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Digital Transformation of Inspection Activities in the Context of the Digital Economy

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Annotation: The digital revolution, encompassing the global economy, astonishes with its scale, pace, and geography. Each year, the intensity of introducing new technologies into production and services designed to meet human needs increases. The digital wave is affecting new sectors and is having an increasingly significant impact on the economy. The article discusses the key features of digital transformation using inspections as an example. Additionally, it highlights the primary factors accelerating the digitization processes in our republic.

Keywords: digital economy, digital technologies, Big Data, information systems, digitization.

Over the past five years, the level of digitization globally has significantly increased, demonstrated by the growth in the number of internet users, cloud computing, artificial intelligence, blockchain, cybersecurity technologies, and digital services. The COVID-19 pandemic accelerated these processes, especially in remote work, online education, and healthcare.

According to the **Global Innovation Index 2024**, the most innovative economies include Switzerland, Sweden, the United States, Singapore, and the United Kingdom. Over the last decade, China, Turkey, India, Vietnam, and the Philippines have been among the fastest-growing countries.

Additionally, the **United Nations E-Government Development Index** shows that global digitization levels continue to rise, reaching 0.638 in 2024 (compared to 0.55 in 2018). In the digital governance ranking, Denmark, Estonia, Singapore, South Korea, Iceland, Saudi Arabia, the United Kingdom, Finland, and the Netherlands are leading.

In Uzbekistan, the transition to a new development stage-digital government and society-is creating unparalleled opportunities. Digitization plays a crucial role in ensuring sustainable socio-economic, political, and cultural progress, improving citizens' living standards, and fulfilling the needs of individuals while enabling their free development.

Comprehensive reforms in Uzbekistan have yielded significant results. For instance, according to the **United Nations' 2022 report**, Uzbekistan ranked 69th in the E-Government Development Index with a score of 0.7265. By 2024, the country moved up six positions to 63rd, achieving a score of 0.7999.

The **New Uzbekistan Development Strategy for 2022–2026** prioritizes active digitization efforts, including developing the "e-government" system, expanding public-private partnerships, and introducing digital technologies. Additionally, modernizing civil service systems, improving regulatory functions in the real economy sector and inspections, and digitizing operational processes are key objectives.

Big Data also plays a pivotal role in improving inspection activities alongside digital technologies. The scope of projects utilizing Big Data is expanding in various sectors, including inspections. Current initiatives focus on digitization, the use of internet resources, developing information systems, data from mobile operators, and electronic government services.

In discussions on Big Data, the emphasis is on effectively utilizing data volume, speed, and diversity, supported by computational infrastructures and methods. Officially, this involves enhancing the technological capacity of organizations overseeing information systems to collect, store, process, and analyze large datasets.

Big Data analysis is crucial for identifying trends, customer behaviors, and market preferences to aid business decision-making. The complexity of Big Data analysis requires advanced tools such as predictive analytics, machine learning, stream analytics, and clustering methods. The process includes:

- Collecting data.
- Analyzing the data.
- Drawing conclusions.

Various techniques from statistics and informatics are used for data analysis. However, no universal system for handling Big Data exists, and solutions depend on user needs. Software and systems offer unique advantages, though challenges persist, such as data source diversity, data quality, and visualization. Researchers are continually developing and refining techniques to improve Big Data processing, including methods applicable to smaller datasets.

Comprehensive analytical methods and algorithms for processing Big Data include **Data Mining** (e.g., association rules, classification, clustering), **Machine Learning**, **Artificial Neural Networks**, simulation, and statistical analysis.

Today, the documents adopted by our government in the ICT field, as well as the programs, roadmaps, projects, and targeted indicators outlined in the "E-Government" and "Digital Uzbekistan – 2030" strategies, play a critical role. These initiatives emphasize the registration, collection, storage, and control of the execution of tasks assigned to state and economic management bodies, local government authorities, and other organizations and institutions. Through these measures, the introduction of information systems into oversight activities has become increasingly important.

By integrating modern information and communication technology (ICT) standards in line with international requirements, inspections can effectively prevent, detect, warn against, and eliminate legal violations.

Ensuring full transparency in the inspection sector, developing a strategy to enhance ICT, and implementing risk-based monitoring that eliminates human factors altogether will, in turn, ensure greater transparency in this field.

From the above, it can be concluded that while digital transformation may be easier for sectors with high levels of expertise and competency in data analysis and management, today we are witnessing the adaptability of inspections to digital transformation. In the era of digitization, this adaptability is no longer a luxury but has already become a means of **"survival."**

What are the advantages of using large-scale data in addition to certain types of administrative and business data in inspection activities? Exploring and analyzing new sources of large-scale data can undoubtedly be fundamentally beneficial. However, ensuring that statistical data producers in every field regularly acquire such data sets without a clear operational necessity is equivalent to solving a challenging issue.

Additionally, in accordance with the decrees, resolutions, government decisions, programs, roadmaps, projects, and target indicators issued by the President of the Republic of Uzbekistan, the analysis and monitoring of tasks assigned in the areas of Information and Communication Technologies, the "Electronic Government" system, the Digital Economy, and digital transformation

using artificial intelligence technologies create opportunities to achieve effective results.

Large-scale data possesses the following characteristics: high volume, high velocity, or high variety. Artificial intelligence, mobile and social platforms, and the Internet of Things contribute to the complexity of the data landscape due to the emergence of new forms and sources of information. For example, big data can originate from sensor devices, video and audio equipment, networks, logs, transaction applications, the Internet, and social platforms. A significant portion of this data is generated in real time and at extremely high volumes.

The analysis of big data provides analysts, researchers, and business users with the ability to optimize and accelerate decision-making based on information that was previously unavailable or impractical to use. Data analysis is generally a process of optimizing existing processes, making it critical for answering multiple complex questions and deciding on the implementation of intelligent software.

Based on this problem formulation, modern solutions for Big Data analysis serve as effective tools for replication. In conclusion, artificial intelligence enables machines to learn from experience, adapt to new data, and perform human-like tasks.

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