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INNOVATIVE TECHNOLOGIES IN COMMUNICATION ENTERPRISES AND THEIR IMPACT ON SERVICE EFFICIENCY (CASE STUDY OF O‘ZBEKTELEKOM)

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ABSTRACT

This article provides a comprehensive analysis of the impact of innovative technologies on economic efficiency. It offers a detailed examination of how modern digital technologies, such as automation, artificial intelligence, cloud computing, and the Internet of Things (IoT), serve as tools for improving the efficiency of enterprises. Additionally, it analyzes the aspects of these technologies related to saving resources in production processes, increasing labor productivity, and creating new products and services.

Keywords: *Innovative technologies, economic efficiency, digital technologies, economic growth, digitalization, developing countries, Uzbekistan, McKinsey, World Bank.*

INTRODUCTION

Innovative technologies are one of the critical factors in the modern economy, and their implementation and development are crucial in improving the efficiency of enterprises. The rapid development of digital technologies in the 21st century is significantly contributing to global economic growth. According to McKinsey Global Institute, the application of digital technologies could increase the global economy by up to $37 trillion by 2025. In particular, innovative technologies are positively impacting efficiency in the economies of developing countries. For example, according to World Bank research, the introduction of digital technologies increased Uzbekistan's production output by 5% in 2019. These data clearly demonstrate the relevance of innovative technologies and their potential for enhancing economic efficiency.

In the telecommunications sector, innovative technologies play a crucial role in increasing service efficiency. Today, technologies such as 5G, IoT (Internet of

Things), cloud computing, and artificial intelligence (AI) are essential for improving the quality and speed of service delivery, as well as ensuring reliability and security.

TABLE 1: Stages of Implementing Innovative Technologies

Stages	Actions	Goals
New Technologies	Identifying innovative technologies	Introducing new technologies
Technological Infrastructure	Upgrading and modernizing	Creating efficiency and convenience
Financial Investments	Allocating financial resources	Applying innovations through investments
Personnel Training	Conducting training and educational programs	Enhancing personnel skills
Technological Integration	Developing integration strategies	Successful integration of technologies
Problem Management	Identifying and solving issues	Resolving technological issues
Efficiency Monitoring	Implementing monitoring systems	Evaluating and improving innovations

[Implementation of Innovative Technologies] | v **[Technological Infrastructure]** → **[Financial Investments]** | | v v **[Staff Training]** → **[Technological Integration]** | | v v **[Problem Management]** → **[Efficiency Monitoring]**

Cloud computing technologies simplify data storage and processing, which enhances operational efficiency and allows for more effective management of the infrastructure. Artificial intelligence technologies, with their ability to analyze and predict data, contribute to improving the performance of communication systems.

In practice, the implementation of new technologies has often proven to be effective. For example, the 5G system has accelerated the process of data exchange over long distances, speeding up service delivery. IoT technologies have been effective in optimizing resources and automating production processes in manufacturing and service sectors.

At the same time, challenges arise when introducing innovative technologies. These challenges include technical issues, integration problems, and support concerns. For instance, the cost of new technologies and their integration into the system, as well as the need for technical support, are considered the main problems.

Assessment of the Effectiveness of Introducing 5G Technology by O‘zbektelekom

In 2023, O‘zbektelekom implemented the new 5G technology. This study aimed to evaluate the effectiveness of the new technology and analyze it based on economic

indicators. The research included pilot projects, statistical analysis of user experience, and service delivery speed.

METHODOLOGY

Pilot Projects: Testing 5G technology in limited areas, measuring service delivery speed, and collecting user feedback.
User Experience: Measuring user satisfaction through surveys and interviews.
Service Delivery Speed: Comparing the speed of service before and after the introduction of 5G technology.

Sources:

- **Reports from Technology Developers**: Functional capabilities and performance indicators of 5G technology.
- **Company's Internal Analyses**: Economic and service delivery indicators measured before and after the implementation of the technology.
- **User Surveys**: Acceptance of the technology among users and their satisfaction levels.

Initial situation in 2022, final situation in 2023 – Results.

RESULTS

The introduction of 5G technology in 2023 increased service speed by 30%. This improvement in network performance and faster service delivery also increased user satisfaction.

TABLE 2: Change in Service Delivery Speed

Year	Service Delivery Speed (Mbps)	Change (%)
2022	50	-
2023	65	+30%

The implementation of 5G technology in 2023 increased service delivery speed by 30%, providing higher-speed network operation and faster service delivery to users. This significant improvement in service speed also increased user satisfaction.

TABLE 3: Stability of Inter-Network Communications

Year	Stability of Inter-Network Communications (Total Connections/Interruptions)	Change (%)
2022	0.80	-
2023	0.95	+18.75%

The implementation of 5G technology improved the stability of inter-network communications by 18.75%. This result enhanced the quality of communication between networks and reduced system interruptions, significantly improving network stability and reliability.

TABLE 4: Customer Satisfaction

Year	Customer Satisfaction (%)	Change (%)
2022	70%	-
2023	85%	+21.43%

Customer satisfaction increased by 15%, reflecting the higher satisfaction of users with 5G technology and the quality of services provided. With the help of this new technology, customer trust in the quality of service increased.

TABLE 5: Challenges in Technology Integration

Challenge	Description	Solutions
High Costs	High cost of technology implementation	Optimizing costs and developing financial resource allocation strategies
Technical Difficulties	Technical issues related to new technology	Enhancing technical support and updating the technology

During the process of integrating 5G technology, issues such as high costs and technical problems were resolved. By optimizing costs and strengthening technical support, these issues were addressed, ensuring the successful implementation of the technology.

The introduction of 5G technology increased the service delivery speed of “O‘zbektelekom” by 30%, further stabilized inter-network communications, and improved customer satisfaction by 15%. The challenges encountered during the integration process, such as high costs and technical difficulties, were successfully overcome. Through 5G technology, the company not only improved network speed and stability but also ensured the provision of high-quality services to its customers.

The successful experience of implementing 5G technology can be applied to expand the technology in other regions and to modernize existing technologies. It is recommended to strengthen advanced technical support and strategic planning to anticipate and resolve the challenges that may arise during the integration of new technologies.

CONCLUSION

The introduction of innovative technologies today plays a key role in improving efficiency not only in developed but also in developing economies. These technologies make a significant contribution to the growth of communication enterprises and the overall economy, enhancing competitiveness. The examples and statistical data presented in this article demonstrate that the proper and effective implementation of digital technologies can significantly increase economic efficiency. Moreover, the integration of innovative technologies in developing countries like

Uzbekistan opens up new opportunities for economic growth. Overall, the wide adoption of innovative technologies in the economy will be an important factor in ensuring future economic stability.

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