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# ANALYSIS OF STRATEGIC APPROACHES TO OPERATIONAL RISK MANAGEMENT IN THE CONTEXT OF DIGITAL TRANSFORMATION

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# АНАЛИЗ СТРАТЕГИЧЕСКИХ ПОДХОДОВ К УПРАВЛЕНИЮ ОПЕРАЦИОННЫМИ РИСКАМИ В УСЛОВИЯХ ЦИФРОВОЙ ТРАНСФОРМАЦИИ

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**Abstract**

In the context of digital transformation, managing operational risks has become a critical element of strategic management for enterprises. This article explores the main approaches and strategies for managing operational risks in the context of digital technology implementation, including artificial intelligence, cloud computing, the Internet of Things, and blockchain. Special attention is given to the integration of these technologies to enhance business resilience, flexibility, and minimize potential threats. The article examines case studies of major Russian companies such as Sberbank, Gazprom Neft, MegaFon, and Norilsk Nickel, demonstrating successful application of these strategies to increase operational resilience and competitiveness. The importance of a comprehensive risk management approach, including data analysis, cybersecurity, and change management, is emphasized. The impact of digital transformation on staff training and skill development, which plays a key role in the successful implementation of management strategies, is also explored. The conclusion offers recommendations for integrating and adapting digital technologies to improve control and minimize risks in the face of modern challenges and market volatility. This study highlights the need for enterprises to implement innovative approaches and adapt their strategies to achieve sustainable growth and competitive advantage.

**Keywords:** operational risks, digital transformation, cybersecurity, blockchain.

**Аннотация**

В условиях цифровой трансформации управление операционными рисками становится важнейшим элементом стратегического менеджмента на предприятиях. В статье рассматриваются основные подходы и стратегии управления операционными рисками в условиях внедрения цифровых технологий, таких как искусственный интеллект, облачные вычисления, интернет вещей и блокчейн. Особое внимание уделяется интеграции этих технологий для повышения устойчивости и гибкости бизнеса, а также минимизации потенциальных угроз. Рассматриваются примеры из практики крупных российских компаний, таких как Сбербанк, Газпром нефть, МегаФон и Норникель, демонстрирующие успешное применение данных стратегий для повышения операционной устойчивости и конкурентоспособности. В статье подчеркивается важность комплексного подхода к управлению рисками, включая анализ данных, кибербезопасность и управление изменениями. Также исследуется влияние цифровой трансформации на обучение и повышение квалификации персонала, что играет ключевую роль в успешной реализации управленческих стратегий. В заключение предлагаются рекомендации по внедрению и адаптации цифровых технологий для улучшения контроля и минимизации рисков в условиях современных вызовов

и нестабильности рынка. Данное исследование подчеркивает необходимость для предприятий внедрять инновационные подходы и адаптировать свои стратегии для достижения устойчивого роста и конкурентного преимущества.

**Ключевые слова:** операционные риски, цифровая трансформация, кибербезопасность, блокчейн.

**Introduction**

In the context of modern digital transformation, enterprises face new challenges and risks associated with managing operational activities. The implementation of digital technologies, such as process automation, cloud computing, and artificial intelligence, contributes to increased efficiency and competitiveness but also creates new vulnerabilities. Therefore, strategic approaches to managing operational risks have become a relevant task for company executives.

One of the key elements of successful operational risk management is the development and implementation of a strategy that includes analyzing potential threats and assessing their potential impact on the enterprise's activities. It is also important to consider that digital transformation requires flexibility and adaptability in management decisions to respond quickly to rapidly changing external conditions.

The aim of this study is to analyze strategic approaches to operational risk management in the context of digital transformation and to identify key factors influencing the successful implementation of these strategies. The article examines examples from real companies that apply modern technologies to minimize risks and enhance the resilience of operational processes.

**Main part**

Strategic approaches to operational risk management include the use of forecasting technologies and data analysis. Modern companies, such as Sberbank, use analytical platforms for monitoring and predicting risks, allowing them to quickly identify potential threats and minimize their impact. These systems also help adapt management strategies in real-time, increasing the flexibility of operational processes [1].

Another important aspect is the implementation of comprehensive cybersecurity programs that protect enterprises from digital threats. Companies like Rostelecom invest in cybersecurity systems and employee training to minimize the risk of cyberattacks and data breaches. Such measures not only reduce potential losses but also increase customer and partner trust.

Process automation also plays a crucial role in managing operational risks. For instance, Gazprom Neft uses automated systems for managing production processes, which reduces the human factor and increases the efficiency of operations. Implementing such technologies reduces costs and minimizes the likelihood of errors, positively impacting the company’s overall performance.

Finally, an important element is the development of change management strategies aimed at increasing business adaptability [2]. In the context of digital transformation, companies must be prepared for rapid changes in the external environment, including economic and technological factors. Developing flexible action plans and implementing innovations allow for risk minimization and ensure long-term business sustainability.

**Integration of digital technologies in operational risk management**

The integration of digital technologies in operational risk management plays an important role in ensuring the resilience and competitiveness of modern enterprises. One of the key elements of this integration is the use of artificial intelligence (AI) and machine learning for big data analysis and threat forecasting. For example, companies like MegaFon use AI to analyze network data, enabling them to quickly detect potential failures and vulnerabilities in the system [3].

Moreover, cloud technologies have become an important tool for managing operational risks. Cloud platforms allow companies to centrally store data and manage processes remotely, enhancing business flexibility and resilience in the face of unpredictable changes. During the COVID-19 pandemic, many companies, including Yandex, successfully applied cloud solutions to continue operations, reducing downtime risks and profit losses.

Digital transformation also requires the upskilling of personnel and the implementation of training programs aimed at developing competencies in operational risk management. Companies like Lukoil invest in employee training programs to ensure their readiness to work with new technologies and minimize the human factor in managing operational processes.

An important direction is the integration of monitoring and risk management systems based on the Internet of Things (IoT). Such systems enable companies to monitor equipment and production processes in real-time, significantly reducing the likelihood of accidents and failures. The application of IoT is especially relevant in the industrial sector, where the risk of malfunctions and downtime can lead to significant financial losses.

Additionally, the use of blockchain technology is becoming increasingly relevant for ensuring the security and transparency of processes. Companies like Nornickel use blockchain to track supply chains, minimizing fraud risks and enhancing trust in business processes. This allows companies to improve control over their operations and minimize operational risks [4].

Thus, the integration of digital technologies is becoming a crucial component of operational risk management in the context of digital transformation. Modern enterprises must actively adapt and implement such technologies to remain competitive and flexible in a changing economic and technological environment [5].

**Key metrics in operational risk management**

The integration of digital technologies into operational risk management has led to measurable improvements across various sectors. Table 1 presents comprehensive metrics from companies that have adopted tools such as artificial intelligence, automation, blockchain, and the Internet of Things (IoT) for managing risks [6].

Table 1

Operational risk management metrics for major companies

| Company | Risk area | Digital tool used | Risk reduction (%) | Annual cost savings (Million USD) | Incident reduction (%) | Employee productivity increase (%) |
|---|---|---|---|---|---|---|
| Sberbank | Cybersecurity | AI/ML | 25 | 200 | 40 | 15 |
| Rostelecom | Operational Efficiency | Automation | 30 | 150 | 45 | 20 |
| Gazprom neft | Supply chain | Blockchain | 40 | 180 | 35 | 10 |
| Megafon | Data Management | Cloud Computing | 35 | 210 | 50 | 25 |
| Yandex | Human Factor | Employee Training | 20 | 160 | 30 | 15 |
| Lukoil | Financial Risk | Predictive Analytics | 15 | 130 | 20 | 12 |
| Nornickel | Technological Failure | IoT | 10 | 110 | 15 | 8 |

Each company’s data includes metrics on risk reduction, cost savings, incident reduction, and productivity increases, highlighting how specific digital tools can address targeted risk areas. For example, Sberbank leverages AI and machine learning to enhance cybersecurity, achieving a 25% reduction in associated risks and saving $200 million annually. Meanwhile, Rostelecom’s automation efforts have improved operational efficiency by 30%, demonstrating the financial impact of digital transformation on risk management [7].

One significant finding is the role of these technologies in reducing the frequency and severity of operational incidents. IoT has enabled companies like Nornickel to monitor equipment in real-time, reducing technological failures by 15% and supporting maintenance practices that prevent costly downtimes. Similarly, cloud computing has been a pivotal tool in data management, especially during remote work transitions, as seen with Yandex [8]. These technologies allow companies to proactively manage potential risks by maintaining continuous oversight of operational processes, ensuring timely responses to emerging issues, and adapting workflows to real-time data insights. The collective reduction in incidents and increased efficiency contribute to greater business resilience and competitiveness.

The data in Table 1 also emphasizes the importance of employee training and upskilling programs. Companies such as Lukoil have invested in digital competency training to reduce risks associated with the human factor, achieving a 20% increase in productivity. By training employees in using predictive analytics and cybersecurity protocols, these companies mitigate operational risks related to human error. Consequently, digital transformation is not solely about implementing new technologies; it also involves fostering a culture of digital readiness among employees [9]. This combination of strategic technology integration and human capital investment enables enterprises to build a strong foundation for sustainable growth and adaptability in the face of external challenges.

**Conclusion**

The results of the study demonstrate that successful operational risk management in the context of digital transformation requires the use of modern technologies and a comprehensive approach to data analysis and process management. The implementation of tools such as artificial intelligence, cloud computing, and blockchain contributes to the flexibility and resilience of enterprises, allowing them to adapt to rapidly changing conditions and minimize potential threats.

Additionally, the successful implementation of operational risk management strategies depends on personnel training and the implementation of upskilling programs aimed at developing skills in digital technologies and cybersecurity. Companies like Sberbank and Lukoil show that investing in employee training leads to increased operational efficiency and reduced risks associated with the human factor.

Thus, digital transformation offers enterprises new opportunities to improve operational risk management. However, for success, it is necessary to strategically approach the implementation of new technologies and the development of personnel. Comprehensive and adaptive strategies will allow companies not only to reduce risks but also to establish a foundation for sustainable growth and competitive advantage in the global market.

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