

The Dual Impact Of Digitalization: Economic Growth And Security Risks In Leading Global Economies

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Abstract

This discussion examines the impact of digital transformation on global economies, highlighting significant strategies from key players such as the United States, European Union, and leading Asian economies—China, South Korea, and Japan. The U.S. has been a pioneer in digitalization, implementing numerous initiatives that promote cloud technologies and advanced manufacturing, with programs like the Digital Economy Agenda aimed at leveraging the digital sector for economic growth. The EU has established over 30 national and regional strategies, including the EU Digital Single Market platform, which coordinates digitalization efforts across member states and promotes best practices. In Asia, China is emerging as a dominant force in digital technologies, driven by a competitive market and government initiatives like “Made in China 2025.” South Korea’s strategy focuses on developing a new economy rooted in digital platforms, while Japan’s “Society 5.0” strategy aims to integrate advanced technologies across sectors. The analysis reveals two predominant models of government involvement in digital transformation: the market model, characterized by self-regulation, and the administrative model, which emphasizes structured state guidance. Most countries adopt a hybrid approach, blending these models to foster digital economic growth while addressing potential security threats.

Introduction:

In today's economic landscape, a significant driver of progress is the shift towards digital transformation, which has the potential to significantly improve conditions and elevate the economy to a more advanced level. Unlike the traditional economy, where finite resources dominate, the digital economy relies on innovation and the continuous flow of reliable, timely information as its core assets. These elements are crucial for fostering growth and maintaining competitiveness in the digital era. The idea of the digital economy was first introduced by business analyst Don Tapscott (Bowman, 1996), who explored how advancements in technology were reshaping entrepreneurship. He demonstrated to entrepreneurs that emerging technologies were gradually transforming traditional business models into technology-driven enterprises, highlighting the evolving nature of entrepreneurship in the digital age.

Technological advancements over the past 10-15 years, alongside the widespread adoption of digital processes, have profoundly influenced every aspect of economic activity. The digital economy offers distinct competitive advantages through the innovative evolution of economic systems across various levels. Information and communication technologies (ICT) and artificial intelligence are now key drivers of socio-economic progress and improvements in modern living standards. Establishing the required socio-economic frameworks accelerates the pace of digitalization in all sectors of the economy, which is crucial for ensuring the state's economic security.

In recent years, digitalization has become a key driver of global economic development, as it not only boosts labor productivity (a direct benefit) but also saves time, stimulates demand for new products and services, and fosters new quality and value (an indirect benefit). Simultaneously, the use of digital information as a core resource is facilitating the shift from a traditional market economy to a digital one, where all sectors—public and private, industrial and financial, production and services—are closely interconnected and mutually supportive in their operations.

Literature Review:

In general, while there is considerable academic research on the impact of economic digitalization on economic security, it is advisable to treat these concepts separately. By outlining the key distinctions in the context of modern economic systems, we can delve into the specific definitions of the “digital economy” as presented in foreign literature. For instance, Deloitte’s analytical review describes the digital economy as a new form of business activity for market participants, driven by network interactions conducted via the Internet (Aleksei, 2018). This definition emphasizes the transformation of traditional business models through digital platforms and online connectivity. According to Bazzoun (Mohammed., 2019), the digital economy is described as a cyber-physical system where interactions between private and public sectors are facilitated within a virtual environment. This framework enables commercial activities to be conducted seamlessly in digital spaces, reflecting the integration of physical and virtual economic operations. Collis and Brynjolfsson (Erik, 2019) view the digital economy as a means of facilitating market relations, emphasizing the role of modern innovation trends in the development of information and computing technologies. This perspective highlights the importance of technological advancements in shaping how market interactions are carried out in the digital era.

Besada (Hany, 2018) defines the digital economy as a contemporary business framework that supports both domestic and global economies. It is built on the integration of information technology, intellectual assets, intangible resources, and innovation. This description emphasizes the transition toward knowledge-based economic models, where technological progress and creative capital are the primary drivers of growth and competitiveness. Mambetomorov and Almasbekova (Azizbek, 138-143) describe the digital economy as a new form of socio-economic system, where a significant portion of goods and services transitions to the virtual space, driven by the rapid development of information technologies. This transformation highlights how digital advancements are reshaping the traditional economy by

moving many aspects of commerce into the online realm. Ganichev and Koshovets (8-36., 2020) define the digital economy as the process involving the creation, distribution, and utilization of digital technologies, as well as the related products and services. This perspective emphasizes the broad scope of economic activities driven by the development and application of digital innovations. Jiang Yun, a Chinese scholar, defined economic security as the capacity to preserve economic independence and ensure a steady improvement in living standards for the entire population through national economic growth. He analyzed economic security through the lenses of competitiveness and independent economic sovereignty (Yong., 2007). Kahler (Kahler, 2004) argues that globalization has disrupted the traditional understanding of economic security, which was previously seen as the economic vulnerability of other nations. He further suggests that globalization has shifted the focus of economic security to address risks associated with cross-border networks of non-state actors and the economic uncertainty brought by the evolving global environment. In his monograph, Senchagov (Vyacheslav., 2012) defines economic security as the condition of both the economy and governmental institutions in which national interests are protected, the country develops with a social focus, and defense capabilities remain sufficient even under the most challenging internal and external circumstances. Karimov and Saydullaev (Shakhzod., 2019) advocate for the digitalization of Uzbekistan's securities market, asserting that transforming the financial sector, particularly the stock market, will accelerate its growth. They believe this shift will position the stock market as a key driver of the country's economic progress in the near future. Karimov and Khamidova define the economic security of a state as the safeguarding of all sectors of the economy against harmful actions, which may arise either from deliberate external influences or from unexpected market dynamics (Karimov Narboy, 2021).

The efforts of many authors to categorize the challenges of economic security during the digitalization phase have resulted in the identification of three primary problem groups: systemic, structural, and sectoral. Systemic security issues

typically encompass challenges related to the conditions for economic development both in the short and long term. These include dependence on foreign digital technologies, a lack of foundational elements, regional disparities in digital access, and the rise of information crime, among others. Structural security challenges involve reliance on energy prices, significant labor market shifts, and excessive centralization of public administration. Sectoral security issues pertain to the absence of effective digital solutions for specific industries – such as agriculture, which lacks a suitable operating system – and falling behind leading nations in developing competitive information technologies. Despite the significant focus on digitalization challenges, the effects of digital technologies on economic security have been studied and addressed inadequately. From the author's view, the digitalization of the economy impacts economic security not only at the intersection of systemic, structural, and sectoral issues but also at the individual level. This is evidenced by changes in household financial situations due to fluctuations in individual income and the emergence of disparities among the working population in terms of knowledge, wealth, and social status resulting from production automation.

Research Methodology:

The information presented in this article is primarily derived from scientific publications focused on the topic, alongside international sources from government organizations. The research methodology employed in this study follows two key avenues: first, identifying the indicators associated with the digitalization of the economy, and second, determining the indicators related to the economic security of the state. To effectively quantify the development level of the digital economy within a nation, assess its contribution to the overall GDP, create rankings for digital economy progress, and evaluate the nation's standing in the global digital landscape, it is crucial to clarify which segments of the economy are considered digital and the methodologies used for their measurement. The extent of economic digitalization is assessed through indicators and criteria that are widely acknowledged by the global community. This process

involves examining contemporary methods (Ganievich Karimov, 2021) to ascertain their applicability in evaluating economic performance.

Furthermore, the impact of economic digitalization can be observed across all facets of economic security. Literature analysis indicates that digital transformation is most evident in macroeconomic indicators such as GDP, inflation, and unemployment rates. Consequently, it is important to analyze the digitalization of the economy concerning shifts in these economic security indicators, particularly focusing on GDP, inflation, and unemployment metrics. To compare the socio-economic development levels of various regions, the “GDP per capita” metric is recommended, which is calculated by dividing GDP by the population of the respective area. Another key indicator is the “Average inflation rate,” typically represented by the consumer price index (CPI), which measures the change in price for a fixed market basket of goods and services typically purchased by urban residents. This index is calculated as the ratio of the market basket’s price in the current year to its price in the base year. Lastly, the third projection indicator is the “Unemployment rate according to the ILO methodology,” which represents the proportion of unemployed individuals relative to the economically active population, expressed as a percentage.

Analysis of Data and Result:

Traditionally, the United States has been the frontrunner in digitalization, consistently implementing various programs designed to foster and support digital transformations across all levels of government, alongside the scientific community and private sector. These initiatives include a 2009 federal initiative focused on cloud technologies and President Obama’s 2011 proposal to establish a centralized network of advanced manufacturing centers, known as the Advanced Manufacturing Partnership (Sargent., 2014), which unites relevant ministries and major digital corporations within the country. Another notable example is the Industrial Internet Consortium (IIC), established in 2014 (Industrial Internet Consortium, 2021), with the primary goal of “accelerating the development, commercialization, and widespread adoption

of interconnected machines, devices, and intelligent analytics, or the industrial Internet.” Moreover, the U.S. has specialized programs designed to support digital technologies and evaluate their impact on the national economy. The first of these initiatives was the Digital Economy Agenda, launched in 2015, aimed at helping businesses and consumers grasp the potential of the digital sector to drive economic growth and broaden opportunities. This program emphasizes the importance of promoting a free and open Internet globally, fostering trust in the digital ecosystem, ensuring digital access for businesses and citizens, and encouraging disruptive technologies and innovation.

In EU countries, there are over 30 specialized regional and national strategies and programs aimed at enhancing the digital transformation of various industries and economies. To address the need for a cohesive digitalization strategy, the European Commission launched the EU Digital Single Market (Committee, 2020) information exchange platform in 2017, designed to be unified across all participating nations. This platform plays a crucial role in advancing national digitalization projects, offering financial assistance, and coordinating collaborative investment initiatives within the digital economy. It also serves as a training hub for developing skilled personnel and facilitates the sharing of experiences among stakeholders. The platform encompasses resources necessary for creating innovative digital technologies and optimizing business operations, effectively acting as an integrator of the EU’s digital technology market. Additionally, it establishes standards for executing large-scale projects utilizing the available computing infrastructure. Therefore, the fundamental principles guiding EU countries’ policies on digital transformation include the development of unified standards and regulations in information and communication technologies, comprehensive support for research and development in digitalization, and a strong emphasis on meeting consumer market needs.

The author next examines the three largest economies in Asia, which significantly influence current trends in global digital transformation. China stands out as a leader in digitalization,

ranking among the top three economies in this field. The robust growth of its digital industry can be attributed to high competition and a substantial internal market for digital technologies, alongside extensive government support for the sector. In line with global trends, China has been proactive in adopting various programs and initiatives to enhance digital processes within its economy; a notable example is the “Made in China 2025” (Archived, 2015.) program, approved in 2018, which aims to establish the nation as a frontrunner in the digital technology market by 2025. South Korea also emerges as a significant player in digitalization, with its development strategy through 2022 emphasizing the creation of a new economy based on global digital platforms and technologies. The country invests heavily in digital research and development, primarily supporting private enterprises through government subsidies, with funding focused on areas such as robotics, artificial intelligence, and 5G technologies. To realize these ambitions, South Korean authorities promote the implementation of programs related to artificial intelligence and blockchain technologies, while encouraging businesses to adopt digital platforms and solutions.

In Japan, the primary document guiding the long-term advancement of digital technologies is the “Society 5.0” strategy (Super Smart Society 5.0), which was approved by the Japanese government in 2016 ((H-UTokyo, 2020). This strategy, developed with the backing of the Keidanren Federation of Big Business, is rooted in the concept of “Industry 4.0” and focuses on leveraging digital technologies such as artificial intelligence, robotics, the Internet of Things, and big data. Analyzing international experiences leads to the conclusion that digital transformation plays a crucial role for the world’s leading economies. There are essentially two distinct models of state involvement in the digital transformation of businesses: the market model (self-regulation) and the administrative model. In the market model, the government’s role is limited to creating conducive conditions for the digitalization of economic activities, as seen in the United States and EU countries. Conversely, the administrative model emphasizes the gradual development of digital economy infrastructure under the guidance of

government institutions, eventually integrating relevant economic entities into the digital sector, exemplified by China. Most countries' strategies for developing the digital economy reflect a blend of these two regulatory models.

Discussion:

The landscape of digital transformation is markedly shaped by the strategic initiatives of major economies. The United States remains a leader in this domain, having laid a robust foundation for digitalization through various federal programs that stimulate innovation and ensure comprehensive support for emerging technologies. The 2009 initiative on cloud technologies and President Obama's Advanced Manufacturing Partnership are key examples that illustrate the U.S. commitment to integrating digital processes within its economic framework. In parallel, the EU has recognized the necessity for a unified digital strategy, resulting in the establishment of the EU Digital Single Market. This initiative not only facilitates collaboration among member states but also provides essential financial support and resources for digital projects, showcasing a commitment to harmonizing efforts in digital transformation. Meanwhile, the Asian economies present a diverse approach to digitalization. China's proactive stance, characterized by initiatives such as "Made in China 2025," reflects its ambition to dominate the global digital market. This competitive edge is enhanced by significant government backing and a vast domestic market for digital technologies. South Korea's strategy emphasizes substantial investment in cutting-edge technologies, ensuring its role as a significant player in the digital economy, while Japan's "Society 5.0" embodies a holistic approach to integrating advanced technologies across sectors.

In evaluating these models, it becomes clear that the dichotomy between market and administrative approaches serves as a framework for understanding state involvement in digital transformation. The market model prioritizes self-regulation and minimal state interference, as observed in the U.S. and EU. In contrast, the administrative model advocates for active government guidance in developing digital infrastructures, as exemplified by China. Countries are increasingly adopting

a hybrid strategy, blending these models to tailor their digital initiatives, thus reflecting the complexities of today's global economy and the imperative to address emerging security threats alongside fostering innovation. This comprehensive analysis underscores the critical importance of digital transformation in shaping economic futures while navigating the associated risks inherent in the digital landscape.

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