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**THEORETICAL APPROACHES TO THE  
FORMATION OF BUSINESS PROCESSES IN THE  
SPHERE OF INFORMATION TECHNOLOGY IN  
THE CONTEXT OF DIGITALISATION**

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**THE PURPOSE OF THE ARTICLE** is to study theoretical approaches to the formation of business processes in the field of information technology in the context of digitalization.

**RESEARCH METHODS.** The following methods were used in the article: SWOT-analysis; PESTLE-analysis; benchmarking; market and competitor research; data analysis and BI (Business Intelligence); project management; analysis and synthesis, graphical and tabular methods.

**PRESENTING MAIN MATERIAL.** Modern development of society, digitalization of the economy, globalization and digitalization of economic processes determine fundamentally new approaches to the formation of business processes in the field of information technology in the context of digitalization. The formation of business processes in the IT sector is determined by the rapid pace of digitalization and its impact on all aspects of modern enterprises. Digitalization is a key factor in achieving competitive advantages in the global market, as it allows optimizing business processes, automating business operations, improving communication and data-driven decision-making. The role of business processes in the context of digitalization is to increase the efficiency and speed of enterprises, which allows them to respond quickly to new challenges, minimize costs and improve the quality of products and services. In the context of IT enterprises, digitalization not only accelerates processes but also radically changes the very nature of business, forcing enterprises to adapt their models, strategies, and business processes. The study of theoretical approaches to the formation of business processes in the context of digital transformation has shown that the main approaches are: classical approaches (process-oriented, Input-Output model, Project-Based Approach); modern approaches (Agile methodologies, Lean Management, DevOps). The following features of IT business

processes were identified: dynamism and flexibility; innovation; project-oriented structure. The following tools are used to model and optimize business processes in the IT sector in the context of digitalization: BPMN; ERP systems; project management tools. It is proved that business processes in the IT sector cannot function without a synergistic combination of the main components of digitalization: automation, integration, analytics, flexibility and adaptability, artificial intelligence, cloud technologies.

**CONCLUSIONS.** It is established that the digitalization of IT enterprises provides new opportunities for optimizing business processes and achieving competitive advantages. It is proved that the introduction of digital technologies contributes to the automation, integration, efficiency and flexibility of business processes. It is determined that IT enterprises should actively use innovative approaches to adapt to the latest market conditions, taking into account theoretical variations and functional aspects of digitalization. It is proved that the formation of business processes in the IT sector requires taking into account theoretical and practical aspects, where classical approaches (process-oriented, project approach) remain basic, and modern approaches (Agile, Lean and DevOps) open up new opportunities for optimizing processes and increasing their efficiency. It has been established that technological innovations, in particular artificial intelligence and cloud solutions, play a synergistic role in transforming business processes in the IT sector, helping enterprises to remain competitive in the face of rapid change and globalization.

**KEYWORDS:** business processes; information technologies; digitalization; theoretical approaches; IT enterprises; competitive advantages; digital technologies; automation; integration; adaptation; classical approaches; modern approaches; artificial intelligence; transformation.

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## ТЕОРЕТИЧНІ ПІДХОДИ ДО ФОРМУВАННЯ БІЗНЕС-ПРОЦЕСІВ В СФЕРІ ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ В КОНТЕКСТІ ДІДЖИТАЛІЗАЦІЇ

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**МЕТОЮ СТАТТІ** є дослідження теоретичних підходів до формування бізнес-процесів в сфері інформаційних технологій в контексті діджиталізації.

**МЕТОДИ ДОСЛІДЖЕННЯ.** В статті було використано такі методи: SWOT-аналіз; PESTLE-аналіз; benchmarking; дослідження ринку і конкурентів; аналіз даних і BI (Business Intelligence); проектний менеджмент; аналізу та синтезу, графічно-табличний методи.

**ВИКЛАД ОСНОВНОГО МАТЕРІАЛУ.** Сучасний розвиток суспільства, цифровізація економіки, глобалізація і діджиталізація економічних процесів визначають принципово новітні підходи до формування бізнес-процесів у сфері інформаційних технологій в контексті діджиталізації. Формування бізнес-процесів в IT-сфері визначається швидким темпом розвитку діджиталізації та її впливом на всі аспекти діяльності сучасних підприємств. Діджиталізація є ключовим чинником досягнення конкурентних переваг на глобальному ринку, оскільки дозволяє оптимізувати бізнес-процеси, автоматизувати бізнес-операції, покращити комунікацію та прийняття рішень на основі даних. Роль бізнес-процесів у контексті діджиталізації полягає в підвищенні ефективності та швидкості роботи підприємств, що дозволяє оперативніше реагувати на нові виклики сьогодення, мінімізувати витрати та нарощувати якість продукції та послуг. В контексті IT-підприємств діджиталізація не лише прискорює процеси, але й докорінно змінює саму природу бізнесу, змушуючи підприємства адаптувати свої моделі, стратегії та бізнес-процеси. Дослідження теоретичних підходів до формування бізнес-процесів в умовах цифрової трансформації показало, що основними підходами є: класичні підходи (процесно-орієнтований, модель Input-Output, проектний (Project-Based Approach); сучасні підходи (гнучкі методології (Agile), Lean Management, DevOps). Серед особливостей бізнес-процесів IT-сфери було визначено такі:

динамічність і гнучкість; інноваційність; проектно-орієнтована структура. Для моделювання та оптимізації бізнес-процесів в IT сфері в контексті діджиталізації використовують наступні інструменти: BPMN; ERP-системи; інструменти для управління проектами. Доведено, що бізнес-процеси в сфері IT не можуть функціонувати без синергійного поєднання основних компонентів діджиталізації: автоматизація, інтеграція, аналітика, гнучкість та адаптивність, штучний інтелект, хмарні технології.

**ВИСНОВКИ.** Встановлено, що діджиталізація бізнесу IT-підприємств надає нові можливості для оптимізації бізнес-процесів та досягнення конкурентних переваг. Доведено, що впровадження цифрових технологій сприяє автоматизації, інтеграції, підвищенню ефективності та гнучкості бізнес-процесів. Визначено, що IT-підприємства повинні активно використовувати інноваційні підходи для адаптації до новітніх умов ринку, враховуючи теоретичні варіації та функціональні аспекти діджиталізації. Доведено, що формування бізнес-процесів у сфері IT вимагає врахування теоретичних і практичних аспектів, де класичні підходи (процесно-орієнтований, проектний підхід) залишаються базовими, а сучасні підходи (Agile, Lean та DevOps) відкривають нові можливості для оптимізації процесів та підвищення їх ефективності. Встановлено, що технологічні інновації, зокрема штучний інтелект та хмарні рішення, відіграють синергійну роль для трансформації бізнес-процесів в IT-секторі, допомагаючи підприємствам залишатися конкурентоспроможними в умовах швидких змін та глобалізаційних перетворень.

**КЛЮЧОВІ СЛОВА:** бізнес-процеси; інформаційні технології; діджиталізація; теоретичні підходи; IT-підприємства; конкурентні переваги; цифрові технології; автоматизація; інтеграція; адаптація; класичні підходи; сучасні підходи; штучний інтелект; трансформація.

**Statement of the problem.** The modern development of society, digitalization of the economy, globalization and digitalization of economic processes determine fundamentally new approaches to the formation of business processes in the field of information technology in the context of digitalization. Information technologies are changing business models, facilitating adaptation to new conditions and transition to the Fourth Industrial Revolution, which involves full automation and digitalization of production processes. As part of digital transformation, digitalization is becoming a key tool for commercializing business processes. Accordingly, the question arises of the formation of optimization mechanisms for business processes of IT enterprises through their improvement and digitalization.

The formation of business processes in the field of information technology in the context of digitalization is determined by the rapid pace of development of information technology and its impact on all aspects of modern enterprises. Digitalization is becoming a key factor for achieving competitive advantages in the global market, as it allows optimizing business processes, automating operations, improving communication and data-driven decision-making. In the IT sector, this trend is particularly important due to the need for flexible adaptation to the ever-changing technological environment. The role of business processes in the context of digitalization is to increase the efficiency and speed of enterprises, which allows them to respond more quickly to new challenges, reduce costs and improve the quality of products and services. For the successful development of companies, it is important to adapt to modern business trends in a timely manner and move to a digital environment that ensures competitiveness.

**Analysis of publications on the problem.** The analysis of previous studies is based on scientific works: M. Hammer and J. Ciampi, who conducted a study on business process reengineering and investigated the issue of radical changes in business processes due to the introduction of new technologies; T. Davenport studied information technology as the main tool for business transformation and process optimization; Johannes Willy and Thomas Mayer studied the modeling and automation of business processes using IT solutions; F. Dean and L. Grow considered the integration of information technology into business processes and enterprise management in the era of digitalization; P. Vale and J. Ross dealt with issues of corporate architecture and strategies for digital business transformation, explored how information technology can change the structure and functions of companies; A. Hartung and D. Hargreaves studied digital innovations and their impact on business management and company models; G. Kaplan and D. Norton considered strategic management of companies. Norton considered the issues of strategic business management in the context of digitalization; I. Mazor paid attention to organizational aspects and management of IT-based business processes in the digital economy; S. Popov and

A. Chumakova studied issues related to the digitalization of business processes at enterprises and management of innovation processes in the era of digital transformations. Among modern scholars, the following researchers have dealt with the issues of business processes and digitalization: O. Arefieva, T. Lutska, A. Chkan, N. Kyrychenko, P. Kasai, M. Chuprina, I. Shekhovtsova, O. Harafonova, H. Zhosan, O. Husieva, S. Lehominova, T. Kuchmiiova, L. Lazebnyk, T. Lazorenko, I. Sholom, K. Mikhieienko, O. Olshanska, O. Sharipova, M. Tepliuk, O. Timinskyi, O. Voitenko, I. Raichuk, V. Tkachuk, S. Obikhod, N. Zimina and others.

**Statement of the main results.** In today's global and competitive environment, information technology (IT) is one of the most dynamic and important sectors of the economy. Information technology not only drives technological innovation, but also affects all other areas of business. Managing business processes in the IT sector is critical, as their proper formation can lead to increased company efficiency, resource optimization, and improved service quality. Accordingly, digitalization is becoming the foundation of business development, especially in the IT sector, due to the introduction of digital technologies in all aspects of the enterprise, from internal operations to external interactions with customers and partners. In the context of IT enterprises, digitalization not only accelerates processes but also fundamentally changes the very nature of business, forcing enterprises to adapt their models, strategies, and business processes. Accordingly, the importance of researching theoretical approaches to the formation of business processes in the context of digital transformation is growing (Table 1) (Husieva and Lehominova, 2018; Lazebnyk, 2018; Arefieva and Lutska, 2009).

Table 1

**Main approaches to the formation of IT business processes**

CLASSIC		MODERN	
<b>Process-oriented approach</b>	This approach is based on the principle of organizing the company's activities in the form of continuous business processes, each of which has a clearly defined beginning and end, as well as intermediate stages. An important aspect is the presence of clear roles and responsibilities for each stage of the process. The process-oriented approach allows for more efficient resource planning, optimized time expenditures, and a higher level of quality control.	<b>Flexible methodologies (Agile)</b>	Agile methodologies have become popular in the IT sector because of their ability to respond quickly to changing requirements and provide a more interactive approach to product development. The main goal of Agile is to continuously adapt to the needs of the customer and create additional value at every stage of development. This approach is effective for organizations that operate in an environment of instability and constant change of requirements.

End Table 1

CLASSIC		MODERN	
<b>Input-Output model</b>	This model emphasizes the interaction between different business processes based on the flow of resources and information. According to this concept, each business process includes "inputs" (resources, data, tools) that are transformed into "outputs" (finished products, services). The model helps to identify weaknesses in the organization and helps to optimize the use of resources.	<b>Lean Management</b>	Lean Management is aimed at eliminating losses in business processes and increasing efficiency by optimizing resources and time. In the IT sector, this approach allows you to minimize unnecessary operations, focus on creating a product that meets the real needs of the client, and reduce time to market.
<b>Project-Based Approach</b>	Within this approach, business processes are viewed through the prism of individual projects with defined time frames and goals. This approach is especially relevant in the IT industry, where software development or the implementation of new systems usually have the character of projects. The project approach helps to plan resources more accurately, clearly define milestones and tasks, and control the quality of work.	<b>DevOps</b>	DevOps is a modern approach to organizing business processes in IT that combines development and operational support. The main idea of DevOps is to automate processes and integrate teams to ensure continuous implementation of changes, rapid release of new product versions, and improve overall quality. DevOps allows you to shorten the development cycle, respond to errors faster, and improve team productivity.

Source: (Husieva and Lehominova, 2018; Lazebnyk, 2018; Arefieva and Lutska, 2009).

In the context of digitalization, business processes can take different theoretical forms. The most important variations include the following:

- agent-based models (business processes are viewed as the interaction of agents who make decisions based on available information and algorithms);
- models based on artificial intelligence (business processes include elements of self-organization and self-learning, where artificial intelligence systems optimize processes based on real-time data);
- hybrid models (a combination of classical approaches to business process management with innovative digital technologies that increase efficiency and flexibility).

From a more classical point of view, business processes cover various aspects of enterprise operations, including project management, software development, IT infrastructure support, information security, data processing, and other important functions. Business processes in IT are a sequence of interrelated actions or operations aimed at creating a product or providing services within IT

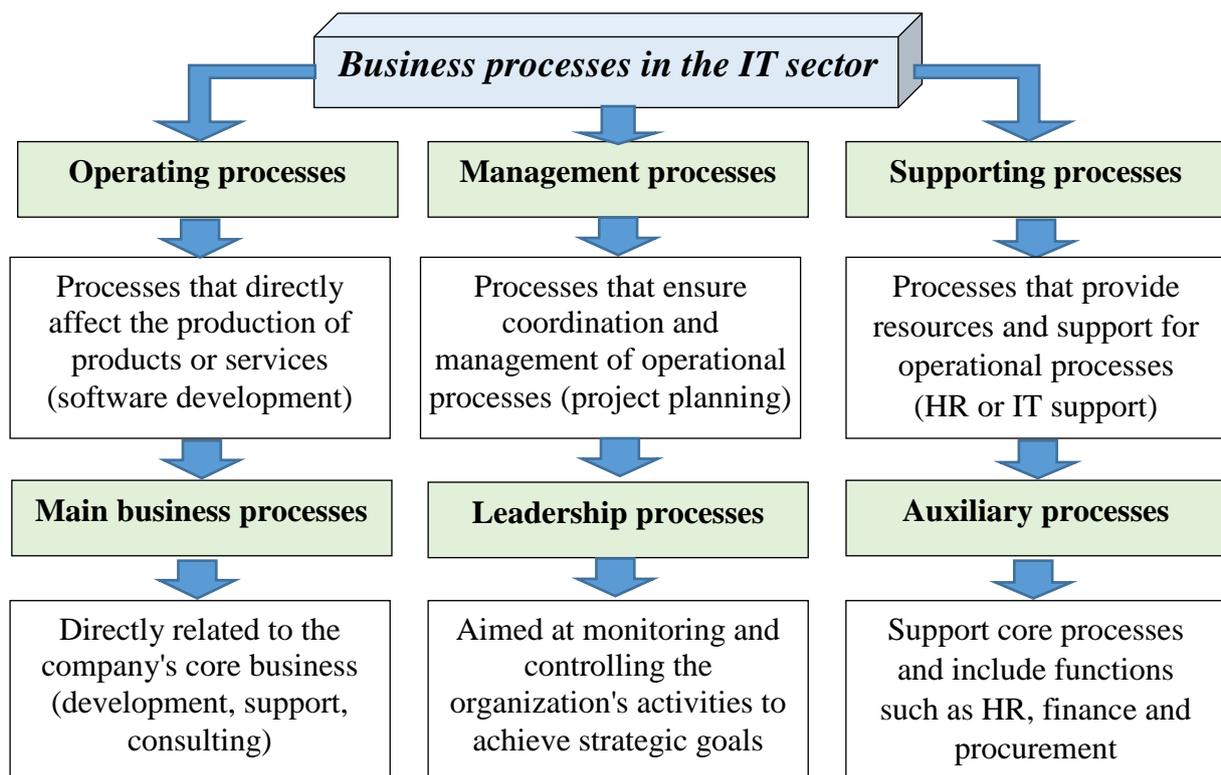
systems. Business processes in the IT sector are classified into three categories (Fig. 1) (Puzyrova and Synytsia, 2023a; Timinskyi, Voitenko and Raichuk, 2021; Chuprina and Shekhovtsova, 2016; Harafonova and Zhosan, 2023).

When studying business processes in the IT sector, it is necessary to pay attention to certain specific features:

- dynamism and flexibility – IT projects often have a high degree of variability due to the rapid evolution of technologies and market requirements. Business processes in IT enterprises must be adaptive and able to respond quickly to new environmental challenges;

- innovativeness – IT companies are focused on introducing new technologies and approaches, which requires constant modernization and optimization of business processes;

- project-oriented structure – IT companies operate on the basis of a project approach, where each project is a separate business process with clearly defined goals, resources, and time lag.



Source: (Synytsia and Puzyrova, 2024; Kuchmiiova, 2023; Puzyrova and Synytsia, 2024; Mikhieienko, 2013).

**Fig. 1. The structure of IT business processes**

Regarding the impact of digitalization on business processes of IT enterprises, it should be emphasized that digitalization encompasses the use of digital technologies to optimize and transform business processes. Digitalization

includes the automation of routine operations, the introduction of digital project management platforms, the use of artificial intelligence for decision-making and data analysis, the integration of cloud solutions for data storage and processing (Synytsia and Puzyrova, 2024; Kuchmiiova, 2023; Puzyrova and Synytsia, 2024; Mikhieienko, 2013).

Digitalization leads to a significant change in the organization of business processes through the automation of operational processes, which reduces the number of routine tasks and increases labor efficiency. Digitalization is transforming processes that previously required a significant amount of manual work, and now they can be performed by automated systems based on artificial intelligence algorithms (Chkan, Kyrychenko and Kasai, 2021; Lazorenko and Sholom, 2020). Digital platforms for business management enable comprehensive tracking and analysis of all stages of the process in real time, which greatly facilitates project, resource and risk management. The use of digital platforms contributes to the creation of a transparent and integrated business structure, which reduces the impact of the human factor on business processes (Synytsia and Svyrydov, 2024; Olshanska and Puzyrova, 2022; Puzyrova, 2022).

The following tools are used to model and optimize business processes in the IT sector in the context of digitalization:

1. BPMN (Business Process Model and Notation) – BPMN is a standardized language for modeling business processes that allows you to visualize and document business processes in the form of diagrams, which simplifies communication between different departments and helps to identify possible problems at the planning stage.

2. ERP-systems (Enterprise Resource Planning) – ERP-systems integrate various business processes within a single platform, which allows you to effectively manage the resources of the enterprise, which provide the ability to automate routine processes, manage financial flows, human resources and other key aspects of the company.

3. Project management tools are Jira, Trello, Asana, which are the most popular project management tools among IT companies, and which allow optimizing teamwork, coordinating tasks, tracking progress and increasing the productivity of the enterprise.

To summarize, it can be argued that theoretical approaches to the formation of business processes in the field of information technology in the context of digitalization cannot function without a synergistic combination of the main components of digitalization (Sharipova, 2009; Tepliuk, 2021; Puzyrova and Synytsia, 2023b; Synytsia and Puzyrova, 2023; Tkachuk, Obikhod and Zimina, 2020):

1. Automation. Process automation allows you to increase the speed and accuracy of operations with the help of specialized software products.

2. Integration. Digital platforms combine all key business processes into a single system that provides real-time integration of data and processes, which contributes to more effective coordination between different structural units of the enterprise.

3. Analytics. The use of business intelligence tools allows you to collect and analyze large amounts of data to predict market trends, manage risks, and optimize processes.

4. Flexibility and adaptability. Digital tools make it easy to change the structure and functionality of processes in response to changes in the internal or external environment.

5. Artificial intelligence. Artificial intelligence is one of the most important factors affecting business processes in the IT sector, allowing you to automate routine tasks, improve data analytics and increase overall process efficiency.

6. Cloud technologies. Cloud technologies allow companies to reduce infrastructure costs and provide flexibility in managing business processes, which ensures uninterrupted access to data and software, regardless of the location of users.

**Conclusions.** Digitalization of IT companies' business provides new opportunities to optimize business processes and achieve competitive advantages. The introduction of digital technologies contributes to the automation, integration, efficiency, and flexibility of business processes. IT companies should actively use innovative approaches to adapt to new market conditions, taking into account theoretical variations and functional aspects of digitalization. The formation of business processes in the IT sector requires taking into account various theoretical and practical aspects. Classical approaches, such as process-oriented or project-based approaches, remain important, but modern methodologies such as Agile, Lean, and DevOps open up new opportunities for optimizing processes and increasing their efficiency. Technological innovations, such as artificial intelligence and cloud solutions, are adding new tools to transform business processes in the IT sector, allowing enterprises to remain competitive in a rapidly changing market.

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