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Critical Issues and Mechanisms in the Sustainable Development of the Digital Economy

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Abstract. *This article discusses the latest developments in smart devices and services and their impact on the digital economy. It briefly reviews advancements in areas such as Internet of Things (IoT) technologies, artificial intelligence, automated applications, and smart devices and services. These technologies play a significant role in improving energy efficiency, data analysis, management and monitoring processes, and in providing efficient services in areas like smart homes and cities.*

Key words: *integration, indicators, Internet of Things, strategies, innovations, mechanisms, critical, digital economy, development.*

Introduction: The digital economy is currently one of the most important developmental directions globally, and innovations within the field, such as artificial intelligence, robotics, the Internet of Things, and smart technologies, are crucial for its sustainable development. These technologies encompass both challenges and advantages, making it essential to analyze relevant doubts and their solutions. Artificial intelligence and the digital economy have taken a pivotal role in transforming economic systems today, incorporating smart communication, deep data analysis, and the production of precise economic information.

Automated data analysis is considered a key component of the digital economy and is a significant area of application for artificial intelligence and robotics technologies. The importance of this process is based on several reasons [1]:

- Reducing ambiguity in data: In the digital economy, data is often voluminous and not in a clear format. Artificial intelligence technologies help reduce the level of ambiguity in these data.
- Saving time and resources: Automated analysis processes enable quick and accurate data analysis, which saves additional time and resources.
- Intelligent analysis and forecasting: Artificial intelligence aids in analyzing statistical data, making timely forecasts, and assessing investment returns.
- Providing personalized services: The automation of data analysis serves as a primary tool for offering personalized services, adapting products and services to meet the needs and expenses of customers.
- Data security: Automated analysis technologies are also crucial for data protection and confidentiality. They assist in developing and implementing necessary methods to protect data and ensure privacy.

Innovations such as artificial intelligence, robotics, IoT, and smart technologies cover various sectors including healthcare, transportation, and education, and issues in their operation can directly affect human life. The transition to the digital economy places a special emphasis on ethical standards and perspectives. For instance, issues like the ethical acceptance by artificial intelligence, adherence to ethical norms by robots, and the capability of IoT technologies to securely store personal data are

discussed. Addressing these issues requires the development of clear standards, laws, and ethical views [2].

The latest developments in smart devices and services support the growth of the digital economy and technology, and are part of efforts aimed at supporting, streamlining, and offering viable services.

IoT technologies are increasingly penetrating various sectors and becoming more significant in every aspect of our lives. They hold a crucial position in diverse fields such as electronics, transportation, healthcare, both small and large enterprises, and energy. Recent advancements are focused on optimizing energy consumption, enhancing security and privacy, and improving the quality of data collection, distribution, and analysis [3].

Artificial intelligence and automated applications are creating vast opportunities to make smart devices and services more efficient and effective. Smart devices significantly aid in simplifying daily human activities; for example, they are used in speech recognition, communication, and movement control. These technologies are employed in areas such as smart homes and smart cities, helping people better understand and enhance their lives [4].

Smart devices provide powerful and effective tools for system management and deep data analysis. They are utilized in managing energy consumption, monitoring transportation, overseeing healthcare services, and many other areas.

In conclusion, the article significantly highlights the strategic management and development processes of the digital economy, providing a comprehensive analysis of the primary challenges facing this sector and outlining the mechanisms needed for their resolution. These challenges, often complex and multifaceted, require innovative and strategic approaches to harness the full potential of digital technologies effectively.

The severity of these issues is meticulously discussed, underscoring the need for robust analytical methodologies and proactive problem-solving strategies. By addressing these critical points, stakeholders can better navigate the complexities of the digital landscape, ensuring more stable and sustainable growth.

Furthermore, the article delves into the significance of external factors, such as global technological trends, regulatory frameworks, and economic conditions, which all play pivotal roles in shaping the trajectory of the digital economy. The integration of these external factors with internal strategies is crucial for creating a resilient and adaptable digital economy.

Lastly, the paper emphasizes the importance of continuous innovation and the development of new strategies to foster the evolution of the digital economy. This involves not only adapting to current technological advancements but also anticipating future trends and preparing for emerging challenges. Through such dynamic and forward-thinking approaches, the digital economy is poised to not only grow but thrive, offering substantial benefits to industries, governments, and individuals alike.

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