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FORMУВАННЯ РИНКУ УПРАВЛІННЯ БІЗНЕС-ПРОЦЕСАМИ ПІД ВПЛИВОМ ЦИФРОВІЗАЦІЇ

Актуальність. Глобалізаційні процеси та зміна пріоритетів під впливом цифровізації впливають на усі сфери економіки та підприємницької діяльності. Підприємницька діяльність полягає у формуванні бізнес-процесів, які також потребують докорінних змін під впливом вище описаного явища. Формування бізнес-процесів потребує чіткого управління ними, оскільки саме процеси формують потенціал для підвищення продуктивності та зниження витрат виробництва.

Управління бізнес-процесами потребує їх адаптації до швидкоплинних змін у технологіях, появі та розвитку інтелектуальних систем, автоматизації робочих процесів та платформатизації усіх господарських процесів.

Метою даної статті є дослідження управління бізнес-процесами під впливом цифровізації та формування ринку управління бізнес-процесами. Дана мета дозволяє сформувати такі завдання: проаналізувати основні види бізнес-процесів; визначити вплив цифровізації на конкретні види бізнес-процесів; дослідити формування ринку управління бізнес-процесами; сформувати сегментування ринку управління бізнес-процесами за різними признакою.

Результати. У статті визначено такі види бізнес-процесів: основні (головні), обслуговуючі (допоміжні), управляючі (керуючі), процеси розвитку. Проаналізовано вплив цифровізації на основні види бізнес-процесів, а саме під цифровізацію підпадають: основні бізнес-процеси підпадають, де встановлюються процеси створення цінності продукту; обслуговуючі бізнес-процеси, де виникають процеси створення додаткової вартості; управляючі (керуючі) дозволяють здійснювати управління інформацією та персоналом; процеси розвитку – створення додаткової вартості (цінності). Автором розглянуто такі етапи цифровізації бізнес-процесів під впливом загальних цифрових трансформацій в світі: оцифровка даних та інформації; зміна бізнес-процесів; економія ресурсів; впровадження окремих операцій, завдань, підпроцесів; цифрова трансформація.

У роботі досліджено ознаки формування ринку управління бізнес-процесами, а саме: свобода вибору, обмежена роль держави, рівень звітності, сукцупність економічних відносин, наявність суб'єктів та об'єктів, різні форми власності, вільна конкуренція, інтеграція учасників, цінові механізми, гнучкість систем та ін. Сформовано сегментування ринку управління бізнес-процесами за такими признакою: за компонентами; за розгортанням; за рішеннями; за галузевими споживачами, інтеграція управління бізнес-процесами із технологіями штучного інтелекту та роботизації, необхідність автоматизації усіх бізнес-процесів залежно від характеру підприємницької діяльності.

Висновки. У наукові статті визначено подальші наполягли для формування ринку управління бізнес-процесами до, яких можна віднести: програмне забезпечення (вплив кіберфізичних систем) управління бізнес-процесами на основі платформатизації бізнес-процесів, інтеграція управління бізнес-процесами з інформаційними та географічними даними та ін. Сформовано сегментування ринку управління бізнес-процесами за такими признакою: за компонентами; за розгортанням; за рішеннями; за галузевими споживачами; за географією.

Висновки. У наукові статті визначено подальші напрями формування ринку управління бізнес-процесами, до яких можна віднести: програмне забезпечення (вплив кіберфізичних систем), управління бізнес-процесами на основі платформатизації бізнес-процесів, інтеграція управління бізнес-процесами з інформаційними та географічними даними та ін. Сформовано сегментування ринку управління бізнес-процесами за такими признакою: за компонентами; за розгортанням; за рішеннями; за галузевими споживачами; за географією.

Ключові слова: бізнес-процеси, управління бізнес-процесами, ринок бізнес-процесів, цифровізація, підприємницька діяльність.

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FORMATION OF THE BUSINESS PROCESS MANAGEMENT MARKET UNDER THE INFLUENCE OF DIGITALIZATION

**Topicality.** Globalization processes and changing priorities under the influence of digitization affect all spheres of the economy and entrepreneurial activity. Entrepreneurial activity consists in the formation of business processes, which also require fundamental changes under the influence of the phenomena outlined above. The formation of business processes requires a clear management of them, since it is the processes that create the potential for increasing productivity and reducing production costs.

The management of business processes requires their adaptation to rapid changes in technologies, the emergence and development of artificial intelligence, the automation of work processes, and the platformization of all business processes.

**Aim and tasks.** The purpose of this article is to study the management of business processes under the influence of digitalization and the formation of the business process market. This goal made it possible to form the following tasks: to analyze the basis of types of business processes; determine the impact of digitalization on specific types of business processes; to investigate the formation of the business process management market; consider the growth dynamics of the global business process management market; form the segmentation of the business process management market according to various characteristics; determine the further directions of the formation of the business process management market.

**Research results.** The article defines the following types of business processes: main (main), service (auxiliary), management (managing), development processes. The impact of digitization on the main types of business processes was analyzed, namely, the following are subject to digitization: the main business processes are where the processes of creating product value are established; servicing business processes, where additional value creation processes occur; managers (managers) allow management of information and personnel; development processes - creation of additional value (value). The author considered the following stages of digitization of business processes under the influence of general digital transformations in the world: digitization of data and information; change of business processes; saving resources; implementation of separate operations, tasks, sub-processes; digital transformation.

The paper examines the signs of the formation of the business process management market, namely: freedom of choice, limited role of the state, level of maturity, set of economic relations, presence of subjects and objects, different forms of ownership, free competition, integration of participants, price mechanisms, system flexibility, etc. The segmentation of the business process management market was formed according to the following characteristics: by components; by deployment; by decisions; by industries of final consumers; by geography

**Conclusion.** Scientific articles define further directions for the formation of the business process management market, which can be attributed to: software (influence of cyber-physical systems) business process management turns into the platformization of new generation business processes; business process management partners are developing a new class of ready-made dynamic applications for interoperable work using a new generation platform; integration of business process management with artificial intelligence and robotics technologies, the need to automate all business processes to reduce errors and improve information technologies based on the ever-changing needs of end users.

Keywords: business processes, business process management, business process market, digitalization, entrepreneurial activity.

**Problem statement and its connection with important scientific and practical tasks.** The influence of globalization processes, the change of priorities in the conditions of digitalization affect the fundamental change of all business processes. Digitization of all spheres of the economy and human life is already a necessary condition of modern society, which fundamentally changes all connections between subjects of entrepreneurial activity. These connections consist of building business processes that require more careful management from the point of view of digitalization, since they are the ones that create the potential to increase productivity and reduce production costs.

Management of business processes requires adaptation of both the processes themselves and the relationships between the participants (subjects) of these processes to rapid changes dictated by changes in technologies, the emergence and development of artificial intelligence, machine knowledge, intelligent solutions, and automation of work processes and platformization of all business processes.

**Analysis of recent publications on the problem.** Modern authors who study the issue of digitalization of business processes and the formation of the market of business processes are the following: M. Hammera, V. Tkachuk, K. Melnyk, L. Fedulova, Yu. Vdovichenko, I. Topalova, R. Lisova, A. Shestakova, K. Bagatska, B. Teteryatnik.

**Allocation of previously unsolved parts of the general problem.** However, the question
of the formation of the world market of business processes under the influence of digitalization remains undefined.

Formulation of research objectives (problem statement). The purpose of this article is to study the management of business processes under the influence of digitalization and the formation of the business process market.

This goal made it possible to form the following tasks:
- to analyze the basic types of business processes;
- to determine the impact of digitalization on specific types of business processes;
- to consider the stages of digitization of business processes under the influence of general digital transformations in the world;
- to investigate the signs of the formation of the business process management market;
- to consider the dynamics of the global business process management market;
- to form segmentation of the business process management market according to various characteristics;
- to determine further directions for the formation of the business process management market.

An outline of the main results and their justification. Modern requirements for the management of business processes require their partial or full automation and digitalization, which complicates the peculiarities of their implementation and the choice of solutions regarding the means and methods of their management, and requires the introduction of adaptive management in the economic activity of the subjects of these processes.

The automation and digitization of business processes is also dictated by the need to find ways to implement them in the conditions of a pandemic, which, in turn, requires the speed of data and information processing, data security and protection, the involvement of end users of products and services, the efficiency of business processes, the use of knowledge and the skill of specialists of the new formation. These aspects form a whole market.

Business process management is the direction of process modeling, automation, organization and implementation, control, measurement and calculation, optimization of various flows in accordance with the set goals, which covers relevant systems, employees, customers, partners, consumers [4].

All business processes can be divided into several types, namely:

1. Main (main):
   - creation of added value of the product;
   - creation of a product/service that has value for the consumer;
   - generating (receiving, accumulating) income (profit).
2. Attendants (auxiliary):
   - system infrastructure support;
   - products enter the foreign market;
   - can turn into the main process.
3. Managers (managers):
   - manage the system;
   - create conditions for survival, development and increased competitiveness;
   - to form an internal structure: planning, organization, regulation, control.
4. Development processes:
   - obtaining profit in the future;
   - improvement of economic activity;
   - selection and formation of qualified personnel.

According to the management of these groups of business processes, it is possible to create conditions for their digital transformation.

Thus, the main business processes fall under the digitization of product value creation processes; servicing business processes for digitalization of processes of creating additional value; managers (managers) – digitization of information and personnel management; development processes – digitalization of the processes of creating additional value (value) [6].

Digitization affects both the formation of business processes themselves and their components (sub-processes, operations, tasks). The most important components of business processes that are carried out are: relations with end consumers; value creation during production; formation of internal infrastructure and management of all sub-processes [2].

Choosing more effective business process management tools allows business entities to shape business operations more globally. And the integration of innovative technologies (artificial intelligence, big data, cloud computing) into the existing business process management software creates clearer tasks, allows them to be solved as quickly as possible (shortening the interval between understanding and action), with minimal errors, with the help of data in in real time and on the basis of high-quality service.

Let's consider the stages of digitalization of business processes under the influence of general digital transformations in the world (Table 1).
The data in Table 1 demonstrate qualitative changes in the performance of functions, tasks and business processes under the influence of digital changes.

Modern authors also believe that the definition of digitization allows you to understand it as the digitization of all information and material resources, as well as the creation of network platforms for the interaction of all participants, with the aim of obtaining the desired result in the harsh conditions of the surrounding environment and using various means of automation [7].

Thus, digital transformation should be understood as the transition to new technologies, tools, systems and information and communication exchange between them, as well as the creation of digital space and infrastructure. The digital transformation of business processes makes the enterprises that form them "digital enterprises", which allows working according to new economic, social and management principles that digital technologies cannot implement by themselves.

Digitization of business processes allows you to speed up the implementation of the goals set by the company for the implementation of the strategy. Among such goals it is fashionable to include:
- improvement of accounting;
- operational risk management;
- implementation of the quality management system;
- process optimization;
- building an optimization system of logistics and marketing;
- process automation;
- regulation and standardization of processes.

It can be argued that changes in the functioning of business processes under the influence of digitalization will allow connecting different levels of management, help collect information and data at lower levels, process information for faster management decisions at upper levels of management.

All of the above allows us to assert that a market is being formed, which has clearly defined phenomena: the formation of relations based on interaction between market participants; determination of price and market capacity; development of relations of purchase and sale of goods and services in monetary form; formation of a mechanism for the distribution of goods and services based on voluntary exchange.

The specifics of business process management and the need for their adaptation to external conditions form the market for the management of these processes, which has already clearly formed features, namely: freedom of choice, limited role of the state, level of maturity, set of economic relations, presence of subjects and objects objects, different forms of ownership, free competition, integration of participants, price mechanisms, flexibility of systems, etc. The business process management market is developing at a fairly fast pace. Thus, the world market of business process management in 2020 was estimated at 8.8 billion dollars. USA. According to analysts' forecasts, in 2025 this figure will reach $14.4 billion. USA, which will be an average annual growth rate of 10.5%.

These statements are reflected in fig. 1.

| Stages                                      | Effective changes                                                                 |
|---------------------------------------------|-----------------------------------------------------------------------------------|
| Digitization of data and information        | Speed of data exchange, security and preservation of information                  |
| Changing business processes                 | Qualitative change of business processes, which allows to speed up their           |
|                                             | implementation and management decisions                                           |
| Saving resources                            | Data processing using artificial intelligence, which will reduce the number of      |
|                                             | personnel                                                                        |
| Implementation of separate operations       | Management and accounting, production processes, banking, marketing, recruitment, |
| tasks, subprocesses                         | sales                                                                             |
| Digital transformation                      | Adaptation and implementation of all spheres of the enterprise for the digital     |
|                                             | environment                                                                      |

Table 1
According to Figure 1, it can be argued that the global market for business process management will develop at a fairly fast pace (14.4 billion USD in 2025), since the formation of these processes is the basis of business activity.

However, other sources [3], which study the analytics of the business process management market, claim that this market will increase in volume already in 2022 (Fig. 2).

According to Figure 2, the market volume will be 15.1 billion dollars in 2022 of the USA, which is 7.2 billion dollars, USA more than in 2017.

Therefore, modern scientists and analysts believe that the business process management market is in a stage of active growth, since the demand for automation of all business processes constantly stimulates the growth of this market. In addition, significant investments in business process management are also forming an ever-growing market.

An important role in the development of the business process management market is played by factors (drivers) [1] that allow increasing the efficiency of business activities, namely:

- digital transformation and automation of all operations, sub-processes, processes;
- reduction of human labor and time for the implementation of processes;
- use of intelligent and cloud technologies;
- improvement of technological infrastructure and safety standards;
- improving the quality of services for end users;
- modernization of processes, branching and creation of network processes;
- segmentation of the market into: solutions, services, divisions, size of organizations, verticals of power, regions;
- content and document management;
- integration, monitoring and optimization of all tasks and sub-processes.
The business process management market is growing due to natural processes of development, namely: digitization of business processes, rapid achievement of business goals, pandemic of corona virus infection, satisfaction of consumer needs, increase in the scale and productivity of activities, simplification of business processes and their improvement, formation of new (innovative) business models, combining people and technologies, concentration of resources.

The business process management market can be segmented according to various characteristics, namely:
1. By components: solutions, tools, platform, services.
2. By deployment: locally and in cloud technologies.
3. By solutions: process management (improvement), process automation, content management, document management, case management, optimization management, integration.
4. By end-user industries (by functionality): banking and financial services, government, healthcare, retail, information technology, manufacturing, marketing, human resource management, supply chain management, telecommunications, education.
5. By geography: North America, Europe, the Asia-Pacific region, Latin America, the Middle East and Africa.

Further trends in the development of the business process management market are formed under the influence of global challenges and trends:
1. Use of technological tools to optimize resources and processes.
2. Updating IT infrastructure and simplifying software and operations for more effective management of business processes.
3. Launch of pilot projects subject to risk management.
4. Focus on product flexibility, digital marketing, and transition to digital platforms, cost reduction, big data processing, and process automation.
5. Growth of the business factor, deployment of new applications, increases in the share of cloud storage.

Further growth directions of the business process management market will be based on the following postulates [5]:
Software (influence of cyber-physical systems) of business process management is turning into platformization of new generation business processes. Thanks to the large number of content technologies on the platform, there are more opportunities for interoperability (software for analytics, business processes, content management, interaction with consumers, social networks and other categories of software) and makes it easier to use it in the cloud and even in smartphones.
Business process management partners are developing a new class of ready-made dynamic applications for interoperable work using a new generation platform. In the implementation of business processes, the principle of solidarity comes into play, when some partners provide software, others perform technical tasks, and others cover business functions. All this will lead to the emergence of a new generation of software, which will allow accelerating development.

Integration of business process management with artificial intelligence and robotics technologies, the need to automate all business processes to reduce errors and improve information technologies based on the ever-changing needs of end users.

The business process management market has its own competitive environment as there are various regional and international players who are absorbing innovative products to increase their competitiveness.

So, it can be argued that the use of the latest innovative technologies will increase the number and quality of business processes that are carried out both within the enterprise.

One of the examples of such technologies is the digitization of business processes, which consists in the introduction of information and communication technologies in all areas of activity of business entities (electronic document management, robotics of production processes, software, electronic logistics, management decision-making based on Big Data, etc.).

Digitization of the economic activity of business entities and their implementation of business processes on this basis allows obtaining such opportunities as:
- improving the quality of finished products;
- increasing labor productivity by acquiring additional competencies for employees;
- optimization of resources and raw material base;
- renewal and acceleration of production processes;
- increasing the efficiency of operations;
- cost reduction;
- data digitization;
- reduction of risks and uncertainty;
- satisfaction of consumer needs;
- integration of information and communication technologies;
- transfer of business to electronic status;
- increasing competitiveness and image.

It can be noted that digitalization of business processes and other areas of activity of business entities will allow to change processes from quantitative to qualitative.

Conclusions and perspectives of further research. This scientific article allows you to solve the tasks and establish that under the influence of digitalization transformational changes and development of business entities are carried out, namely, it becomes possible to adapt to external influences, improve production and operational activities, achieve the formation of new or more advanced business processes, to increase the efficiency and effectiveness of the entrepreneurial activity itself, to form an information and communication environment, to achieve greater competitive advantages.

Further directions of business process management market formation are identified: software (influence of cyber-physical systems) of business process management is turning into platformization of new generation business processes; business process management partners are developing a new class of ready-made dynamic applications for interoperable work using a new generation platform; integration of business process management with artificial intelligence and robotics technologies, the need to automate all business processes to reduce errors and improve information technologies based on the ever-changing needs of end users.

Therefore, it can be argued that thanks to digitalization, it becomes possible to achieve a balance between the implementation of business processes and the receipt of economic benefits.

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