Influence of Digital Economy Policy on Digital Transformation of Enterprises

Churong Lin

Business Administration and Management, College of San Mateo, California 94402, USA
churonglin1119@gmail.com

Abstract. This study comprehensively explores the influence of digital economy policies on enterprise digital transformation in diverse global contexts. By analyzing key policy frameworks, including the European Union (EU) Digital Decade and China's 14th Five-Year Digital Economy Development Strategy, it demonstrates factors influencing policymaking in different contexts. Furthermore, the study identifies direct and indirect mechanisms through which government policies influence enterprise digitalization progress. The study finds that digital economy policies exert their influence through multiple pathways: resource injection, cost reduction mechanisms, talent aggregation, market demand stimulation, and optimized institutional environment. However, significant challenges remain, particularly the inadequate transformation capabilities of SMEs, a mismatch between policy support and their technological absorptive capacity, and concerns about data security and privacy. This research proposes targeted solutions, including differentiated support mechanisms and dynamic regulatory mechanisms. These results offer valuable guidance for policymakers aiming to optimize digital transformation policies and for enterprises operating within evolving digital economy frameworks.

Keywords: Digital Economy Policy, Enterprise Digital Transformation, Policy Impact Mechanisms, Digital Infrastructure.

1 Introduction

The contemporary global economy is experiencing an unprecedented digital revolution, fundamentally changing how businesses work, compete, and create value. COVID-19 has intensified this transformation, elevating digital capabilities from competitive differentiators to essential business requirements. It is not the way that can help these companies stand out, but the only way to survive in this special period. Under this special event, the digitalization process of enterprises has been accelerated. During the epidemic, as customers turned to online consumption, enterprises also strengthened communication with customers through digital channels [1]. If enterprises do not focus on the digitalization process, they will face the problems of customer loss, broken capital chain, and even difficulty in continuing. Additionally, ongoing social and economic development has driven the digital economy's growing contribution to Gross Domestic

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Product (GDP). List China as an example, the added value of key industries in the digital economy will account for 10% of GDP by 2025 [2]. This digital transformation has emerged as a critical strategic priority for enterprises worldwide. And government policies play a pivotal role in shaping the digital transformation landscape. Therefore, many countries and organizations have strengthened their attention and support for the digital economy and have successively launched and implemented a large number of digital economy policies, like the EU Digital Decade Policy Program and the 14th Five-Year Plan for Digital Economy Development in China.

These policies cover a wide range of areas, for the direct impact, they provide financial subsidies, financial support, resource allocation, and tax relief; and for the indirect part, they strengthen infrastructure construction including 5G, big data, artificial intelligence, etc., provide institutional support and create a good social atmosphere. Each stage of the policy process—from initial discussions and formulation through implementation and oversight—demonstrates the government's commitment to supporting and guiding enterprise digital transformation. This study addresses three fundamental research questions. First, this study explores current digital economy policies, analyzing how different countries and regions have structured their policy frameworks to support enterprise digitalization. Second, this study focuses on the impact of mechanisms through which digital economy policies affect enterprise digital transformation. Third, this study draws a conclusion and reflects the challenges and limitations of current policy approaches. And based on this analysis, this study develops practical suggestions for enhancing policy effectiveness. The research provides dual contributions to theoretical frameworks and applied practice within digital economy policy and corporate transformation fields. This research helps people understand the original intentions and reasons behind the establishment of policies by national and regional organizations, as well as the operation and efficiency of these policies. A deeper understanding of the operation and impact of policies can also help people better formulate future policies, making them more in line with actual needs and operating rules. These two factors complement each other, promoting mutual progress and deepening our understanding of how policies can impact the digitalization of businesses.

2 Current Digital Economy Policies

2.1 EU Digital Decade Policy Program

The EU Digital Decade Policy Program is a very important and fundamental policy providing guidance for the digital transformation and upgrading of relevant companies. It represents one of the most comprehensive digital transformation frameworks globally, establishing a structured roadmap for achieving technological leadership across Member States. It critically highlighted the structural challenges and issues facing the EU's digital transformation. For example, companies still need to accelerate their adoption of artificial intelligence and big data. Furthermore, the deployment and construction of digital infrastructure (such as fiber optics and 5G standalone networks) still requires significant effort. This is not only essential for digital transformation but also an

effective safeguard for national security. Improving infrastructure can reduce external data dependencies and mitigate data security risks.

Another crucial factor is talent development. Currently, slightly over half of Europeans possess basic digital skills, but this still falls short of the EU's target. Furthermore, there remains a significant shortage of highly skilled personnel, such as Information and Communications Technology (ICT) experts, which poses a significant risk to core technologies. If a country fails to cultivate technical personnel capable of in-depth research in core disciplines and is at the mercy of others in these areas, it will be at a disadvantage in the future digital world [3].

2.2 14th Five-Year Plan for Digital Economy Development in China

China's 14th Five-Year Plan represents a state-led, growth-oriented digital transformation strategy. China is a large country with a large population and thriving industries. Therefore, China emphasizes agglomeration effects, focuses on promoting the construction of industrial parks, and emphasizes cluster digital transformation. In addition, China emphasizes the leading role of large enterprises and encourages large enterprises with conditions to build integrated digital platforms.

What is more, like EU countries, China places significant emphasis on infrastructure development, working to create a unified national big data center system that harmonizes computational algorithms, processing power, applications, and data resources.

China's 14th Five-Year Plan is formulated and implemented on the basis of centralization, with the country's horizontal comprehensive coordination and enterprises' vertical close implementation being important links [4].

2.3 Comparative Analysis of Policy Approaches

A comparative analysis of digital economy policies across different countries and regions reveals convergent trends and unique approaches to supporting digital transformation in enterprises. While the main objectives and aspects of each policy are the same in promoting digital economic transformation, they differ significantly in their implementation strategies, focus areas, and governance mechanisms.

Different policy approaches are tailored to different national conditions and digital transformation scenarios. As a centralized state, China has greater influence over and oversight of businesses, providing more directive guidance on specific digital transformation initiatives. The EU, as a unified organization, prioritizes holistic, comprehensive structural planning, providing joint guidance for businesses and society.

Both of these policies are well recognized and implemented in the corresponding countries and regions, so that they can play an important role. This reflects the importance of adapting to local conditions.

3 Current Digital Economy Policies

3.1 Comparative Analysis of Policy Approaches

Resource Injection Effect. The resource injection effect represents one of the most immediate ways through which government policies influence enterprise transformation. Government subsidies, grants, and digital infrastructure investments provide essential capital support for businesses, particularly small and medium enterprises, and help them to overcome financial barriers to adopting digital technology. The U.S. Broadband Equity and Access Deployment Program shows that targeted infrastructure investments can promote widespread digital transformation. This kind of policy can ensure these enterprises have access to the high-speed connectivity necessary for advanced digital operations [5]. This $42.45 billion federal initiative demonstrates the multiplier effect of infrastructure investment. It can not only help small businesses in rural areas get internet fast but also allow them to use digital tools like cloud computing that were previously only available to big city companies.

Another example is China's 5G Application "Set Sail" Action Plan. It demonstrates that comprehensive infrastructure investment can accelerate enterprise digital transformation. This plan aims to enhance China's 5G application development and establish a dual-pillar framework of technology industry and standards. And this effort will finally accelerate digital transformation and upgrading in traditional industries [6]. This government-led initiative demonstrates how building 5G networks can help factories and businesses achieve digital transformation and upgrades.

In addition to simply providing capital, these resource injections have many other benefits. If the government increases investment and subsidies in related industries and sectors and can generate returns, it will increase private investors' enthusiasm and confidence in investing in such projects, thereby increasing public investment. This is a clear example of the crowding in effect. From government investment to public investment, from government subsidies to infrastructure construction, all demonstrate financial support and inclination to encourage enterprises' digital transformation.

Cost Reduction Effect. Tax incentives and other cost reductions constitute another key direct path for digital economy policies to support business transformation. These policies reduce the initial investment pressure on enterprises, making digital transformation financially viable for a broader range of companies.

Research by the Organization for Economic Co-operation and Development demonstrates that R&D tax incentives significantly impact enterprise innovation behavior. The international comparative research indicates that each unit increase in R&D tax incentives produces 1.4 units of incremental R&D investment, with particularly strong effects for experimental development compared to basic research [7]. Cost reduction can promote digital transformation in various ways. First, direct cost savings from tax incentives increase available capital for digital transformation. Furthermore, cost reductions can encourage businesses to increase investment in digital transformation projects, thereby improving their own production and core competitiveness, and further

increasing corporate investment enthusiasm. This virtuous cycle is precisely the goal and effective outcome of policymaking.

Talent Aggregation Effect. The talent aggregation effect is the last direct path to promote the digitalization process of enterprises discussed in this study. The shortage of skilled digital professionals is a major bottleneck that companies may encounter in their digitalization process. Policies will guide relevant institutions and society to focus on talent cultivation and development, providing professionals with relevant jobs and subsidized salaries, which will attract more talent, enable them to develop their skills, and ensure that their efforts are rewarded accordingly.

According to Wang's research, innovative talent concentration in specific regions promotes technological innovation by enhancing knowledge spillovers and creating radiating effects that benefit surrounding areas. Strategic talent introduction and cultivation accelerate the development of innovative technologies, operational processes, and product offerings. [8]. The concentration of talent brings significant benefits to enterprises' digital transformation. Digital talent can support technological innovation, accumulate knowledge, and build a strong human capital base, fully stimulating the innovative effects of digital transformation. This concentration of digital talent enhances collaborative innovation and knowledge sharing, providing digital services and technical support. This diverse exchange can spark new ideas and foster a richer and more profound transformation approach.

3.2 Indirect Impact Pathways

Market Demand Stimulation. Government policies are actively promoting the development of digital consumption scenarios, with smart city projects serving as a particularly important vehicle for boosting the supply of enterprise solutions. This demand-side stimulus creates market opportunities, incentivizing businesses to digitally transform by providing clear revenue prospects for digital products and services. McKinsey Global Institute research demonstrates that smart cities represent digital solutions for creating sustainable, livable urban futures. This solution advocates allowing more people to benefit from the vigorous development of digital technology, promotes the emergence of a large number of digital consumption scenarios, and generates a large amount of market demand [9].

Market demand stimulation, influencing smart city public procurement policies, increases demand for intelligent infrastructure, creates a clear and substantial market, and thus encourages the supply side to increase investment and resources toward specific projects and enterprises. Individuals are integral to society. Science and technology originate from the people and must also benefit them, facilitate them, and bring them benefits. Only by allowing citizens to experience the personal benefits of digital transformation can people better motivate them to contribute wholeheartedly to businesses, benefiting both society and them.

Institutional Environment Optimization. Sound institutional environments serve as critical enablers of enterprise viability and long-term development. Only by operating in a good institutional environment can enterprises have the confidence and enthusiasm to develop productivity and carry out digital transformation and upgrading. After the system is optimized, it will also help create a good social atmosphere, allowing enterprises to feel the benefits and importance of digital transformation in both mandatory systems and soft atmospheres.

According to Su's research, the improvement of government governance and the optimization of the institutional environment have a significant positive impact on enterprises, and technological innovation capabilities have strengthened the impact of the institutional environment on transformation within the industry [10]. Institutional optimization works by reducing risk and creating opportunities. A clear regulatory framework reduces compliance costs and legal uncertainty that can hinder digital transformation. At the same time, well-designed institutions can create new business opportunities by enabling digital interactions and forms of value creation.

4 Challenges and Suggestions

4.1 Indirect Impact Pathways

Current Policy Implementation Challenges. The implementation of digital economy policies faces many constraints and challenges. Small and medium-sized enterprises (SMEs) make up the backbone of most countries' economies. However, they still struggle with one of the most enduring challenges: insufficient transformation capabilities. These companies often don't have enough money, technical skills, or proper systems needed to successfully go digital.

This capability gap shows up in several different ways. To start with, smaller companies struggle to hire good technology workers. Big corporations can pay higher wages and offer better career paths, and they already have all the tech infrastructure in place. Small businesses simply can't match these benefits, so they can't stand out in hiring skilled people. Without these experts, they can't properly compare different digital tools or figure out which ones would work best for their particular situation. There's also a disconnect between what government policies try to do and what these companies can actually handle. Many small business owners don't really understand how digital technology could help them, and the upfront costs seem too expensive, so they're not very excited about making changes. On top of that, people in these companies often resist doing things differently because they're used to their old ways of working, and the company culture doesn't encourage trying new approaches.

Data Security and Privacy Concerns. Data security risks represent another significant challenge in the current policy landscape. As enterprises advance their digital transformation, they generate and process increasing amounts of sensitive data, creating new vulnerabilities and exposure risks. However, during this digital transformation, Policy

regulation of corporate data often lags behind technological development. This poses a significant risk and obstacle to enterprise transformation.

When this data circulates again in centralized and regionalized data chains, the risk of data leakage increases further, and traditional regulatory methods will feel powerless against new technologies.

4.2 Recommendations and Solutions

To address the limitations of the current one-size-fits-all approach, policymakers should consider enterprise size, industry sector, and specific transformation needs when creating policies. The government should provide differentiated subsidy standards and support mechanisms. Both of them can ensure that policy interventions are appropriately matched with the capabilities and requirements of recipients. For small and medium-sized enterprises, government can provide human resource allocation, special subsidies for infrastructure use, and lower financing requirements. For large enterprises, these measures can help them expand their scale, leverage cluster effects, and improve their core technologies.

Addressing data security and privacy challenges requires developing adaptive regulatory frameworks that can keep pace with technological developments. They need to provide clear guidance for corporate compliance and balance the ease of data flow with the need to protect sensitive information. While data can empower digital transformation, the privacy and confidentiality of individuals and businesses should also be protected.

This measure is of great significance to digital transformation and cooperation on a global scale. With the continuous development of globalization and digital transformation, data exchange between countries and organizations will become closer, and the protection of sensitive data will become more important, even involving international security protection. Therefore, a rigorous, precise, and dynamic regulatory system should be established, recognized, and applied.

5 Conclusion

As the digital revolution progresses globally, the digital economy's share of GDP continues to rise. Societal pressures for corporate digital transformation have intensified significantly, while government policies serve as critical determinants in shaping the digital transformation landscape. This study examines two key existing institutions: the EU Digital Decade Policy Program and China's 14th Five-Year Digital Economy Development Strategy. A comparative analysis of these two plans demonstrates that while governments worldwide recognize the importance of digital transformation, their approaches vary significantly in scope, implementation, and effectiveness. These targeted approaches explain why some countries and organizations have been more successful at pushing forward with digitalization. This research also shows that policies work through both direct and indirect ways, giving us a fuller picture of how digital economy strategies actually affect business transformation. When people look at how these systems work, people can see that digital policies influence companies through several

routes at the same time. Direct mechanisms include resource injection effects, cost reduction mechanisms, and talent aggregation effects that address critical skills shortages. Indirect mechanisms operate by stimulating market demand and optimizing the institutional environment, creating broader ecosystem effects that extend policy impacts beyond direct beneficiaries. However, significant challenges remain in current policy implementation. Insufficient transformation capabilities of small and medium-sized enterprises (SMEs), a mismatch between policy support and enterprise absorptive capacity, and lagging data security regulation create obstacles to effective digital transformation. The research provides several useful suggestions for improving policy effectiveness. Differentiated policy should be designed by considering firm size and sector characteristics. That will provide better support mechanisms that recipient needs. In addition, dynamic regulatory mechanisms will better protect data security and privacy. This research contributes to the understanding of the relationship between government intervention and firm digital transformation in the digital age. It provides important insights for both policymakers and enterprises. In conclusion, although digital economy policies exhibit substantial capacity to facilitate enterprise digital transformation, actualizing this potential necessitates ongoing policy adaptation, targeted differentiation, and systematic improvement in both design and implementation frameworks.

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