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# FORMS AND DEVELOPMENT OF BUSINESS PROCESS MANAGEMENT IN HIGH-TECH ENTERPRISES

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**Statement of The Problem.** There is a serious economic, social and technological need to determine the directions and means of realizing this potential. It is necessary to look for ways to overcome existing and expected obstacles to the sustainable development of the enterprise [7]. High-tech enterprises are dynamic organizations operating under rapidly changing technological and market conditions. These enterprises use technology-based processes to develop innovative products and services, increase efficiency, and gain competitive advantage. Business process management (BPM) plays a critical role in the success of high-tech enterprises because effective and efficient management of these processes offers great opportunities for reducing costs, ensuring quality standardization, and producing innovative solutions. However, rapidly changing conditions in the high-tech sector may lead to the inadequacy of traditional business process management approaches. In high-tech enterprises, business process management is based on technology-focused strategies, automation, digitalization, flexible organizational structures, and data-driven decision-making processes. In these enterprises, more innovative, agile, and dynamic methods have been adopted by going beyond traditional business process management approaches. However, there are significant obstacles such as the difficulties encountered in this development process, adaptation of management strategies, and upgrading of workforce skills. In addition, comprehensive and concrete data on the impact of the digital transformation process on business performance is lacking. In this context, there is a need for an in-depth understanding of the forms of business process management in high-tech enterprises and the development of these processes, the challenges faced by enterprises, the innovative approaches adopted and the effects of these approaches on organizational effectiveness. In addition, the contributions of business process management integration with technologies such as digitalization, artificial intelligence, big data analytics and industry 4.0 to business performance will provide strategic insights that can be a model for other enterprises in the sector.

**Analysis of the latest research and publications.** Davenport (2020) focuses on process innovation, emphasizing how information technology can fundamentally transform business operations and improve efficiency. In another book, Davenport and Beers (2020) discuss the strategic management of information technology to increase business value. Hammer (2021) advocates for the restructuring of corporations through a revolutionary approach to business processes, urging organizations to adopt new strategies for greater agility and efficiency. Harmon (2017) provides a comprehensive guide to implementing business process changes for managers and process professionals, emphasizing the importance of a structured approach. Kettinger and Teng (2020) examine the impact of business process management on the success of information systems, emphasizing the integration of BPM with IT systems to improve organizational performance. Moad and Alt (2015) focus on BPM in high-tech enterprises, providing insights into how BPM can drive innovation in technology-based industries. Pritchard (2019) presents a modern approach to BPM for the digital age, focusing on process-based systems. Schreyögg and Koch (2021) delve into the theoretical foundations of BPM, exploring key concepts, languages, and architectures. Smith and Fingar (2022) present the third wave of BPM, focusing on emerging trends in the field. Finally, Westerman and Bonnet (2019) predict the future trajectory of BPM, anticipating the role of emerging technologies in shaping the discipline. Together, these scholarly studies provide a comprehensive understanding of business process management, its evolution, and its integration with technology to ensure business success in the modern era.

In the early stages of high-tech companies, the management of business processes is often disorganized and manual. These processes operate on an ad hoc basis before adopting a more formal and structured approach as the company grows and matures. In early-stage businesses, workflows are often managed informally. This means that there is no specific planning and process management infrastructure for the smooth running of work. Employees rely more on individual initiative to accomplish their work (Hammer, 2021). However, this structure can lead to inefficiencies that will not be sustainable as the business grows. The prominence of manual processes limits the ability to quickly manage workflows. Many of these processes include steps that can be automated using digital systems and software. However, early-stage businesses often rely on processes that require manual intervention because they have not yet established such technological infrastructures. In addition, integration between departments is limited during this period when business processes are not considered as a whole. Often, each department works independently. This can make it difficult to share information and communicate, and can even lead to interruptions in business processes. Siloed functions mean that each department focuses on its own function and

does not contribute to the functioning of the company as a whole. For example, lack of communication between different departments such as R&D, sales and finance can lead to interrupted information flow and conflicting goals (Kettinger, Teng, 2020). In addition, incompatible data between departments leads to more errors and repetition in business processes. Such siloed structures can prevent the company from achieving its goals of rapid growth and innovation in its development. Businesses at this stage realize the need for digitalization, process integration and optimization of workflows in order to improve business process management. This development forms the basis for a more efficient, flexible and collaborative organizational structure.

As high-tech businesses began to switch to BPM (Business Process Management) software to provide automation and optimization in business process management, they experienced increased productivity. These software automated routine and time-consuming tasks and directed the workforce to more strategic areas. Leading BPM tools such as SAP and Oracle helped to make processes more fluid by ensuring that functions worked in better harmony with each other (Pritchard, 2019). Such software minimized manual intervention, reducing error rates and increasing operational speed and efficiency. Process mapping became one of the most important functions of BPM software. By visualizing business processes, companies were able to easily identify bottlenecks and inefficiencies. These processes increased transparency within the company and allowed decision makers to evaluate performance more accurately. Visualization also allowed employees to better understand processes and identify necessary improvements. In addition, high-tech companies turned to standardizing their processes. Standardization applied across departments ensured consistency and minimized error rates. Standard processes ensured that each department operated according to certain criteria, allowing business processes to proceed more quickly and smoothly. These developments were an important step in optimizing business processes and provided high-tech companies with a more competitive advantage.

Business process management (BPM) in high-tech enterprises has become increasingly data-driven. The increasing availability of big data and advanced analytics tools has made BPM processes more precise and effective. These technologies provide important tools for enterprises to monitor their processes, evaluate their efficiency, and make faster and more accurate decisions (Smith, Fingar, 2022). With the help of analytics, enterprises can not only monitor the current performance of their processes, but also make future improvements based on this data. For example, high-tech companies take actions based on real-time data when optimizing processes to increase operational efficiency. This allows for the rapid detection and resolution of disruptions in production lines. The fact that BPM systems have become data-driven has also increased the ability to make instant changes in processes. Real-time monitoring allows enterprises to continuously analyze processes and intervene immediately. In this way, problems are detected before they grow and the performance of enterprises is optimized. Real-time data flow allows enterprises to instantly notice any deviations and inefficiencies occurring in their business processes. In addition, predictive analytics tools make it possible to predict future process results based on past data. These tools analyze past performance data to anticipate potential problems and opportunities. By using such predictive tools, high-tech businesses can take a more proactive approach and quickly adapt to adverse situations they encounter. These tools not only foresee problems but also provide a solid foundation for future strategic decisions, making businesses more efficient and competitive.

Today's high-tech businesses are focusing heavily on digital transformation processes. This transformation involves the integration of innovative technologies that aim to make business processes smarter and more agile. Business process management (BPM) combines with artificial intelligence (AI), the Internet of Things (IoT), and cloud-based solutions to create more efficient and effective systems (Westerman, Bonnet, 2019). For example, AI-based analytics are integrated into BPM systems to enable data-driven decisions, which makes it possible to manage processes faster and more accurately. IoT devices provide real-time data collection and monitoring, while cloud solutions make the entire system more accessible and flexible. The agile approach to BPM offers a significant advantage, especially in fast-paced high-tech industries. Agile BPM enables businesses to adapt to rapidly changing market demands and make continuous improvements in processes. Compared to traditional process management, agile BPM enables decision-making and implementation in shorter cycles. This makes it easier to develop innovative solutions and gain a competitive advantage in the market. In addition, cloud-based platforms are important tools that increase collaboration between different departments. Functions such as R&D, sales, and marketing can communicate seamlessly in real time through these platforms. This collaboration improves decision-making and reduces delays, providing faster and more effective solutions. Digital transformation renews business processes, enabling companies to achieve a more dynamic and harmonious structure.

BPM's 4.0 phase has brought a revolutionary change to high-tech businesses. This phase uses artificial intelligence (AI) and machine learning (ML) to make business processes more intelligent and predictable. AI and ML automate decision-making processes, producing faster and more accurate solutions. These technologies are used to optimize resource allocation, identify potential bottlenecks in advance, and predict future needs. AI also plays an important role in data analysis, allowing businesses to manage processes more efficiently (Davenport, 2020). Robotic Process Automation (RPA) is one of the most important components of BPM 4.0. RPA automates repetitive and time-consuming tasks so employees can focus on more strategic and creative work. This automation reduces manual errors, increases efficiency, and significantly improves the speed of processes. In this way, businesses can manage business processes faster, more accurately, and more cost-effectively. The Internet of Things (IoT) has an important place in BPM 4.0. IoT enables businesses to monitor physical processes, machines, and product lifecycles. This integration provides businesses with instant data flow and

makes resource management more efficient. For example, machines on production lines can be continuously monitored and maintenance needs can be predicted with IoT, reducing downtime and costs. With the combination of these technologies, BPM 4.0 offers more flexible and dynamic business processes.

**Purpose of the article.** The purpose of this article is to examine the forms and development of business process management in high-tech enterprises.

**Research results.** The findings of this study show that business process management in high-tech enterprises has evolved with the integration of innovation, digitalization and agile management approaches. In particular, it has been determined that processes have become more efficient, faster and more flexible with the integration of advanced technologies such as automation of business processes, artificial intelligence, cloud computing, data analytics and machine learning into workflows. In addition, it has been observed that agile methodologies and lean management techniques play an important role in high-tech enterprises in terms of optimizing and continuously improving business processes.

**Conclusions.** As a result, business process management in high-tech enterprises requires a continuous development and innovation process in order to adapt to the rapidly changing technological environment. The study reveals that the adoption of digital tools and agile management approaches in business process management helps enterprises to gain competitive advantage by increasing both their internal efficiency and customer satisfaction. However, it has been emphasized that in order to overcome the difficulties encountered in this transformation process, enterprises need to strengthen their technological infrastructure, train their employees in digital competencies and eliminate elements that resist change. Future research should focus on the digitalization of business processes in high-technology enterprises and how agile management practices can be adapted to different sectors. This study shows that the evolution of business process management in high-technology enterprises and the effects of this process on management strategies should be further investigated.

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**Mirzayev N., Salmanova V. Forms and development of business process management in high-tech enterprises**

Business process management (BPM) in high-tech enterprises plays a crucial role in optimizing operations, increasing productivity, and maintaining competitiveness in a rapidly changing market environment. High-tech companies, characterized by their reliance on innovation and advanced technologies, face unique challenges in managing their business processes. These challenges include the need to continuously adapt to technological advances, managing complex supply chains, and ensuring the effective integration of new technologies into existing operations. The **purpose** of this article is to examine the forms and evolution of business process management in high-tech enterprises. The research work used **methods** of analysis, synthesis and comparative analysis. To

achieve the scientific results of the work, a system, process, resource and effective approaches were used. The **results** show that business process management in high-tech enterprises manifests itself in various forms, including the automation of routine tasks, the integration of advanced technologies such as artificial intelligence (AI) and machine learning (ML) for predictive analytics, and the use of cloud technologies. based platforms for real-time collaboration. These innovations contribute to reducing inefficiencies and increasing the speed of decision-making, which ultimately leads to greater innovation and faster time to market for new products. In addition, the development of BPM in high-tech enterprises is increasingly influenced by the need to align business processes with customer needs, regulatory requirements, and sustainability goals, ensuring long-term success in the competitive high-tech industry. **Conclusions.** As a result, business process management in high-tech enterprises requires a continuous development and innovation process in order to adapt to the rapidly changing technological environment. The study reveals that the adoption of digital tools and agile management approaches in business process management helps enterprises to gain competitive advantage by increasing both their internal efficiency and customer satisfaction.

**Key words:** technology, technology businesses, business processes, process management.

**Мірзаєв Н., Салманова В. Форми та розвиток управління бізнес-процесами на високотехнологічних підприємствах**

Управління бізнес-процесами (УБП) на високотехнологічних підприємствах відіграє вирішальну роль в оптимізації операцій, підвищенні продуктивності та підтримці конкурентоспроможності в ринковому середовищі, яке швидко змінюється. Високотехнологічні компанії, які покладаються на інновації та передові технології, стикаються з унікальними проблемами в управлінні своїми бізнес-процесами. Ці виклики включають необхідність постійного пристосування до технологічного прогресу, управління складними ланцюгами постачання та забезпечення ефективної інтеграції нових технологій у існуючі операції. **Метою** даної роботи є розгляд форм та еволюції управління бізнес-процесами на високотехнологічних підприємствах. У дослідницькій роботі використовувалися **методи** аналізу, синтезу та порівняльного аналізу. Для досягнення наукових результатів роботи використано системний, процесний, ресурсний та ефективний підходи. **Результати** показують, що управління бізнес-процесами на високотехнологічних підприємствах проявляється в різних формах, включаючи автоматизацію рутинних завдань, інтеграцію передових технологій, таких як штучний інтелект (ШІ) і машинне навчання (МН) для прогнозної аналітики, а також використання хмарних технологій. платформи для співпраці в реальному часі. Ці інновації сприяють зменшенню неефективності та збільшенню швидкості прийняття рішень, що в кінцевому підсумку призводить до збільшення кількості інновацій та швидшого виходу на ринок нових продуктів. Крім того, на розвиток УБП на високотехнологічних підприємствах все більше впливає необхідність узгодити бізнес-процеси з потребами клієнтів, нормативними вимогами та цілями сталого розвитку, забезпечуючи довгостроковий успіх у конкурентній індустрії високих технологій.

**Ключові слова:** технологія, технологічний бізнес, бізнес-процеси, управління процесами.