

BUSINESS PROCESSES IN CONDITIONS OF SUSTAINABLE DEVELOPMENT: DIGITAL TRANSFORMATION OF MARKETING AND INNOVATION

БІЗНЕС-ПРОЦЕСИ В УМОВАХ СТАЛОГО РОЗВИТКУ: ЦИФРОВА ТРАНСФОРМАЦІЯ МАРКЕТИНГУ ТА ІННОВАЦІЙ

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***Abstract.** Business process digitization is integral to modern business, particularly in ensuring sustainable development. It profoundly impacts marketing, innovation, and overall company functions. To achieve successful digitalization, understanding your business needs and aligning digital technologies with your objectives are crucial. This study aims to uncover the key marketing and innovation factors driving the digitalization of business within sustainable development contexts.*

The research employs several methods: analysis, synthesis, forecasting, observation, factor analysis, modeling, and graphic representation. Key findings reveal the core components of the digitization process, encompassing automation, electronic document management, cloud technologies, the Internet of Things, database analytics, system integration, artificial intelligence, blockchain, and cybersecurity. These components collectively revamp traditional processes into more efficient ones, utilizing digital advancements to improve productivity, customer service, and cost-effectiveness.

Identified are two influential factor groups: marketing and innovation. The research presents a model facilitating flexible, efficient, and competitive business processes. Implementing this model enables companies to enhance product and service quality, lower expenses, and elevate profitability. Essentially, it empowers businesses to adapt and thrive in the digital landscape while aligning with sustainability goals.

In essence, this research delineates the crucial elements and factors pivotal in the digital transformation of businesses, offering a model that steers companies towards enhanced efficiency, competitiveness, and profitability within the sustainable development framework.

***Key words:** Digital economy, business model, digital transformation, innovation, innovative development*

Анотація. *Цифровізація бізнес-процесів є невід'ємною частиною сучасного бізнесу, зокрема для забезпечення сталого розвитку. Це глибоко впливає на маркетинг, інновації та загальні функції компанії. Для досягнення успішної цифровізації вирішальним є розуміння потреб вашого бізнесу та узгодження цифрових технологій із вашими цілями. Це дослідження має на меті виявити ключові фактори маркетингу та інновацій, що сприяють цифровізації бізнесу в контексті сталого розвитку.*

У дослідженні використовується декілька методів: аналіз, синтез, прогноз, спостереження, факторний аналіз, моделювання, графічне зображення. Ключові висновки розкривають ключові компоненти процесу оцифрування, що охоплює автоматизацію, електронний документообіг, хмарні технології, Інтернет речей, аналітику баз даних, системну інтеграцію, штучний інтелект, блокчейн і кібербезпеку. Ці компоненти спільно переробляють традиційні процеси на більш ефективні, використовуючи цифрові досягнення для підвищення продуктивності, обслуговування клієнтів і економічності.

Виявлено дві впливові групи факторів: маркетинг та інновації. Дослідження представляє модель, яка сприяє гнучким, ефективним і конкурентним бізнес-процесам. Впровадження цієї моделі дозволяє компаніям підвищити якість продукції та послуг, знизити витрати та підвищити прибутковість. По суті, це дає можливість підприємствам адаптуватися та процвітати в цифровому середовищі, дотримуючись цілей сталого розвитку.

По суті, це дослідження окреслює ключові елементи та фактори, що мають ключове значення для цифрової трансформації бізнесу, пропонуючи модель, яка спрямовує компанії на підвищення ефективності, конкурентоспроможності та прибутковості в рамках сталого розвитку.

Ключові слова: *Цифрова економіка, бізнес-модель, цифрова трансформація, інновації, інноваційний розвиток*

Introduction. Digitization is spreading across all facets of the world's life. It leads to the transformation of economic, global, and national spheres. Economic transformation in the context of digitization conditions contributes to achieving sustainable development goals by fostering the emergence of digital tools, competitive advantages, and competitiveness. The digital revolution fosters the use of new business models and processes that create favorable conditions for business development, attracting investments, and implementing innovations. The readiness to reshape business models, change production and value chains, as well as reconsider relationships with all stakeholders by incorporating new technologies into these processes and creating innovative products and tools for business optimization, promotes global business development.

Innovations and new business models created under the influence of digital transformation of the economy provide long-term growth and help address resource limitations.

Companies are digitizing their business processes to enhance efficiency and effectiveness by employing modern marketing technologies and innovative tools. Digitization of business processes involves changing internal and external processes, assets, products, and more through the application of digital technologies to enhance efficiency and increase the value of a product or service for consumers. To promote sustainable development goals and support globalization processes, there is a need for adaptation and implementation of changes in the business model. This is where business model digitization within the framework of digital business transformation comes into play.

At the current stage, the sectors that have achieved the highest level of digital maturity include banking services (fintech), retail, telecommunications, and media. The oil and gas sector, chemical industry, and energy are the most lagging industries primarily because they operate on a larger scale, lack flexibility, and require longer testing periods for new technologies before introducing them to the market.

Digitization has significantly influenced consumer behavior, leading businesses to adopt digital channels and thus altering the marketing structure. The initiators and catalysts of business model digitization are the stakeholders of the company, but they only start the process and provide an understanding to the company's leadership, which needs changes for more effective interaction. One of the crucial stakeholders in this case is the government, as it has not only economic but also social goals. Customers, partners, and competitors also have a significant influence on business digitization.

The prospects and development trends of new business processes promote technological and innovative advancements. Companies are increasingly investing in digital growth. Creating proprietary marketing technologies with consideration for digitization conditions ensures business development. Companies are forming their own business ecosystems, already exerting influence on global economic sectors, setting the technological pace, and directing economic progress while displacing competitors from the market.

Neglecting the adoption of new technologies and resisting changes in business processes can result in consumers losing interest in products or services in the future, because they may not align with evolving consumer preferences and global technological trends. Timely responses to trends in the field of business process digitization and the application of progressive marketing and innovative technologies will be essential for optimizing business processes and maintaining relevance in the market. The outlined aspects substantiate the relevance of the research topic.

The purpose of the article. The research objective is to model business processes in the context of sustainable development, taking into account the digitization sector through the implementation of marketing and innovation components.

Literature review. Many scholars have delved into the exploration of digitization across various economic sectors, and assessing how its facets influence sustainable development has emerged as a timely and essential question for defining future directions in economic development.

In their research, Boichenko E., Martynovych N., and Shevchenko I. (*Boichenko E., 2021*) delve into the challenges of defining the conceptual foundations of sustainable development and the possibilities of shaping the main development vectors of the economy while considering the principles of sustainable development.

Ganushchak-Yefimenko L., Nifatova O., Fastovets N., Plysenko H., Lutay L., Tkachuk V., Shcherbak V., Ptashchenko O. (*Ganushchak-Yefimenko L., 2020*) in their research touch upon the issue of monitoring key indicators of sustainable development, which allows for optimizing a complex of management decisions in the future.

The work of Pawłowski A. (*Pawłowski A., 2021*) reveals the fundamental principles and mechanisms of supporting sustainable development in various economic sectors, with a focus on energy recovery systems.

Flaig A., Kindstrom D., Ottosson M. (*Flaig A., 2021*) in their work examine the specifics of marketing components to facilitate the development of entrepreneurial structures.

Huang Yu-Ch. (*Huang Yu-Ch., 2022*), Hausman A. (*Hausman A., 2021*), and Chi C. (*Chi C., 2021*) in their works define innovative marketing strategies that are shaping in the modern conditions of globalization and economic digitization. They also explore the integration of advanced marketing technologies into the contemporary business system.

Krchova H. and Švejnová Hoesová K. (*Krchova H., 2021*) present the combination of modern marketing tools in enterprise management with an innovative orientation.

Certain aspects of the formation of business models in the conditions of the digital economy and inclusiveness are considered in the works of Krysovaty A., Ptashchenko O., Kurtsev O., Arutyunyan O. (*Krysovaty A., 2024*).

Bilovodska O., Melnyk Y., Alenin Y., and Arkusha L. (*Bilovodska O., 2020*) dedicate their work to researching the implementation of modern marketing instruments to enhance innovation activity.

Desyatnyuk O., Muravskiy V., Shevchuk O., and Oleksiiv M. (*Desyatnyuk O., 2022*) investigate the process of business digitization from the perspective of control and accounting, which allows for optimizing management decisions regarding the activities of economic entities.

Main results of the research. Business digitization is the process of incorporating digital technologies and innovations into various aspects of a company's operations with the aim of improving efficiency, increasing profitability, enhancing competitiveness, and providing better customer service. Key aspects of business digitization include digital technologies, electronic communication, e-commerce, automation of business processes, database analysis, and cybersecurity. Business digitization can lead to increased efficiency, cost reduction, expansion of market reach, and enhanced competitiveness. It is important to note that digitization involves not only the adoption of new technologies but also a change in approaches to business processes and company culture. Business digitization requires a broader scope than just a shift in the business model itself (Figure 1).

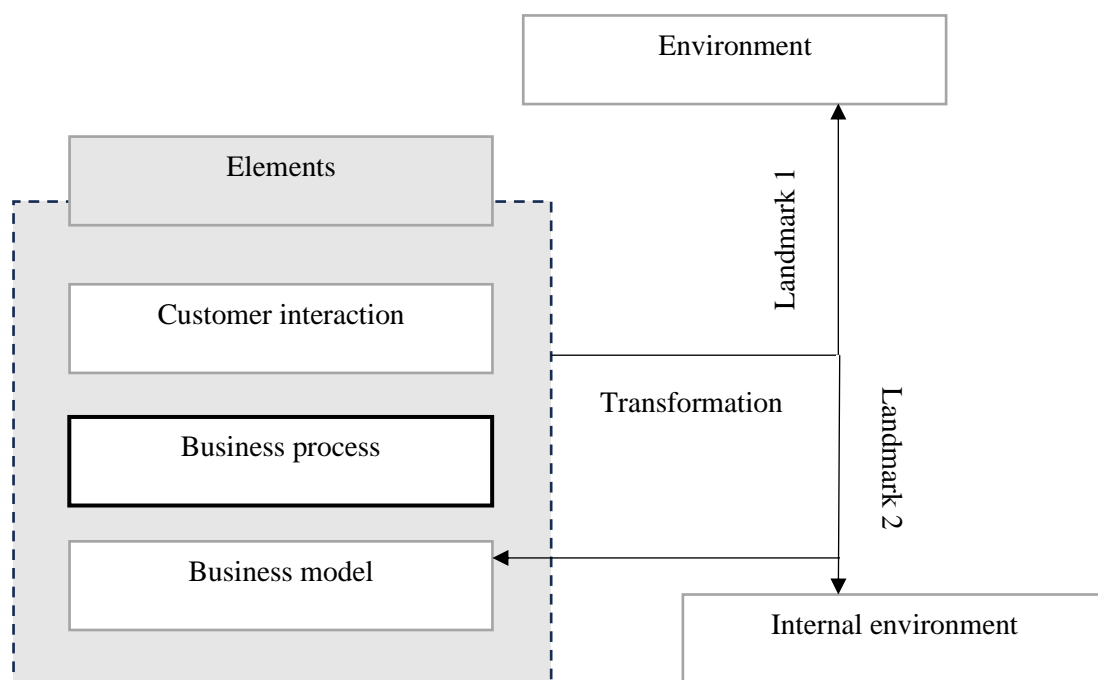


Figure 1. The place of business processes in business digitalization Source: constructed by the author

As evident from Figure 1, the transformation initially focuses on the external environment, then shifts to the internal environment, and finally deepens the transformation to change the business model.

The modeling of business processes involves finding an effective way to improve the efficiency and quality of a company's operations. This entails establishing logical connections between elements by defining relationships between related operations.

The construction and development of a business process model are the initial stages of business process digitization. This allows turning model diagrams into operational tools for the company, tracking and controlling the progress of each work stage in business management.

Modeling digitization of business processes involves optimizing a company's operations by assessing its efficiency during the model construction. Therefore, the authors of the research have identified key tasks in modeling the digitization of business processes:

1. Description of the business process model: Modeling allows for tracking the complete cycle of executing a chain of operations, from the beginning to the final stage. This enables an examination of work from different angles and, if necessary, optimization of labor costs.

2. Standardizing operations: Developing and creating models involves standardizing the execution of operations within a company according to predefined rules, compliance with which will lead to desired productivity.

3. Establishing relationships between processes: Modeling helps in establishing connections between different processes within the company.

These tasks are crucial for efficient digitization and optimization of business processes.

Modeling the digitization of business processes involves several stages:

1. Preparatory stage: At this stage, the company's processes are identified and described as they exist at the present moment. This step helps visually track how a particular action is executed in the company and identify its strengths and weaknesses. It includes analytical work, such as defining the components of operations, their initial and final stages.

2. Analytical stage: This stage serves as the basis for analysis and involves refining, reviewing, and fine-tuning the existing model. Redundant and duplicate actions in the model are identified, connections with other operations are established, and optimization for digitizing business processes takes place.

3. Construction stage: The focus of this stage is to build the model in a way that is most effective for the business. All necessary improvements required for the company's business process model are incorporated during this stage.

4. Testing stage (Verification and Validation): Testing can occur during the implementation of the model into the business. This stage involves correcting necessary aspects and making additions based on real business practices.

When constructing a digitization model for business processes, the authors of the research adhered to modeling principles, including decomposition, focus, documentation, consistency, completeness, and sufficiency. These principles help ensure that the model accurately represents the processes and their digitization.

The principles you mentioned are essential for building an effective model of business process digitization:

1. Decomposition Principle: This principle involves breaking down complex operations or processes into smaller, more manageable components. It helps in detailing the key operations within the company.

2. Focus Principle: This principle emphasizes concentrating on the core parameters and essential aspects while ignoring unnecessary details. It ensures that the model remains focused on its primary objectives.

3. Documentation Principle: This principle stresses the importance of formally documenting and recording all elements within the model. Proper documentation ensures clarity and traceability of the model's components.

4. Consistency Principle: This principle requires that all elements within the model have a clear and consistent interpretation. It ensures that there are no conflicting or ambiguous definitions.

5. Completeness and Sufficiency Principle: This principle involves evaluating all anticipated elements within the model based on their significance and impact. It ensures that the model is both comprehensive and adequate for its intended purpose.

The construction and use of the digital business process model allow companies to create processes that work efficiently. The model also enables the analysis of how the organization as a whole or a specific department operates, as well as how effectively it interacts with external companies, clients, and customers.

This allows modeling the organization's key operations that provide a competitive advantage, such as reducing the time it takes to process individual customer requests in the banking sector. Implementing the proposed digital business process model makes execution highly regulated and allows tracking the progress of work at each stage, resulting in a competitive advantage for the

company by reducing costs, labor, and improving the quality and speed of work. The proposed digital business process model is shown in Figure 2.

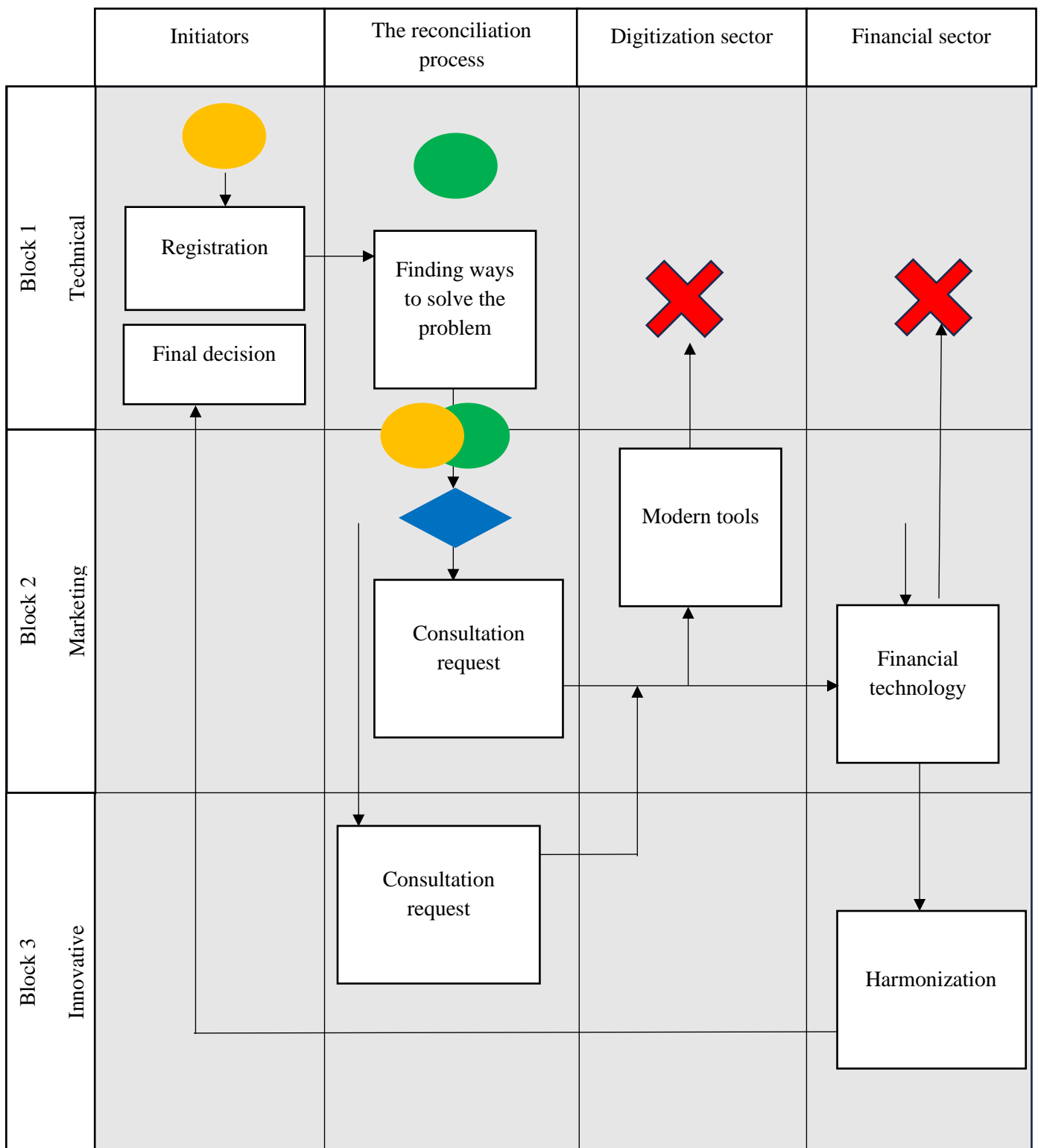


Figure 2. Model of business process digitalization

Source: Developed by the author

The constructed model is objective-imitation because it combines characteristics of interacting objects that transform during the execution of actions. It is aimed at testing business processes in both external and internal environments, followed by the evaluation of characteristics and resource optimization.

The primary goal of the proposed model for business process digitization is to create an organizational methodology that integrates marketing and innovation aspects, considering the digitalization sector. This is achieved through a visual representation in a user-friendly format, suitable for conducting analytical research and optimizing operations in various departments.

Given that the proposed model is objective-imitation in nature, the authors of the research identified the most relevant method to emphasize necessary elements. Most of these methods are implemented in computer software, which includes graphical and text-based tools, as a result of digitalization.

That is why the model was constructed with consideration for the digitalization sector. The digitalization sector allows visualizing the organization's operations, describing its key elements, and establishing relationships in a clear manner.

Additionally, the model takes into account the financial sector, which aims to ensure the efficient use of financial resources and transparency in financial investments within the business model.

The model is built upon three blocks: technical, marketing, and innovation.

The technical block is responsible for programming the future of the business.

The marketing block focuses on creating and sustaining the value of the business, updating information through marketing channels to attract professionals for business promotion.

The innovation block contributes to the emergence of new technological solutions. However, innovation in business modeling is an equally important and powerful tool for business development and its revolutionary transformation.

Conclusions. Digitization of business processes in the context of sustainable development includes marketing and innovation aspects, which contribute to not only improving productivity and competitiveness but also ensure a balanced approach to addressing environmental, social, and economic issues.

During the current research, the following features of business process digitization were identified:

Digital Marketing and Sustainability: The use of digital channels to promote sustainable consumption and environmentally conscious decisions. Marketing can focus on the environmental attributes of products and services encourage customers to make environmentally responsible choices, and provide incentives for sustainable consumption.

Innovations in Products: Digitization enables the development and implementation of sustainable innovations in products that contribute to waste reduction and resource conservation. For example, smart products can monitor energy, water consumption, and optimize their usage.

Digital Analytics for Sustainable Development: Data collection and analysis help identify opportunities for resource consumption reduction, improvement of production processes, and reduction of negative environmental impacts.

Innovative Partnerships: Digital transformation fosters the creation of new innovative partnerships with environmentally focused startups and organizations working on sustainable energy development, the utilization of renewable energy sources, and more.

Consumer Engagement: Using digital platforms to engage consumers in the production and product development processes promotes the creation of more sustainable and responsible products.

Digital Public Engagement: Creating digital platforms to engage employees, customers, and the public in addressing sustainable development issues and making important decisions.

Efficient Resource Utilization: Using digital technologies to monitor and optimize the use of resources such as energy, water, raw materials, and others.

The overall result of these measures is that digital transformation becomes a step towards a more sustainable and responsible business, promoting efficient resource utilization, reducing negative environmental impacts, and increasing customer and employee satisfaction.

During the factor analysis, two groups of influencing factors on the digitalization of business processes were identified: marketing and innovation. The presented research confirms the necessity of considering marketing and innovation aspects in digitalization. It also underscores that the

proposed model of digitalization of business processes, taking into account the technical, marketing, and innovation blocks, allows modeling digitalization in a way that aligns with the results of the current research.

It should be noted that the success of enterprises in the context of the digitized market largely depends on their ability for innovative development and commitment to sustainable growth. The formation and selection of strategic directions for innovation activities are based on a comprehensive assessment of both the environment in which the enterprise operates and the identification of the internal innovation and marketing capabilities of the enterprise, characterized by the state and level of utilization of innovation potential. Moreover, the innovation opportunities of enterprises vary significantly depending on the specific characteristics of the enterprise, its industry affiliation, and its strategic orientation.

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