Anticipating the Future of Digital Economy: Ubiquitous Intelligence and Computing by 2035

by Chris Hung

Chris Hung has over 20 years of experience in information technology (IT) research. He serves as Senior Industry Consultant / Vice President and Director General of Market Intelligence & Consulting Institute (MIC).

The pervasive integration of digital technology into human civilization has evolved significantly over time. Starting from the widespread adoption of computers and the internet, which has altered work and learning patterns, to the rapid advancements in mobile communications that have propelled mobile applications to new heights, digital technology has become ubiquitous in every facet of human life including food, clothing, shelter, transportation, education, entertainment, healthcare, and much more.

The continued advancements of the Internet of Things (IoT) and artificial intelligence (AI) have further accelerated the evolution of digital technology applications towards a future featuring "Ubiquitous Intelligence and Computing." It is estimated that by 2035, with the prevalence of "Ubiquitous Intelligence and Computing," economic activities driven by human needs will largely be served through the digital technology paradigm. The ways in people access their life necessities will not only become faster but also smarter, catering even more to personalized needs and preferences.

In such a future, digital technology is expected to further become a driving force behind numerous innovations and economic activities. For stakeholders across sectors, seizing the opportunities presented by the digital economy is crucial for maintaining competitive advantages. To capture these opportunities, three key strategies must be taken into account.

Firstly, the foundation of the digital economy lies in data. Effectively harnessing and utilizing data will be critical for determining the competitiveness in the digital economy era. However, this requires strengthening domain knowledge, data science, and data governance. Secondly, human interactions and experiences in the digital realm are unique. Hence, enhancing the understanding of digital experiences and behaviors will be key to accelerating the deployment of products and services for businesses. Lastly, it is crucial to maintain control over mission-critical hardware and software. Therefore, continuous investment in research and development of key technologies is imperative to keep businesses thriving in the digital economy.

Although the proliferation of digital technology and the environment of ubiquitous intelligence and computing offer substantial opportunities for the digital economy, driving new industrial innovation and enhancing productivity, they also give rise to new social issues. Issues like privacy concerns, digital divides, misinformation, and emerging forms of fraud. Governments worldwide have begun addressing these

issues and concerns through policy initiatives. For instance, the European Union's "Europe's Digital Decade" initiative aims to foster an inclusive digital society where no one is left behind. Within the EU's framework, the rapid and intelligent advancements of digital technology present a dual nature: driving technology innovation and growth while potentially exacerbating disparities. These disparities can manifest across different social classes and groups, business sizes (such as large enterprises versus small and medium-sized ones), different regions, and even genders. Therefore, a primary consideration must be whether digital technologies inadvertently create a more fractured society.

Furthermore, the advancement of the digital economy relies heavily on data exchange and integration, which in turn may raise new ethical issues. For instance, due to the rapid development of AI, ethical issues surrounding AI applications, including accountability for rises and impacts on copyright, have become new areas of focus. For nations looking to foster a conducive environment for digital technology, the establishment of digital governance mechanisms that balance innovation and security is paramount. This represents a crucial concern amid the development of AI technologies and applications.

As for the digital divide, several measures are recommended. Firstly, digital skill gaps can be bridged by devising digital skills training programs targeting specific groups, such as digital skill learning programs for laborers and the elderly. Secondly, addressing the digital divide between regions need to recognize information and communication technology as an essential component of social infrastructure. Lastly, addressing the digital gap among small and medium-sized enterprises (SMEs) can be ameliorated through digital transformation programs, utilizing mentorship programs and third-party services for support.

To address ethical issues stemming from emerging technology, establishing a platform for dialogue between the society and tech companies is crucial. This approach allows different voices in society to raise their concerns about emerging digital technologies. At the same time, it also facilitates early clarification of potential impacts and instigates the development of societal adjustment mechanisms and solutions through interdisciplinary communication across social sciences, laws, and other fields.

Observing the long-term evolution of the digital economy, driven by the rapid progress and widespread adoption of digital technology across various sectors, not only presents significant potential opportunities but also poses enormous impacts on the economy, technology, society, and industries. Given this, it is crucial for all

stakeholders to continuously engage in scenario planning and preparation for potential future scenarios to mitigate risks and seize opportunities. This proactive stance aims to ensure Taiwan not only stays ahead of the curve in the tidal wave of digital technology development but also leverage the ubiquitous intelligence and computing environment to develop key technologies, adapt societal and legal environments, and ultimately solidify the long-term competitiveness of Taiwan.

MIC® **Market Intelligence & Consulting Institute**

For more information

Service Hotline   +886 2 6631 1524

Fax   +886 2 2732 1353

E-mail Address   csmic@iii.org.tw

Web Address   https://mic.iii.org.tw/english