

## ADAPTIVE MANAGEMENT: DESIGNING FUTURE-READY ENTERPRISES IN UNCERTAIN DIGITAL LANDSCAPES

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**Abstract.** This article discusses the study of adaptive business management in the context of digital transformation and the development of conceptual frameworks for organizations that can effectively operate in the digital economy.

The aim of the research is to establish the principles of adaptive management and develop a conceptual model for a business that is focused on resilience, flexibility, and the ability to adapt rapidly in response to dynamic technological changes.

This topic is relevant due to the rapid evolution of digital technology, increasing global competition, and growing uncertainty in the external business environment. These factors necessitate a shift from traditional management approaches towards more flexible and adaptive models for organizations. The paper employs methods of systematic and comparative analysis, which allowed us to view the enterprise as an open socio-economic system and to identify key factors influencing its adaptive capabilities. As a result of this research, a conceptual model of an adaptive enterprise was developed, including interrelated elements such as strategy, organizational structure, technological infrastructure, human capital, and organizational culture.

The findings demonstrate that the integration of digital technologies, development of dynamic organizational capabilities, and establishment of flexible management mechanisms can enhance the sustainability of enterprises, their innovation potential, and readiness for future change. The scientific and practical importance of this research lies in its contribution to the theoretical understanding of adaptive management, and the potential for using the proposed model to develop digital transformation strategies and improve management systems in modern enterprises.

**Key words:** adaptive management, organizational flexibility, digital transformation, dynamic capabilities of the enterprise, digital economy.

### Introduction

In the context of the rapid digital transformation and the dynamic high-tech environment, the importance of adaptive management has become particularly significant. Modern businesses operate in a digital ecosystem characterized by uncertainty, frequent updates to business models, an increasing volume of data, and changing consumer expectations. Traditional management approaches have proven to be insufficiently flexible in ensuring long-term sustainability and competitiveness. Therefore, it is necessary to develop new approaches to enterprise design that can quickly adapt to digital changes and function effectively in uncertain conditions.

The aim of this research is to establish the conceptual basis for adaptive management and to formulate principles for designing businesses that prioritize sustainability, flexibility, and readiness for future digital transformations.

To achieve this objective, the following objectives are defined:

1. To analyze theoretical approaches to adaptive management and identify key factors of uncertainty in digital environments.

2. To develop a conceptual model for enterprise design that ensures its ability to adapt and transform strategically.

The significance of this research stems from the need to enhance the sustainability of organizations in a digital economy, where technological innovation, artificial intelligence, platform-based models, and big data radically alter the way business is conducted. Increasing levels of

uncertainty, rapid pace of change, and intense global competition necessitate a reevaluation of traditional management paradigms and a shift towards adaptive management systems that can ensure long-term organizational success.

The scientific novelty of this research lies in its systematic approach to the principles of adaptive management in relation to digital landscapes. The study also contributes to the development of a new approach to enterprise design as a dynamic system that focuses on continuous learning, organizational flexibility, and integration of digital technology into strategic decision-making.

This research contributes to the theoretical understanding of adaptive management within the context of digital transformation in the economy. It clarifies the conceptual framework and expands the knowledge of mechanisms for sustainable enterprise development in conditions of high uncertainty.

The results of this study can serve as a foundation for further research in strategic management, organizational design, and digital management. They can also be used to inform practitioners in related fields.

### **Materials and methods of research**

In this study, the following methods were used: system analysis, which allows us to consider the enterprise as an integrated adaptive system in the context of digital transformation, to identify interrelations between management elements and to assess the impact of uncertainty factors in digital landscapes; as well as comparative analysis, used to compare existing management models and approaches to designing enterprises from the perspective of their flexibility, stability and ability to adapt in a dynamic environment.. The research is based on scientific publications on adaptive management, strategic management and digital transformation, monographs and articles by domestic and foreign authors, analytical reports in the field of digital economy, as well as conceptual models of organizational design and materials reflecting current trends in digital technologies and business ecosystems, which form the basis for the development of theoretical provisions of this work.

### **Results and its discussion**

In the context of accelerating digital transformation, increased technological complexity and uncertainties in the external environment have led enterprises to the need for adaptive management models. Recent studies have confirmed that digital transformation enhances the resilience of organizations and their capacity to adapt to crises [1]. The development of dynamic capabilities and management flexibility is seen as a crucial factor in strategic competitiveness amidst technological turbulence [2]. The importance of this topic is further emphasized by the fundamental uncertainties surrounding digital technologies and the necessity for dynamic and adaptive business models [3].

Two main methods were employed in the study:

#### **System Analysis.**

The approach allowed us to view the organization as an open, adaptive system interacting with its digital environment. Its use provided:

- Identification of the relationships between strategy, structure, technology, and culture
- Determination of factors contributing to sustainability and flexibility
- Formation of the concept of dynamic, adaptive capabilities as the foundation of competitive advantage

Contemporary research confirms that digital transformation enhances an organization's adaptive and absorptive capabilities, and development of organizational flexibility serves as a key mechanism for successful transformation [4].

Within the scope of the research conducted, a conceptual model for an adaptive enterprise has been developed based on a system analysis. The model considers the organization as an open socio-economic system that operates in a digital transformation environment with high uncertainty in the external environment.

The basis of the model lies in the systematization of the enterprise into key interrelated elements: strategy, organizational structure, technology, human capital, and organizational culture.

These elements form a holistic management architecture that enables the enterprise to adapt to changes in the digital landscape and ensures its resilience in a dynamic environment.

The conceptual model envisions the company operating in constant interaction with the external digital environment, encompassing technological innovations, platform ecosystems, digital marketplaces, and information flows. Within this framework, the strategic level assumes a critical role in shaping long-term guidance for the enterprise's development.

The strategy of a digitally adaptive organization is founded on principles of flexibility, digital transformation, and sustainability, enabling timely responses to market shifts and technological disruptions. Recent research corroborates that digital transformation bolsters organizations' adaptability, enhancing their resilience in times of crisis and amidst technological uncertainty.

The next element of the conceptual model is the organizational structure, which in an adaptive enterprise should be flexible and decentralized. Unlike traditional hierarchical management systems, adaptive organizations use network and project structures, which allows them to quickly coordinate processes and make effective decisions. This structure enhances organizational flexibility and accelerates innovation. Research shows that the flexibility of organizational structures is one of the key factors for successful digital transformation of enterprises [5].

The third component of the model is the technological infrastructure of the organization, which encompasses digital platforms, data management systems, artificial intelligence, cloud solutions, and analytical tools. These technologies serve as an integral part of the integrated system, ensuring effective communication between all components of the management structure. In today's digital economy, leveraging advanced information technologies enables organizations to enhance operational efficiency, improve decision-making processes, and foster the development of innovative business models.

A significant aspect of the conceptual framework is human capital, which serves as the primary source of innovation and organizational growth. The agile organization prioritizes the enhancement of digital proficiency among employees, the establishment of interdisciplinary groups, and the creation of an ongoing learning environment. Current research underscores that the development of dynamic capabilities within an organization is linked to the acquisition of knowledge, skills, and abilities by its personnel [6].

A crucial component of the proposed model is an organizational culture that is based on the principles of innovation, adaptability, and willingness to take risks. This culture fosters an environment where employees are actively engaged in the digital transformation process and contribute to finding innovative solutions to enhance business efficiency. The organizational culture serves as a bridge between strategy, technology, and human capital, promoting the sustainable growth of the organization.

Furthermore, the developed conceptual model emphasizes the dynamic adaptability of the organization, which is manifested through three core processes:

- Recognizing changes in the external environment
- Seizing opportunities and driving innovation
- Reconfiguring organizational resources

This approach is in line with current research on the dynamic capabilities of businesses and their role in maintaining long-term organizational competitiveness in the face of digital transformation [7].

The proposed conceptual model envisions an organization as a multi-tiered adaptive system, in which strategic objectives, organizational structure, technological solutions, human resources, and corporate culture are all interconnected to form the foundation for the long-term sustainability of the company in the digital age. By systematizing a company based on this framework, it becomes possible to enhance its capacity for rapid adaptation, effective utilization of digital technologies, and the creation of long-lasting competitive advantages within the ever-changing digital landscape.

#### Comparative Analysis.

The methodology employed involves comparing contemporary management models, such as agile approaches, dynamic capabilities, and digital maturity models, to identify their benefits in the

context of uncertainty.

Research indicates that adaptive organizational growth strategies encompass digitalization, process enhancement, and personnel development as critical areas of transformation. The significance of integrating dynamic abilities, including sensing–seizing–reconfiguring, for strategic innovation and competitive advantage is acknowledged.

As a result of this methodology, the necessity for transitioning from traditional hierarchical structures towards flexible, project-centric, and learning-oriented organizational models is supported.

Table 1. The results of the application of research methods in the study of adaptive enterprise management in the context of digital uncertainty.

Method	Main Direction of Analysis	Obtained Results	Practical Significance
System Analysis	Enterprise as an adaptive system	Concept of dynamic adaptive capabilities; model of a self-developing organization	Increasing resilience and strategic flexibility
Comparative Analysis	Comparison of modern management models	Identification of advantages of agile and dynamic approaches; integration of digital competencies	Formation of a digital transformation strategy

The source was compiled by the author

The research concept is based on the theory of dynamic abilities, which determines an organization's ability to adapt, integrate, and reconfigure resources in a changing environment. In the context of digitalization, enterprises are forming new management architectures aimed at scalability and sustainability of innovations. This includes managing generative artificial intelligence as a dynamic capability.

The findings indicate that adaptive management is emerging as a crucial factor in the survival and growth of businesses in the face of evolving digital environments. Digital transformation is directly linked to enhancing the sustainability and long-term success of organizations. Furthermore, the development of organizational agility enhances a company's capacity to utilize intellectual assets for strategic transformation.

The research confirms that the future of management lies in the transition to flexible and adaptive models based on continuous learning, digital integration, and strategic resource reconfiguration. In the context of accelerated advancements in artificial intelligence and generative technologies, companies must develop meta-adaptability as the foundation of their competitive edge.

The findings of the study enable:

The development of principles for the design of adaptive organizations.

Justification of the need for the integration of digital technologies into strategic management processes.

Formation of a model for sustainable development in volatile, uncertain, complex, and ambiguous environments and enhancement of organizational readiness for future technological transformations.

Current research confirms that digital transformation strengthens the resilience and competitiveness of organizations in times of economic crisis and uncertainty.

The future of this area is related to integration of artificial intelligence into the strategic management system, development of digital ecosystems and platform models, formation of adaptive enterprise architectures. Research on the interaction of humans, technology, and organizational culture in conditions of constant change. Special attention is paid to the development of dynamic management models capable of operating in conditions of fundamental technological uncertainty and rapidly changing digital environments.

## Conclusion

This paper examines the theoretical and methodological foundations of adaptive enterprise management in the context of digital uncertainty. The main focus is on developing a conceptual model for an adaptive enterprise that can function effectively in the face of dynamic technological change, digital transformation, and high external environmental instability.

The study found that traditional management models have become insufficient in the digital economy. This requires a shift to flexible management systems that are based on adaptability, organizational agility, integration of digital technology, and the development of human capital.

Using a systematic and comparative analysis, the paper systematizes the structure of an enterprise as an adaptive system and identifies key elements that ensure its stability and strategic transformation capacity.

The practical significance of this article lies in its contribution to the development of theoretical and methodological frameworks for designing new types of businesses that are focused on sustainable growth and preparedness for future change. The proposed conceptual model has the potential to be used in the formulation of strategies for digital transformation within organizations, the improvement of organizational management structures, and the establishment of flexible management mechanisms capable of swiftly responding to changes in technological and economic environments.

The findings of this research may be of interest to professionals in the fields of strategic management, the digital economy, organizational design, and innovation management.

The scientific significance of this work lies in the advancement of theoretical concepts regarding adaptive enterprise management in light of the digital transformation of the economy. Additionally, it contributes to a better understanding of the role of organizational dynamic capabilities as a crucial factor in ensuring long-term organizational competitiveness.

This paper contributes to the advancement of contemporary management theory by expanding our comprehension of the mechanisms underlying the formation of flexible and resilient organizational systems.

The potential for further development in this area lies in a more in-depth exploration of the integration of artificial intelligence, digital platforms, and big data analytics within the strategic management framework of enterprises. As businesses continue to evolve, adaptive organizations will increasingly operate within digital ecosystems characterized by continuous learning, rapid adaptation of business models, and efficient human-machine interaction. These developments form the foundation for future research and advancements in the fields of adaptive management and the design of enterprises that can thrive in a rapidly changing digital landscape.

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## АДАПТИВТІ БАСҚАРУ: БЕЛГІСІЗ ЦИФРЛЫҚ ЛАНДШАФТТАРДА БОЛАШАҚҚА ДАЙЫН КӘСІПОРЫНДАРДЫ ЖОБАЛАУ

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**Аңдатпа.** Бұл мақалада цифрлық трансформация жағдайында бизнесті адаптивті басқаруды зерттеу және цифрлық экономикада тиімді жұмыс істей алатын ұйымдар үшін тұжырымдамалық негіздерді әзірлеу қарастырылады.

Зерттеудің мақсаты-адаптивті басқару принциптерін құру және тұрақтылыққа, икемділікке және динамикалық технологиялық өзгерістерге жауап ретінде тез бейімделу қабілетіне бағытталған бизнестің тұжырымдамалық моделін жасау.

Бұл тақырып цифрлық технологияның қарқынды эволюциясына, жаһандық бәсекелестіктің артуына және сыртқы бизнес ортасындағы белгісіздіктің артуына байланысты өзекті болып табылады. Бұл факторлар басқарудың дәстүрлі тәсілдерінен ұйымдар үшін икемді және бейімделгіш модельдерге көшуді талап етеді. Жұмыста кәсіпорынды ашық әлеуметтік-экономикалық жүйе ретінде қарастыруға және оның бейімделу мүмкіндіктеріне әсер ететін негізгі факторларды анықтауға мүмкіндік беретін жүйелі және салыстырмалы талдау әдістері қолданылады. Осы зерттеулердің нәтижесінде стратегия, ұйымдық құрылым, технологиялық инфрақұрылым, адами капитал, ұйымдастырушылық мәдениет сияқты өзара байланысты элементтерді қамтитын бейімделгіш кәсіпорынның тұжырымдамалық моделі жасалды.

Нәтижелер цифрлық технологияларды интеграциялау, динамикалық ұйымдастырушылық мүмкіндіктерді дамыту және икемді басқару тетіктерін құру кәсіпорындардың тұрақтылығын, олардың инновациялық әлеуетін және болашақ өзгерістерге дайындығын арттыра алатынын көрсетеді. Бұл зерттеудің ғылыми-практикалық маңыздылығы оның адаптивті менеджментті теориялық тұрғыдан түсінуге қосқан үлесінде және қазіргі заманғы кәсіпорындарда цифрлық трансформация стратегияларын әзірлеу және басқару жүйелерін жетілдіру

үшін ұсынылған модельді пайдалану әлеуетінде жатыр.

**Түйін сөздер:** адаптивті басқару, ұйымдастырушылық икемділік, цифрлық трансформация, кәсіпорынның динамикалық мүмкіндіктері, цифрлық экономика.

## АДАПТИВНОЕ УПРАВЛЕНИЕ: ПРОЕКТИРОВАНИЕ ПРЕДПРИЯТИЙ, ГОТОВЫХ К БУДУЩЕМУ, В УСЛОВИЯХ НЕОПРЕДЕЛЕННОСТИ ЦИФРОВЫХ ЛАНДШАФТОВ

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**Аннотация.** В данной статье рассматривается изучение адаптивного управления бизнесом в контексте цифровой трансформации и разработка концептуальных основ для организаций, которые могут эффективно функционировать в условиях цифровой экономики.

Целью исследования является установление принципов адаптивного управления и разработка концептуальной модели бизнеса, ориентированной на устойчивость, гибкость и способность быстро адаптироваться в ответ на динамичные технологические изменения.

Эта тема актуальна в связи с быстрым развитием цифровых технологий, усилением глобальной конкуренции и растущей неопределенностью во внешней бизнес-среде. Эти факторы требуют перехода от традиционных подходов к управлению к более гибким и адаптивным моделям для организаций. В работе использованы методы системного и сравнительного анализа, которые позволили нам рассмотреть предприятие как открытую социально-экономическую систему и выявить ключевые факторы, влияющие на его адаптационные возможности. В результате этого исследования была разработана концептуальная модель адаптивного предприятия, включающая такие взаимосвязанные элементы, как стратегия, организационная структура, технологическая инфраструктура, человеческий капитал и организационная культура.

Полученные результаты демонстрируют, что интеграция цифровых технологий, развитие динамичных организационных возможностей и создание гибких механизмов управления могут повысить устойчивость предприятий, их инновационный потенциал и готовность к будущим изменениям. Научная и практическая значимость данного исследования заключается в его вкладе в теоретическое понимание адаптивного управления, а также в потенциале использования предложенной модели для разработки стратегий цифровой трансформации и совершенствования систем управления на современных предприятиях.

**Ключевые слова:** адаптивное управление, организационная гибкость, цифровая трансформация, динамические возможности предприятия, цифровая экономика.