

# Driving Inclusive Digital Transformation in Korea



**Jiwon Park**

Ph.D., Associate Research Fellow, Emerging Cooperation Agenda Team  
Korea Institute for International Economic Policy

Korea is globally recognized as a global leader in the Information and Communication Technology (ICT) industry. Korea's broadband internet penetration rate is 98 percent,<sup>1</sup> supported by a high-quality, nationwide digital infrastructure and widespread access to smartphones and mobile Internet. In industries, Korea's investment in ICT hardware/software and industrial robot is among the highest in the world. In the industrial sector, Korea's investment in ICT hardware/software and industrial robots ranks among the highest globally. Building on this solid foundation, the ongoing wave of digital transformation is expected to address Korea's productivity challenges and stimulate economic growth. Essential to this transformation are the developments in what are commonly referred to as '4th industrial revolution technologies' such as artificial intelligence, big data, cloud computing, the Internet of Things, 3D printing, etc. Korea has made significant progress in technological innovation and development. For example, artificial intelligence technology has advanced rapidly over the past five years, keeping pace with major developed

<sup>1</sup> <https://datareportal.com/reports/digital-2023-south-korea> (Accessed November 16, 2023)

countries (Bong, 2023). According to a recent report by Stanford University, Korea ranks in the middle of 1111 major countries in terms of AI technology, and private investment in AI is worth \$3.1 billion in 2022, ranking sixth behind the United States (\$47.4 billion), China (\$13.4 billion), the United Kingdom (\$4.4 billion), Israel (\$32 billion), and India (\$32 billion).<sup>2</sup>

Despite the notable technological advances, the adoption of new technologies by Korean firms is surprisingly limited. According to an OECD survey, Korea ranks among the lowest in terms of the adoption of new technologies compared to other OECD countries. Although the survey primarily assesses whether firms use new technologies at work without considering the complexity or quality of the technologies, the findings shed light on the digital transformation landscape in Korea. The stark contrast between technological advances and low usage suggests significant inequality in access to these technologies, a pattern supported by the data. Larger firms are more likely to incorporate new technologies into their business models, resulting in a substantial technological gap. Specifically, one survey shows that 13% of large firms use new technologies, compared to only 4.33% of mid-sized and 1.88% of small-sized enterprises. Small and mid-sized enterprises (SMEs) also face challenges in terms of human capital to drive digital transformation, with less than 20% and 0.1% of mid- and small-sized enterprises having chief digital officers (CDO) or chief Information Officers (CIO) with a digital transformation strategy, respectively. (Song, 2023). As this digital transformation gap may deepen the productivity gap between large firms and SMEs, some policy approach is needed to promote digital transformation in SMEs.

Currently, initiatives to support digital transformation, with a special focus on small and medium-sized enterprises (SMEs), are actively underway across various industries in Korea, including manufacturing, biomedicine, urban development, and agriculture. These efforts are aimed at invigorating the DNA (Data, Network, AI) ecosystem and promoting industries that are not face-to-face (Kang, Seo, and Lee, 2022). While these industries are likely to be at relatively advanced stages of digital transformation and demonstrate improved productivity through such investments, other service industries or smaller enterprises may not find digital transformation cost-effective and may be in the early stages of digital transformation. Given the diversity of digital transformation needs among firms, it is crucial to accurately identify these needs. Tailored policy support should be provided to address the specific needs of each company. Additionally, efforts to promote and educate on the benefits of digital transformation are essential to ensure a full understanding of the potential benefits and encourage wider adoption across diverse business entities. Furthermore, mid-sized and small- to medium-sized companies, especially those involved in exports or in the middle of the supply chain, may have diverse demands and needs for digital transformation, depending on

<sup>2</sup> [https://aiindex.stanford.edu/wp-content/uploads/2023/04/HAI\\_AI-Index-Report\\_2023.pdf](https://aiindex.stanford.edu/wp-content/uploads/2023/04/HAI_AI-Index-Report_2023.pdf) (Accessed November 16, 2023)

whether up- and downstream suppliers are also adopting digital practices. Thus, there is a need for policy responses that encourage digital transformation by fostering linkages between industries and companies (KITA, 2023).

Evaluations of digital transformation in earlier years have often highlighted concerns about increasing inequality, as the positive effects of these transformations tend to be concentrated in certain countries and industries. Consequently, there is a growing recognition that achieving an inclusive and equitable transition is more important than ever. Focusing on ensuring that the benefits of digital transformation are distributed equitably and addressing potential disparities is becoming a priority to achieve more balanced and equitable outcome for all. By actively addressing the potential inequalities and ensuring that the benefits of digital advances reach diverse sectors and populations, we can work towards fostering a more equitable and just transition to the digital age. This commitment to inclusivity will not only enhance the overall societal impact of digital transformation but also help to build a more sustainable and resilient future. **KIEP**

## References

- Kang, Hyunmoo, Sungho Seo, and Dongwon Lee. 2022. [Supporting Strategy for Small and Medium-sized Enterprises Digital Transformation (DX).] KISTI Issue Brief, no. 41. Korea Institute of Science and Technology Information. (In Korean)
- Bong, Gangho. 2023. [Trends in Recent Changes in Artificial Intelligence (AI) Technology Levels in Our Country and Major Countries.] SPRI Monthly Software Oriented Society, 2023.03.02. Software Policy & Research Institute. [https://spri.kr/posts/view/23555?code=data\\_all&study\\_type=industry\\_trend](https://spri.kr/posts/view/23555?code=data_all&study_type=industry_trend) (Accessed November 11, 2023, in Korean)
- Song, Jihwan. 2023. "Identification of Key Factors and Empirical Study to Promote Digital Transformation of Korean Companies - Focused on the Result of Software Convergence Survey in 2022." SPRI Issue Report, no. IS-163. Software Policy & Research Institute. (In Korean)
- Korea International Trade Association (KITA). 2023. [Comparison and Implications of Domestic and International Companies' Capabilities in Digital Transformation Response- Based on Domestic and International Survey Results.] [https://www.kita.net/asocGuidance/nesDta/nesDtaFileDown.do;SESSIONID\\_KITA=FB2B90295FCB731B376876629D28A5AA.Hyper?nPostidx=10936&nIndex=2](https://www.kita.net/asocGuidance/nesDta/nesDtaFileDown.do;SESSIONID_KITA=FB2B90295FCB731B376876629D28A5AA.Hyper?nPostidx=10936&nIndex=2)