regions on the basis of smart specialization: barriers and implementation mechanisms]. Instytut rehional′nykh doslidzhen′ imeni M. I. Dolishn′oho NAN Ukrayiny [In Ukrainian].

Vyshnevskyi, V.P. (Ed.) (2019). *Smart-promyslovist: Napriamy stanovlennia, problemy i rishennia* [Smart industry: directions of formation, problems and solutions]. NAN Ukrayiny, In-t ekonomiky prom-sti [In Ukrainian].

Aktualne trendy zarządzania procesami biznesowymi w sektorze przemysłowym Ukrainy

Streszczenie. *Transformacja cyfrowa ukraińskiego przemysłu może przyczynić się do wzrostu potencjału naukowo-technicznego państwa i wpłynąć na jego pozycję konkurencyjną. Autorka dokonuje oceny poziomu wdrożenia nowych technologii w organizacji produkcji oraz wykorzystania innowacyjnych metod zarządzania przedsiębiorstwem w ukraińskim sektorze przemysłowym w 24 regionach kraju. Podstawą oceny jest stosunek liczby przedsiębiorstw przemysłowych, które wdrożyły innowacyjne metody technologiczne, organizacyjne i marketingowe w danym regionie, do*

średniej krajowej. Analiza przeprowadzona dla okresu 2016-2020 wskazuje na pozytywne, ale nierównomierne zmiany. Zidentyfikowano wiele przeszkód instytucjonalnych, finansowych i infrastrukturalnych, które wymagają zrównoważonej i efektywnej polityki państwa na wszystkich szczeblach zarządzania oraz współdziałania wszystkich przedstawicieli społeczeństwa.

Słowa kluczowe: *sektor przemysłowy, proces biznesowy, technologiczne metody zarządzania, metody zarządzania organizacją, marketingowe metody zarządzania*

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 71-80
https://doi.org/10.58683/01.3001.0016.2113

Tetyana Korytko

Institute of Industrial Economics
of National Academy of Sciences
of Ukraine, Kyiv (Ukraine)
Department of Enterprise Economy Problems
orcid.org/0000-0002-4251-1971
email: taniakorytko@gmail.com

Samira Piletska

National Aviation University, Kyiv (Ukraine)
Department of Air Transport Economics
orcid.org/0000-0002-3638-3002
email: 0508486185@ukr.net

Olha Bohutska

Institute of Industrial Economics of National Academy
of Sciences of Ukraine, Kyiv (Ukraine)
Department of Economic Problems
orcid.org/0000-0003-3088-6079
email: bogutsk.ol@gmail.com

A mechanism for managing the innovation potential of enterprises in the digital economy

Abstract*. The article focuses on factors that can improve the innovation potential of Ukrainian enterprises. The Ukrainian economy is undergoing a transformation towards a model of development based on innovation in an effort to strengthen the position of the national industry so that it can compete with foreign manufacturers. It is therefore necessary to look for ways to improve efficiency and create competitive advantage in the form of innovative products and services. The authors use various international indicators and indices to assess the level of innovation of the Ukrainian economy and propose a conceptual model of a mechanism for managing the innovation potential of industrial enterprises. The model is based on methodological principles and includes various organizational and economic tools of influence.*

Keywords*: management mechanism, innovations, innovative potential, digital economy, digitalization, industrial enterprises, innovative activity*

1. Formulation of the problem

Digital technologies are penetrating all aspects of life, a process called digitization and becoming a defining trend over the next decade. Of course, such technologies open up significant opportunities for public administration, business,

science, education, and people's lives. Digitalization, by changing the rules of the game, poses many challenges and alternative solutions to countries, businesses and people around the world.

Enterprises, in modern conditions, are faced with the process of digital transformation, which will lead to the complete transformation of domestic enterprises into completely different structures that will become new players in competitive markets, based on new, economic and managerial principles that will dictate digital technologies (Korytko & Kruk, 2015).

If earlier the increase of competitiveness could be based on gradual increase of efficiency and introduction of the best branch practices, development of digital economy is based on cross-functional and cross-branch transfer of technologies and business models.

Thus, digitalization allows you to create new business models as networks, digitization of routine procedures, those that can be standardized and prescribe their algorithm will significantly increase cost efficiency.

The digital sector of the economy is based on innovative technologies created by the electronics industry. It is represented by two elements. First, it is the electronics industry, the production of microchips, computers and telecommunications devices, consumer electronics. Secondly, these are companies that provide services in the field of digital technologies and use digital means of production, storage, data management. The importance of digital sector development for national economies is confirmed by the fact that a number of countries are now implementing comprehensive and large-scale programs aimed at developing digital sectors of their economies, creating new jobs in these areas, increasing the competitiveness of electronics and IT technologies.

The mutual influence of digitalization processes and innovation potential is quite multilingual. The development of innovation continues to be one of the most important areas of economic system reform in terms of digitalization of the economy. The low level of innovation potential does not allow to start a successful process of digitalization, at the same time the introduction of digital technologies gives a significant impetus to the growth of innovation potential.

2. Analysis of publications of the problem

A lot of attention is paid to the problems of implementation and management of innovative activities of domestic enterprises in modern economic conditions, including the issues of formation and management of innovative potential, these problems are most thoroughly researched in the scientific works of such domestic economists as: Amosha & Salomatina (2017), Aleynikova (2018), Bryukhovetska & Chernykh (2020), Buleev & Bryukhovetskaya (2019); Koyuda & Lysenko (2010), Sorescu & Spanjol (2008), Tabas & Beranová (2014).

The problems of identifying the main drivers of digitalization of the economy and their importance for social development are revealed in the scientific works of well-known foreign scientists, among which we highlight the works of Bryukhovetska & Chernykh (2020), Karcheva et al. (2017); Kolyadenko (2016); Kraus (2018); Lyashenko & Vishnevskyi (2018).

In view of all the circumstances, the purpose of the article is to determine the problems associated with improving the mechanism of managing the innovative potential of enterprises in the conditions of digitalization.

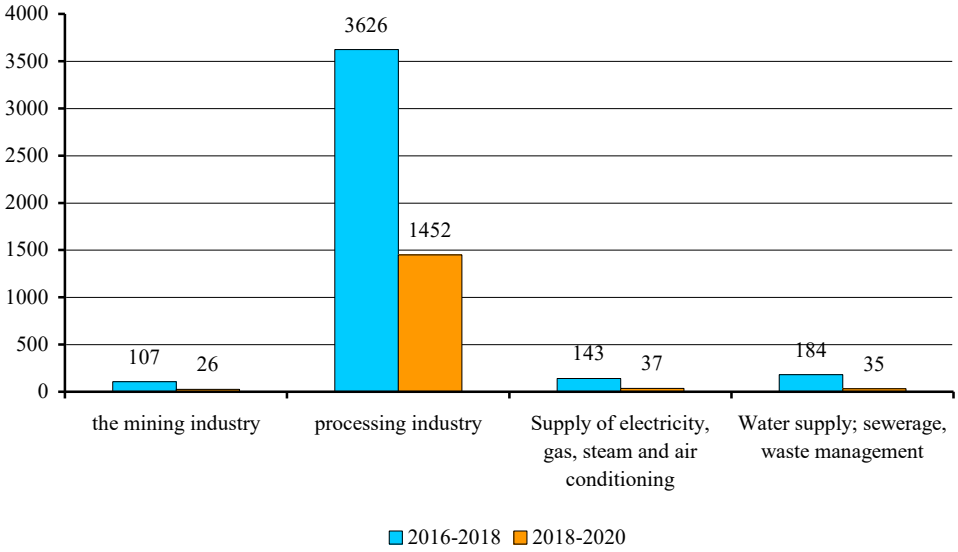
3. Main results of the study

In modern conditions, the innovation process is non-linear. The main difference is in the choice of reference point – market or technology, but it still includes all stages scientific and design works. Chart 1 shows the number of innovative active enterprises by type of economic activity in Ukrainian in 2016-2020.

The main indicators of the introduction of innovations at industrial enterprises of Ukraine in 2015-2020 (Chart 2).

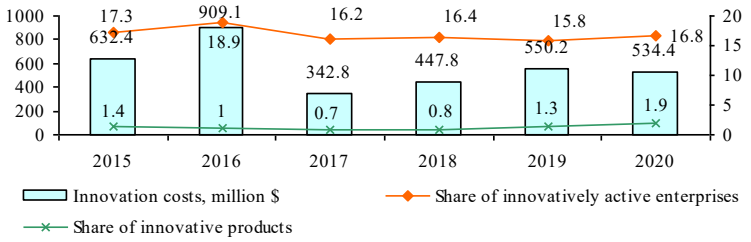
During the period 2015-2020, the share of enterprises engaged in innovative activities decreased (from 17.3% in 2015 to 15.8% in 2019), in 2020 there was

Chart 1. Number of innovative active enterprises by types of economic activity in Ukrainian in 2016-2020



Source: based on the data Naukova ta innovatsiina diialnist Ukrainy (2020).

Chart 2. The main indicators of the implementation of innovations at industrial enterprises of Ukraine in 2015-2020



Source: based on the data Naukova ta innovatsiina diialnist Ukrainy (2020).

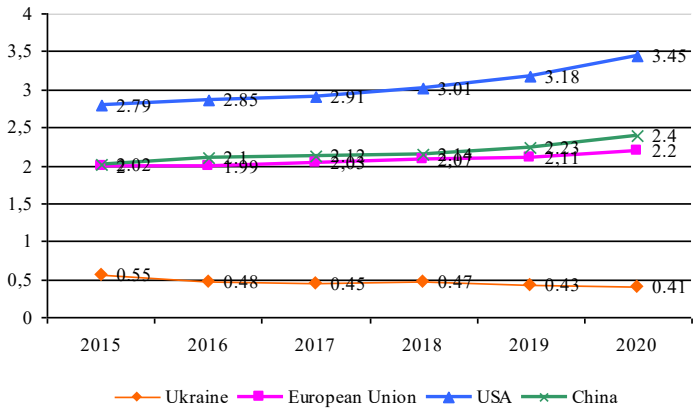
an increase in the indicator to 16.8% of innovation during this period there is an upward trend.

In 2015-2020, the volume of expenditures on innovation in Ukrainian decreased by 15.50% – to $ 534.4 million, while in 2016 there was a sharp increase in innovation spending to $ 909 million and a subsequent decrease to $ 342.8 million. 2017 p.

The total expenditures of the state budget of Ukraine in 2021, aimed at financing the scientific sphere under 42 budget programs by 22 main administrators, amounted to UAH 12171.01 million, of which from the general fund – UAH 9551.92 million (78.48% of the financed amount), from the special fund – UAH 2619.09 million (21.51%).

The share of the volume of expenditures of the general fund on the scientific sphere of GDP in 2021 was 0.17% (in 2020 – 0.18%) (Chart 3).

Chart 3. Dynamics of the share of expenditures on scientific research and development in GDP in 2011-2020, %



Source: calculated and compiled by the authors based on data European Innovation Scoreboard 2021.

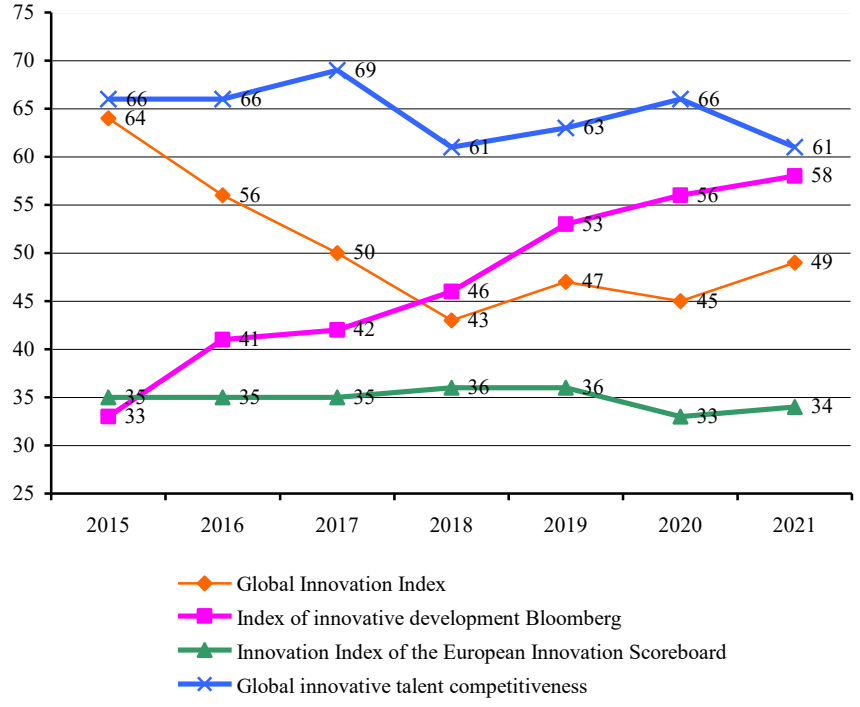
The indicator of the share of expenditures for the fulfillment of research work in GDP in Ukrainian is much lower compared to the member countries of the Organization for Economic Cooperation and Development (OECD), where this indicator is much higher and growing in dynamics. In the long term, a decrease in the share of research work costs in GDP has a negative impact on the competitiveness of the economy and its growth.

One of the problems of innovative development is a significant gap between Ukraine and the developed countries of the world (according to the *Global Innovation Index* Ukraine is in 49th place in 2021, see: European Innovation Scoreboard 2021) (Chart 4).

Unsatisfactory position Ukraine holds in the ranking of innovative economies, which has been compiled by Bloomberg agency for nine years. In 2021 it ranks 58th out of 60 countries and it should be admitted that the situation has been worsening lately (Bloomberg, 2022).

According to the results of the analysis of indicators of the European Innovation Scoreboard for 2021 it is possible to assert that the innovation potential of Ukraine makes 34 points out of 180 possible (European Innovation Scoreboard, 2021).

Chart 4. Ukraine's place in international credit ratings reflecting innovative development



Source: Dutta et al. (2021).

At present the innovation-technological activity in Ukrainian is low. Thus, the average number of enterprises with technological innovations in the regions of the country in 2015-2020 is 91 units. The highest values are observed only in the seventh regions (Kyiv, Kharkiv, Dnipro, Odessa, Zaporizhzhya, Lviv and Kyiv regions).

Ukraine's economy is focused on the production of traditional industrial products with low gross value added, sold in saturated, unpromising markets for further development. The technological gap between Ukraine and developed countries is annually aggravated. Elimination of the gap requires systemic changes in the methods of state regulation of economic development, education, formation of an innovative model of high-tech development of the mechanism of management of innovation potential.

The digital economy creates additional opportunities for business development, namely, it accelerates and simplifies relations in the business environment, when through network information and technical resources, website/mobile relations one or more clicks can find a supplier, place an order, track its performance, pay for the order, give feedback and get a prompt response to the request, learn the latest scientific and technical information, attract investment resources. The digital economy expands investment, innovation opportunities. At the same time, traditional sources of investment do not lose relevance.

The digital economy expands opportunities to find and attract investment, increases the level of access to knowledge, promotes greater participation in the financing of innovation, allows a wider application of direct and indirect sources of investment, contributes to the improvement of organizational support of the investment market.

Digitalization of the innovation process, which takes place in the context of network interaction, involves the direct application of digital technologies, as well as solutions for searching, creating, processing, exchanging and transmitting information of various kinds, financial transactions between project partners. Information about the available results of innovation, which can be used in your own business or project, as well as the search for potential partners and investors, should be posted on thematic forums, exhibitions and discussion platforms.

The organization of communications and interactions today requires from the participants of the innovation process close and sensitive attention due to the fact that it is digital communications that determine the success of its implementation.

By building horizontal links between enterprises, the state can play a major role in coordinating and synchronizing the actions of participants who are interested in the symbiotic construction of innovation. This issue is very important for Ukraine, as in the current situation for Ukrainian companies there is a high level of mistrust between business entities, which prevents the formation of horizontal ties. The state can influence the current situation by defining mandatory requirements

and standards for technological solutions, equipment and even formats of data exchange between the participants in the digital process, thus initiating digital technological changes in the economy.

Digitalization should have a positive impact on the innovation potential of the national economy, creating favorable conditions for the digitalization of existing industries and the formation of new ones.

Thus, the innovation potential means a comprehensive description of the state of the individual components that have a resultant impact on the ability and readiness of the economic system and its elements to carry out innovative activities (Korytko, 2019).

Traditionally, the structure of innovation potential includes: resource, institutional and social components that reflect the basic conditions of innovation of economic entities. Informatization and digitalization lead to a change in the perception of the innovation potential of the economy and its component, adding to this list the technological component (information and communication technology), which becomes the basis, one of the key conditions for innovation. the task of technological breakthrough in these conditions becomes completely unattainable without sufficient development and implementation of digital technologies.

4. Results and discussion

The management of the innovation potential of industrial enterprises contributes to the formation of the necessary conditions for their innovation activities, as it strategically determines efforts to create innovative products, works, services, processes and technologies based on the development and adjustment of the key areas of enterprises in accordance with external and internal conditions.

The process of managing the innovation potential of industrial enterprises is inextricably linked to the organizational and economic management mechanism that ensures this process. In this regard, there is a need to develop an effective organizational and economic mechanism for managing the innovation potential of enterprises, which will effectively use all the resources and capabilities of enterprises to implement the innovation process.

The following conceptual model of enterprise investment potential management mechanism is suggested (Figure 1).

This mechanism is organizational and methodological support of management. The principles of the mechanism determine the theoretical and practical basis for its action. Functions reflect the external display of mechanism properties in the system of the relations arising in the course of management. Methods characterize ways of influence of the mechanism on management processes. Technol-

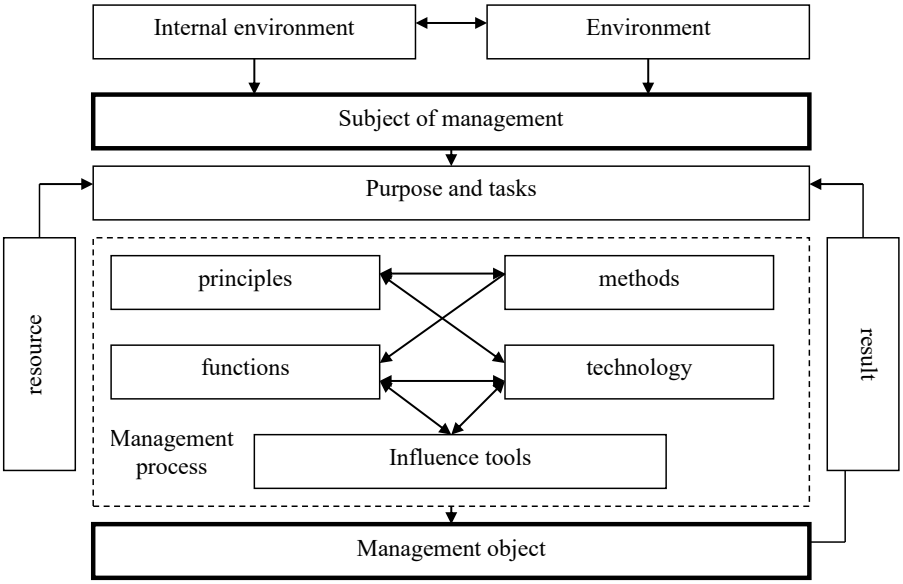


Figure 1. Conceptual model of the mechanism for managing the innovative potential of an industrial enterprise

Source: developed by the authors.

ogies represent an indirect reflection of methods and are a set of means, processes, operations, by means of which the management process is realized.

The mechanism is realized through tools of influence – a set of actions of this or that tool. There are organizational and economic tools of influence. Organizational tools include elaboration of development strategies, organization of implementation of various programs and projects, creation of investment attractiveness, etc. Economic impacts include budgeting, financing, auditing, outsourcing, price regulation, etc.

Thus, according to the presented conceptual model, we will consider the mechanism of management of industrial enterprises innovation potential as a system of management of their innovation potential, which includes a set of principles, functions, methods, technologies and connections between them, as well as ways of their influence in order to improve the implementation. of this process.

5. Conclusion

The mechanism of management of industrial enterprises innovation potential is a system of tools and processes of influence, which are used in practice to obtain innovative results. It should be noted that only the effective and scientifically

valid use of various tools of influence will allow to have the necessary influence on the innovation process and to ensure the desired results in the process of digitalization.

Thus, the implementation of the mechanism of innovation potential management of the industrial enterprise allows the structure to adapt to the conditions of tough competition in the occupied market as much as possible, to develop existing technologies and launch new ones, to produce complex innovative products by maximizing the use of existing innovation potential, as well as its increase, which as a result increases the competitiveness of the structure.

References

Aleynikova, N. M. (2018). *Formuvannya mehanizmu ocinki vartosti akcionernih tovaristv. Dlya zdobuttya nauk* [Formation of the mechanism for assessing the value of joint-stock companies: dissertation]. Harkivskij nacionalnij ekonomichnij universitet. Harkiv [In Ukrainian].

Amosha, O. I., & Salomatina, L. M. (2017). Innovacijnij rozvitok promislovih pidpriyemstv u regionah: problemi ta perspektivi [Innovative development of industrial enterprises in the regions: problems and prospects]. *Ekonomika Ukrayini*, *3*(664), 20-34 [In Ukrainian].

Bloomberg. (2022). *The Bloomberg innovation index*. https://worldpopulationreview.com/country-rankings/most-innovative-countries

Bryukhovetska, N. Yu., & Chernykh, O. V. (2020). Industriya 4.0 ta cifrovizaciya ekonomiki: mozhlivosti vikoristannya zarubizhnogo dosvidu na promislovih pidpriyemstvah Ukrayini [Industry 4.0 and digitalization of the economy: possibilities of using foreign experience at industrial enterprises of Ukraine]. *Ekonomika promislovosti*, *2*(90), 116-132. http://doi.org/10.15407/econindustry2020.02.116 [In Ukrainian].

Buleev, I., & Bryukhovetskaya, N. (2019). Paradigma, modeli i mehanizmy aktivizacii investicionnoj deyatelnosti subektov hozyajstvovaniya [Paradigm, models and mechanisms of activation of investment activity of economic entities]. *Biznes Inform*, *3*, 75-83. https://doi.org/10.32983/2222-4459-2019-3-75-83 [In Ukrainian].

European Innovation Scoreboard 2021. (2021). Most Innovative Countries. https://ec.europa.eu/docsroom/documents/45940

Dutta, S., Lanvin, B., Rivera, L. L., & Wunsch-Vincent, S. (Eds.). (2021). *Global Innovation Index 2021*. Tracking Innovation through the COVID-19 Crisis. World Intellectual Property Organization. https://nonews.co/wp-content/uploads/2021/10/gii2021.pdf

Karcheva, H. T., Ohorodnia, D. V., & Openko, V. A. (2017). Tsyfrova ekonomika ta yii vplyv na rozvytok natsionalnoi ta mizhnarodnoi ekonomiky [Digital Economy and its influence on development of domestic and international economies]. *Finansovyi prostir*, *3*, 13-21 [In Ukrainian].

Kolyadenko, S. V. (2016). Cifrova ekonomika: peredumovi ta etapi stanovlennya v Ukrayini i u sviti [Digital economy: Prerequisites and stages of formation in Ukrainian and in the world]. *Ekonomika. Finansi. Menedzhment*, *6*, 105-112 [In Ukrainian].

Korytko, T. Yu., & Kruk O. M. (2015). Ocinka investicijnogo potencialu pidpriyemstva. [Assessment of the investment potential of the enterprise]. *Visnik DDMA*, *2*(35), 93-96 [In Ukrainian].

Korytko, T. Yu. (2019). The digital economy and its impact on the competitiveness of the enterprise. In: O. V. Arefieva (Ed.), Konkurentospromozhnist pidpriyemstv u mizhnarodnomu cifrovomu prostori [Competitiveness of enterprises in the international digital space]. FOP Maslakov [In Ukrainian].

Koyuda, V. O., & Lysenko, L. A. (2010). *Innovative activity of the enterprise and assessment of its efficiency*. INZHEK [In Ukrainian].

Kraus, N. M. (2018). Cifrova ekonomika: trendi ta perspektivi avangardnogo harakteru rozvitku [Digital economy: Trends and perspectives of avant-garde development]. *Efektivna ekonomika*, *1*. http://www.economy.nayka.com.ua/pdf/1_2018/8.pdf [In Ukrainian].

Lyashenko, V., & Vishnevskyi, O. (2018). *Cifrova modernizaciya ekonomiki Ukrayini yak mozhlivist prorivnogo rozvitku* [Digital modernization of the economy of Ukraine as an opportunity for breakthrough development]. Institute of Industrial Economics NAS of Ukraine [In Ukrainian].

Naukova ta innovatsiina diialnist Ukrainy. (2020). [Scientific and innovative activity of Ukraine. Statistical collection]. Kyiv: August Trade LLC.

Sorescu, A., & Spanjol, J. (2014). Innovation's effect on firm value and risk: Insights from consumer packaged goods. *Journal of Marketing*, *72*(2), 114-132. https://doi.org/10.1509/jmkg.72.2.1

Tabas, J., & Beranová, M. (2014). Innovations Effect in the Company's Value. *Procedia Economics and Finance*, *12*, 695-701.

Mechanizm zarządzania potencjałem innowacyjnym przedsiębiorstw w warunkach gospodarki cyfrowej

Streszczenie. *W artykule skupiono się na czynnikach, które mogą poprawić potencjał innowacyjny ukraińskich przedsiębiorstw. Ukraińska gospodarka przechodzi obecnie proces transformacji w kierunku modelu rozwoju opartego na innowacyjności, dążąc do wzmocnienia pozycji krajowego przemysłu, aby mógł on konkurować z zagranicznymi producentami. Konieczne jest zatem poszukiwanie sposobów na poprawę efektywności i tworzenie przewagi konkurencyjnej w postaci innowacyjnych produktów i usług. Autorzy wykorzystują różne międzynarodowe wskaźniki i indeksy do oceny poziomu innowacyjności ukraińskiej gospodarki i proponują koncepcyjny model mechanizmu zarządzania potencjałem innowacyjnym przedsiębiorstw przemysłowych. Model opiera się na zasadach metodologicznych i obejmuje różne organizacyjne i ekonomiczne narzędzia oddziaływania.*

Słowa kluczowe: *mechanizm zarządzania, innowacje, potencjał innowacyjny, gospodarka cyfrowa, cyfryzacja, przedsiębiorstwa przemysłowe, działalność innowacyjna*

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 81-94
https://doi.org/10.58683/01.3001.0016.2114

Nataliya Ryvak

State Institution "Institute of Regional Research
n.a. M.I. Dolishniy of NAS of Ukraine", Lviv (Ukraine)
Department of Problems of Real Sector of Regions Economy
orcid.org/0000-0002-6717-5265
email: ryvakn@gmail.com

The need to implement Industry 5.0 in Ukraine in the face of modern challenges

Abstract. *The articles reviews the main trends in the development of industry connected with the concepts of Industry 4.0 and Industry 5.0. The author believes that the idea of Industry 5.0 is of particularly relevant for the reconstruction of the Ukrainian economy in the post-war period. Prerequisites for the implementation of Industry 5.0 are presented, which include digitization and the adoption of technologies of the fourth industrial revolution, and a national policy aimed at increasing productivity and competitiveness by improving high-tech skills of the workforce. The author provides arguments supporting the need for an industrial transformation in Ukraine where changes are implemented taking into account human-centeredness, resilience and sustainability.*

Keywords: *Industry 4.0, Industry 5.0, sustainable development, resilience, "smart technologies", ESG concept*

1. Introduction

Global climate change, the COVID-19 pandemic and geopolitical conflicts are seriously disrupting the global business environment and global value chains, altering the political and economic landscape and setting the stage for fundamental changes in politics, industry, society and governance. Facing new challenges, it is important for Ukraine not to regress to an unstable industrial paradigm (for example, Industry 3.0), but to actively implement and use the opportunities of the new Industry 5.0 (Industry 5.0 roundtable, 2022). The rapid development of new technologies often outpaces the ability of organizations to align their development priorities with it and effectively take advantage of new opportunities, which leads to the need to navigate the changing business environment in time and devel-

op a relevant development strategy. With so much technological change, changing workforce demands, social and regulatory priorities, there is a need to define guiding principles to help set the course for the digital industry. Industry 5.0 has become the basis for revising the future of energy, manufacturing, mobility of supply chains, which rest on the foundations laid by Industry 4.0 ("Key lessons from national industry 4.0 policy initiatives in Europe", 2017).

Because Industry 5.0. complements the laid foundation of Industry 4.0, improves and promotes the symbiosis of man and machine, it is important for Ukraine to implement the technological achievements of Industry 4.0, while focusing on the advantages and achievements of the new Industry 5.0. Industry 4.0 ensures level of control over the entire chain of creation value throughout the product lifecycle. When developing economic policy, it is important to pay attention to Industry 4.0, as it increases productivity, allows to produce new, better and individualized products, as well as implement new business models based on "undermining" innovations.

An important prerequisite for coordinating efforts to implement innovative technologies within the framework of Industry 4.0 and its successor, Industry 5.0, is the adoption of a national strategy in Ukraine. Such strategy should identify what investments in physical infrastructure and human capacity are necessary, including training in new digital skills; key industries that need development support; the legal framework that needs to be changed to create mechanisms for effective implementation of the latest technologies by manufacturers. Instead of creating new industries, the most significant opportunity for Ukraine is to transform existing industries and businesses. In response to such challenges, it is expedient to adopt I4.0 (Industry 4.0) and I5.0 (Industry 5.0) national policy as a priority to increase productivity and competitiveness, as well as to improve the high-tech skills of the workforce focusing on humanization, human-centeredness, stability and sustainability. Such a policy should be recognized as a priority in the national policy of Ukraine.

To substantiate a set of measures needed to recover Ukraine's industry from the negative consequences of war, Covid-19 and other challenges, it is vital to understand the degree of influence of a list of inhibiting factors on implementing the country's industry accelerated development. Among them are damaged industrial facilities and disrupted supply chains; imbalance of production and sales in Ukraine; the critical level of fixed assets depreciation and non-compliance with the rules and regulations on the use of depreciation fund and part of the profits for the renewal of fixed assets; the continuation of the production decline; loss of markets, especially in processing industries; a sharp decline in industrial, financial and economic performance; deteriorating competitive ability and product quality; high material and energy intensity of production; the dominance of outdated approaches in technical policy; lack of an effective system of mechanisms and

tools for innovation and investment development of the industrial complex; slow harmonization with international standards and others.

Considering the mentioned above reasoning, Ukraine should follow the achievements of the modern world trends of industrial development, including intensification of the Industry 4.0 capabilities' use with firm shift of the focus towards human-centric Industry 5.0. This will allow Ukraine to faster recover in the post-war period, not stay aside from the scientific and technological progress and gain additional benefits from implementing digital development strategies in the national economy.

2. Advanced technological innovations of Industry 4.0 as the foundation of Industry 5.0

Industry 4.0 involves the widespread use of advanced technological innovations that allow making effective and accurate engineering choices in real time by combining a number of information and communication technologies (ICT) with existing production systems. Technological flows are a crucial component of Industry 4.0, and the combination of digital technologies and operations with manufacturing technologies provides vertical integration of intra-organizational systems and horizontal integration of inter-organizational systems through the Internet of Things, cloud technologies and computing services, as well as end-to-end balanced solutions along the entire value chain (Kniaziev, 2020).

Among the main technologies united by this global trend, we can highlight cyber-physical systems (CPS), blockchain, artificial intelligence (AI), digital twinning, Internet of Things (IoT), big data and analytics, cloud computing, technology and additive manufacturing. A CPS integrates real-world physical processes with computers and communications infrastructure; The IoT provides the collection of information from physical objects using a computer network or the acceleration of a wireless connection; big data and analytics deal with the analysis of data generated by IoT networks to optimize the processing of information compared to the use of raw data; cloud computing provides software, infrastructure, and platform-as-a-service that enables real-time data exchange across the entire supply chain. In contrast to cloud computing, blockchain technology refers to pure digital ledgers of transactions programmed to record the value of any type of transaction and provide assets for secure and transparent forms for transaction data. AI technologies enable continuous learning and adaptive decision-making based on massive, sometimes unstructured data sets. Additive manufacturing, often called 3D printing, makes it possible to create three-dimensional objects by forming a layer of material under computer control ("Key lessons from national industry 4.0 policy initiatives in Europe", 2017).

The use of Industry 4.0 technologies in production not only increases labor productivity and reduces the negative impact of production on the environment, but also creates additional jobs (and not cuts, as it may be perceived in society). At the same time, manufacturers need to be ready to implement Industry 4.0 technologies, which is often a challenge for enterprises in developing countries, including Ukraine. Domestic manufacturers continue to make extensive use of analog technologies in production processes and need further industrialization to benefit from the implementation of Industry 4.0.

The vision of Industry 4.0, originally intended for German industry and officially presented in 2011 at the Hannover Messe, was to transform the value chain through "smart technologies" such as CPS, cloud computing, AI and the IoT. Three years later, Japan published an additional concept called "Society 5.0", dedicated to the impact of automation on humans. The main principles of Industry 5.0, which are depicted in Figure 1, are human-centeredness, resilience and sustainability ("Industry 5.0: Purpose-Driven Technology Adoption…", 2022).

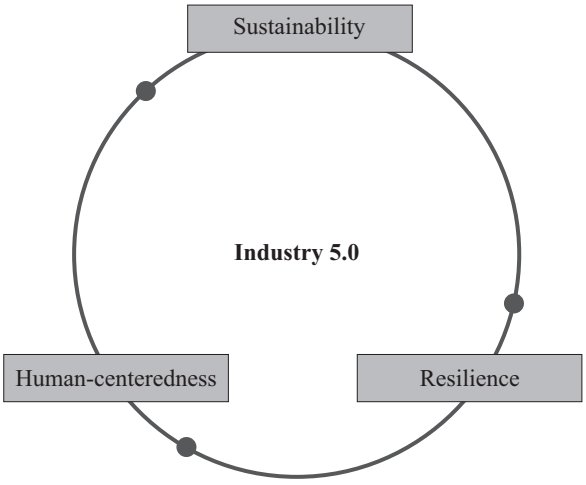


Figure 1. Basic principles of Industry 5.0

Source: based on "Industry 5.0: Purpose-Driven Technology Adoption…", 2022, p. 4.

Industry 5.0 is a framework for reimagining the future of energy, manufacturing, mobility and supply chains that builds on and complements Industry 4.0. The foundations of Industry 4.0 have been laid with the advent of the IoT, including the proliferation of smaller, cheaper and more efficient sensors. When deployed on factory premises and combined with advanced equipment, the IoT sensors generate petabytes of data, making detailed measurement, monitoring and analysis of systems and processes extremely easy. As a result, the financial

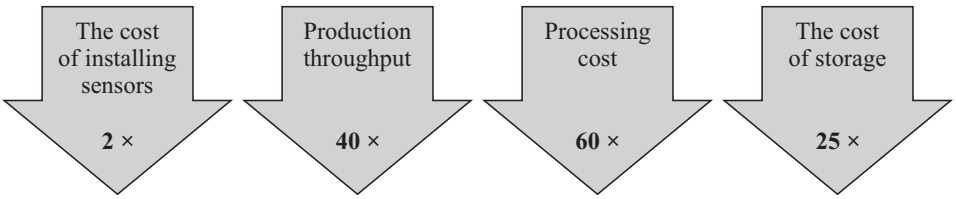


Figure 2. Indicators of production costs reduction related to the implementation of Industry 4.0

Source: based on "Industry 5.0: Purpose-Driven Technology Adoption…", 2022, p. 5.

results of Industry 4.0, depicted in Figure 2, were not long in coming. EU companies that fully implemented it in the production process achieved a reduction in processing costs, an increase in throughput and production volumes, an expansion of storage capabilities, and a significant improvement in the financial indicators of business activity. As production costs decreased, the pace of implementation of Industry 4.0, and therefore of further digital transformation, accelerated ("Industry 5.0: Purpose-Driven Technology Adoption…", 2022).

With advances in wireless technology, including 5G and WAN (Wide Area Network), low-power technologies such as LoRaWAN (Long Range Wide Area Network), data can be uploaded to the cloud for high-performance analytics. Advances in AI and machine learning (ML) technology have accelerated the development of powerful algorithms that can provide actionable insights in real time. During the development of the recursive cycle, data collection, analysis and processing, measurement, refinement and forecasting enable self-improvement (and correction) of automation. As a result, companies benefit from reduced downtime, increased work efficiency and better production quality, which are the main guiding principles of Industry 4.0 ("Industry 5.0: Purpose-Driven Technology Adoption…", 2022, p. 6).

With the many technological changes accompanying Industry 4.0, changing workforce demands, societal and regulatory priorities, there is a need to define guiding principles to help set the course for the digital industry. Industry 5.0 has become the basis for revising the future of energy, manufacturing, mobility of supply chains, which rest on the foundations laid by Industry 4.0.

3. Triple Impact of the Industry 5.0: economic, environmental and social

Industry 4.0 has laid the foundations for automation and data sharing in manufacturing technologies, covering CPS, the IoT, cloud computing, edge computing and cognitive computing, as well as "smart manufacturing". It is worth noting

that Industry 4.0 is still in the initial stages of development. At the same time, world industry leaders are already actively looking into the future, planning the implementation of the concept of the Fifth Industrial Revolution, one of the main principles of which is the orientation of processes to people.

Accordingly, Industry 5.0 will reduce concerns about the threats of technological unemployment associated with Industry 4.0 and, as a result, reduce resistance to automation. From a practical point of view, highly automated processes can achieve high results of fast, consistent and repeatable production, but cannot replace the need to personalize and change products according to the personal expectations of customers and consumers, which are becoming increasingly complex and personalized. A human-centric vision in the perspective of the development of production processes is important. Historically, automation and robotics have tended to be isolated from humans in production facilities (often for safety reasons). The new generation of collaborative robots (also known as cobots) contain improved sensors and perception technologies that allow humans to effectively collaborate with cobots. In addition, the new generation of cobots is much safer, easier to program and configure. Cobots are "trained" to work alongside humans in production facilities, and can be reprogrammed to perform a wider range of tasks if necessary. Industry 5.0 aims to actively collaborate between people and machines in the future and to use human creativity in a much wider range with the expansion of the range of manufactured products ("Industry 5.0: Purpose-Driven Technology Adoption…", 2022, p. 9).

The European Union (EU) absorbed the concept of "Society 5.0", creating a manifesto of the so-called "targeted implementation of technologies" – Industry 5.0. This concept is based on the triple impact – economic, environmental and social, adding ESG (environment, social sphere and governance) focus and balance to the management of those processes that were previously influenced only by technological and economic factors. ESG is an approach to business valuation by measuring performance in terms of achieving social goals that go beyond profit maximization on behalf of owners or shareholders. Generally, the social goals advocated within an ESG perspective include working towards a specific set of environmental goals, a set of goals related to supporting certain social movements, and a third set of goals related to supporting diversity, equity, and inclusion ("Industry 5.0: Purpose-Driven Technology Adoption…", 2022, p. 4).

Industry 5.0 is characterized by going beyond the production of goods and services purely for profit. This shifts the focus from value to shareholders or owners to value to stakeholders and reinforces the role and importance of industry to society. Industry 5.0 puts the well-being of the worker at the center of the production process and uses new technologies to provide additional development, in addition to job growth and economic growth, while respecting the existing limits of the planet's production capacity. Industry 5.0 is largely based on factors that also

influence the increased interest in ESG investing. Key among them are sustainable development and care for the environment, taking into account the goals and values of stakeholders, corporate ethics, diversity, and cyclicality of the economy.

Against the backdrop of economic challenges caused by the global pandemic and geopolitical crisis, as well as the growing dependence on digital infrastructure, it is appropriate to focus on ensuring organizational, economic and cyber resilience. The organic integration of humans in complex technological value chains is essential, with a priority on the primary role of humans in the future production process, the growth of human-machine collaboration and the design of human-centered solutions.

The EU pays considerable attention to the sustainability of production and has committed to 17 UN Sustainable Development Goals, including the expansion of the use of green energy, reducing the negative impact on the environment and promoting the achievement of social goals, such as the empowerment of women, in particular in developing countries. Sustainable development is becoming a priority for businesses in developed countries, as investors pay more and more attention to ESG factors when making investment decisions ("Industry 5.0: Purpose-Driven Technology Adoption…", 2022, p. 9).

Industry 5.0 is fundamentally aimed at compensating for the increase in energy consumption and carbon emissions from the expansion of industrial production. Improvements can be made through increased energy efficiency, the use of "clean" energy sources, a focus on reduced pollutants and their impact on the environment, and the use of the latest materials in production. The concept of a "circular (cyclical) economy", in which materials and waste are recycled, will be able to minimize the negative impact on the environment, and needs further research.

The COVID-19 pandemic and the global geopolitical crisis have forced manufacturers to reevaluate supply chains and supplier reliability. Ensuring sustainability can be in many ways antithetical to an effective just-in-time model, but in times of disruption to global supply chains, the downside of relying on global suppliers (and static processes) can be prohibitively costly and even threaten the very existence of factories. The human-centered, sustainable and stable principles of Industry 5.0 include a wider range of analysis indicators and their consideration than the purely technological efficiency envisaged by Industry 4.0.

4. Comparative analysis of the main approaches of Industry 4.0 and Industry 5.0

It should be noted that the main driving force of the EU countries is cooperation. It cannot be said that "it all depends on the government" or big brands. Other actors, such as industry, developers, research institutions, universities, startups, and

Table 1. Comparison of the main approaches of Industry 4.0 and Industry 5.0

Industry 4.0	Industry 5.0
Focused on increasing efficiency through digital technologies, communication and AI	Provides the basis for industry, which combines competitiveness and stability; enables industry to realize its potential as a cornerstone of transformation
Focused on the development of technologies and CPS	Emphasizes the influence of alternative management regimes (technologies) to ensure stability and sustainability
Consistent with business models of optimizing entrepreneurial activity within the existing dynamics of the capital market and economic models – ultimately aimed at minimizing costs and maximizing profits for owners and shareholders	Empowers workers who use digital devices, focused on people-centricity in the use of technologies
There is no emphasis on design and performance measures important for systemic transformations and reducing the negative impact of the use of resources and materials on environmental, climate and social processes	Introduces ways to transition to environmentally sustainable use technologies
–	Extends producer responsibility at all stages of value chains
–	Contains industrial ecosystem indicators to measure progress towards well-being, resilience and overall sustainability

Source: "Industry 5.0: Purpose-Driven Technology Adoption…" (2022, p. 11).

others, are sufficiently proactive and mobilized in the EU to address Industry 4.0 challenges and work together. Industry 5.0 is guided by the principles of renewables, as well as the transformation of industrial production to provide higher value for society and the environment, not just focusing on value for owners and shareholders. Table 1 outlines the key differences between Industry 4.0 and Industry 5.0.

It is especially important to understand the core differences in the approaches of Industry 4.0 and Industry 5.0 to pivot towards the latter while targeting the industrial transformation path of the first. (Table 1).

5. The main trends of Industry 5.0

The following Industry 5.0 trends can be identified, which lay the foundations for a more sustainable development of industry and society:

1. Digital doubles and simulations. Many modern companies of discrete production and industrial design use these technologies, introduce new standards of

quality, efficiency and prospects for the development of production and ecosystems.

2. Data transmission, storage and analysis technologies. Data is the fuel that fuels an innovative industry. Modern progress in data connectivity, storage and analytics, including cloud and peripheral systems, is the basis not only for the development of entire sectors of the world industry, but also for the development of each individual production.

3. AI – the technologies of machine learning and AI provide a quantum acceleration of the development of innovations, an increase in the quality of production, providing the necessary tools for modern production processes.

4. Individualized human-machine interaction is the most important difference of Industry 5.0 – re-introduction of the human factor into processes and systems that have been automated to hyper-efficiency with the help of the latest information technologies. In a certain sense, the human element "returns the soul" to the production process thanks to the possibility of joint production – the imagination and flexibility of the human worker acquire new possibilities and are improved thanks to the ability to use cobots. The combination of intelligent machines and human ingenuity will allow to achieve real "mass personalization" and will contribute to the development of global production.

5. Biological technologies and smart materials. There is no better model for ensuring sustainability and efficiency than taking into account the possibilities and needs of nature. Manufacturers face the limitations of purely industrialized processes – examples include the extractive nature of certain industries, the uneconomical use of resources and the negative impact on the environment, which remain serious challenges. Innovations in lighter, stronger and more flexible materials with a focus on environmentally friendly materials create the prerequisites for the production of better, higher-quality products – for companies, customers and the planet.

6. Technologies of energy efficiency, renewable energy sources, storage and autonomy. The transition from fossil fuel-powered vehicles to electric vehicles is accelerating. At the same time, the deployment of wind and solar energy continues to grow due to the reduction of related costs and economies of scale in battery production. Advances in autonomous technologies are creating the prerequisites for new transportation business models, increasing safety and reducing environmental pollution.

The implementation of the new Industry 5.0 will require new economic priorities for measuring industry performance, new structure and design of business models, new value and supply chains, renewed goals for digital transformation, new ways to stimulate innovation and research opportunities, while better aligning the interests of business with the wider society, government and the environment. Lessons learned from the pandemic and geopolitical crisis highlight the urgent need for resilience in value chains, jobs and economic security.

6. Importance of the Ukrainian industrial transformation targeting main principles of Industry 5.0

Ukraine‘s economy largely depends on the raw material sectors of industry, the products of which prevail in domestic exports. Because of this, there is a high vulnerability of the economy in relation to the situation in international markets. The current war illustrates the danger of Ukraine‘s dependence on the import and export of industrial goods when they are characterized by high geographical and product concentration, and also emphasizes the high resource intensity of the domestic economy. The reduction in trade in manufactured goods had dramatic consequences for the economy as a whole. High resource and energy intensity of industry, which is caused by the low technological level, the critical state of fixed assets and insufficient innovation activity, disrupted production cycle and destroyed industrial facilities constitute a significant threat to the national security of Ukraine.

High-quality development of the industry will ensure a decrease in dependence on imports through the growth of domestic substitute production, a decrease in dependence on raw material-oriented exports due to the development of production and supply of medium- and high-tech competitive goods with increased added value due to the introduction of resource-efficient technologies. Efficient use of resources is critical to ensuring an environmentally sustainable trajectory of economic growth in the postwar period. Based on this, the development of the industrial complex is able to facilitate a quick recovery of the Ukrainian economy after the war and increase the overall level of national security of Ukraine and, first of all, its economic and energy component (Ishchuk, 2019).

Ukraine faces a triple goal to protect, prepare and transform its industry after the war and deadliest pandemic of the past century and to build forward better to address another great challenge that all the humanity has faced – climate change and biodiversity collapse.

Ukraine cannot face this challenge alone, but is should actively contribute to its internal resilience and the global community by deep systemic industrial transformation, strengthening its internal cohesion and capacity and promoting a deep transformation of the economy at the global level by shifting beyond GDP (Gross Domestic Product) determined growth and embracing an Industry 5.0 programme.

Ukraine needs to move towards Industry 4.0 and further to Industry 5.0 not to lose competitive advantages and not lag behind the global pace of technological development for years. Certain steps in this direction have already been taken. In particular, the Industry 4.0 movement in Ukraine has been established. APPA (Association of Industrial Automation Enterprises of Ukraine) pays great attention to creating a theoretical and practical basis for implementing the I4.0 policy in Ukraine. Since June 2019, the Industry4Ukraine platform has been created, including more than 40 business and industrial associations.

Considering the Ukrainian strategic course for cooperation (in the future – integration) with the EU and foreign experience in developing the smart industry, determining the most effective approaches and practices, it is expedient to take into account institutional features that affect the final application. Among them are the ratio of inclusive (that facilitate innovative development path), extractive, and informal institutions that can create barriers and reduce the degree of motivation to innovation.

While Ukraine has been achieving progress in moving towards Industry 4.0, it is absolutely essential to pivot towards Industry 5.0 approach. It will require respective focus as a priority in the Ukrainian industrial strategy at large. Industrial strategy of Ukraine should be based on new economic orientations to industry performance, new design for business models, value chains and supply chains, new purpose for digital transformation, new approaches to policymaking in partnership with business and industry, new capabilities and approaches to research and innovation as well as vertical and horizontal coherence by acting at all levels of government and through international standards (Industry 5.0: A Transformative Vision for Europe, 2022).

The task of modernization and growth of industrial production with Industry 5.0 focus should consider several aspects:

1) Development of existing and formation of new activities with higher added value.

2) Improvement of management methods, in particular modern approaches to the organization of production, commercial activities, management of personnel, resources, etc.

3) Integration into global value chains.

4) Increasing resource efficiency with the help of technologies aimed at optimizing the use of raw materials and energy carriers.

5) Implementation of effective waste management practices.

6) Digitization of industry (in the context of the relevant process in the economy and society in general), i.e. active implementation of advanced information technologies to increase efficiency and competitiveness.

7) Implementation of international standards in the field of automation of industrial production and application of information technologies in industry.

8) Development of a list of new professions defined by digital competencies and their inclusion in the State Classifier of Professions.

9) Connection of digital transformation with sustainability and climate action.

10) Support of business innovation and transformation aligned with regenerative circular economy principles to encourage companies in Ukraine to orient away from linear, extractive, wasteful and polluting practices.

11) Designing technology infrastructure geared towards people-planet-prosperity to encourage redundancy and resilience, reducing the need for high emissions, costly and insecure information and data flows.

12) Fundamental redesign of value chains to embrace new technological possibilities and sustainability together with circular economic and societal well-being.

13) A regulatory system that effectively guides transformation of business models where sustainability is a natural component and driver of industrial competitiveness (Industry 5.0: A Transformative Vision for Europe, 2022).

7. Conclusions

Industry 4.0 and its successor Industry 5.0 frame the industrial production of the future that is already happening today. Therefore, Ukraine needs to be actively involved in global processes related to the new trend of economic development to ensure quick recovery of its economy after the war and Covid-19 pandemic and to occupy a worthy place among other developed countries of the world.

It is important to pivot industrial transformation of Ukrainian economy towards the vision of Industry 5.0 that is based on the technological and business principles of Industry 4.0 with an emphasis on three principles aligned with the ESG approach: human-centeredness, sustainability and resilience. Since many Ukrainian enterprises today are in the process of large-scale implementation of the latest technologies, improvement of existing processes and systems, the vision of Industry 5.0 should be taken into account when planning future innovations. Industry 5.0 should be perceived as an evolution that incorporates the fundamental foundations of Industry 4.0 and extends the range of benefits to a wider range of stakeholders. The so-called "big layoff" wave, in which workers are leaving their jobs at record rates and new openings are struggling to fill, underscores the value of management talent and the need to attract and retain highly skilled workers. Increasing trade protectionism, overburdened and often disrupted supply chains due to war and world pandemic, and respective shortages of key components and materials underscore the importance of ensuring the sustainability of manufacturing and business activities.

It is essential to ensure investors' greater focus on environmental, social and governance (ESG) factors, make regulatory emphasis on "clean" energy and the growth of social priorities for companies to carefully formulate and adhere to resilience and sustainable development strategies. In view of the listed factors, it is expedient for Ukrainian enterprises to include the basic principles of Industry 5.0 in production processes already today.

Concepts and principles of digital transformation have been extensively researched and actively implemented in recent years. The majority of business leaders actively involved the possibilities of the latest technologies and digital business. Based on these fundamental ideas, it is advisable to also take into account the principles of Industry 5.0 – human-centeredness, resilience and sustainability.

In particular, it is recommended to focus on research and implementation of the following directions:

1. Reorientation of production and entrepreneurial activity to human-centeredness: there are several dimensions of business development and production processes that are human-oriented. The first and foremost of these is attracting and retaining talent. This is especially true for technology-oriented organizations, in which human capital is the most strategic asset, and it is expedient for businesses to adapt to the growing cohort of millennials and subsequent generations and their changing needs. For younger generations of workers, environmental and social factors are becoming increasingly important when choosing an employer and may include, for example, a potential employer‘s commitment to the community and relevant initiatives, flexible working arrangements and career development with leadership roles for historically underrepresented minorities.

A human-centered vision should involve a critical rethinking of the cooperation between workers and machines. It is expedient to update traditionally static production processes with new robotics for joint work (cobots) with line workers authorized to show greater flexibility in production. Concern for worker safety and health should be prioritized through enhanced monitoring capabilities and ergonomic design. After all, healthy and happy employees with opportunities for personal, creative and professional development are highly likely to work better for the development of the company and increase its value in the market.

2. Strengthening resilience: recently, global production has faced the need to function under conditions of increased uncertainty and adapt to changes. It is important for companies to carefully plan stabilization measures in the event of a disruption in global value chains – from factory to network supplier, to transport channels, to regulatory and geopolitical changes. Digital technologies and methodologies (such as modeling and AI) can help determine the optimal alternative paths in the event of such disruptions, weighing various factors such as cost, replacement, quality, logistical issues, etc.

It is advisable to identify the most vulnerable points (in the process or in the supply chain), isolate key inputs and formulate a plan in case of any failures. It is better to plan carefully in advance than to work on eliminating negative consequences.

3. Ensuring sustainability: with the expansion of the regulatory and legislative framework and the attention of investors to the reduction of carbon emissions and negative impact on the environment, it is expedient for enterprises to assess their impact on resources. This may include analysis of the source of raw materials, the proportion of waste generated, the impact on the environment, the energy efficiency of the processes, as well as the energy sources. Many companies have committed to significantly reducing fossil fuels and increasing “clean” sources of energy production. In addition, the introduction of new materials and composites

(non-petroleum-based) can reduce the negative impact on the environment. Expanding the practice of recycling and repurposing materials can also help achieve these goals.

All in all, the preparation of business and production activities for the implementation of Industry 5.0 is a challenging path for Ukraine, but at the same time it is absolutely justified today. It is much easier to analyze in advance and develop a plan for the implementation of innovative approaches to conducting business activities based on the principles of human orientation, resilience and sustainability, than to respond situationally to rapid, unpredictable changes in processes and systems, losing the competitive advantages of players who have already adapted to future changes.

References

Industry 5.0 roundtable (2022). *Meeting report.* Publications Office of the European Union. Luxembourg, https://op.europa.eu/en/publication-detail/-/publication/053bf2aa-f1d7-11ec-a534-01aa75ed71a1/language-en/format-PDF/source-260080162

Industry 5.0: A Transformative Vision for Europe. (2022). European Commission. https://research-and-innovation.ec.europa.eu/knowledge-publications-tools-and-data/publications/allpublications/industry-50-transformative-vision-europe_en

Industry 5.0: Purpose-Driven Technology Adoption for People and the Planet. (2022). MOMENTA Digital Delivered Report. https://www.momenta.one/hubfs/Resources/Reports-and-Surveys/Momenta-Industry%205.0-Report-2022.pdf

Ishchuk, S. (2019). Klyuchovi trendy rozvytku promyslovoho sektoru rehioniv Ukrayiny [Core trends in the development of the industrial sector in the Ukrainian regions]. *Statystyka Ukrayiny*, *84*(1), 78-90. https://doi.org/10.31767/su.1(84)2019.01.09

Key lessons from national industry 4.0 policy initiatives in Europe. (2017, May). Digital Transformation Monitor. https://es.sistematica.it/docs/379/DTM_Policy_initiative_comparison_v1.pdf

Kniaziev, S. I. (2020). Evropeiskii opyt razvitiya smart-promyshlennosti [Experience of European Smart Industry Development]. *Ekonomika promyslovosti*, *2*(90), 27-53. http://dspace.nbuv.gov.ua/bitstream/handle/123456789/170464/2-Kniaziev.pdf?sequence=1

Potrzeba wdrożenia koncepcji przemysłu 5.0 w Ukrainie w obliczu współczesnych wyzwań

Streszczenie. W artykule dokonano przeglądu głównych kierunków rozwoju przemysłu związanych z koncepcjami przemysłu 4.0 i przemysłu 5.0. Autorka jest zdania, że koncepcja przemysłu 5.0 ma szczególne znaczenie dla odbudowy ukraińskiej gospodarki w okresie powojennym. Przedstawiono warunki konieczne do wdrożenia przemysłu 5.0, do których należy zaliczyć cyfryzację i przyjęcie rozwiązań technologicznych, jakie przyniosła czwarta rewolucja przemysłowa, oraz politykę państwa mającą na celu zwiększenie produktywności i konkurencyjności poprzez doskonalenie zaawansowanych technologicznie umiejętności siły roboczej. Autorka przedstawia argumenty przemawiające za potrzebą transformacji przemysłowej w Ukrainie, w której zmiany są realizowane z uwzględnieniem potrzeb człowieka oraz zapewniają odporność i zrównoważony rozwój.

Słowa kluczowe: przemysł 4.0, przemysł 5.0, zrównoważony rozwój, odporność, „inteligentne technologie", koncepcja ESG

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 95-108
https://doi.org/10.58683/01.3001.0016.2115

Angelika Kaczmarek
WSB University in Poznań (Poland)
Faculty in Chorzów
orcid.org/0000-0002-8457-9544

Agata Linkiewicz
WSB University in Poznań (Poland)
Faculty in Chorzów
orcid.org/0000-0001-7805-4699

Makowski Łukasz
WSB University in Poznań (Poland)
Faculty in Chorzów
orcid.org/0000-0002-1944-642X
email: lukasz.makowski@chorzow.wsb.pl

Personal brand building: The case of Nicole Sochacki-Wójcicka, MD

Abstract. *This purpose of the article is to identify key factors in the personal branding process, using insights from a successful personal brand activity online and offline. The authors seek to determine whether and why authenticity and sincerity in the profession is a good strategy and whether and why it is necessary to stick to specific branding mechanisms when building a personal brand. The analysis is based on data from non-participatory observation and the study of informal documents. By analysing personal branding strategies used by gynaecologist Nicole Sochacki-Wójcicka, who has an Intagram profile @mamaginekolog, the authors draw conclusions and offer guidelines for how to establish a personal brand, highlighting aspects that need to be considered at early stages and steps required to maintain a strong market position.*

Keywords: *personal brand, Nicole Sochacki-Wójcicka MD*

1. Introduction

The decision to take up the subject of personal branding was prompted by the ever-growing popularity of this type of activity on the Polish labour market. The interest in *personal branding* and the specifics of this profession was an argument for its in-depth analysis. An additional advantage of studying this type of activity was direct access to the source of the research, i.e. specific and subjectively interesting personal brands on the Internet.

2. The concept and essence of a personal brand

The concept of personal branding first appeared in 1997 in an article by Tom Peters, "The brand called you". According to the author: "whether we want it or not, intentionally and consciously or completely by accident and 'in passing', we are our own brands" (Peters, 1997). Although Peters wrote that everyone should take care of their branding, back in the day, personal branding was associated with something achievable for public figures and famous people, such as actors or celebrities. Nowadays, at a time when social media is a second reality for the population, knowledge and awareness of the concept is taking on a much broader dimension (Mazurek, 2018, pp. 449-450).

The most common view of personal branding is that of a particular person who creates a certain image of themselves for their audience. From a marketing point of view, *personal branding* is how others see us (Grzesiak, 2020, p. 19). From birth, each of us builds an image of ourselves that we show to the world. Controlling our appearance, way of being, style of expression and display of emotions allows us to create the image of ourselves that we want others to see in us. Standing out in the crowd, being recognisable among those around us, is what we owe to our personal brand. *Personal branding* is created, among other things, through various online and offline activities. Successful activity is based on constant management of the personal image, which plays an important role in the perception of our brand (Mazurek, 2018, pp. 449-450).

A personal brand is a commercial brand, but with a specific face. Magdalena Florek and Anna Augustyn defined branding as "The process of designing, planning and communicating an identity in order to build and manage one's image" (Stępowski, 2017, p. 22). In the case of a personal brand, the scheme is no different. It is important to realise the importance of each individual stage. This is particularly helpful if you want to develop your brand for financial gain. A well-designed brand generates a lot of interest. In the case of a personal brand, it is particularly important to constantly maintain a high level of interest among your audience. Maintaining attention consists of continuous strengthening of belief in the significance of the brand's content, its appeal and adaptation to the expectations and needs of observers. Conscious changes resulting from the evolving world (Stępowski, 2017, p. 135) will be particularly important here.

Referring back to the article where the concept of personal branding first appeared, a text by Tom Peters, we can learn there about the essence of doing personal business related to *personal branding*. The author of the article summed it up perfectly with the following words: "The position of CEO of Me Inc. obliges you to develop yourself, promote yourself and take actions that will ensure you get market interest" (Peters, 1997). Positive public perception and trust is not

enough. Building a sustainable and strong personal brand involves long-term development, investment in your interests and huge amounts of time spent, energy and initially – some financial contributions (Stasiak, 2018, pp. 30-31).

Creating a personal brand differs from building a branding of a large enterprise. The whole process may seem quite similar, however, in the case of *personal branding*, the asset of interest to the business is the other person, whereas companies promote different product variations for different target groups. A company may advertise its goods in different ways and they can function independently of each other. A personal brand, on the other hand, must take into account consistency in the content communicated, building relationships and maintaining trust among the audience. *Personal branding* is actually being built all the time and there is no room for putting on masks or deceiving others. We cannot change the tone of our content or promote incompatible products, as this will "scare off" your potential audience (Walczak-Skałecka, 2016, pp. 50-51).

Personal branding activity should be based on a person's values, beliefs and attitudes, not just their appearance. What matters is what we are able to offer to others and how we make a difference in their lives. Interest and understanding from customers comes mainly from their appreciation of the uniqueness and authenticity of a personal brand, which is why our personality is a more important aspect than appearance. Visual additions are only a supplement to what others see when they observe our business. By focusing solely on the whole "exterior", i.e. branded clothes, figure, etc., we will build a community that will treat us in a superficial way (Malinowska-Parzydło, 2015, pp. 72-75).

The use of appropriate techniques to bring us closer to our audience is the essence of operating as a personal brand. Storytelling is one of such activities; it is very often associated precisely with *personal branding*. We can expand on the concept of storytelling in just two words, namely – story and telling – with the emphasis on the "telling" part (Tkaczyk, n.d.). The daily activity of sharing our current experiences and thoughts can result in an increased audience and a significant improvement in our image. Through natural storytelling we build a strong bond with our followers. Acting on emotions and evoking feelings in your audience plays an important role in storytelling. Authentic content interspersed with product advertising framed in an appropriate story will not so much deter potential customers of the brands we promote ("Kreowanie własnego wizerunku w Social Media – marka osobista", 2021).

It is worth noting that the key to success in *personal branding* does not lie solely in the content conveyed and its form of communication. The trust that the audience has in the person that constitutes the personal brand also plays an important role. It pays to be authentic and credible, because in times of technological progress, it is very easy to verify the shared information. The audience can easily

find the slightest inconsistency in discussed issues and actions taken by the brand. Once they come across contradictory information, people can automatically become alienated and discouraged (Stępowski, 2017, p. 68).

When running a personal brand, you should try to answer an uneasy question: am I able to look at myself as a "product"? It might seem bizarre, but in fact, no one will even begin to consider us to be a valuable brand until we can objectively and detachedly "look" at our own business. Maciej Dutko (2014) compares *personal branding* to a house, where apart from the available foundations, i.e. childhood, upbringing, education or experience, there is also an external part, i.e. a garden, a playground or a cosy armchair on the porch. The author explains that a personal brand should be associated with just such warmth and a place you want to return to. Good associations combined with a dose of knowledge and valuable content provide the best argument for the audience to stay in such a place for a longer period of time (Dutko, 2014, p. 12).

3. Personal branding mechanisms and types

It is worth observing exactly what our surroundings are like when we plan to start a personal brand. To begin with, it is a good idea to analyse the activities of other brands similar to the one intended by us. It is worth trying to answer the question, "why has one brand, in our opinion, stood out among the audience, while another has disappeared among the others?"

The FRED formula is a useful tool for this type of analysis. It includes:

– *familiarity* – a sense of closeness to the brand,

– *relevance* – a high level of brand validity, meeting the needs of the audience,

– *esteem* – good reputation,

– *differentiation* – standing out from other brands (Walczak-Skałecka, 2016, pp. 64-65).

When embarking on the process of personal branding, an extremely important aspect is to find answers to key questions about oneself. These include: Who am I? What do others say and think about me? To build a strong and valuable brand identity, it is worth focusing on the basics (Mazurek, 2018, p. 452). It is important to clarify the mission and vision of your business. Finding what will distinguish us from others in the market and make our presence not indifferent to others (Rampdersad, 2010, p. 81). During the next steps, we will constantly need a reference point, i.e. the values we want to stick to and meet in our work. Taking the time to analyse our ambitions in more depth from the outset will make it easier for us to act in the future (Rampdersad, 2010, pp. 41-47).

SWOT analysis is a useful tool during the process of interpreting our brand. We can carry it out on our own, using the simplest tools, such as Microsoft Word,

or make use of readymade templates available on the web. Conducting a SWOT analysis focuses on dividing the available information about a brand into four categories: S (*strengths*), W (*weaknesses*), O (*opportunities)*, T (*threats*) (Mazurek, 2018, p. 452). The results of this analysis will make a description of a person's lifestyle and image, and thus allow us to specify the assumptions and values that will guide us in the personal branding process (Rampdersad, 2010, pp. 109-110).

Another aspect that defines the starting position of a personal brand is the collection of information about it on the internet. It is important to analyse the content, for example using the Google search engine. By typing in the most important data, we can find content about us that may be interesting. In addition to reading the positive information, it is advisable to focus on eliminating any negative content as well. There are also several tools which can be used for continuous monitoring of information about one's brand on the internet, such as Brand24 or Socialmention.com (Mazurek, 2018, p. 452).

The next step when working on developing *personal branding* is to define the objectives for the brand. These must be realistic and should refer to the following areas: internal, external, financial, knowledge and learning. A list of brand assumptions should bridge the gap between the current state and what we want to achieve in the future (Rampdersad, 2010, pp. 114-115). Adequate planning of activities, analysis of available resources and costs or risk assessment and lack of spontaneity during the initial phases of the activity will help to reduce the randomness of the results of the work done (Gawanowska, 2017, p. 95).

In order to specify the brand's communication language and set the right channels that will be used to contact the audience, we need to define our target group. It will be useful to create a persona, i.e. a sample customer representing the characteristics typical of the brand's audience (Mazurek, 2018, p. 457). Creating a persona is based on writing down the characteristics of such a person, for example their name, age, what they do and/or what their life motto is. This type of data is collected by means of quantitative research, e.g. by conducting an online survey. The next step is to meticulously analyse the results and deepen the knowledge collected through interviews or observations. It is best if created personas are concise and specific in written form so that you can refer back to them. With properly defined brand personas:

– we can define our target group,

– we can recognise the needs of our audience,

– we are building an audience knowledge base and maintaining communication becomes easier (Banach, 2015).

Creating a persona is particularly important for brands whose market presence is just beginning. This allows you to get closer to the customer, adapt your communication language and satisfy their specific needs and desires (Piwowarska, 2015, pp. 50-51).

The next stage is to choose the right tools and channels for communication. It is necessary to decide where our content will be posted, as well as how the communication in traditional media would be organised in order to be consistent with the brand strategy. The choice of channels and tools should be well thought out, so that it fits with the overall content (Mazurek, 2018, pp. 457-458).

It is worth remembering that the process of creating a personal brand is a long one and in fact it never ends. It is an unending process of getting to know oneself, developing one's skills and setting ever new goals. Even authenticity and the greatest commitment to branding will not save you from failures, but it is important to remember that you can learn a lot from them. Through trial and error, it is possible to see what works well and what works badly for a given activity. A personal brand develops together with the subject who is building it, hence it is particularly susceptible to changes brought about by their life situations and therefore its creation can last indefinitely (Piwowarska, 2015, pp. 37-38).

Meticulous personal branding should be primarily based on professionalism and reliability towards the audience. The right steps and behaviours from the very beginning of a brand's existence will surely attract trusted customers to it (Mazurek, 2018, pp. 461-462).

Although running a personal brand seems a trivial activity these days, in fact it is not. It requires meticulousness, constant development and acting according to rules you set and decide to follow. Maintaining authenticity can also be a major challenge, because, as we all know, sometimes we change our minds or do something despite ourselves, and the Internet does not accept such practices. Effective *personal branding* takes time, requires commitment and a lot of sacrifice, but if done in the right way, it can bring a fair amount of successes and result in motivating achievements.

4. Characteristics of personal branding on the example of Nicole Sochacki-Wójcicka, MD

Combining a professional career together with online personal branding can be quite a challenge. Especially when someone is a gynaecologist by profession and the day-to-day work is based on hardly regular working hours and continuous changes of work time. A mum known by almost 900,000 Poles from her profile on Instagram under the name *@mamaginekolog* [Mum Gynaecologist], her real name Nicole Sochacki-Wójcicka, takes on this challenge on a daily basis and combines her work as a doctor with running a personal brand and more.

The start of the business as a personal brand had its beginnings when she gave birth to her son and started sharing daily motherhood experiences and medical trivia for women on her Instagram profile. Shortly after starting her Instagram

activity, the idea for her own blog also emerged. In one of her interviews, she talked about her beginnings online. At the time, she said that she noticed a "huge educational problem – mothers are lost, looking for a diagnosis online or spreading some strange views, contrary to medical knowledge. So I started writing back. At first in comments, then doing whole posts. However, this form of fight against misinformation didn't work at all, because it was difficult to search for individual threads and topics, it lacked order. I decided that the only way to ensure that the content I post would not be lost was to start a blog" (Nowakowska, 2020). This action showed that responding to the needs of the audience is a great way to develop a personal brand.

Nicole's difficult life experiences led her to set up her own foundation, Fundacja Medycyny Prenatalnej im. Ernesta Wójcickiego [the Ernest Wojcicki Foundation for Prenatal Medicine] (Ernest Wojcicki Foundation, n.d.). Mum Gynaecologist's aim was to support other couples in difficult moments such as miscarriages or premature births. This made it possible to show the creator's human face, with the same problems as many people in Poland and around the world. Uneasy situations often lead to creating a form of unique relationship with the audience. In October 2021, Nicole took her first specialisation exam in gynaecology (Mamaginekolog, 2021, May 5), which she did not pass. It was an extremely difficult time for the gynaecologist mum, she only added one post relating to the situation, in which she included the words "Don't kick a man when he's down" at the end (Mamaginekolog, 2021, October 28). It was only after several months of struggling and taking the exam again that the creator added a video to social media, captured some important moments there and thanked everyone who believed in her wholeheartedly (Mamaginekolog, 2022, March 22).

Multitasking and constant control over the content being added is an important factor. Even a bad day is not an argument to cut oneself off from social media completely. This would give rise to audience concerns, and personal brands therefore take on quite a challenge to maintain continuity and regularity. Mum Gynaecologist's example of coping with the lack of interesting content on Instagram are her accounts of the meals she prepares every day. Such posts and stories are also needed; they show the authenticity of a person, which is something that can be easily lost online.

Work and other daily chores are an integral part of people's lives. It would once have been said that the day revolves around them and the years go by. As time goes by, perceptions change and people become more aware of the value of free time spent with friends or family, finding enjoyment in everyday life or simply relaxing. Relating to work only on social media does no one any good. It is important to show warmth, commitment to relationships and being authentic. This way of running a brand will not only attract many followers, but they will also be people who are involved and interacting.

5. The genesis of brand building

Many different communication tools can be used to start to build a brand. Looking at the example of Mum Gynaecologist and many other personal brands on the market, it can be concluded that nowadays, the easiest and most effective way is to set up an account on Instagram or TikTok.

Referring to the book written by Grzegorz Mazurek, *personal branding* is created, in particular, through various online and offline activities. The author of the book also mentions that effective *personal branding* is based on constant management of one's personal image, which plays an important role in the perception of one's activity (Mazurek, 2018, pp. 449-450). In Nicole's case, the creation of the brand started with Instagram. The image of Mum Gynaecologist was based on the figure of an expert in gynaecology and obstetrics, but also incorporated a trusted mum – which proved to be a critical point for audience growth, attracting many readers and followers.

At the beginning of the social media "adventure", the content provided does not always have a clearly defined, businesslike form. The beginnings can take different turns, and it becomes clear which direction is best to take only after some time, depending on a number of factors. The form of publication by people who are not very popular on the Internet does not encourage people to read, comment on or follow posts. It is important to entice the audience with content they will not get anywhere else or which will attract their interest for some other reasons. Doctor Nicole Sochacki-Wojcicka, for example, showed specialised equipment taking ultrasound images (Mamaginekolog, 2015, October 1). Nevertheless, these posts did not prevail and, and for a change, the then yet inexperienced mother was also able to interact by asking questions, for example about planning a layette (Mamaginekolog, 2015, October 1). Asking questions is extremely important because it gives you the opportunity to find out what the audience thinks. Posts like this get a lot of comments, it shows that engaging in conversation really helps to establish relationships and build a community.

Once you have decided on the direction you want your personal brand to take, it is worth considering the distinctive elements in running social media. One example here is the way that Mum Gynaecologist decided to "tag" different categories of posts with hashtags. This allows readers to search for content that interests them, but also adds a bit of creativity to regular texts. Regardless of the subject matter of your personal brand, your interests, likes and tastes, it is also worth trying to introduce slogans associated with a particular profile. These slogans can be useful for conducting various campaigns, but above all they will have an identifying function.

When a brand's growth gains momentum, it often happens that you receive offers to participate in various projects, interviews or events outside the media channels that you run. Decision to go outside of your own business focus area depends

on a number of factors, but remaining authentic in each channel of communication is the most important and most appreciated by your audience factor. For example, if a personal brand that only operates on Instagram is invited to a televised event and its behaviour deviates from what it shows its followers on a daily basis, it is easy to guess that this will not be perceived favourably. Taking Nicole as an example, she repeatedly mentions in her Insta Stories that she gets huge numbers of invitations to all sorts of programmes, but declines each time. Two situations were an exception, the first was to give an interview for Vogue, but she indicated at the time that this was her dream (Mamaginekolog, 2020, March 8). The other situation was her appearance with Żurnalista, one of the popular podcasters in Poland (Wojajczyk, 2021). Regardless of what the creator said earlier, she explained the situation, acted as her heart told her to and had a classy performance, fulfilling her dreams in the process.

6. Key activities to strengthen the brand in the marketplace

In addition to the standard activity on Instagram, i.e. publishing posts or Insta Stories on the profile, constant development and diversification of the form of one's content, it is also important to take on new challenges online and offline. In today's world, it is difficult to make someone interested and have them stay on a profile for a longer period of time. It is therefore important to be creative and provide content in a way that arouses interest.

Knowing how to communicate effectively with one's audience also proves essential, as one can see in the case of Mum Gynaecologist who, even in moments of crisis, is able to address the situation with respect. Moments after the situation related to some hate comments concerning Nicole after her professional exam, the woman decided to organise a "Good Action". The whole event was aimed at people who continuously support the profile of the Mum Gynaecologist and cheer her on. Together with her husband, she decided to invest PLN 100,000, which she used to buy top products from luxury brands and organised a competition to win them (Mamaginekolog, 2021, November 3). In the end, the situation silenced the negative comments and turned the prevailing aura into something good.

It is practically rare for a personal brand not to have its product or various activities. This gives it a sense of rootedness. It allows the brand to develop further, to benefit financially or, for example, socially. It is important that the activities are well thought out and share common values and characteristics. We should remember that the trust of the audience that we have built is often very fragile and it can be easily destroyed. In the case of a brand dealing with medicine, the opening of the Ernest Wojcicki Foundation for Prenatal Medicine turned out to be a hit. It did not damage the public trust, but in fact ensured that the brand's actions were sincere.

Operating on the internet is connected with constantly developing technological progress. Staying up-to-date and publishing content that will be well received by your audience is creative work that does not leave much space for long holidays. For example, at a certain stage of her online activities, when TikTok had become more famous, Mum Gynaecologist set up her own profile there and started to create original short and mainly funny videos (Mamagynaecologist, n.d., Tiktok). On the other hand, when Instagram introduced the option to host live videos, Nicole immediately started making them on her profile. This enabled her to interact directly with her audience and answer their questions. The difficulty is that the rules for staying up to date with social media news apply irrespective of the profile's subject matter, which means that those untrained in the business of marketing will also have to take up the challenge.

Storytelling is one of the forms that has been around for a while, still without a formal recognition by everyone. Using the example of Instagram, where it is possible to add a fewminute reports, we can see how well this form works and is perceived by people. In fact, it was this form of communication with her audience that Mum Gynaecologist started her online business with. If someone likes to "talk the talk" then storytelling should not be too much of a problem for them. All that is needed is a bit of charisma, a good and engaging story and the interest and engagement of the audience will follow.

With their natural charisma and openness to people, personal brands can attract a large audience. Unfortunately, this comes at a price of being constantly exposed to public opinion. It is difficult to find a solution to unfavourable comments, although there is one thing that should be the foundation for starting any online activity. It is honesty and self-respect. As long as personal brands stick to their values, are honest with themselves and confidently express their own opinions then no one can convince them otherwise.

7. Conclusions and recommendations

The beginnings of an online business are not always easy. There are quite a few factors that make this path easier. These can be physical features and contacts, a well-known family, acquaintances, appearances on a popular talent show and many others. Another group of factors are those related to character traits – innate charisma, an unconventional approach to life, flawless weaving of storytelling elements and a passionate pursuit of goals.

As a rule, it is worthwhile to put in more work at the beginning and, above all, to take the time to analyse. One of the main conclusions about personal brands is that they do not exist without an audience. That is why it is so important to respond to their needs. It is important to remember that they are the answer to everything,

and sometimes it is worth simply asking them (in a form of conversation, asking questions, posting comments). When Nicole noticed that her followers were asking questions, she answered them immediately. Later, when she started making #instaserialomiłości [#instaloveseries] in the form of posts on Instagram, there were discussions in the comments and requests for more parts. Nicole wrote and added new content on a regular basis, which kept regular followers involved but also brought new ones. Additionally, the content added was quite diverse. It covered topics such as women's careers, medicine, daily life, love, children. This broadened the boundaries of the interests that could potentially give more reasons for her audience to follow. There are profiles that have a very narrow focus of interest, which naturally reduces the number of people potentially interested in a particular topic. The key to success right from the start was to be systematic and build a real relationship with your audience. A vast variety of topics has helped considerably in developing the account and winning new followers.

It is a fact that the modern world is very dynamic and people get used to constant development and changing reality. This dependency has also appeared on the Internet, where the most popular are the creators who invent new things all the time. Making unusual choices such as, for example: allowing their employees to travel to close and very distant parts of the world, organising events on an uncommonly large scale for the company's employees on various unusual occasions, or making spontaneous, valuable purchases. It is hard to get stuck in a rut when a typical day of a creator is filled with tasks that are reported on in real time on Instagram. The dynamics of responding to specific needs also play a role. An example of such a response was the creation of special nightgowns and pyjamas for diabetics with space for an insulin pump tube made by Roger Publishing, Mum Gynaecologist's company. Talking to followers with diabetes, Nicole learned that this was a huge problem as their clothes often got destroyed because the products available on the market were of low quality. Listening and responding to people's needs is a straight way to get into sales almost certainly, as people simply tell you directly what they need.

As already stated, having an onlinepresence involves constant development. However, not everyone is keen to take advantage of the innovations that large corporations introduce into their social media platforms. Not everyone is a specialist, and yet brands are trying to take advantage of the benefits of the internet and new technologies. The lack of development leaves brands behind, and the market is so difficult and saturated that no one can afford to take a break from work and creativity.

Few people understand that most personal brands have become popular by virtue of having become famous for something or simply because working online is part of their career. Mum Gynaecologist, for example, has mentioned more than once that for her Instagram is more than a full-time job. In addition, often linking

your brand to your business adds work, as you have to expect that even adding a photo from a holiday trip will involve questions about work. In conclusion, being a personal brand is often not as easy as it may seem. It is important to remember that on the internet, everyone can create an image of themselves they wish to show. If you want to develop your profile, consider setting clear boundaries to avoid unpleasant situations.

In summary, there is a lot to learn from the activities of the biggest personal brands. Proper analysis and lessons learned can certainly not only help you grow, but also avoid certain mistakes. Most creators have never been specialists in the broader field of marketing, and they develop their online activities in a natural and to some extent unplanned way. This fact makes one wonder what successes could be achieved if one were to build a personal brand from scratch in a fully conscious manner. Nevertheless, it is important to bear in mind how much natural behaviour, sincerity and trust built with your audience play an important role, and after all, they are the driving force that fills personal brands with life.

8. Closing remarks

The concept of a personal brand is being raised more and more in various circles, and this makes it an increasingly popular discussion topic. The inspiration to undertake the task of the mentioned in the title "analysis of personal brand building of Mum Gynaecologist" came from the growing trend connected with the aforementioned increase in popularity and interest in personal brands.

The stated aim of attempting to understand and characterise the factors influencing the building and activity of a personal brand has been achieved. This is evidenced by the extensive analysis of the personal brand.

Adopting a scientific perspective was a crucial element in this analysis, together with included definitions based on the bibliography referring to the analysed subject matter. On that basis, it is possible to compare whether they translate into the practical case of personal branding. One of the most important findings is the deviation from the typical scientific model of building and conducting *personal branding* activities in the model developed by the Mum Gynaecologist. As mentioned in the first point, whether we want it or not, everyone is a personal brand. Following this line of thinking, the beginning would be the same for anyone starting out their activity online. Further development is influenced by many factors: charisma, family history, career, dedication to a passion or the form in which you publish content concerning your life. Above all, regularity of publication, trust, caring about image and a genuine relationship with the audience are the key factors that contribute to real gains in popularity and success. Storytelling proved to be an important element of the case study.

According to P. Kotler, there are six meanings behind every brand and these are: qualities, benefits, values, culture, personality and user. It is important that the essence of the title character's business activities could be described in terms of having proper qualities, bringing real benefits, delivering values, treating others with civility, having a personality and matching the right user. All six meanings are fulfilled in case of the personal brands under study, which is their is success.

Among the main conclusions drawn from the comparison of the bibliographic section with the practical cases is that the success of a personal brand does not always equate to extensive knowledge of branding. According to sources, a number of steps should be taken, such as: a SWOT analysis, identifying the target group, searching for brand information or clarifying language and specifying communication channels. Undoubtedly, these points are important and, in the case of creating a brand from scratch, being aware of their existence and implementing them on a daily basis can be a valuable facilitator of success. Nevertheless, in the analysed case of the selected personal brand of Mum Gynaecologist, it was shown that perseverance, interesting subject matter and charisma were enough in the beginning.

Probably starting a personal brand nowadays, without a comprehensive analysis and a detailed plan, we would not have achieved as much as Mum Gynaecologist did a few years ago. As the popularity of personal branding continues to grow, it is very difficult to "break into" this environment. In the past, this type of activity was criticised to a certain extent, but nowadays it can be called our "daily bread" and there are many people who would like to build their personal brands online. This is why the knowledge provided in the theoretical part is so valuable, because it would be practically impossible to break through and achieve surprising success without a detailed plan and analysis made first.

References

Banach, M., (2015). *Persony, czyli jak wejść w buty klienta* [Persons, or how to step into the shoes of the customer]. https://marketerplus.pl/persony-czyli-wejsc-buty-klienta/

Dutko, M. (2014). *Efekt tygrysa – puść swoją markę w ruch!* [The tiger effect – put your brand in motion!]. AkademiaInternetu.pl.

Ernest Wojcicki Foundation. (n.d.). *How we help.* https://fundacjaernesta.pl/jak-pomagamy/

Gawanowska, M. (2017). *Marka osobista bez tajemnic. Przewodnik dla skutecznych menedżerów kariery* [Personal brand without secrets. A guide for effective career managers]. Wiedza i Praktyka.

Grzesiak, M. (2020). *Personal branding, czyli jak skutecznie zbudować autentyczną markę osobistą* [Personal branding, or how to effectively build an authentic personal brand]. Helion.

Kreowanie własnego wizerunku w Social Media – marka osobista (2021). [Creating your own image in Social Media – personal brand]. Team Solution. https://www.teamsolution.pl/blog/kreowanie-wlasnego-wizerunku-w-social-media-marka-osobista

Malinowska-Parzydło, J. (2015). *Jesteś marką. Jak odnieść sukces i pozostać sobą* [You are a brand. How to succeed and stay yourself]. One Press.

Mamaginekolog. (2015, October 1). *#rogerinside*. Instagram. https://www.instagram.com/p/8TrP7qRSVZ/?utm_source=ig_web_copy_link

Mamaginekolog. (2020, March 8). *Nie będę pisać epopei* […]. Instagram. https://www.instagram.com/p/B9eiwRghs--/?utm_source=ig_web_copy_link
Mamaginekolog. (2021, May 5). *Kolejny najczęstszy (zupełnie niesłuszny) hejt* […]. Instagram. https://www.instagram.com/p/COe4CAkhXf7/?utm_source=ig_web_copy_link
Mamaginekolog. (2021, October 28). *Nie mogę spać* […]. Instagram. https://www.instagram.com/p/CVjweW7t3Ty/?utm_source=ig_web_copy_link
Mamaginekolog. (2021, November 3). *Koniecznie przeczytaj!* Instagram. https://www.instagram.com/p/CVzYVxhhh9l/?utm_source=ig_web_copy_link
Mamaginekolog. (2022, March 22). *Dziękuję wszystkim* […]. Instagram. https://www.instagram.com/reel/CbaNg6Rg0kn/?utm_source=ig_web_copy_link
Mamagynaecologist. (n.d.). Tiktok. https://www.tiktok.com/@mamagynaecologist
Mazurek, G. (2018). Przyszłość e-marketingu [The future of e-marketing]. In: G. Mazurek (Ed.), *E-marketing. Planowanie, narzędzia, praktyka* (s. 465-478). Poltext.
Nowakowska, K. (2020). *Mama ginekolog: Urok zwyczajności* [Mama gynaecologist: The charm of ordinariness]. https://www.vogue.pl/a/mama-ginekolog-urok-zwyczajnosci
Peters, T. (1997). The brand called you. *Fast Company Magazine*. https://www.fastcompany.com/28905/brand-called-you
Piwowarska, A. (2015). *Autentyczność przyciąga. Jak budować swoją markę na prawdziwym i porywającym przekazie* [Authenticity attracts. How to build your brand on a genuine and captivating message]. Onepress.
Rampdersad, H. (2010). *Ty – Marka inna niż wszystkie. Sztuka autentycznego brandingu osobistego* [You – A brand unlike any other. The art of authentic personal branding]. Onepress.
Sochacki-Wójcicka, N. (2016). *#instaserial o miłości* [#instaseries about love]. Roger Publishing.
Stasiak, A. (2018). *Droga do gwiazd. Jak budować wizerunek i markę osobistą?* [The way to the stars. How to build an image and personal brand?]. Słowa i Myśli.
Stępowski, R. (2017). *Personal Branding #praktyczny poziom marki osobistej* [Personal Branding #practical level of personal branding]. Roster.
Tkaczyk, P. (n.d.). *Storytelling*. https://paweltkaczyk.com/storytelling/
Walczak-Skałecka, A. (2016). *Silne marki osobiste zmieniają świat* [Strong personal brands change the world]. Słowa i Myśli.
Wojajczyk, K. (2021). *Które podcasty w Polsce są najpopularniejsze? Spotify ujawniło ranking* [Which podcasts are most popular in Poland? Spotify has revealed the ranking]. https://daily-web.pl/najpopularniejsze-podcasty-polska-ranking-spotify/

Budowa marki osobistej na przykładzie lek. Nicole Sochacki-Wójcickiej

Streszczenie. *Celem artykułu jest określenie czynników odgrywających kluczową rolę w procesie budowania marki osobistej na podstawie wniosków płynących z marki osobistej online i offline. Autorzy odpowiadają na pytanie, czy i dlaczego autentyczność i szczerość w zawodzie jest dobrą strategią oraz czy przy budowaniu marki osobistej konieczne jest trzymanie się określonych mechanizmów brandingowych. Analiza opiera się na danych zebranych w ramach obserwacji nieuczestniczącej. Analizując strategie budowania marki osobistej stosowane przez lek. Nicole Sochacki-Wójcicką, która prowadzi profil na Instagramie pod nazwą Mamaginekolog, autorzy wyciągają wnioski i przedstawiają zalecenia dotyczące budowania marki osobistej oraz zwracają uwagę na aspekty, które należy wziąć pod uwagę na wczesnych etapach, i działania niezbędne do utrzymania silnej pozycji rynkowej.*

Słowa kluczowe: *marka osobista, lek. Nicole Sochacki-Wójcicka*

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 109-116
https://doi.org/10.58683/01.3001.0016.2116

Agnieszka Ziółkowska

Politechnika Częstochowska (Polska)
orcid.org/0000-0003-3704-7390
e-mail: agnieszka.ziolkowska@pcz.pl

Innowacyjność w zarządzaniu zrównoważonymi projektami architektonicznymi

Streszczenie. *Aby przyszłe pokolenia mogły cieszyć się podobną jakością życia jak my obecnie, konieczne jest stworzenie zrównoważonej infrastruktury, spełniającej wymogi zrównoważonego rozwoju (m.in. wykorzystanie materiałów odnawialnych, zmniejszenie zanieczyszczenia środowiska, oszczędzanie energii i wody) oraz uwzględnianie kwestii bezpieczeństwa zdrowotnego społeczeństwa. Główne wymagania, jakie należy spełnić w zakresie projektowania zrównoważonego, dotyczą wielu aspektów technologicznych, środowiskowych i funkcjonalnych, bezpośrednio i pośrednio związanych z jakością środowiska, które ma zostać stworzone. Skuteczne zarządzanie tymi współzależnościami jest możliwe dzięki wykorzystaniu modelowania informacji o budynku, które pozwalają przeprowadzać symulacje rzeczywistego zachowania jego struktury, funkcjonalności i uwzględniać hierarchie różnych systemów. Autorka omawia praktyczne aspekty innowacyjnego zarządzania projektami architektonicznymi i budowlanymi związane z zasadami zrównoważonego rozwoju oraz przedstawia nowoczesne narzędzia informatyczne wykorzystywane w projektowaniu architektonicznym. Narzędzia te ułatwiają współpracę architektów i projektantów z innych gałęzi budownictwa (inżynierów, konstruktorów itp.) na każdym etapie procesu budowlanego i w całym cyklu życia budynku.*

Słowa kluczowe: *zarządzanie, innowacyjność, projektowanie zrównoważone*

1. Znaczenie innowacyjności w zarządzaniu projektem

Innowacyjność w zarządzaniu projektami nabrała znaczenia po opublikowaniu "The Agile Manifesto" (Fowler i Highsmith, 2001). W manifeście tym zostały przedstawione zasady nowego, sytuacyjnego zarządzania projektami, zwanego także zwinnym. Specyfika zwinności w zarządzaniu projektami jest pochodną podejścia stosowanego w sektorze IT w tworzeniu oprogramowania komputero-

wego. Zgodnie z "The Agile Manifesto" istnieje sześć zasad przewodnich, które mogą pomóc zespołowi projektowemu zaplanować właściwe działania, tworzyć innowacyjne produkty i wdrażać je w sposób adaptacyjny. Ogół zaproponowanych zasad dzieli się na dwie kategorie: (1) te związane z produktem – tworzeniem wartości dodanej dla klienta oraz (2) te związane z zarządzaniem (Highsmith, 2005, s. 45).

Wartość dla klienta może być tworzona przez dostarczanie mu innowacyjnych produktów, powstałych na bazie informacji wynikających z interakcji z klientami, dostarczanie mu oczekiwanych elementów funkcjonalności i bycie innowatorem doskonałości techniczno-technologicznej.

Zasady w sferze zarządzania projektem dotyczą przywódczo-współpracującego stylu zarządzania: zachęcania pracowników do eksploracji, poszukiwań innowacyjnych rozwiązań, budowania zespołów samoorganizujących się i samodyscyplinujących się.

Innowacyjne podejście do zarządzania projektami rozwija się dzięki uwzględnianiu różnych koncepcji – od tradycyjnego zarządzania projektami TPM (*traditional project management*) po ekstremalne zarządzanie projektami xPM (*extreme project management*), (Wysocki i McGary, 2005, s. 28), tworząc różne odmiany adaptacyjne, np. *agile project management* (APM), *scrum* (Ćwiklicki, 2010), *adaptive project framework* (APF).

Dla tradycyjnego podejścia do zarządzania projektami (TPM) charakterystyczna jest mała elastyczność planowania i wysoki stopień zdefiniowania ograniczeń projektowych. Na przeciwległym biegunie znajduje się ekstremalne podejście do zarządzania projektami (xPM), które odznacza się dużą elastycznością planowania i niskim stopniem zdefiniowania ograniczeń projektu. Między tymi dwoma biegunowymi podejściami znajdują się metodyki adaptacyjne, które cechują się średnią elastycznością planowania i średnim stopniem zdefiniowania ograniczeń projektu. Jednakże APF w stosunku do *agile* i *scrum* ma zastosowanie do projektów o trochę niższym stopniu zdefiniowania ograniczeń projektowych, a więc tam, gdzie występuje większa niepewność i mniej znanych rozwiązań.

W metodykach zwinnych podkreśla się kolektywną odpowiedzialność za projekt, jego planowanie i realizację. Ponadto skupiają się one na dostarczaniu wartości poprzez aktywną współpracę z klientem oraz ciągłą adaptację do pojawiających się zmian i wymagań. Wymagania klienta zmieniają się w kolejnych etapach projektu w wyniku odkrywania nowych potrzeb i zdobywania wiedzy. Często bywa tak, że sformułowane oczekiwania klienta na początku prac nad projektem różnią się od tych z końcowej fazy prac nad projektem, z którego użytkownik ostatecznie jest bardzo zadowolony. Nowe metodyki (APF, *scrum*, *agile* czy xPM) są oparte na uczeniu się, odkrywaniu i zmianie. Innowacyjne podejścia do zarządzania projektami proponują możliwość szybkiej reakcji na zmiany i dużą elastyczność.

Innowacyjność w podejmowaniu decyzji dotyczących jakości i cyklu życia budynku, wdrażania rozwiązań zrównoważonych wymaga bardziej zintegrowanych procesów projektowych oraz zastosowania nowoczesnej metodyki w zarządzaniu projektami architektoniczno-budowlanymi. Istnieje obiektywna sprzeczność między minimalizowaniem kosztów a możliwością zastosowania wysoko wydajnych, proekologicznych innowacyjnych rozwiązań wysoko wartościowej inżynierii budowlanej. W efekcie inwestorzy-klienci wybierają rozwiązania zagrażające jakości projektów budowlanych. Stąd niezmiernie ważne są dla architektów narzędzia do gromadzenia informacji i zarządzania nią w sposób, który umożliwi przekonanie klientów do podjęcia decyzji o wyborze projektu zrównoważonego na podstawie argumentów związanych z wysoką jakością obiektu budowlanego w całym cyklu jego życia.

2. Zrównoważone projektowanie architektoniczne

Zrównoważone projektowanie architektoniczne powinno przyczyniać się do zmniejszania negatywnego oddziaływania powstających budynków i budowli na środowisko naturalne. Aby uznać, że obiekt budowlany jest przyjazny dla środowiska naturalnego, należy już w trakcie jego projektowania uwzględnić te rozwiązania techniczne i materiały, które spełniają wymagania zrównoważonego rozwoju. Jednocześnie w trakcie budowy obiektów budowlanych trzeba wziąć pod uwagę racjonalne zużywanie zasobów naturalnych i zapewnić efektywność ekonomiczną na każdym etapie realizacji inwestycji budowlanej, a także w okresie jej eksploatacji (Czarnecki i in., 2012). Ponieważ wzniesienie każdego obiektu budowlanego prowadzi do trwałych i nieodwracalnych zmian w środowisku, dlatego zrównoważone zarządzanie projektami architektoniczno-budowlanymi powinno uwzględniać elementy i parametry budownictwa zrównoważonego, w jego trzech głównych aspektach: ekonomicznym, środowiskowym i społecznym.

Istniejące narzędzia, systemy oceny i certyfikacji zrównoważonego rozwoju, chociaż adekwatne do oceny komponentu zrównoważonego budynku, nie są wystarczająco odpowiednie we wspieraniu architektów w procesie projektowania. Dlatego wdrażanie i ocena strategii integrujących zasady zrównoważonego rozwoju muszą być uwzględnione na wczesnych etapach metody projektowania architektonicznego. Postuluje się, aby w każdej fazie projektu architektonicznego określić główne strategie i poziom rekomendacji w każdej wytycznej, który pozwoli architektowi ocenić wdrożenie zrównoważonego rozwoju.

Według B. Edwardsa i P. Hyett (2001) branża budowlana odpowiada za eksploatację 50% światowych zasobów naturalnych, stąd proekologiczne zmiany w tym sektorze mogą silnie wpłynąć na zmniejszenie negatywnego wpływu na środowisko naturalne. Ponadto, jak zauważa P. Horn (2021), sytuacja pande-

miczna z lat 2020-2022 przyniosła nowe wyzwania i odsłoniła nowe potrzeby względem projektowania zrównoważonego uwzględniającego aspekty zdrowotne pojedynczych budynków, miast i regionów. To kolejny argument za rozwojem projektowania zrównoważonego (D'Amico i in., 2020). Wiąże się ono z dostępem do zintegrowanych informacji, interdyscyplinarną obserwacją zjawisk i strukturalizacją dużych ilości danych niezbędnych do tworzenia budownictwa zrównoważonego, odpowiadającego współczesnym wyzwaniom związanymi z globalizacją, ociepleniem klimatu, ograniczonością zasobów naturalnych, ekologią, zagrożeniami pandemicznymi i in.

Zarządzanie zrównoważonymi projektami architektonicznymi wymaga wsparcia technologicznego, wykorzystania nowoczesnych metod i narzędzi pozwalających na uwzględnianie czasu, prawdopodobieństwa zdarzeń, zagrożeń oraz potrzeby elastyczności funkcjonalnej budynków (Marques i Pitarma, 2019).

3. Charakterystyka innowacyjnych technologii komputerowych stosowanych w projektowaniu architektonicznym

Pierwszym stosowanym na szeroką skalę systemem informatycznym w biurach projektowych było oprogramowanie oparte na technologii CAD (*computer aided design*). Wdrażany w latach 80. ubiegłego wieku system w ciągu dziesięciu lat stał się obowiązkowym narzędziem pracy w wielu pracowniach w całej Europie. Nadchodząca z Zachodu cyfryzacja objęła polskie biura architektoniczne nieco później – na początku XXI w. Głównym i niemal bezkonkurencyjnym oprogramowaniem, wykorzystywanym licznie do dziś w pracowniach projektowych, stał się AutoCAD. Najwcześniejszym i najbardziej rozpowszechnionym zastosowaniem technologii CAD w projektowaniu jest tworzenie cyfrowej dokumentacji 2D. Z czasem coraz częściej do celów koncepcyjnych zaczęto wykorzystywać modelowanie 3D.

Pierwsi wizjonerzy bardzo szybko dostrzegli możliwości i obiecujące alternatywy płynące z cyfryzacji projektu architektonicznego. Dążyli do powiązania informacji o budynku z jego wirtualnym modelem. Niestety technologia i dostępne ówcześnie narzędzia nie były jeszcze gotowe na realizację owych wizji (Penttilä, 2006).

Wprowadzone na rynek oprogramowanie oparte na technologii BIM (*building information modeling*) zostało utworzone jako rozwinięcie systemów CAD i zapoczątkowało kolejną rewolucję informatyczną w przedsiębiorstwach branży budowlanej. Modelowanie informacji o budynku (BIM) pozwala architektom i inżynierom na stworzenie inteligentnego modelu cyfrowego, w którym wszystkim elementom przypisuje się ich rzeczywiste parametry. Utworzony w ten sposób wirtualny obiekt, w zależności od poziomu umieszczonych w nim informacji,

może stać się kolejno modelem: 4D, 5D, 6D/7D. Wirtualny model pozwala na dobranie odpowiedniej jakości materiałów budowlanych i przygotowanie precyzyjnego kosztorysu inwestycji już we wstępnej fazie projektowania. Ogranicza to znacznie straty finansowe, jakie do tej pory ponosił inwestor w związku z niedoszacowaniem kosztów budowy. Narzędzia, jakimi dysponuje nowoczesne oprogramowanie, pozwalają na przeprowadzenie dogłębnych analiz obiektu. Dane zawarte w modelu dają możliwość sprawdzenia wydajności energetycznej i funkcjonalności poszczególnych rozwiązań w rzeczywistości wirtualnej. Dostęp do odpowiednich informacji we właściwym czasie sprawia, że podejmowanie decyzji przez osobę zarządzającą projektem staje się proste i mniej ryzykowne. Usprawnienie komunikacji między specjalistami z różnych branż pozwala eliminować błędy projektowe często niezauważalne w stosowanej do tej pory technologii 2D.

Zarządzanie projektem i jego jakością poprzez wykorzystanie technologii BIM staje się bardziej wydajne, co w znacznym stopniu przyczynia się do sukcesu inwestycji budowlanej (Walczak i in., 2017). Najbardziej rozpoznawalnym wśród projektantów i inwestorów programem opartym na technologii BIM jest amerykański Revit i stworzony na Węgrzech, nieco mniej zaawansowany, Archicad. Wpływ stosowanych obecnie w projektowaniu technologii CAD i BIM na proces inwestycyjny obrazuje krzywa opracowana przez Mac Leamy'ego (Zima, 2012, s. 156). Z wykresu tej krzywej możemy odczytać, że wraz z upływem czasu i postępem prac zdolność do nanoszenia zmian w projekcie drastycznie spada, a koszt ich wprowadzenia dynamicznie rośnie. Punkt przecięcia się tych dwóch krzywych pod koniec etapu tworzenia dokumentacji wykonawczej oznacza, że dokonanie zmian od tego momentu nie jest już możliwe ze względu na opłacalność inwestycji i skutkowałoby bardzo trudnym oraz kosztownym etapem budowy, co mogłoby się przyczynić do porażki całego przedsięwzięcia.

Zarządzanie przy użyciu tradycyjnych metod projektowych wiąże się z maksymalizacją zaangażowania na etapie tworzenia dokumentacji wykonawczej. Dzieje się tak, ponieważ system CAD jest technologią mało zintegrowaną, niepozwalającą na swobodny przepływ danych o projekcie i na koordynację międzybranżową w początkowych jego fazach. Zespoły projektowe korzystające z oprogramowania opartego na technologii BIM wkładają największy wysiłek na początku procesu inwestycyjnego. Jest to korzystne ze względu na swobodę wprowadzania zmian przy niewielkim nakładzie finansowym. Dokładne opracowanie założeń projektowych na tym etapie, dzięki skoordynowanej w systemie BIM współpracy architekta, inwestora i projektantów wszystkich branż, eliminuje konieczność modyfikacji projektu w późniejszych fazach.

W tym kontekście zrównoważone projektowanie architektoniczne odgrywa coraz większą rolę. Zagadnienie jakości budynku narzuca konieczność opracowania modeli weryfikacji wykonalności projektu budowlanego i optymalnej zgod-

ności robót z wymaganiami. Cel ten wymaga interdyscyplinarnego podejścia, ponieważ rozwiązania technologiczne i konstrukcyjne muszą opierać się na maksymalnej współzależności między obiektem budowlanym, systemem środowiskowym i systemem budowlano-instalacyjnym (Sanguinetti, 2009). Z tego powodu badania nad rekonfiguracją systemu budowlanego pod kątem projektowania wspomaganego mają charakter priorytetowy. Znaczenie technologii BIM wzrasta wraz z rozwojem badań nad rozkładem systemu obiektu budowlanego na elementy technologiczno-funkcjonalne i ich konsekwentną organizacją w hierarchie systemów, zdefiniowanych i ustrukturyzowanych według ich wzajemnych relacji (Howard i Björk, 2008).

4. Zakończenie

Coraz wyższe wymagania stawiane budynkom w zakresie spełniania kryteriów zrównoważonego rozwoju stanowią ważny impuls do tworzenia innowacyjnych metod i narzędzi zarządzania projektem architektoniczno-budowlanym, przeprowadzania jego sformalizowanej analizy i oceny w całym cyklu życia projektu, a nawet po przekazaniu obiektu budowlanego do użytkowania, w fazie jego eksploatacji (Zanchetta, 2014). Budowlany proces inwestycyjny, rozpoczynający się inicjatywą inwestycyjną, studium możliwości i etapem projektowania architektonicznego, jest ukierunkowany na zaspokojenie konkretnych potrzeb podmiotu prawnego lub osoby fizycznej.

Nabywcy i użytkownicy obiektów budowlanych, świadomi celów i uwarunkowań wdrażania zrównoważonego rozwoju, są zainteresowani zmniejszaniem zużycia energii w budynkach (Martínez-Comesaña i in., 2020) i odczuwają potrzebę poprawy ogólnej efektywności środowiskowej (Sanguinetti, 2009). W związku z tym wzrasta zawodowa rola architekta w kreowaniu zrównoważonej infrastruktury budowlanej, równocześnie ze wzrostem wymaganej wiedzy w tym zakresie i umiejętności jej praktycznego zastosowania. Aby sprostać tym wyzwaniom i zwiększyć podaż budynków i budowli o oczekiwanych parametrach i rozwiązaniach architektonicznych w zakresie zrównoważonego rozwoju, firmy z branży budowlanej coraz częściej wykorzystują innowacyjne technologie modelowania informacji o budynku (BIM), które ułatwiają projektowanie, analizę, budowę i eksploatację budynków.

Technologia BIM zajmuje się nie tylko integracją różnego rodzaju narzędzi komputerowych do tworzenia, oceny i planowania projektów architektoniczno-budowlanych, ale także jest metodą integracji różnych ekspertyz dziedzinowych na wcześniejszych etapach procesu projektowania (Eastman i in., 2018).

Bibliografia

Czarnecki, L., Tworek, J. i Wall, S. (2012). Budownictwo zrównoważone w Polsce. *Inżynier Budownictwa*, *3*, 22-28.

Ćwiklicki, M. (2010). Scrum – nowa metoda zarządzania złożonymi projektami. *Przegląd Organizacji*, *4*, 16-19.

D'Amico, A., Bergonzoni, G., Pini, A. i Currà E. (2020). BIM for Healthy Buildings: An Integrated Approach of Architectural Design Based on IAQ Prediction. *Sustainability*, *12*(24), 10417. https://doi.org/10.3390/su122410417

Eastman, C., Teicholz, P., Sacks, R. i Liston, K. (2018). *BIM Handbook*. Wiley & Sons Inc.

Edwards, B. i Hyett, P. (2001). *Guía básica de la sostenibilidad* [Basic Guide to Sustainability]. Editorial Gustavo Gili.

Fowler, M. i Highsmith, J. (2001). The Agile Manifesto. *Software Development Magazine*, *9*(8), 29-30.

Highsmith, J. (2005). *APM: Agile Project Management, Jak tworzyć innowacyjne produkty*. Mikom.

Horn, P. (2021). The need of itegration of health aspects in sustainability by urban-architectural multicriteria assessment tools. Space & Form / Przestrzeń i Forma, *47*, 45-66. https://doi.org/10.21005/pif.2021.47.B-02

Howard, R. i Björk, B. C. (2008). Building information modelling – Experts' views on standardisation and industry deployment. *Advanced Engineering Informatics*, *22*(2), 271-280.

Marques, G. i Pitarma, R. A. (2019). A cost-effective air quality supervision solution for enhanced living environments through the internet of things. *Electronics*, *8*(2), 170. https://doi.org/10.3390/electronics8020170

Martínez-Comesaña, M., Febrero-Garrido, L., Granada-Álvarez, E., Martínez-Torres, J. i Martínez--Mariño, S. (2020). Heat loss coefficient estimation applied to existing buildings through machine learning models. *Applied Sciences*, *10*, 8968. https://doi.org/10.3390/app10248968

Penttilä, H. (2006). Describing the changes in architectural information technology to understand design complexity and free-form architectural expression. *Journal of Information Technology in Construction (ITcon)*, *11*(29), 395-408. https://itcon.org/papers/2006_29.content.02253.pdf

Sanguinetti, P. (2009). BIM in academia: Shifting our attention from product to process. W: T. Tidafi, T. Dorta (red.), *Joining Languages, Cultures and Visions* (s. 365-409). CAADFutures. http://papers.cumincad.org/data/works/att/cf2009_395.content.pdf

Walczak, Z., Szymczak-Graczyk, A. i Walczak, N. (2017). Bim jako narzędzie przyszłości w projektowaniu i rewitalizacji obiektów budowlanych. *Przegląd Budowlany*, *88*(1), 20-26.

Wysocki, R. K. i McGary, R. (2005). *Efektywne zarządzanie projektami*. Helion.

Zanchetta, C., Croatto, G., Paparella, R. i Turrini, U. (2014). Performance based building design to ensure building quality: from standardization to LEAN construction. *TECHNE – Journal of Technology for Architecture and Environment*, (8), 62-69. https://doi.org/10.13128/Techne-15061

Zima, K. (2012). Zarządzanie informacjami w zintegrowanej realizacji inwestycji. *Zeszyty Naukowe WSOWL*, *4*(166), 146-158.

Innovation in the management of sustainable architectural projects

Abstract. *In order to ensure that future generations can enjoy a similar quality of life as we do at present, it is necessary to create sustainable infrastructure which meets the requirements of sustainable development (such as the use of renewable materials, reduction of environmental pollution, conservation of energy and water) and takes into account public health security. The main*

requirements to be met regarding sustainable design have to do with a number of technological, environmental and functional aspects directly and indirectly related to the quality of the environment which is to be created. These interdependencies can be effectively managed by using building information modelling (BIM), which enables designers to conduct simulations of the actual behaviour of the building structure, its functionality and take into account system hierarchies. The author discusses practical aspects of innovative management of architectural and construction projects with sustainable features and identifies modern IT tools used in architectural design. These tools facilitate cooperation between architects and designers from other branches of the construction industry (engineers, constructors, etc.) at every stage of the construction process and throughout the entire life cycle of a building.

Keywords: *management, innovation, sustainable design*

Zeszyty Naukowe
Wyższej Szkoły Bankowej w Poznaniu
2022, vol. 97, no. 2, pp. 117-130
https://doi.org/10.58683/01.3001.0016.2117

Rafał Bielawski

Uniwersytet Jana Kochanowskiego w Kielcach (Polska)
orcid.org/0000-0002-6203-4367
e-mail: rafal.bielawski@ujk.edu.pl

Współczesna kontrola działań marketingowych z perspektywy marketingu 5.0

Streszczenie. *Kontrola działań marketingowych, będąca holistyczną i antycypacyjną koncepcją zarządzania, powinna umożliwiać elastyczne i szybkie reagowanie na zmiany zachodzące w otoczeniu organizacji. Zadanie to nie jest łatwe, ponieważ obecne środowisko biznesowe charakteryzuje się wysokim poziomem zmienności i nieprzewidywalności, o czym świadczy amerykański model VUCA. Potwierdzają to osoby zajmujące się kontrolą działań marketingowych w czasie pandemii. Kolejnym wyzwaniem w tej dziedzinie jest szeroko pojęta cyfryzacja związana z koncepcją przemysłu 4.0, która stanowi podstawę futurystycznej koncepcji marketingu 5.0. Marketing 5.0, będący pochodną Agendy 2030 uchwalonej przez ONZ, polega na zaangażowaniu najnowszych technologii w celu zapewnienia dobrostanu społecznego w sposób zrównoważony. Celem opracowania jest omówienie zagadnienia kontroli działań marketingowych w świetle wyzwań, jakie stawia marketing 5.0 przed współczesnymi organizacjami.-*

Słowa kluczowe: *kontrola działań marketingowych, przemysł 4.0, marketing 5.0*

1. Wprowadzenie

Wariabilizm współczesnego świata prowadzi nieuchronnie do wszystkich konsekwencji wynikających ze zmienności i nieprzewidywalności otaczającej rzeczywistości. Implikuje to niewątpliwie trudności w nawiązaniu logicznego kontaktu poznawczego z otaczającymi bytami. Klasyczne pryncypium poznania rzeczywistości, zasada podwójnego zreflektowania ma zasadniczy wpływ na weryfikację założonych tez (Krąpiec, 1988, s. 31-34). Mówiąc inaczej, odnosi się to *par excellence* do dochodzenia prawdy na poddanej eksploracji płaszczyźnie. W sytuacji szybkich i niejednoznacznych zmian można ulec złudzeniu, że kla-

syczne arystotelesowskie rozumienie prawdy jest podawane w wątpliwość. Podkreślić należy, że prawda w klasycznym rozumieniu to zgodność rzeczywistości z wykoncypowanymi konstruktami myślowymi, sądami, które odnoszą się do tej rzeczywistości (*Powszechna encyklopedia filozofii*, 2008, s. 389). Ukierunkowanie na prawdę jest immanentną cechą natury ludzkiej, która dąży nie tylko do opisu rzeczywistości, ale przede wszystkim do jej zrozumienia (Maryniarczyk, 2007, s. 12-19). Przekładając filozoficzne dywagacje na niższy poziom abstrakcji, można powiedzieć, że w wielu dziedzinach życia społecznego dochodzi do dychotomii poznawczej. Jedną z płaszczyzn naukowej refleksji, na której zauważalne są niepokojące problemy dyskursu poznawczego, jest obszar organizacji i zarządzania.

Zmienność czynników wpływających na szeroko pojęte organizacje, opisana m.in. w amerykańskim modelu VUCA, jest asumptem do zmian w zakresie stosowanych metod zarządzania. Egzemplifikacją takich koncepcji sterowania organizacjami są controlling i marketing. Wiele koncepcji szeroko rozumianych zmian jest w pewien sposób kodyfikowanych i kanalizowanych przez gremia międzynarodowe. Transparentnym przykładem może być dokument uchwalony w 2015 r. przez ONZ, znany, jako Agenda 2030 (Rezolucja, 2015). Lektura tekstu rezolucji ONZ nasuwa refleksję, że obecne przemiany w organizacjach są w dużym stopniu ukierunkowane na szerszy społeczny wymiar. Nowe ujęcie controllingowego i marketingowego sposobu myślenia o przedsiębiorstwie jest zarówno dalekim, jak i bliskim echem zapisów wspomnianego dokumentu. Artykuł jest próbą syntetycznego ujęcia problematyki controllingu w świetle zmian w myśleniu o organizacji i zarządzaniu, w powiązaniu z nowatorskim ujęciem marketingu, definiowanym, jako marketing 5.0.

2. Konstrukcja merytoryczno-formalna opracowania

Artykuł ma charakter przeglądowy, dotyczy zagadnienia przeobrażeń controllingu w kontekście koncepcji marketingu 5.0. Ważną płaszczyzną jest tło aksjologiczne zachodzącej transformacji. Chodzi przede wszystkim o wspomnianą Agendę 2030, która jest pewnego rodzaju cezurą czasowo-merytoryczną analizowanych przemian. Nie bez kozery zawarty jest w nazwie Agendy rok 2030. Data ta bowiem wyznacza finał czasowy głównego etapu przemian. W ostatnich latach zaistniały jednak pewne fakty, które skutkowały akceleracją zachodzących przeobrażeń. Niezaprzeczalną egzemplifikacją jest pandemia COVID-19, która była w wielu wypadkach sprawdzianem generalnym dla teoretycznych konstruktów zawartych w dokumencie ONZ. Weryfikacja wywołana przez pandemię dotyczyła także wszystkich metod i koncepcji zarządzania bazujących na antycypacji przyszłości. Wykreowana w ostatnim czasie idea marketingu 5.0, w dość istotny

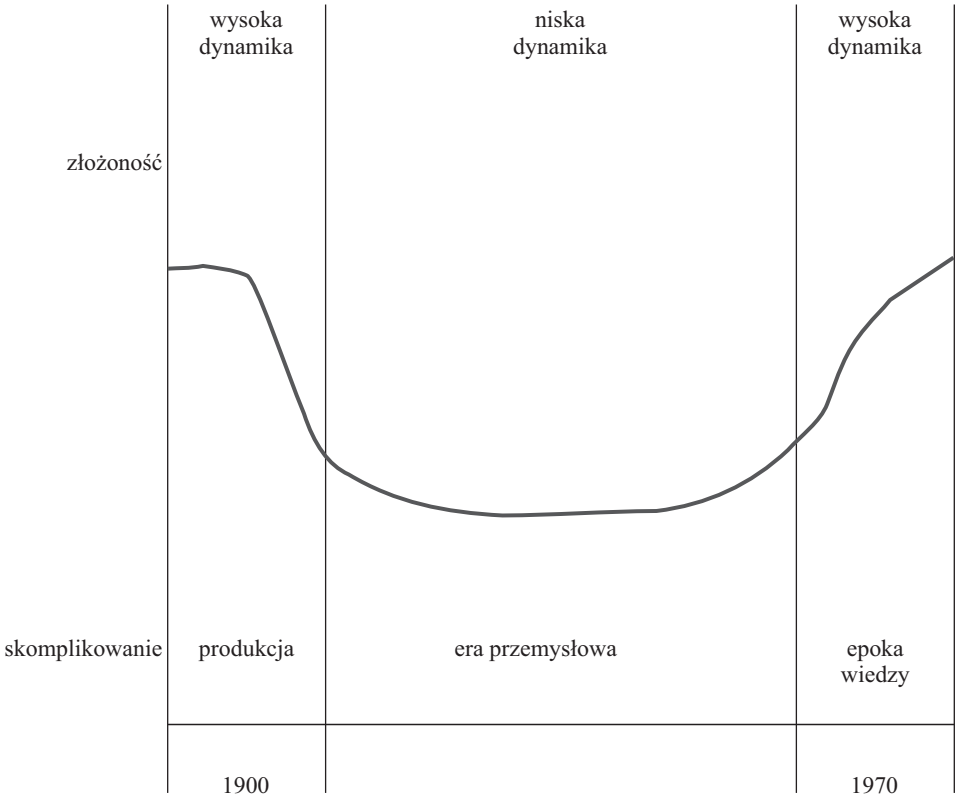
sposób wykazująca korelacje z rewolucją przemysłową 4.0 (*Industrie 4.0*) i nowoczesnym controllingiem, także została poddana testowi Talebowskiego „czarnego łabędzia" (Taleb, 2015, s. 9-25). Rewolucja przemysłowa 4.0 stanowi bazę techniczno-operacyjną dla nowego podejścia zarówno w marketingu, jak i controllingu. Celem opracowania jest prezentacja szerokiego kontekstu przemian controllingu w konotacji z modelem marketingu 5.0. Ze względu na duży obszar tematyczny problematyki skupiono uwagę na wybranych elementach związków między wymienionymi koncepcjami. Sedno problematyki wiąże się z zagadnieniem cyfryzacji procesów biznesowych, które występują zarówno w controllingu, jak i nowym modelu marketingu. W artykule zrezygnowano ze szczegółowego wyjaśniania pojęć pierwotnych związanych z controllingiem i marketingiem. Skoncentrowano się na *clou* zagadnień dotyczących podobieństw i różnic przemian w controllingu i marketingu 5.0. W tym celu wyjaśniono kluczowe zagadnienia, takie jak: model zmienności VUCA, Agenda 2030 czy rewolucja 4.0. Warto podkreślić, że metody zarządzania mają ewolucyjny charakter w szerokim kontekście zmian otoczenia organizacji. Wiąże się to z koncepcją tzw. wanny Taylora. Tematowi temu poświęcono kilka uwag.

Dokonano szerokiej kwerendy z zakresu omawianej tematyki zarówno w publikacjach zwartych, czasopismach, jak i zasobach sieciowych. Asumptem do powstania artykułu są zainteresowania autora, które koncentrują się wokół roli nowoczesnych metod zarządzania organizacjami, pochodzącymi głównie z obszaru controllingu *sensu largo*.

3. Współczesny świat organizacji

Powtarzana jak mantra sentencja o nieprzewidywalności i zmienności otoczenia, w którym funkcjonują organizacje, została przez jej nadużywanie w pewien sposób zbanalizowana. Nie oznacza to jednak, że zawiera ona fałszywe tezy, co ma swoje odzwierciedlenie w tzw. modelu VUCA opisującym warunki, w jakich funkcjonują współczesne organizacje. VUCA to akronim angielskich słów oznaczających zmienność (*volatility*), niepewność (*uncertainty*), złożoność (*complexity*) i niejednoznaczność (*ambiguity*). Jak to często bywa w naukach o zarządzaniu, model VUCA nie jest oryginalną koncepcją w dziedzinie zarządzania. Koncepcja VUCA, która miała opisywać świat organizacji na początku XXI w., została zaczerpnięta z obszaru nauk wojskowych. Termin VUCA powstał w US Army War College pod koniec lat 80. XX w. i służył do opisania sytuacji na świecie w kontekście geopolityki po zakończeniu zimnej wojny. Autorami tej koncepcji są teoretycy przywództwa wojskowego – W. Bennis i B. Nanus, którzy po raz pierwszy użyli tego terminu w 1987 r. w kontekście ryzyka podejmowania decyzji. VUCA nazywana jest również profilowaniem niepewności zarówno w wymiarze operacyjnym, taktycznym, jak i strategicznym (Bennett i Lemoine, 2014, s. 27).

Istotne jest, że zmienność otoczenia organizacji, która obecnie ma dość spektakularny wymiar, nie jest fenomenem, wypadkową akcydentalnych czynników. Jest pochodną pewnego procesu ewolucyjnego rozwijającego się w przestrzeni czasowej. Nie brak w literaturze przedmiotu modeli, które opisują to zjawisko. Dość ciekawe ujęcie problematyki rozwoju rynku i konkurencji zostało skonkretyzowane w postaci terminu „wanna Taylora". Zaznaczyć trzeba, że nie jest to emanacja ekscentrycznej imaginacji uczonych ukierunkowana na tzw. pozytywne wyróżnienie się w świecie nauki, lecz poważna synteza omawianego zagadnienia. Omawiane zagadnienie prezentuje rysunek 1. Wynika z niego, że od ok. 1900 r., czyli przełomu wieków, w którym nastąpiło przejście od produkcji manufakturowej do tzw. przemysłowej, do ok. 1970 r., czyli początków drugiej rewolucji przemysłowej, występuje zjawisko wanny Taylora (Pfläging, 2018, s. 6-18). Metafora ta jest związana z kształtem wykresu, na którym przedstawiono analizowane zjawisko tranzycji organizacji w kontekście relacji do uprzemysłowienia.



Rysunek 1. Wanna Taylora – metaforyczne ujęcie zmian rynkowych

Źródło: Willkomm, 2021.

Reasumując, implikacją powyższej koncepcji jest odejście od myślenia opartego na wąskiej specjalizacji w kierunku myślenia zespołowego. W odniesieniu np. do struktury organizacyjnej przedsiębiorstwa oznacza to obalenie mitu hierarchiczności na rzecz struktur spłaszczonych wertykalnych. Zauważalny obecnie kontekst społeczny i informacyjny wynikający ze zjawiska wanny Taylora to porzucenie myślenia opartego na dominacji przemysłu w kierunku cyfryzacji i wiedzy, która przez rozwój sieci nabiera nowej jakości. Jeśli chodzi o charakter rynków, to w okresie manufakturowym były one dość rozproszone. W okresie tayloryzmu nastąpił dość gwałtowny rozwój rynków w ujęciu globalnym. Wraz z nastaniem epoki wiedzy, ekonomii sieciowej powoli następuje rozproszenie struktur rynkowych.

Trudno także obecnie nie zauważyć działań i decyzji o charakterze szerszym, międzynarodowym, które w dużej mierze formatują zmiany, jakie zachodzą we współczesnych organizacjach i metodach zarządzania. Digitalizacja – popularne hasło nieschodzące z ust promotorów nowoczesnego controllingu jest także desygnatem innych koncepcji zarządzania, np. marketingu 5.0, koncepcji ściśle związanej z Agendą 2030 ONZ, która wyznacza pewien azymut i cezurę czasową na rok 2030. Dotyczy ona zagadnienia nie tylko cyfryzacji, ale także szeroko pojętej ochrony środowiska czy inkluzywności. Można zaryzykować tezę, że wnioski płynące z dokumentu przyjętego przez ONZ są ideowym motorem procesów, jakie zachodzą obecnie w przedsiębiorstwach. Jednak jak się wydaje, Agenda 2030 jest ujętą w sposób zwerbalizowany syntezą koncepcji i działań, jakie były wygenerowane znacznie wcześniej. Zarówno bowiem rewolucja 4.0, jak i koncepcja cyfryzacji mają znacznie wcześniejszy rodowód. Warto nadmienić, że Agenda 2030 ma charakter rezolucji, to znaczy jest deklaratywnym aktem prawnym. Sygnatariusze Agendy 2030 nie są formalnie zobowiązani do jej ścisłego wdrożenia. Z teoretycznego punktu widzenia brak jej implementacji nie powinien wiązać się z negatywnymi konsekwencjami. Dokument dotyczy szerokiego zakresu przemian społeczno-gospodarczych i technologicznych. Z punktu widzenia analizowanego tematu obszar problematyki został świadomie zawężony do przeobrażeń controllingu i nowej koncepcji marketingu, określanego, jako marketing 5.0 w kontekście nowych technologii.

Problematyka przemian na płaszczyźnie postrzegania świata w aspekcie technik i narzędzi w realizacji powyższych postulatów, jak już wspomniano, jest związana z czwartą rewolucją przemysłową. Termin *Industrie 4.0* (przemysł 4.0) powstał w Niemczech podczas targów w Hanowerze w 2011 r. Koncepcja ta jest związana z projektem rządu Niemiec w zakresie implementacji tzw. wysokich technik w odniesieniu do systemów produkcyjnych (Pfeiffer, 2016, s. 107-121). Wysokie technologie (*high tech*) to szeroko pojęta komputeryzacja, wykorzystanie sieci internetowej w systemach produkcji i logistyki. Użyte terminy stanowią jedynie zarys spektrum technologicznego, aczkolwiek sedno zagadnienia jest

związane z zastosowaniem najnowszych technologii, które wywodzą się z obszaru informatyki, takich jak *big data*, *blockchain* czy też *artificial intelligence* (AI), czyli sztuczna inteligencja. Terminy te będą rozwinięte w dalszej części opracowania.

Ciekawym aspektem ekonomicznym, który powstał na gruncie rewolucji 4.0, jest popularny obecnie problem tzw. ekonomii prokrastynacyjnej. Prokrastynacja to słowo pochodzenia łacińskiego (*procrastinatio*) i w wolnym tłumaczeniu oznacza zjawisko odkładania pracy na później. Prokrastynacja istniała od zawsze, ale ze dwojoną siłą pojawiła się w czasie pandemii COVID-19, która wymusiła pracę zdalną. Technicznie praca zdalna jest możliwa właśnie dzięki operacjonalizacji informatycznej wynikającej z rewolucji 4.0. W wielu przypadkach pracownicy wykonujący swoje zadania zdalnie doświadczają stresu, który rodzi poczucie bezsensowności pracy (*bullshit jobs*). Wnikliwą analizę tego zagadnienia przedstawia E. Mączyńska (2019).

4. Controlling i marketing 5.0 w epoce przeobrażeń

W ujęciu figuratywnym marketing 5.0 jest koniunkcją koncepcji marketingu 4.0 z ideą zaangażowania cyfryzacji dla służby i dobra ludzkości. Należy zaznaczyć, że wcześniejsze modele marketingowego działania wykazywały znamiona ewolucyjności w podejściu przedsiębiorstw do klienta. Marketing 1.0 był zorientowany na produkt, marketing 2.0 na klienta, marketing 3.0 miał charakter humanocentryczny, natomiast marketing 4.0 to marketing cyfrowy. Autorzy koncepcji marketingu 5.0, czyli P. Kotler, H. Kartajaya i I. Setiawan, wychodzą z założenia, że w związku z pojawieniem się na rynku tzw. pokolenia Z i alfa nieodzowne jest zaangażowanie wysokich technologii w funkcjonowaniu organizacji, w tym też w marketingu (Kotler i in., 2021, s. 45). Koncepcja pokoleń została stworzona przez amerykańskich historyków W. Straussa i N. Howe'a i przedstawiona w 1992 r. w ich książce *Generations. The history of America's future, 1584 to 2069*. Ujmując zagadnienie *in brevis*, autorzy twierdzą, że każde pokolenie charakteryzuje się specyficznymi i w pewnym sensie odrębnymi cechami od pozostałych (Strauss i Howe, 1992, s. 7-18). Z punktu widzenia organizacji wiąże się to z potrzebą odmiennego podejścia do zarządzania w stosunku do ludzi tworzących dane pokolenie. Pokolenie Z to urodzeni w latach 1997-2009, a pokolenie alfa – najmłodsze – obejmuje urodzonych między 2010 a 2025 r. Ludzie pokolenia Z i alfa są w pełni zaangażowani w wykorzystanie cyfrowych technologii. Zjawisko to dotyczy szczególnie osób z pokolenia alfa, które chociażby z racji daty urodzenia są w pełni obywatelami XXI w. Są one nie tylko tak jak pokolenie Z cyfrowymi tubylcami, ale można zaryzykować twierdzenie, że zostały ukształtowane przez zdigitalizowaną konwergencję. Od wczesnego dzieciństwa w pro-

cesie wychowania ludzi tego pokolenia występuje koniunkcja między nowoczesnymi technologiami a ich realnym życiem. Oznacza to, że dla przedstawicieli tego pokolenia świat rzeczywisty dość niebezpiecznie przeplata się ze światem wirtualnym, co w wielu wypadkach może prowadzić do zatarcia różnicy między tymi dość odmiennymi rzeczywistościami.

W kręgach naukowych koncepcja pokoleń była początkowo traktowana jako pseudonaukowa. Obecnie trudno znaleźć poważne opracowanie tematyki zmian społecznych i ich wpływu na zarządzanie, w którym w sposób pozytywny nie ma odniesienia do koncepcji Straussa i Howe'a (1992). Można powiedzieć, że teoria ta stała się swoistym toposem w zakresie holistycznego wielopłaszczyznowego rozpatrywania zmian we współczesnym świecie. Doczekała się też wielu opracowań z obszaru nauk społecznych, w których model zmian pokoleniowych jest doprecyzowany i uzupełniany. Zaliczyć do nich możemy m.in. wspomnianą już pracę F. Kotlera i współautorów, którzy dokonali reinterpretacji marketingowego myślenia, co zostało skonkretyzowane w modelu marketingu 5.0, koncepcji, która symbiotycznie jest związana z szeroko pojętym nowoczesnym zarządzaniem przedsiębiorstwem.

W relacji do współczesnego controllingu rozumianego szeroko (koncepcja niemiecka) i wąsko, tzn. rozbudowanej rachunkowości zarządczej (ujęcie amerykańskie), można zaobserwować dość istotne analogie z marketingiem 5.0. Egzemplifikacją w zakresie doktrynalnym może być koncepcja controllingu menedżerskiego sformułowana przez J. Nesteraka (2015). Uważa on, że dotychczasowa funkcja doradcza controllingu pozostająca w pewnej autonomii do funkcji zarządzania może być z nią w wielu aspektach połączona (Nesterak, 2015, s. 121-125). Controlling, który w swoim obszarze funkcyjnym w wielu przedsiębiorstwach obejmuje marketing, w gruncie rzeczy podlega tym samym procesom unowocześnienia, jakie są postulowane w marketingu 5.0. Na dobrą sprawę w zakresie każdego elementu kreującego przestrzeń marketingu 5.0 możemy znaleźć dość istotne konotacje z controllingiem.

Najistotniejsze jest jednak to, że płaszczyznami obydwu koncepcji, między którymi możemy postawić znak równości, a właściwie tożsamości, jest obszar zaangażowania nowoczesnych, cyfrowych technologii. Rzeczywistość mimo swojej fraktalnej architektury jest zbyt złożona, aby móc dokonywać dalekosiężnych syntez i konkluzji (Binsztok, 2002, s. 19-22). Klasyczna zasada „część za całość" (łac. *pars pro toto*) nie jest możliwa do zaimplementowania w analizowanym przypadku. Jest to związane przede wszystkim z niezwykłą złożonością problematyki i odmiennością co do szczegółów koncepcji controllingu i marketingu. W takich warunkach dokonanie subtelnej i konstruktywnej syntezy jest dość kontrowersyjne.

Wracając do zarysu nowego podejścia w marketingowym myśleniu, jednocześnie systematyzując zagadnienie, można skonstatować, że Kotler i in. dzielą obszar implementacji marketingu 5.0 na obszar strategiczny i taktyczny. Wymiar

długoterminowy dotyczy następujących warstw strategicznych (Kotler i in., 2021, s. 89-155):

– organizacji cyfrowej,
– technologicznego zaawansowania,
– nowych doświadczeń konsumenckich.

Zagadnienie organizacji cyfrowej jest związane z optymalnym wykorzystaniem nowoczesnych technologii w organizacji. Pandemia COVID-19 znacznie przyspieszyła ten proces. Stała się pewnego rodzaju katalizatorem digitalizacji zarówno w ujęciu jednostkowym przedsiębiorstw, jak i w wymiarze osobistym, tzn. dotyczącym jednostek ludzkich. Generalnie w koncepcji organizacji cyfrowej chodzi o maksymalne odejście od fizycznych interakcji na rzecz cyfrowych procesów biznesowych.

Jest to związane z technologicznym zaawansowaniem, które powinno prowadzić do implementacji i wykorzystania nowoczesnych technologii w organizacji. Technologie te, zwane *next tech*, w gruncie rzeczy wymyślone wiele lat temu, zyskują obecnie na znaczeniu i są wdrażane w organizacjach. Chodzi przede wszystkim o sztuczną inteligencję, zarówno wysoką, jak i niską. Nadmienić trzeba, że pojęcie i koncepcja sztucznej inteligencji zostały przedstawione przez amerykańskiego informatyka J. McCarthy'ego w 1956 r. na konferencji w Dartmouth. W przypadku koncepcji marketingu 5.0 ciekawym zagadnieniem możliwym do zrealizowania za pomocą sztucznej inteligencji jest hiperzindywidualizowane podejście do klienta. Zgodnie z modelem wanny Taylora istnieje tendencja do dyspersji rynków. Docelowo w koncepcji marketingu 5.0 rozproszenie rynku może mieć charakter totalny. Mówiąc inaczej, dalece posunięta indywidualizacja w podejściu do klienta może doprowadzić do tzw. zjawiska indywidualizacji doświadczenia sensorycznego. W terminologii marketingu znaczna personalizacja strategii marketingowej umożliwia zastosowanie indywidualnego podejścia do każdego klienta. W obszarze tym funkcjonuje termin marketingu dla segmentu jednostki (*segment-of-one marketing*). Oznacza to, że każdy klient może być oddzielnym, indywidualnym „rynkiem". Jest to możliwe dzięki zastosowaniu najnowocześniejszych technologii. W przypadku marketingu dla segmentu jednostki chodzi przede wszystkim o analitykę tzw. dużych danych, zmiennych (*big data*) z wykorzystaniem algorytmów AI.

Wymiar taktyczny marketingu 5.0 jest związany z zastosowaniem nowych technologii w celu realizacji aspektów strategicznych. W obszarze tym można wyróżnić następujące płaszczyzny nowego podejścia (Kotler i in., 2021, s. 155-233):

– marketing oparty na danych,
– marketing predykcyjny,
– marketing kontekstowy,
– marketing rozszerzony,
– marketing zwinny.

Aspekty predykcji, czyli przewidywania zmian i procesów, mają niezwykłą pozycję we współczesnym myśleniu o organizacji. Desygnat antycypacji przyszłości jest wpisany w naturę controllingu. Rachunkowość zarządcza, która w wąskim ujęciu amerykańskim jest utożsamiana z controllingiem, stanowi jeden z elementów, które z natury rzeczy podlegają przemianom związanym z rewolucją 4.0 i jej wszystkimi konotacjami. Controlling i rachunkowość zarządcza wyrosły na bazie aksjologicznej, które stanowią sprzężenie zwrotne (*feed back*) i sprzężenie wyprzedzające (*feed forward*), co wpisuje je w nurt koncepcji antycypacyjnych. Controlling ma bowiem immanentną naturę o charakterze metacybernetycznym. Metacybernetyka zakłada, że stany obecne systemu zależą nie tylko od stanów przeszłych, ale także od stanów przyszłych (Kossecki, 2005, s. 144).

Środowiska controllerskie od dawna zastanawiały się nad dostosowaniem controllingowego sposobu myślenia o przedsiębiorstwie do zmian zachodzących w otoczeniu i wnętrzu organizacji, a wynikających głównie z potrzeby zastosowania nowych technologii. Rodziło się także wiele obaw. Według S. Gaensslena controllerzy nie powinni obawiać się naturalnych procesów zachodzących w świecie (Gaensslen 2017, s. 26). Autor uważa, że wielu controllerów traktuje zagadnienia związane z cyfryzacją, takie jak *big data* czy *blockchain*, jako katastrofę, obawiając się, że człowiek stanie się *quasi*-robotem. Tak jednak nie jest, gdyż organizacja i wszystkie metody zarządzania są antropogeniczne i antropomorficzne. Jesteśmy aktorami w organizacji, którzy kształtują rzeczywistość tu i teraz, mającymi ogromny wpływ na to, jakie przemiany występują w przedsiębiorstwie. Podobnie sprawa wygląda w przypadku marketingu. Jednym z podstawowych modeli controllingowych, będących egzemplifikacją przystosowania się do zachodzących dynamicznie zmian, jest tzw. trójkąt controllingowy oparty na trzech A (*triple A*) (Losbichler, 2013, s. 57-76):

– zwinność (*agility*),
– zdolność do adaptacji (*adaptability*),
– dopasowanie (*alignment*).

Koncepcja potrójnego A w controllingu nie jest oryginalną myślą wykreowaną w tym obszarze koncepcyjnym. Jest ona zapożyczona z idei H. L. Lee (2004). Pierwotnie chodziło o elastyczność, zdolność do adaptacji i umiejętność przedsiębiorstw do wykorzystywania swoich mocnych stron w kontekście zmian, jakie zachodzą w jego otoczeniu (Lee, 2004, s. 102-112). Zwinność w zakresie controllingu pokrywa się co do istoty koncepcji z organizacją szybko reagującą na zmiany, co zawiera się w dość popularnym terminie organizacji zwinnej (Olak, 2017). W odniesieniu do controllingu problem zwinności, czyli elastycznego dostosowywania się do wysoce zmiennej sytuacji, dotyczy zarówno aspektów operacyjnych, jak i strategicznych na płaszczyźnie labilnych rynków (*Controller-Statements, Instrumente*, 2012, s. 7-13). Labilność w przypadku controllingu ma swoje istotne odzwierciedlenie w elastyczności nie tylko w zakresie stosowanego

instrumentarium controllingowego, ale także w wymiarze organizacyjnym. Cały system controllingowego sytemu ostrzegania powinien wykazywać się dużym poziomem wrażliwości na poziomie operacyjnym. Praktyczne odniesienie zwinności controllingu wyraża się w jego sztandarowym instrumentarium, tzn. budżetowaniu. Elastyczne, dynamiczne budżetowanie wymaga kreacji elastycznego systemu planowania i kontroli oraz szybko reagującego systemu wykonawczego. Ważne jest, aby w organizacji występowała odpowiednia symbioza w tym zakresie. Stworzenie nowoczesnej, rzutkiej konstrukcji systemu controllingowego z całą pewnością stanie się bezużyteczne w sytuacji, kiedy inne elementy organizacji będą miały charakter przestarzały.

W relacji do aspektów przystosowawczych, czyli adaptacyjnych, będących drugim filarem koncepcji *triple A*, zagadnienie dotyczy sedna controllingu, a więc optymalnej antycypacji zmian w otoczeniu, tendencji rynkowych i odpowiedniego reagowania na te przemiany. Nietrudno zauważyć, że w przypadku tego elementu ważny jest aspekt strategiczny controllingu z wykorzystaniem całego dorobku zarządzania strategicznego. Na poziomie praktycznym adaptacyjność wiąże się ze sporządzaniem różnych wariantów elastycznych budżetów z zastosowaniem tego, który będzie najlepszy w zaistniałej sytuacji w czasie rzeczywistym.

Ostatni element modelu *triple A*, czyli dostosowanie, dość istotnie rezonuje z koordynacją zorientowaną na cel oraz tzw. wyrównaniem, wygładzeniem. Jest to powiązane z funkcją koordynacyjną controllingu w zakresie realizowanych celów, co ma szczególnie istotne znaczenie w przypadku rozbudowanych organizacji, korporacji, w których występuje wiele strategicznych jednostek biznesu. Ma to silne konotacje z dynamicznym, zdecentralizowanym zarządzaniem w zakresie funkcji decyzyjnych i kontrolnych.

Artykuł jest próbą analizy ważkiego problemu, jakim jest m.in cyfryzacja. Trzeba podkreślić, że elementy związane z rewolucją 4.0 są tylko narzędziami mającymi służyć do szeroko pojętego przemodelowania świata. Przekształcenie rzeczywistości ma charakter holistyczny, tzn. dotyczy wszystkich dziedzin życia ludzkiego, jego wymiaru socjologicznego, psychologicznego, ekonomicznego. Fizyczna ingerencja sztucznej inteligencji do wymiaru somatycznego człowieka wydaje się czymś przerażającym. Na dobrą sprawę nikt nie jest obecnie w stanie przewidzieć, jakie będzie to rodziło konsekwencje. Nosi to wszelkie znamiona zakrojonego na szeroką skalę eksperymentu naukowego. Jak wiadomo, eksperymenty mogą kończyć się zarówno negatywnymi, jak i pozytywnymi efektami. Mogą też mieć indyferentny charakter.

Naturalną dla organizacji materią jest ciągła zmiana modelu biznesowego działania, którego rachunkowość zarządcza i controlling są immanentnym elementem. W kontekście analizowanej problematyki w trakcie wszystkich rewolucji technicznych następowały dramatyczne zmiany w sposobie działania przed-

siębiorstw rozumianych jednostkowo i w ujęciu holistycznym, tzn. relacji między nimi. Przemianom tym przyświecał jeden cel – ściślejsza i efektywniejsza kooperacja między partnerami biznesowymi w łańcuchu wartości. Implikacją tych działań powinno być zwiększenie wartości w ujęciu indywidualnym, jak i całości sytemu kooperacji organizacji (Bleiber, 2021, s. 13).

Także w przypadku marketingu 5.0 i nowego ujęcia controllingu zasadniczym kryterium ich efektywności jest wpływ na zwiększanie wartości organizacji. W ujęciu metaforycznym linia frontu przedsiębiorstwa, czyli obszar operacyjny i taktyczny, powinna w sposób optymalny minimalizować koszty. W odniesieniu do zagadnienia implementacji technik związanych z rewolucją 4.0 możemy zaobserwować, że niestosowanie zdobyczy techniki w bieżących działaniach nieuchronnie może prowadzić do perturbacji, a w konsekwencji do jednostkowego i całościowego wzrostu kosztów w przedsiębiorstwie. Jako przykład można podać bankowość internetową czy używanie kart płatniczych. Teoretycznie można funkcjonować bez tych instrumentów, natomiast jest to po prostu nieopłacalne. W wymiarze organizacji jest to oczywiście bardziej skomplikowane, ale myśl przewodnia zagadnienia jest podobna. Zarządzający organizacjami w większości przypadków zauważają ważkość digitalizacji i są dość entuzjastycznie nastawieni do implementacji nowoczesnych technik cyfrowych. Menedżerowie poprzez zwykłą komparację widzą, że implementacja nowoczesnego oprogramowania dostosowanego do rewolucji 4.0 np. w obszarze finansów rachunkowości czy inwestycji daje większe efekty kosztowe niż opieranie się na przestarzałym softwarze (Gadatsch, 2021, s. 20-25).

Z perspektywy teorii systemowej i cybernetyki zwiększenie liczby elementów systemu, szczególnie mających charakter jakościowy, prowadzi do zwiększenia jego wrażliwości (Mazur, 1976, s. 147). W odniesieniu do podejmowanego tematu zachodzące zmiany z natury rzeczy będą prowadzić do zwiększenia poziomu zakłóceń w systemie. Sztuczna inteligencja tzw. wysoka jest jeszcze w fazie raczkowania. Dalszy jej rozwój, zwłaszcza w związku z tworzeniem symulacji w czasie rzeczywistym, jest ograniczony zdolnościami maszyn liczących.

5. Podsumowanie

Niezwykła złożoność merytoryczna prezentowanej tematyki z natury rzeczy wymusza cząstkowe jej potraktowanie. Jednak nawet na podstawie zarysu przeobrażeń zachodzących obecnie w controllingu i marketingu można wysnuć pewne wnioski. W odniesieniu do cyfryzacji, wirtualizacji rzeczywistości, która emanuje z nowoczesnego ujęcia organizacji w przestrzeni zarówno naukowej, jak i publicystycznej, panuje dość jednostronny przekaz. Dominuje przede wszystkim

idealistyczna gloryfikacja nowych technologii bez głębszej refleksji na temat długofalowego jej wpływu na rzeczywistość. Można także odnieść mylne wrażenie, że wraz z implementacją najnowszych technologii zmienia się immanentna natura organizacji i metod zarządzania nimi. Podkreślić trzeba, że obydwie koncepcje controllingu i marketingu zachowują swoje pierwotne znaczenie. Zmianie ulegają natomiast narzędzia, które są przez te metody wykorzystywane. Sedno przemian dotyczy natomiast ich potencjalnych skutków, co jest związane z naturą zachodzących przeobrażeń.

Koncepcja marketingu 5.0 zawiera dużo wątpliwych elementów. P. Kotler i in. (2021) używają często nacechowanych jakościowo terminów, takich jak szczęście czy dobrostan. Odnosi się wrażenie pewnej dychotomii myślenia szczególnie w kontekście Agendy 2030. Dobrostan i ogólnie pojęte zadowolenie to w dużej mierze stany emocjonalne, dość abstrakcyjne ze swej natury. Współczesna psychologia jednoznacznie stwierdza, że emocje nie mają wiele wspólnego z intelektem i trwałością (Grzywa, 2009, s. 72-78). Powstaje zasadnicze pytanie o kryteria tzw. szczęścia i decydentów w tym zakresie. Prowadzi to do zasadniczej tezy. Człowiek będący osobą, czyli bytem indywidualnym o rozumnej naturze, sam powinien decydować o tym, co daje mu stan zadowolenia i dobrostanu.

Można zarzucić takim konstatacjom brak weryfikacji empirycznej, ale trudno jest przejść obojętnie obok zauważalnych już skutków zachodzących przemian Może zabrzmieć to dość paradoksalnie, ale warto przypomnieć sobie słowa amerykańskiego filozofa G. Santayany, który twierdził, że „kto nie zna swojej historii jest skazany na jej powtarzanie" (Santayana, 2017, s. 284). Dość istotnym uzupełnieniem *a contrario* jest podejście amerykańskiego psychologa P. Zimbardo, który rozwój uzależniał od zerwania z bagażem doświadczeń pochodzących z przeszłości (Zimbardo i in., 2013 s. 25-38). Trudno zaprzeczyć stwierdzeniu, że każdej zmianie, która jest warunkiem koniecznym, lecz niewystarczającym, do potencjalnego sukcesu, towarzyszą zarówno pozytywne, jak i negatywne skutki. W literaturze naukowej, a szczególnie w przestrzeni medialnej, można zauważyć dość niebezpieczny zachwyt nad pozytywnymi skutkami zachodzących przemian. Prawie całkowicie pomijane są pejoratywne aspekty zachodzących przeobrażeń. Przedstawiona w artykule problematyka i pytania z nią związane są – w ujęciu metaforycznym – otwartą księgą, której karty są zapisywane zarówno przez czynniki racjonalne, jak i nieracjonalne. Posługując się przykładem literackim amerykańskiego pisarza A. Huxleya, możemy zapytać: czy będzie to świat idylliczny, w gruncie rzeczy utopijny, opisywany w powieści *Wyspa* (*Island*, 1962), czy też mroczny, dystopijny wyłaniający się z kart *Nowego wspaniałego świata* (*Brave new world*, 1932)? Odpowiedź na postawione pytanie zostanie udzielona przez rzeczywistość i czas, które są naturalnymi i najlepszymi weryfikatorami kreacji umysłu człowieka.

Bibliografia

Bennett, N. i Lemoine, G. J. (2014). What VUCA really means for you. *Harvard Business Review*, *92*(1/2), 27-35.

Binsztok, A. (2002). Fraktal jako narzędzie opisu współczesnej organizacji działającej na granicy chaosu. *Zeszyty Naukowe Wyższej Szkoły Zarząd zania i Przedsiębiorczości w Wałbrzychu*, *2*, 19-25

Bleiber, R. (2021). *Controlling in digitalen Geschäftsmodellen*. Lexware GmbH & Co. KG.

Controller-Statements, Instrumente. (2012). *Moderne Budgetierung*. Internationaler Controller Verein, https://www.icv-controlling.com/fileadmin/Wissen/Frei_für_alle__Controller_Magazin_Statement__White_Paper__Schriftenreihe__Dream_Car_Bericht/Moderne_Budgetierung_für_Nicht-Mitglieder.pdf

Gadatsch, A. (2021). *IT-Controlling Von der IT-Kosten – und Leistungsverrechnung zum Smart--Controlling.* Springer Vieweg Verlag.

Gaensslen, S. (2017). *Controller als Moderatoren der Digitalisierung*. *Wirtschaftszeitung*, s. 26. https://www.icv-controlling.com/fileadmin/Wissen/Bericht/Controller_als_Moderatoren_der_Digitalisierung

Grzywa, A. (2009). *Pogranicza psychiatrii, drogi i bezdroża umysłu*. Wyd. Czelej.

Kossecki, J. (2005). *Metacybernetyka*. http://autonom.edu.pl/publikacje/kossecki_jozef/metacybernetyka-ocr.pdf

Kotler, P, Kartajaya, H. i Setiawan, I. (2021). *Marketing 5.0. Technologie next tech*. MT Biznes.

Krąpiec, M. A. (1988). *Metafizyka, zarys teorii bytu*. Wyd. TN KUL.

Lee, H. L. (2004). The Triple A – supply chain. *Harvard Business Review*, *82*(10), https://hbr.org/2004/10/the-triple-a-supply-chain

Losbichler, H. (2013). Triple-A-Controlling – Complexity Management in Volatile Times. W: R. Gleich (red.), *Complexity Controlling, Der Controlling-Beratung* (s. 57-76). Vol. 29. Haufe--Lexware.

Maryniarczyk, A. (2007). *Racjonalność i celowość świata osób i rzeczy.* Polskie Towarzystwo Tomasza z Akwinu.

Mazur, M. (1976). *Cybernetyka i charakter.* Państwowy Instytut Wydawniczy.

Mączyńska, E. (2019). [recenzja] Prokrastynacja – wpływ na nasze życie i gospodarkę. Refleksje na temat książki: Ethan Tussey, *Prokrastynacja. Kto zarabia na twojej przerwie?*. Warszawa 2018. *Biuletyn PTE*, 1(84), 21-24.

Nesterak, J. (2015). *Controlling zarządczy. Projektowanie i wdrażanie.* Wolters Kluwer.

Olak, A. (2017). Organizacja zwinna – wyznaczniki oraz kierunki strategii prowadzące do zwinności przedsiębiorstwa. *E-mentor*, *1*(68), 48-54. https://doi.org/10.15219/em68.1280

Pfeiffer, S. (2016). The vision of "Industrie 4.0" in the making – a case of future told, tamed, and traded. *NanoEthics*, *11*(1), 107-121. https://doi.org/10.1007/s11569-016-0280-3

Pfläging, N. (2018). *Organisation für Komplexität*. *Wie Arbeit wieder lebendig wird – und Höchstleistung entsteht.* Wyd. 4. Redline Verlag.

Powszechna encyklopedia filozofii. (2007). T. 7. Polskie Towarzystwo Tomasza z Akwinu.

Rezolucja. (2015). Rezolucja przyjęta przez Zgromadzenie Ogólne w dniu 25 września 2015 r. Przekształcamy nasz świat: Agenda na rzecz zrównoważonego rozwoju 2030. http://www.unic.un.org.pl/files/164/Agenda%202030_pl_2016_ostateczna.pdf

Santayana, G. (2017). *The Life of Reason.* Open Road Media.

Strauss, W. i Howe, N. (1992). *Generations. The history of America's future, 1584 to 2069.* Harper Perennial .

Taleb, N. N. (2015). *Czarny łabędź. Jak nieprzewidywalne zdarzenia rządzą naszym życiem*. Zysk i S-ka.

Willkomm, D. (2021). *Roadmap durch die VUCA-Welt. Für Führungskräfte, Scrum Master und Agile Coaches.* UVK Verlag – ein Unternehmen der Narr Francke Attempto Verlag GmbH + Co. KG.

Zimbardo, P., Sword, R. i Sword, R. (2013). *Siła czasu.* Wyd. PWN.

Modern marketing control in the context of marketing 5.0

Abstract. *Marketing control, which refers to a holistic and forward-looking concept of management, should enable flexible and rapid reactions to changes taking place in the organization's environment. Given the highly variable and unpredictable nature of the current business environment, as described by the American VUCA model, this is by no means an easy task. This conclusion is largely confirmed by the experience of controllers during the COVID-19 pandemic. Another challenge in this field is the process of digitalisation associated with the concept of Industry 4.0, which is the enabler of the futuristic idea of marketing 5.0. The main goal of marketing 5.0, which is inspired by the UN's 2030 Agenda for Sustainable Development, is to use the latest technologies to ensure social well-being in a sustainable manner. The aim of the article is to present marketing control in the light of challenges that marketing 5.0 poses to modern organizations.*

Keywords: *marketing control, industry 4.0, marketing 5.0*

Editorial requirements

I. Size of manuscript – up to 40 000 characters (roughly 22 pages, 1800 characters per page) including tables and figures. The size of one attachment cannot be larger than 20 MB.

II. Required files

1. Files with the main part of the manuscript (without authors' data, format *.doc):
- title of the article in English and Polish
- concise and factual abstract in English and Polish, from 150 to 300 words, prepared according to structure:
  – purpose
  – methods
  – results
  – conclusions
- keywords in English and Polish (up to 8 words)
- JEL codes: code 1; code 2; code 3 (maximal 3 codes, according to the website of American Economic Association: https://www.aeaweb.org/econlit/jelCodes.php)
- introduction
- body text – organized into chapters/sections, each with a unique title
- conclusion (findings, recommendations)
- bibliography – complete list of referenced sources

2. Files with the title page including authors' data (format *.doc):
- author's first and last name
- academic degree/title
- organization/institution (if applicable)
- ORCID number
- email address
- mailing address

3. Tables
- numbered consecutively and consistently using Arabic numerals
- include a caption and a reference to the data source (e.g. *own research*)
- tables should be referenced in the text by their number rather than expressions such as "above" or "below" (e.g. *cf. Table 1*, not: *see table above/below*)
- do not include blank cells
- any abbreviations used must be expanded below the table

4. Figures, photos and graphics
- editable (formats: *.jpg, *.tif or *.xls)
- photographs – supply source files (preferably *.tif); minimum resolution: 300 dpi
- all figures should be numbered consecutively using Arabic numerals
- for any artwork that has already been published elsewhere, indicate the original source (or otherwise state Source: *own research*)
- apply no lettering in white against black background, whether in bold or italics, and no black fills or excess frames
- if the figure is referenced in the text, use its number rather than expressions such as "above" or "below" (e.g. *cf. Fig. 1*, not: *see figure above/below*)
- provide explanations of any abbreviations used

III. Body text
- margins: 2.5 cm each
- continuous throughout the text, using Arabic numerals, placed at the bottom of page (footer)
- typeface: Times New Roman, 12 pts
- line spacing: 1.5 line
- highlights or emphasis: apply **bold** print
- foreign (non-vernacular) words and expressions: *italicized*
- people's names: give full name (including all given names and last name) at first mention; for any further references – quote last name only
- abbreviations and acronyms: when first used, give the complete phrase (name), including its abbreviation in brackets; onwards – use abbreviation only

IV. In-text citations – APA style (see: APA reference guide, https://www.scribbr.com/apa-style/apa-seventh-edition-changes/)
- are placed within the text and include the author's surname and year of publication:
  Jafari (2003) or: (Jafari, 2010)
- Direct quotes should also contain the page number:
  Jafari (2003, p. 24) or: (Jafari, 2003, p. 24)
- **In the case of two and three authors,** all surnames should be listed with either „and" or „&" placed before the last one:
  Smith and White (2018)... or: (Smith & White, 2018)
  Beggs, Ross and Goodwin (2008)... or: (Beggs, Ross, & Goodwin, 2008)
- **In the case of more than three authors** – only the first author's surname should be given, followed by „et al.":
  Jafari et al. (2018)... or: (Jafari et al., 2018)
- **If the author/editor is unknown**, the first few words of the reference should be used:
  – **if this is the title of a book, periodical or report**, it should be italicised:
  (*Guide to citation*, 2020)
  – **if this is the title of an article, chapter or a website,** it should be placed in quotation marks:
  ("APA Citation", 2020)
- Citing multiple works:
  – **by the same author**:
  Jafari (2015, 2017, 2020) or (Jafari, 2015, 2017, 2020)
  – **by two or more authors**, they should be listed alphabetically by the first author:
  (Jafari & Black, 2010; White, Green, & Brown 2020)
  – **if the author published multiple works in one year,** each work should be cited with consecutive letters of the alphabet following the year, e.g.:
  (Jafari, 2014a, 2014b)
- **Other references containing any additional comments or explanations**, **references to legislation**, court rulings and decisions, as well as links to websites that are provided outside the main body of the text must be numbered consecutively and placed at the bottom of the page (as footnotes) using 10 pts font with single line spacing
- **Citing secondary sources** (only in exceptional cases):
  Jafari (2010) as cited in Black (2016) or (Jafari, 2010, as cited in Black 2016)

V. Reference list
A reference list should be ordered alphabetically by first author's / editor's surname or by title, in the case of works whose author/editor is unknown, and in the case of authors with multiple works, they should be listed chronologically by year of publication.

- **Referencing a journal article**

The basic format is: Author surname, Initial(s)., (Year), Article title (not italicised), Journal title (italicised), Volume (italicised) (issue or part number), page numbers, DOI:

Oppermann, M. J. (2000). Tourism Destination Loyalty. *Journal of Travel Research, 39*(1), 78-84. https://doi.org/10.1177%2F004728750003900110

- **Referencing a book**

The basic format is: Author/Editor surname, Initial(s)., (copyright year), *Book title* (italicised), edition number (in brackets). Publisher. DOI or URL:

Kotler, P., Bowen, J. T., Makens, J., & Baloglu, S. (2017). *Marketing for Hospitality and Tourism* (7th ed.). Pearson Education. https://doi.org/10.1177%2F0047287507303976

- **Chapter in an edited book**

The basic format is: Surname of the chapter's author, initial(s)., Copyright year, Chapter title (not italicised), In, Editor initial(s)., Surname + (Ed.) or Editor initial(s)., surnames (separated by "&") + (Eds.), *Edited book title* (italicised), edition number and page range (in brackets). Publisher. DOI or URL:

Scott, N. R., & Le, D. A. (2017). Tourism Experience: A Review. In N. R. Scott & J. Gao (Eds.), *Visitor Experience Design* (2nd ed., pp. 30-52). CABI. https://doi.org/10.1080/10645578.2016.1144023

- **Referencing an e-book**

Mitchell, J. A., Thomson, M., & Coyne, R. P. (2017). *A guide to citation*. https://www.mendeley.com/reference-management/reference-manager

- **Referencing a chapter in an e-book**

Troy, B. N. (2015). APA citation rules. In S. T. Williams (Ed.). *A guide to citation rules* (2nd ed., pp. 50-95). https://www.mendeley.com/reference-management/reference-manager

- **Referencing an entire website created by a corporation, institution or group**

Use the following format: Corporation/group/organization name. (year website was last updated/published, month day if given). Title of website. URL:

WHO (2014, November 14). World Health Organization. https://www.who.int/

- **Referencing a single web page**

Use the following format: author surname, initial(s). (year, month day). Page title (italicised). Site name. URL:

Mitchell, J. A., Thomson, M., & Coyne, R. P. (2017, January 25). *APA citation. How and when to reference*. https://www.howandwhentoreference.com/APAcitation

Wymogi edytorskie

I. Objętość manuskryptu – do 1 arkusza wydawniczego wraz z rysunkami i tabelami (40 tys. znaków ze spacjami, tj. ok. 20 stron). Rozmiar jednego załącznika nie może być większy niż 20 MB.

II. Wymagane pliki

1. Część główna manuskryptu – bez danych identyfikujących autorów (w formacie Word):
- tytuł artykułu po angielsku i polsku
- zwięzłe i rzeczowe streszczenie po angielsku i polsku, od 150 do 300 słów, przygotowane zgodnie ze strukturą:
  – cel
  – metody
  – wyniki
  – wnioski
- słowa kluczowe po angielsku i polsku (do 8 słów)
- kody JEL – kod 1; kod 2; kod 3 (maksymalnie 3 kody, według strony American Economic Association https://www.aeaweb.org/econlit/jelCodes.php)
- wstęp
- tekst główny podzielony na rozdziały opatrzone tytułami
- zakończenie (wnioski)
- bibliografia

2. Strona tytułowa manuskryptu, dane autorów (w formacie Word)
- imię i nazwisko autora
- stopień/tytuł naukowy
- afiliacja
- numer ORCID
- e-mail
- adres korespondencyjny

3. Tabele (w formacie Word)
- ponumerowane, opatrzone tytułem oraz źródłem (np. opracowanie własne)
- z odwołaniem w tekście (np. *zob. tab. 1*, a nie: *zob. tabela poniżej/powyżej*)
- każda rubryka wypełniona treścią
- skróty użyte w tabeli – objaśnione pod nią

4. Ryciny, zdjęcia, wykresy itp. (*.jpg, *.tif lub *.xls)
- edytowalne, rozdzielczość zdjęć min. 300 dpi
- opatrzone numerem oraz źródłem (np. *opracowanie własne*)
- pozbawione napisów: półgrubych, wersalikami, białych na czarnym tle, czarnych wypełnień, dodatkowych ramek
- z odwołaniem w tekście (np. *zob. rys. 1*, a nie: *zob. rysunek poniżej/powyżej*)
- z objaśnieniem użytych skrótów

III. Tekst główny
- marginesy: 2,5 cm z każdej strony
- numeracja stron – ciągła, u dołu strony
- czcionka Times New Roman z polskimi znakami, 12 pkt
- odstęp między wierszami – 1,5 wiersza
- wyróżnienia – pismem półgrubym
- słowa obcojęzyczne – kursywą
- nazwiska użyte po raz pierwszy – pełne imię i nazwisko, kolejne przywołanie – samo nazwisko
- skróty – za pierwszym razem pełny termin, a skrót w nawiasie; dalej – tylko skrót

IV. Przypisy bibliograficzne – według stylu APA 7 (zob. reference guide APA, https://www.scribbr.com/apa-style/apa-seventh-edition-changes/)
- Umieszczone w tekście, zawierają nazwisko autora i rok publikacji:
  Jafari (2003) lub: (Jafari, 2010)
- Cytowanie dokładne tekstów wziętych w cudzysłów:
  Jafari (2003, p. 24) lub: (Jafari, 2003, p. 24)
- **Cytowanie dwóch i trzech autorów** – podajemy nazwiska wszystkich autorów, a przed ostatnim wstawiamy „and" lub „&":
  Smith and White (2018)... lub: (Smith & White, 2018)
  Beggs, Ross and Goodwin (2008)... lub: (Beggs, Ross, & Goodwin, 2008)
- **Cytowanie więcej niż trzech autorów**:
  – podajemy nazwisko pierwszego autora i „et al.":
  Jafari et al. (2018)... lub: (Jafari et al., 2018)
- **Brak nazwiska autora/redaktora** – podajemy kilka pierwszych słów tytułu pracy:
  – jeżeli jest to **tytuł książki, periodyku lub raportu** – kursywą:
  (*Guide to citation*, 2020)
  – jeżeli jest to **tytuł artykułu, rozdział lub strona internetowa** – w cudzysłowie:
  ("APA Citation", 2020)
- **Cytowanie więcej niż jednej publikacji**:
  – **jednego autora**:
  Jafari (2015, 2017, 2020) lub (Jafari, 2015, 2017, 2020)
  – **dwóch i więcej autorów** – należy je wymienić w kolejności alfabetycznej:
  (Jafari & Black, 2010; White, Green, & Brown 2020)
  – **jeśli autor wydał w danym roku więcej niż jedną publikację,** to po dacie należy dodać kolejne litery alfabetu, np.
  (Jafari, 2014a, 2014b)
- **Przypisy objaśniające, polemiczne, uzupełniające tekst główny** – numerowane kolejno i umieszczone u dołu strony, czcionka 10 pkt, interlinia pojedyncza.
- **Cytowanie źródeł za innym autorem** (jedynie w szczególnych przypadkach):
  Jafari (2010) as cited in Black (2016) lub (Jafari, 2010, as cited in Black 2016)

V. Bibliografia
Uporządkowana alfabetycznie według nazwisk autorów/redaktorów i tytułów prac niemających autora/redaktora, a jeśli jest więcej prac jednego autora, to należy je zestawić chronologicznie wg dat wydania.

- **Artykuł w czasopiśmie**

Zawiera: nazwisko autora, inicjały imienia, rok, tytuł artykułu (prosto), tytuł czasopisma (kursywą), tom (kursywą) i nr czasopisma, zakres stron, DOI:

Oppermann, M. J. (2000). Tourism Destination Loyalty. *Journal of Travel Research*, *39*(1), 78-84. https://doi.org/10.1177%2F004728750003900110

- **Pozycja książkowa**

Zawiera: nazwisko autora/redaktora, inicjał imienia, rok praw autorskich, tytuł książki (kursywą), numer wydania (w nawiasie), wydawnictwo, DOI lub URL:

Kotler, P., Bowen, J. T., Makens, J., & Baloglu, S. (2017). *Marketing for Hospitality and Tourism* (7th ed.). Pearson Education. https://doi.org/10.1177%2F0047287507303976

- **Rozdział pracy zbiorowej**

Zawiera: nazwisko autora rozdziału, inicjał imienia, rok praw autorskich, tytuł rozdziału (prosto), In, inicjał imienia, nazwisko redaktora + (Ed./Eds.), tytuł pracy zbiorowej (kursywą), numer wydania i zakres stron (w nawiasie), wydawnictwo, DOI lub URL:

Scott, N. R., & Le, D. A. (2017). Tourism Experience: A Review. In N. R. Scott & J. Gao (Eds.), *Visitor Experience Design* (2nd ed., pp. 30-52). CABI. https://doi.org/10.1080/10645578.2016.1144023

- **E-book**
  Mitchell, J.A., Thomson, M., & Coyne, R.P. (2017). *A guide to citation*. https://www.mendeley.com/reference-management/reference-manager
- **Rozdział z e-booka**
  Troy, B.N. (2015). APA citation rules. In S.T. Williams (Ed.). *A guide to citation rules* (2nd ed., pp. 50-95). https://www.mendeley.com/reference-management/reference-manager
- **Cały portal internetowy korporacji/grupy/organizacji**

Zawiera: nazwę korporacji/grupy/organizacji. (rok ostatniej aktualizacji, dzień miesiąca, jeśli podano). Tytuł portalu internetowego. URL:

  WHO. (2014, 14 listopada). World Health Organization. https://www.who.int/

- **Pojedyncza strona internetowa**

Zawiera: nazwisko, inicjał autora. (rok, miesiąc, dzień). Tytuł artykułu (kursywą). Tytuł portalu internetowego. URL:

  Mitchell, J.A., Thomson, M., & Coyne, R.P. (2017, January 25). *APA citation*. *How and when to reference*. https://www.howandwhentoreference.com/APAcitation