1 ASEAN Digital Community 2045

Lili Yan Ing, Yessi Vadila, Ivana Markus, and Livia Nazara[1]

Current State of ASEAN's Digital Landscape

Digital transformation has changed not only the way we work but also the way we live. It has shifted the focus of goods and services trade, emphasising not only what is produced and traded, but also how it is traded, customised, and delivered (Ing et al. 2022). The global digital economy will record $23 trillion by 2025 (Huawei and Oxford Economics 2017). Figure 1 depicts global digital trade is estimated to reach $6.3 trillion in 2023 and is projected to surpass $10 trillion by 2030.

ASEAN[2] is projected to contribute $360 billion to global digital trade by 2025 and is expected to grow to $1 trillion or about 10 percent of global digital trade by 2030 (Statista 2022). In addition, the recent study by Boston Consulting Group on the ASEAN Digital Economy Framework Agreement (DEFA) determined that an innovative and ambitious DEFA could expand the digital economy to $2 trillion by 2030 (ASEAN 2023c). ASEAN has an immense opportunity to grow its digital landscape further and develop its leading role in the era of digital transformation.

One of the key drivers behind ASEAN's expanding digital trade is its young digital-savvy population. In 2020, ASEANSTAT recorded ASEAN's youth population to be at 224.2 million, where 53 percent were aged between 15 and 25 years old (Gen Z), and 47 percent were aged between 26 and 35 years old (Millennials) (ASEAN 2022). ASEAN's demographic advantage appears promising due to its youthful population. As shown in Figure 2, internet users in ASEAN reached 460 million in 2022 or about 80 percent of its population, up from 360 million in 2019 – an increase of 100 million users in just 3 years of digital transformation (Google et al. 2022). E-commerce (75 percent) and related sectors such as food delivery (71 percent), online transportation (64 percent), and online groceries (64

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[2] The ten ASEAN Member States are Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic (Lao PDR), Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.

percent) dominated the digital adoption trends amongst ASEAN's internet users. In 2020, about 24 percent of firms received orders online, while more than 40 percent placed orders online (UNCTAD 2022). The region has massive potentials as a player in the global digital economy landscape.

The other key driver in ASEAN digital trade lies in the growth and effectiveness of digital payments. The rise of cross-border trade over the past decade has played a significant role in the increased utilisation of digital payments. Traditionally, cross-border trade has been associated with long processing times and excessive costs. Digital payments offer a solution to these challenges by providing users with convenience and efficiency. In ASEAN, the total transaction value of digital payments is projected to reach $226.6 billion in 2023, with the largest market being digital commerce, estimated to have total transactions of $193.8 billion (Statista 2023).

Figure 1: Global Retail E-Commerce Sales, 2014–2026*

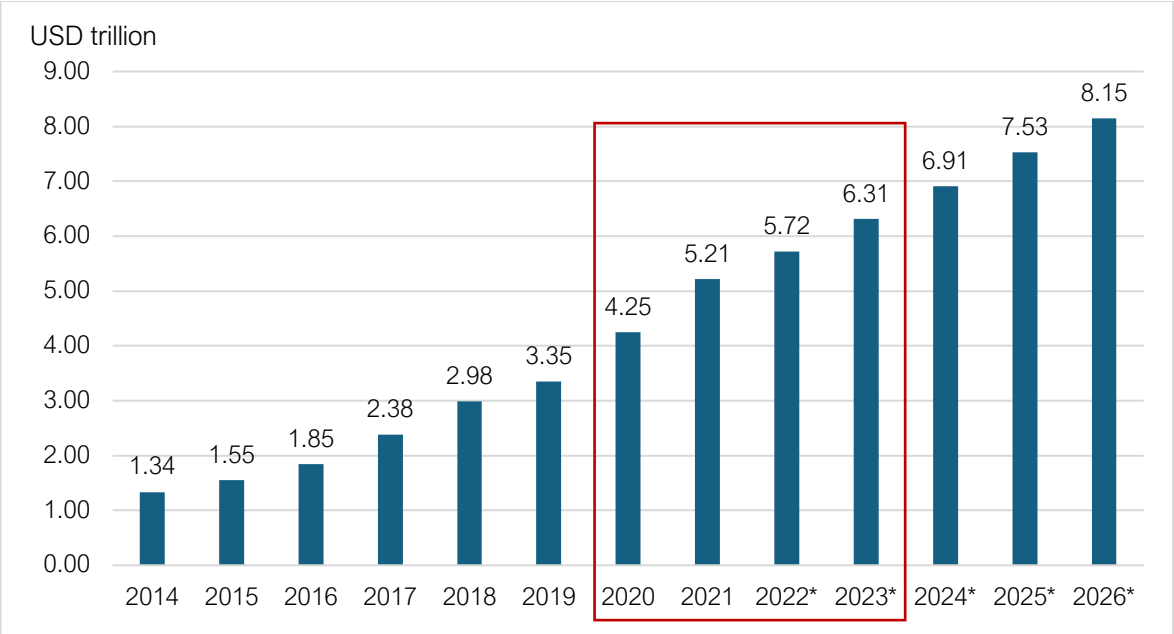
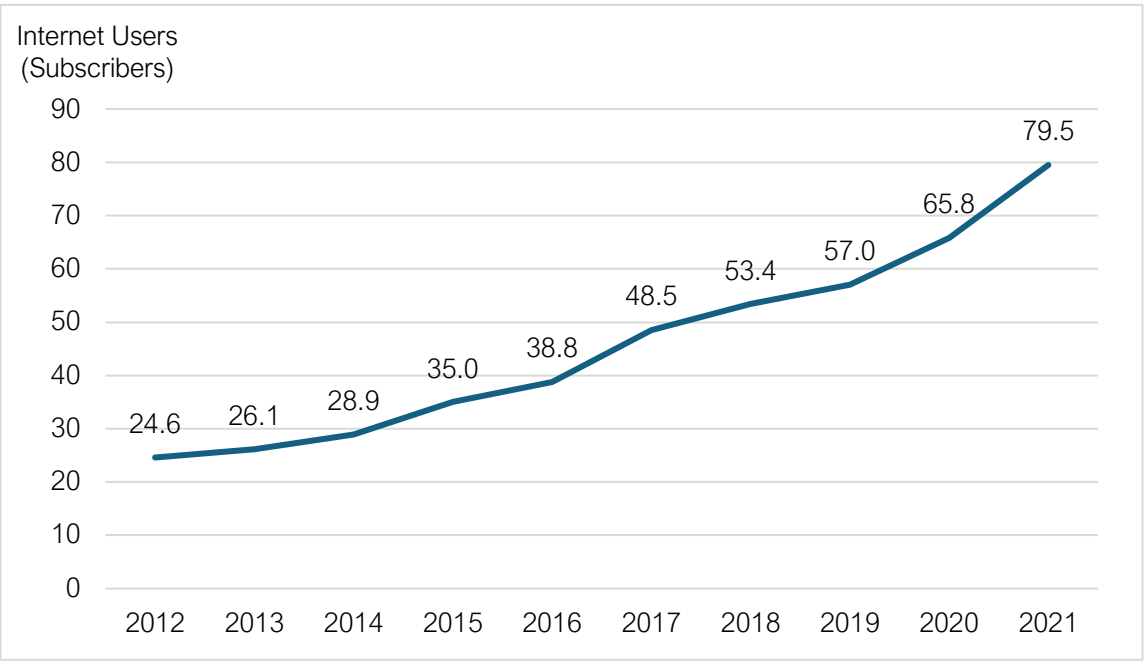


Figure 2: Access to Internet Services in ASEAN, 2012–2021



Notes:

1. Internet users: number of internet users per 100 persons.
2. The ASEAN figures for 2020–2021 are estimated, as data for some ASEAN Member States are not available. For 2021, the figure is based on the latest available data, and data for Brunei Darussalam and Myanmar are calculated based on the number of subscriptions to internet provider companies. Consequently, there is a possibility of one person being counted multiple times if they subscribed to more than one provider.

Source: ASEAN (2022), *ASEAN Statistical Yearbook 2022.* Jakarta: ASEAN Secretariat.

Review of Current Frameworks on Digital in ASEAN

ASEAN has proactively established a range of frameworks and strategic plans designed to address challenges and seize opportunities arising from the digital era. Between 2016 and 2023, ASEAN introduced nine digital-related frameworks, including the ASEAN Framework on Personal Data Protection (2016), ASEAN Digital Data Governance Framework (2018), ASEAN Digital Integration Framework Action Plan 2019-2025 (2019), ASEAN Comprehensive Recovery Framework (2020b), Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce (2021d), which include accelerated inclusive digital transformation as one of its five broad strategies, ASEAN Digital Masterplan 2025 (2021a), ASEAN Data Management Framework (2021b), ASEAN Model Contractual Clauses for Cross Border Data Flows (2021c), Bandar Seri Begawan Roadmap: an ASEAN Digital Transformation Agenda to Accelerate ASEAN's Economic Recovery and Digital Economy Integration (2021e), and Boracay Digital Declaration (2023b). Recently, at the Leader Summit in September 2023, Leaders agreed to the accelerated commencement of the ASEAN Digital Economic Framework Agreement (DEFA) negotiations, earlier than the initial target year of 2025. Further, Leaders also acknowledged the endorsed Framework for Negotiating ASEAN DEFA. While the 2024 opens with the adoption of the ASEAN Guide on AI Governance and Ethics.

However, the limitations of the existing frameworks on ASEAN's digital economy are rooted in a range of hurdles that hinder their effectiveness in implementation. One such hurdle is the absence of a clear enforcement mechanism given the non-binding nature of many of these frameworks and the lack of established legal obligations. The lack of a designated source for real-time reporting on the progress of the framework's desired outcomes raises further questions about accountability and transparency in implementation. After their endorsement or adoption, related stakeholders and the interested public have limited access to observe actual progress on the frameworks' desired outcomes and objectives. Additionally, many of these ASEAN roadmaps, frameworks, workplans, and action plans are limited to economic issues, with limited or no coverage of other key aspects such as political security and socio-cultural despite the wide implications of digital transformation. Digital transformation is a key issue in ASEAN. But these frameworks, in themselves, do not serve as a comprehensive long-term vision for a digital ASEAN.

Key Challenges in ASEAN's Digital Transformation

Despite the efforts ASEAN has put to advance digitalisation in ASEAN, the rapid pace of global digital transformation presents considerable challenges for ASEAN, much like other developing regions. The swift digital evolution in ASEAN has brought forth a spectrum of risks and challenges, broadly falling into five main clusters: (1) data security, cybersecurity,

and competition, (2) productivity, (3) connectivity, (4) digital divide, and (5) environmental sustainability.

First, rapid digitalisation and the use of data come with increased threats – against data, against systems, and people. In the case of ASEAN, the existing regulatory policies and frameworks may not adequately address emerging digital concerns, such as data protection and cybersecurity. These policies were not specifically designed to keep up with rapid advancements in the digital landscape, which could hinder the progress of ASEAN's digital economy. Discrepancies in data protection laws and enforcement mechanisms can raise concerns about data breaches, unauthorised access, and misuse of personal information, preventing digital economy, society, and government from developing to their full potential.

Second, ASEAN exhibits a notably diverse range of development levels, with Singapore often leading in various economic, social, and human development indicators, in contrast to countries like the Lao People's Democratic Republic (Lao PDR) and Myanmar. The diversity of ASEAN's level of economic development and digitalisation has resulted in diverse progress in digitalisation and technology ecosystems in the region. It is also happening in various sectors; some sectors have been utilising digital technologies more than others. For instance, sectors like agriculture and informal businesses (SMEs) may operate in a more traditional way, while retail and payment have seen rapid adoption of digital tools. Different levels of the use of digital technology may affect the level of productivity for each sector and will further increase productivity gaps amongst AMSs.

Third, a pivotal challenge in realising ASEAN's digital transformation lies in the deficiency of both digital and physical enablers, encompassing digital infrastructure and connectivity. The capacity and capability in deploying technology emerges as a pivotal concern in digital transformation, evident in the unequal distribution of technologies due to limited capacities. An examination of the primary indicators contributing to the digital divide – internet speed, usage, and technology production – reveals a significant disparity amongst AMS. For example, as of 2021, Indonesia's broadband internet speed measured 28.28 megabits per second (Mbps), Singapore's reached 264.15 Mbps, while Myanmar lagged at 20.05 Mbps (Ookla, as cited in World Population Review n.d.).

Fourth, digital divides across firms and individuals, across and within countries, are visible in this region. Countries, governments, firms, and individuals vary greatly in their digital readiness depending on literacy, skills, and infrastructure access, quality, and affordability. Differences in digital uptake emerge amongst AMS with robust digital infrastructure and capabilities, and those with limited resources in these areas. As an illustration, Lao has grappled to improve digital literacy and digital take-up, while Singapore recorded mobile penetration rate of 170 percent in 2022 (Ministry of Communications and Information of Singapore 2023). Digital divides, marked by inequalities in access to and utilisation of digital

technologies, are a considerable impediment to narrowing the disparities between regions, nations, and socio-economic strata (Lazovic and Durickovic 2014).

Finally, sustainability. The adoption of today's digital technologies carries implications for our environmental sustainability. Data centres, which powers digital infrastructure, requires high energy consumption to operate and contributes significant carbon footprint. According to Fatima and Ehsan (2023), data centres represent 1-3 percent of worldwide electronic supply and contribute to 2 percent of global carbon emissions. The use of digital technologies has also boosted demand for semiconductors, which entails more mining for critical minerals, amplifying environmental pressures in the production process. Moreover, the surge in online food e-commerce and e-commerce more generally, triggered by restrictions on movement during the pandemic, has produced significant volumes of plastic packaging and waste (EU-ASEAN Business Council 2021).

In addition to its internal challenges, the rising geopolitical tensions and anti-globalisation sentiments, notably since 2018, have had significant implications for the ASEAN region. These factors have prompted countries to adopt tit-for-tat policies and protectionist measures, exacerbating trade restrictions and hindering economic cooperation. Between 2018 and 2022, the number of trade restrictive measures increased by more than 150 percent, totalling over 2,800 measures across various sectors, including trade in goods and services and investment (Bolhuis et al. 2023). This rise in protectionist measures has intensified geo-economic fragmentation, which has spill over effects including to the digital economy as countries compete for technological leadership and due to growing concern over cybersecurity.

The US-China technological rivalry has directly impacted microchip supply chains in Southeast Asia, affecting countries like Malaysia and Singapore, which have developed semiconductor supply chains. According to the IMF's Regional Economic Outlook for Asia and the Pacific, October 2022, Southeast Asia is highly vulnerable to supply chain disruptions in the event of worsening geo-political tensions between China and the US. Specifically, the ASEAN region's semiconductor supply chains face challenges due to restrictions on exports of semiconductor manufacturing equipment by countries like Japan. For instance, in 2022, the US implemented export controls on advanced computing and semiconductor manufacturing through the Inflation Reduction Act (IRA) and the Creating Helpful Incentives to Produce Semiconductors (CHIPS) Act. Similarly, Japan restricted exports of 23 types of semiconductor manufacturing equipment in 2023 (Kelly and Uranaka 2023). These protectionist actions not only impact the ASEAN region's semiconductor industry but also contribute to the broader challenges of geo-economic fragmentation and digital economy disruptions.

Way Forward: ASEAN Digital Community 2045

Acknowledging the extensive potential and simultaneous challenges linked to digitalisation, ASEAN needs oversee a comprehensive vision of digital transformation across multiple domains. This endeavour should extend beyond economic domains to encompass security, political, and socio-cultural aspects. The ASEAN Digital Community 2045 stands as a foundational long-term vision to shape and propel ASEAN's digital economy agenda across all sectors. It serves as a framework to anchor a variety of initiatives aimed at fostering secure, sustainable and inclusive growth from ASEAN digital transformation. It is proposed to cover the main three pillars of ASEAN community: ASEAN Political-Security Community, ASEAN Economic Community, and ASEAN Socio-Cultural Community, without necessarily calling for the creation of new strategy or bodies. Instead, it calls for a new way of thinking and working, with the three ASEAN Community Pillars coming together under an appropriate platform to update on relevant developments, conduct joint exercise to identify risks as well as opportunities for joint actions and collaboration, and communicate a uniform message on ASEAN digital transformation vision. It has the potential to lead the piloting of a new agile way of work in ASEAN necessary to respond to increasingly complex and rapidly changing environment.

The ASEAN Digital Community 2045 should encompass at least five key elements across its three pillars:

(i) Digital Data Governance

ASEAN should undertake regulatory transformation to modernise its outdated policies and regulations to keep pace with the rapidly evolving digital era. While there is progress in regulating the digital economy in recent years, albeit at differentiated pace at the national level, significant work remains to regulate the digital ecosystem effectively and in an interoperable way. The challenge is in striking the right balance between promoting innovation, investment, inclusion, and scale with mitigating security risks and ensuring fair competition. Despite the emergence of noteworthy digital frameworks in ASEAN as earlier mentioned, additional efforts are required to regulate the digital landscape in a more comprehensive manner, including in the areas of competition, consumer protection, data privacy and protection, cybersecurity, and intellectual property. Regional initiatives can only deliver to an extent, and ultimately follow up regulatory efforts are needed at the national level. Through the ADC 2045, ASEAN Member States could share its best practices related to the digital issues, advance collective and targeted capacity building efforts, and promote national-level implementation.

(ii) Digital Productivity

The optimal utilisation of digital technology in ASEAN should not only enhance value added and revolutionise business models but also facilitate productivity growth across sectors, including finance, trade, investment, agriculture, manufacturing, and services. To achieve this, ASEAN must promote activities to advance the application of digital technologies and innovation in productive sectors – including traditional ones. This requires the mainstreaming of digital technology and innovation across ASEAN sectoral cooperation work, rather than treating the digital sector and science, technology, and innovation as siloed sectors in themselves. Cross-sectoral conversations and the involvement of industry experts and digital technology users will be key to greater adoption of digital technology to boost productivity.

(iii) Digital Connectivity

It is crucial to establish robust digital and physical infrastructure to unlock ASEAN's full economic potential. Physical infrastructure includes the construction of reliable roads, ports, railways, airports, power infrastructure, and logistics hubs. Digital infrastructure encompasses the development of broadband access, hardware, software, data centres, and modern networks. By integrating digital payment systems and digitalisation of trade documents and business procedures, ASEAN can facilitate seamless trade and doing business throughout the region.

At the national level, countries need to increase investment and foster collaborations between the public and private sectors to deliver digital connectivity. This involves securing investment in resilient telecommunications networks, quality data centres, and interconnected digital systems. Furthermore, cooperation within ASEAN is essential in this area, focusing on promoting interoperability of digital and physical infrastructure to enable more seamless participation in the digital economy and society. Additionally, regional ASEAN-level initiatives could involve leveraging multilateral development banks and public and private investors to support digital connectivity infrastructure.

(iv) Digital Inclusivity

At its core, digital transformation revolves around people. As technology evolves, ensuring inclusivity across dimensions such as access, affordability, literacy, and gender equality becomes paramount to prevent anyone from being left behind. Bridging the digital divide across groups of population and empowering MSMEs are crucial, as digital tools have the potential to enhance productivity, trade, and job creation in ASEAN. Failing to do so will lead to widening development gap. Prioritising quality education and training initiatives is essential to improve human capital and encourage greater and gainful participation in digital

sectors, particularly in nations with lower digital literacy rates. Skilling, reskilling, and upskilling efforts require national-level interventions that can also be supported by regional initiatives. Meanwhile, digital talent mobility can serve as a stepping stone to building a more digitally-skilled workforce. By emphasising inclusivity, supporting MSMEs and digital skills and talent development, ASEAN can drive equitable growth and foster an inclusive digital economy.

(v) Digital Sustainability

The pervasive integration of digital technology across diverse economic sectors highlights the pressing need to address sustainability challenges within the region. It is imperative to recognise the environmental repercussions of digital transformation, such as the energy consumption of data centres, the escalating demand for semiconductors and hence critical minerals, and exponential growth of e-commerce activities. To pave the way forward, ASEAN must prioritise the promotion of environmentally friendly practices and decarbonisation in the utilisation of digital products, services, and data centres. This necessitates the implementation of initiatives aimed at developing regional standards, providing capacity building, attracting investment and financing for the right technologies and business models, and offering interoperable guidelines for green digital transformation. In turn, digital technologies can also be harnessed to promote sustainability and a circular economy through practices such as smart waste management, blockchain technology, renewable energy management, resource monitoring and optimisation, among others.

Recognising the interplay between digitalisation and its foundational three community pillars, ASEAN has opportunities to leverage the potential of digital technology to drive economic growth, elevate social well-being, and strengthen regional integration. Such an endeavour demands strategic investments and resource allocation, resilient and enforced regulatory frameworks, and collaborative efforts.

Follow Up Actions

The ASEAN Digital Community 2045 stands as a comprehensive long-term vision for ASEAN digital transformation by optimising the use of digital technologies for its people, ensuring sustainable and inclusive growth for the entire region and aligning with the three pillars of ASEAN. The endorsement of an ASEAN Digital Economic Community 2045 by the ASEAN Member States in the ASEAN Leaders' Declaration (ALD) on ASEAN as an Epicentre of Growth during the 43rd ASEAN Summit on 5th September 2023 signifies a crucial milestone towards this vision (ASEAN, 2023a). To actualise this vision, ASEAN must now undertake follow-up actions.

First, ASEAN should embark on a facilitated community-wide conversation on the kind of digital transformation that the region wants. Translating aspirations into tangible outcomes requires the formulation of a comprehensive ASEAN framework with clear targets, which can then be taken up by the respective sectoral bodies and their sectoral work plans, as well as joint actions and collaboration where appropriate. What is urgent is for ASEAN to recognise the far-reaching impact of digital technologies beyond any specific sector and pillar, to have a holistic vision for an ADC 2045, and to keep the community aware and updated of the ADC-supporting activities and work plans, any emerging risks, and opportunities, and hence promote and enable cross-pillar and cross-stakeholder cooperation. It is important for such conversation to also provide room for experts, industries, and users representation to participate and ensure relevance.

This regional endeavour is insufficient to stand on its own and should be complemented by individual national efforts that are aligned with regional goals. Progress in national efforts shall be updated to the regional platform to facilitate experience sharing, identification of common priorities and potential collaboration, and attract support and resources from partners and investors alike.

Second, the regional framework and national efforts should be appropriately monitored against the targets. This critical step ensures an assessment of the effectiveness of policies and their implementation, helps avoid simple work propagation and identify synergies while keeping efforts on track towards the set targets. Specific strategies to address resource mobilisation for both physical and digital connectivity may be of value, involving regional guidelines and investment facilitation and promotion, although ultimately investment requires efforts and should be realised at the national level.

Third, governments across ASEAN should prioritise developing human capital for successful digital transformation at both regional and national levels. This involves (i) enhancing workforce digital skill sets including through vocational training; (ii) improving technological adoption and digital literacy rates by integrating digitalisation into the education curriculum and community programmes and providing business incentives for utilising digital technologies and providing digital upskilling to workers; (iii) supporting entrepreneurs to create new businesses and foster innovation; and (iv) raising awareness of sustainable digital practices and amplifying research on environmentally friendly technologies.

ASEAN faces a significant journey in shaping its digital transformation outcomes. The imperative lies in detailed and transparent coordination among member states, complemented by the right institutional mechanism to ensure clear measures, indicators, and traceability of each ASEAN country's digital transformation status. The envisioned realisation of the ASEAN Digital Community 2045 aims to empower the region in mounting more adept responses to disruptions and uncertainties in a more digitalised world.

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