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Digital and AI-Led Transformation in India and ASEAN: Sectoral Evidences and Development Impacts

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Abstract: This discussion paper examines India's digital and artificial intelligence (AI)-led transformation and its implications for cooperation with ASEAN. It analyses India's policy frameworks and digital public infrastructure across financial inclusion, digital trade, fintech, healthcare, education, agriculture and start-up ecosystems, alongside ASEAN's regional initiatives for digital integration and responsible AI governance. The comparative analysis identifies shared priorities in digital inclusion and skills development, while highlighting differences in governance, institutional coordination and digital readiness. It argues that India and ASEAN can deepen cooperation through interoperable digital infrastructure, cross-border digital trade, trusted data governance, responsible human-centred AI, and joint capacity-building. The chapter advocates institutionalised, inclusive and context-sensitive partnerships to advance sustainable development.

1. Introduction

The rapid spread of digital technologies and artificial intelligence (AI) has altered the global developmental landscape, reshaping the character of governance, economic systems and regional cooperation. India and the Association of Southeast Asian Nations (ASEAN) have emerged as key actors in the Indo-Pacific region in advancing digital

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transformation and AI-driven development through policy innovation, institutional frameworks and technological integration. The India–ASEAN partnerships are increasingly at the fore in the larger discourse on digital cooperation.

India's digital transformation journey has been powered by a combination of state-led policy initiatives, digital public infrastructure, and fast-growing technology ecosystems. Initiatives such as Digital India, Start-up India, Aadhaar, Unified Payments Interface (UPI), Ayushman Bharat Digital Mission (ABDM), and IndiaAI Mission have fundamentally transformed public services, financial systems, digital governance, and innovation networks. India's evolving AI governance framework, including Responsible AI principles and wider digital governance strategies, also reflects the country's effort to strike a balance between technological progress and inclusion, ethics and regulatory accountability. Together, these initiatives make India an important model for digital governance and AI-enabled development amongst emerging economies.

Alongside national digital transformation efforts such as those pursued by India, ASEAN has steadily advanced a regional approach to digital integration and AI governance. Through initiatives such as the Bandar Seri Begawan Roadmap (BSBR), ASEAN Digital Master Plan 2026-2030, and the forthcoming ASEAN Digital Economy Framework Agreement (DEFA), ASEAN seeks to promote interoperable digital systems, cross-border data flows, digital payments, e-commerce, and digital talent development across its member states. The region has also taken important steps in shaping responsible AI adoption through the ASEAN Guide on AI Governance and Ethics, and the ASEAN Responsible AI Roadmap. These initiatives reflect ASEAN's commitments to deeper digital integration and closer regional cooperation on digital and AI governance.

The discussion paper is framed in the context of the larger India-ASEAN digital cooperation, but the current study is mainly focused on

the analysis of India's policy frameworks and sectoral experiences. It looks at how digital technologies and AI are transforming critical areas such as financial inclusion, the digital economy and trade, banking and fintech, healthcare, education, agriculture, and start-up ecosystems. The discussion paper seeks to leverage this sector-specific analysis to assess the development impact of India's digital public infrastructure and AI-enabled governance mechanisms in terms of improving efficiency, accessibility, transparency, and economic participation.

The discussion paper also engages with the wider regional context by briefly placing India's initiatives alongside ASEAN's evolving digital and AI strategies, including frameworks on digital integration and AI governance, and regional connectivity. This contextual approach also helps to shed light on the rising importance of India-ASEAN cooperation in areas such as digital trade, cybersecurity, AI ethics, innovation ecosystems, and capacity building. The study also finds that digital transformation continues to be shaped by persistent challenges related to digital divides, data protection, cybersecurity risks, technological capacity, and institutional readiness.

The discussion paper contributes to contemporary discussions on digital governance, technological development and inclusive growth in the Global South by focusing on India's digital and AI-led transformation in the broader India-ASEAN context. It argues that the experience of India offers important lessons for developing economies seeking to harness digital technologies and AI as instruments of sustainable and human-centric development.

2. Digital and AI Policies, Strategies and Initiatives in India

India's digital and AI policy landscape has evolved into one of the world's most deliberate and layered governance architectures spanning a decade of digital infrastructure built through Digital India, the landmark IndiaAI Mission launched in March 2024 to position India as a global AI leader,

and the India AI Governance Guidelines of November 2025 establishing a comprehensive national framework for the safe and responsible deployment of artificial intelligence.

Launched in 2015, the Digital India programme serves as the Government of India's flagship initiative to transform the country into a digitally empowered society and knowledge economy. The programme is built around three core vision areas: digital infrastructure as a utility for every citizen, governance and services on demand, and digital empowerment of citizens.[1] Through initiatives such as Aadhaar-enabled services, Digital Public Infrastructure (DPI), DigiLocker, Unified Payments Interface (UPI), and digital service delivery platforms, Digital India has significantly expanded access to public services and strengthened digital inclusion across sectors[2].

The programme has also supported the development of emerging technologies, including Artificial Intelligence, cloud computing, cybersecurity, and digital skilling, thereby contributing to India's broader digital transformation agenda[3]. Digital India has emerged as a foundational framework for India's digital economy, and a model for digital public infrastructure cooperation with developing countries, including ASEAN partners, by promoting interoperable digital platforms and citizen-centric governance.

A key component of India's digital transformation strategy is Digital Public Infrastructure (DPI), which offers interoperable digital platforms that facilitate safe identity verification, digital payments, and large-scale data interchange. India's DPI model, which is based on platforms like Aadhaar, UPI, DigiLocker, and the Account Aggregator framework, aims to enhance digital governance, financial inclusion, and public service delivery.[4]

In addition to incorporating cutting-edge technology like artificial intelligence to improve service efficiency and creativity, the Indian government has increasingly positioned DPI as a global public benefit and a crucial tool for equitable development.[5] ASEAN member states

and other developing economies can learn from DPI, which has been acknowledged by international organisations as a fundamental layer for digital government and socioeconomic development (OECD, 2024).

The Ayushman Bharat Digital Mission (ABDM), which was introduced in 2021, aims to establish an integrated digital health ecosystem by facilitating the safe, interoperable, and consent-based sharing of medical records across healthcare providers. The Ayushman Bharat Health Account (ABHA), Health Facility Registry, Healthcare Professional Registry, and interoperable electronic health records are among the essential digital pillars upon which the goal is based.[6] ABDM seeks to provide citizens with more control over their health data while enhancing healthcare accessibility, effectiveness, and continuity of service. The mission promotes data-driven healthcare governance and establishes the groundwork for the adoption of cutting-edge technologies, such as artificial intelligence and breakthroughs in digital health, by utilising the principles of digital public infrastructure.

With over 90 crore ABHA IDs created, ABDM, implemented by the National Health Authority under the Ministry of Health and Family Welfare, has achieved a major milestone with over 100 crore health records successfully linked with Ayushman Bharat Health Accounts (ABHA) in May 2026. The achievement marks a significant step towards building an integrated, citizen-centric and interoperable digital healthcare ecosystem in the country. The milestone reflects the growing adoption of ABDM across Government health programmes, State health platforms, public digital systems and private health technology partners. At present, more than 450 public and private health technology solutions have been successfully integrated with the ABDM ecosystem, accelerating the digitisation and seamless exchange of health records across healthcare facilities.[7]

In 2018, NITI Aayog published India's National Strategy for Artificial Intelligence (AI), which aims to use AI for social development, economic change, and inclusive growth. The strategy promotes a

responsible and moral approach to AI governance while designating healthcare, agriculture, education, smart mobility, and smart cities as priority industries (NITI Aayog, 2018). Building on this basis, the Indian government has started programme under the India AI Mission to improve AI innovation, research, computing infrastructure, datasets, startup ecosystems, and skilling.[8] The Mission promotes cooperation between government, academia, business, and international partners while emphasising the creation of reliable, inclusive, and human-centered AI. When taken as a whole, these projects establish AI as a major force behind India's digital revolution and its larger goal of a knowledge-based economy.

The goal of India's Responsible AI strategy is to guarantee that AI is created and used in a way that is moral, open, accountable, secure, and inclusive. The framework, which builds on NITI Aayog's AI for All vision, promotes AI-driven innovation for social and economic growth while emphasising security, privacy protection, justice, and the reduction of algorithmic bias (NITI Aayog, 2021).

Recent measures under the IndiaAI Mission have greatly improved responsible AI governance through regulations that emphasise accountability, transparency, dependability, and human oversight[9]. Additionally, India's evolving framework complies with internationally recognised standards that promote robustness, accountability, transparency, and human-centered values in AI systems, such as those promoted by the OECD.[10] By taking these actions, India intends to create a foundation for responsible AI adoption across industries by striking a balance between ethical governance, public trust, and technological innovation (Centre for Responsible AI, n.d.).

In March 2024, the Government of India launched IndiaAI Mission with an outlay of INR 10,372 crore for the development of the overall AI ecosystem in the country, comprising seven pillars viz. IndiaAI Compute Capacity, IndiaAI Innovation Centre, IndiaAI Datasets Platform, IndiaAI Application Development Initiative, IndiaAI FutureSkills, IndiaAI

Startup Financing, and Safe & Trusted AI.[11] In just about two years, the India AI Mission has set up a foundation for the development of an AI ecosystem in the country, with more than 38,000 GPUs for a common compute facility onboarded, which are being provided to Indian start-ups and academia at an affordable rate; more than 8000 undergraduate students, 5000 post graduate students, and 500 PhD students are being supported for talent development; and 27 India Data and AI labs have been established, and 543 more have been identified.[12] The Mission seeks to establish India as a global leader in AI while fostering inclusive digital transformation and economic growth through domestic AI capabilities, public–private cooperation and responsible AI development.

The ideals of ethical, transparent, responsible, and human-centric artificial intelligence are increasingly driving India's AI governance framework. In order to promote the responsible development and implementation of AI systems while addressing issues with safety, privacy, justice, and accountability, the government has established AI Governance Guidelines.[13] The MANAV Vision, articulated by Hon'ble Prime Minister of India Shri Narendra Modi during the India AI Impact Summit 2026[14], underlined that AI should enhance human capacities, protect fundamental rights, and advance equitable socioeconomic growth. The framework promotes a techno-legal governance approach combining stakeholder participation, ethical standards and regulatory monitoring. Together, the AI Governance Guidelines and MANAV Vision balance innovation and risk management, laying the groundwork for India's adoption of AI while advancing more general goals of digital transformation in public service delivery, industry, and governance.

3. Digital and AI-led Transformation in India

With the development of strong Digital Public Infrastructure (DPI) combined with enabling policy frameworks and innovation-led ecosystems, India has emerged as a global leader in digital and AI-led transformation. Digital India, IndiaAI Mission, Aadhaar, UPI, and sector-specific digital platforms have fast-tracked inclusive growth in finance,

trade, banking, health, education, agriculture, and entrepreneurship. The sectoral evidence of India's digital transformation and its relevance to improving digital cooperation and knowledge sharing with the ASEAN countries is presented in this section.

Due to the rapid growth of digital payment systems and the integration of the Jan Dhan–Aadhaar–Mobile (JAM) trinity, digital financial inclusion has emerged as a key component of India's digital transformation. Jan Dhan bank accounts, cellphone connectivity, and Aadhaar-enabled identification have greatly increased access to formal financial services, especially for previously marginalised groups.[15] The Unified Payments Interface (UPI) has further accelerated financial inclusion by enabling low-cost, real-time digital transactions and supporting the transition towards a cash-light economy.

Launched on August 28, 2014, Pradhan Mantri Jan Dhan Yojana (PMJDY) has emerged as one of the world's largest financial inclusion initiatives. Over 59.15 crore bank accounts have been opened under the PMJDY, with total deposits reaching INR 3.17 lakh crore. Out of the total account holders, about 56 per cent are women, and about 78 per cent of accounts belong to rural and semi-urban areas.[16]

The JAM trinity has improved direct benefit transfers, reduced leakages, and expanded financial engagement among disadvantaged people. India's Direct Benefit Transfer (DBT) system has helped the country achieve cumulative savings of INR 3.48 lakh crore by plugging leakages in welfare delivery. [17]

India's DPI has redefined the financial inclusion landscape by delivering scalable, low-cost and user-centric solutions. These innovations have created a robust, interoperable ecosystem that simplifies service delivery and deepens engagement with underserved populations. Technologies such as AePS, Account Aggregators and DBUs are enhancing last-mile connectivity and ensuring that financial solutions are increasingly accessible, relevant, and secure (Dua *et al*, 2025).

Studies done at firm-level (esp. MSMEs) have also found that Digital Public Infrastructure (DPI) has emerged as a promising framework for enabling inclusive digitalisation. However, findings suggest that DPI-based systems can act as effective enablers of more inclusive digital participation (Vashisht and Singh, 2026).

By facilitating safe digital identity, inexpensive payments, and direct access to financial services, India's Digital Public Infrastructure (DPI), which is based on the JAM trinity (Jan Dhan–Aadhaar–Mobile) and the Unified Payments Interface (UPI), has greatly increased financial inclusion (World Bank, 2023). India has one of the fastest rates of financial inclusion in the world, according to the World Bank, and digital public infrastructure is essential to increasing account ownership, streamlining government transfers, and lowering transaction costs (World Bank, 2025).

Over a decade of operations, UPI has demonstrated extraordinary scale and momentum. Annual transaction volume expanded from approx. 2 crore transactions in FY 2016-17 to over 24,162 crore transactions in FY 2025-26, representing an almost 13,000fold surge in transaction volume. Parallelly, transaction value rose sharply from INR 0.07 lakh crore in FY 2016-17 to approximately INR 314 lakh crore in FY 2025-26, translating into a more than 4,000fold increase in transaction value.[18]

Further research indicates that India's DPI has produced significant economic gains by boosting productivity, encouraging creativity, and expanding access to formal financing for women[19], rural communities, and small businesses. The approach is becoming more widely acknowledged globally as a scalable foundation for equitable financial and digital growth.

The National Strategy for Financial Inclusion (NSFI) 2025–30 and the growth of UPI have greatly boosted India's digital financial inclusion ecosystem. In the second half of 2025, UPI made up 85.5 per cent of all digital transactions in India, demonstrating its crucial significance in the nation's financial system[20]. According to government figures, UPI processed more than 18 billion transactions every month in 2025, demonstrating its

quick uptake in both urban and rural locations[21]. The NSFI 2025–30 aims to advance inclusive digital finance, increase financial literacy, and expand access to formal financial services[22]. According to studies, UPI is a global standard for real-time digital payments that promotes innovation, economic efficiency, and increased involvement in the formal economy (BCG, 2025). Recent assessments also show that digital public infrastructure has increased financial access for women, small businesses, and low-income households, driving inclusive economic growth.

The JAM trinity Jan Dhan accounts, Aadhaar digital identification, and mobile connectivity is the foundation of India's digital financial inclusion policy, which has increased access to formal financial services and made it possible to deliver welfare benefits effectively. Digital public infrastructure has improved direct benefit transfers, decreased leakages, and expanded financial engagement among disadvantaged people, according to government assessments.[23] However full benefits of digital finance for disadvantaged groups have been limited, due to differences in digital literacy, internet access, gender gaps, and regional inequities. Therefore, ensuring that digital financial inclusion translates into fair socio-economic growth requires closing India's digital gap through better connectivity, digital skills, and inclusive policy initiatives[24].

India's digital economy employed over 14.67 million people and contributed approximately 12 per cent to 14 per cent of GDP in 2025 (ICRIER, 2025). It is expected to contribute around 20 per cent of national income by 2029–2030, surpassing the relative shares of manufacturing and agriculture. This rise is attributed to digital platforms, digital-enabling industries and the digitisation of conventional sectors such as education, retail and finance. India is now one of the top digital economies in the world (ICRIER, 2025). It is growing at a rate that is about twice as fast as the economy as a whole. This rise has been largely attributed to digital platforms, digital-enabling industries, and the digitisation of conventional industries like education, retail, and finance.

By increasing access to AI computer infrastructure, datasets, innovation ecosystems, and qualified talent, the IndiaAI Mission seeks to establish artificial intelligence as a major force behind India's economic revolution. The Mission aims to accelerate innovation and digital entrepreneurship by democratising access to AI resources, especially for startups, researchers, and businesses. Some projections suggest AI could boost India's economy by up to USD 500 billion by 2030 while increasing productivity and competitiveness across industries (IBM, 2026).

India's Open Network for Digital Commerce (ONDC), launched by the Department for Promotion of Industry and Internal Trade (DPIIT), is an open digital trade network designed to decentralise e-commerce and reduce seller acquisition and transaction costs[25]. ONDC expands market access for MSMEs and local businesses by facilitating interoperability between buyer and seller applications[26]. The network has expanded to more than 1.16 lakh+ live retail sellers operating across 630+ Indian cities and towns. Overall network metrics also reflect over 250,000 total sellers and 75,000+ active merchants participating across sectors. It has crossed 500 million cumulative transactions in 2026, marking a major milestone for the country's attempt to build an open and interoperable alternative to traditional e-commerce platforms.[27]

India's digital trade policy places a strong emphasis on development-oriented governance, digital sovereignty, and regulatory autonomy. India has objected to the permanent moratorium on customs taxes on electronic communications at the WTO, stressing the need to protect policy flexibility for developing nations and possible losses in tariff revenue (Lohani et al., 2026). Additionally, India has stayed out of the Joint Statement Initiative (JSI) on e-commerce, contending that global consensus should be used to establish digital trade regulations (Mukherjee et al., 2025). Concurrently, India has maintained flexibility in cross-border data governance while including digital commerce rules into specific trade agreements (Kugler, 2025).

India's e-commerce exports are becoming a significant part of digital trade; by 2030, the government hopes to increase exports from

the current US$ 5 billion to US$ 200–300 billion[28]. Through digital platforms and streamlined export processes, the industry is anticipated to greatly increase MSME participation in international trade[29]. India has implemented specialised e-commerce export hubs, expedited customs procedures, and digital documentation systems to support this expansion, lowering transaction costs and improving small enterprises' access to international markets[30].

With the introduction of innovative regulations and the rapid growth of digital payments, India has become one of the biggest fintech ecosystems in the world. In May 2025 alone, the UPI handled over 18.68 billion transactions of INR 25.14 lakh crore, demonstrating its pivotal position in India's digital economy[31]. India is one of the top fintech marketplaces in the world and is home to over 10,000 fintech companies[32]. Fintech sales are expected to surpass US$ 400 billion by 2030, and the industry is predicted to make a substantial contribution to economic growth, digital credit, and financial inclusion (EY, 2025).

One important fintech innovation that enables safe, consent-based sharing of financial data between institutions is India's Account Aggregator (AA) structure. The ecosystem supported digital lending, financial inclusion, and credit access by facilitating more than 17 crore consent-based data-sharing interactions by 2025[33]. While maintaining ownership over their data, the framework enables people and companies to easily exchange financial information[34]. The AA model is expected to decrease information asymmetries, minimise transaction costs, and increase access to formal financial services when integrated with India's fintech ecosystem and digital public infrastructure.

With its ability to support disease surveillance, diagnosis, and healthcare delivery, artificial intelligence is becoming a major force behind India's healthcare transition. By 2025, India's AI healthcare market is expected to grow to US$ 1.6 billion, and by 2030, AI-enabled solutions could bring up to US$ 25–30 billion in economic value[35]. The government has increased funding for AI-driven medical research and

innovation and established AI Centers of Excellence in healthcare[36]. AI applications are also improving diagnostic accuracy, operational efficiency, and access to healthcare services across India.

Through digital identities and interoperable health information, India's Ayushman Bharat Digital Mission (ABDM) is bolstering the digital health ecosystem. Over 52 crore linked health records and over 90 crore Ayushman Bharat Health Account (ABHA) numbers had been created by May 2025[37]. The platform makes it possible for healthcare providers to easily exchange health information, which lowers transaction costs and enhances service delivery. According to studies, ABDM can promote data-driven healthcare innovation throughout India, increase access to digital health services, and improve healthcare efficiency (Mishra, 2024).

During the COVID-19 pandemic, India's CoWIN platform became a worldwide acknowledged digital public good that made it possible to provide over 2.2 billion doses of vaccines using a scalable digital architecture[38]. At the national level, the technology enabled beneficiary tracking, digital certification, and real-time immunisation management. Its accomplishments helped the Ayushman Bharat Digital Mission build a more comprehensive digital health infrastructure. CoWIN has been cited by international bodies as a paradigm for population-scale service delivery, interoperability, and digital health governance in developing nations.[39]

Through teacher preparation, individualised instruction, and the creation of digital content, India is incorporating artificial intelligence (AI) into education. Adoption of AI is anticipated to enhance worker preparedness in the digital economy, administrative effectiveness, and learning outcomes[40]. Industry estimates suggest AI could contribute significantly to India's economic growth by enhancing productivity and addressing skill gaps across the education sector. International bodies have also stressed the use of AI in education in a responsible and inclusive manner.[41]

A key component of India's digital education ecosystem, DIKSHA (Digital Infrastructure for Knowledge Sharing) gives educators and learners access to digital content and learning resources that are in line with the curriculum. With billions of learning sessions recorded and support for several Indian languages, the platform improves educational accessibility and lowers delivery costs[42]. DIKSHA was essential in maintaining education across the country during the pandemic. Additionally, it has gained international acclaim as a model digital public infrastructure for education due to its scalable open architecture[43].

India's premier online learning network, SWAYAM (Study Webs of Active Learning for Young Aspiring Minds), increases access to reasonably priced higher education and skill development. With over 4 million enrolments, the portal offers over 3,800 courses created by top universities[44]. By lowering financial and geographic barriers to education, SWAYAM promotes affordable digital learning.

Through data-driven services, farmer-centric platforms, and digital public infrastructure, India's Digital Agriculture Mission seeks to modernise the agricultural sector. In order to support programs like AgriStack, Krishi Decision Support Systems, and digital crop surveys, the government has set up INR 2,817 crore for the Digital Agriculture Mission in 2024–2026.[45] The objective is to reduce information asymmetries, increase production, and improve access to agricultural services for millions of farmers. Millions of farmers will benefit from increased access to agricultural services, reduced information asymmetries, and increased production.

Through the Digital Agriculture Mission, which is focused on AgriStack, digital crop surveys, and farmer registers, India is extending Digital Public Infrastructure (DPI) into agriculture. A budget of INR 2,817 crore, including INR 1,940 crore for AgriStack, was authorised by the Union Cabinet for the Mission in 2024–2026.[46] As of August 2026, the AgriStack Farmer Registry has generated over 10.33 crore unique Farmer IDs across India.[47] Through digital crop surveys, GIS

technologies, and AI-enabled decision-making tools, the effort promotes data-driven agriculture. AgriStack is anticipated to boost farmers' access to loans, insurance and market information while lowering transaction costs and increasing output.

Innovation driven by digital public infrastructure (DPI) is increasingly being driven by India's startup environment. India's startup environment is increasingly driven by DPI-enabled innovation. By September 2026, over 2.5 lakh firms had received official recognition under Startup India, making India one of the biggest startup ecosystems in the world.[48] Launched in January 2016, Startup India aims to build a robust innovation ecosystem by fostering entrepreneurship, supporting technology-driven enterprises and generating employment. Its 19-point Action Plan focuses on regulatory simplification, funding support, incentives, incubation and industry–academia collaboration. By assisting entrepreneurs in AI, deep tech, fintech, health-tech and DPI, Startup India has become a significant facilitator of India's digital and AI transition. It also promotes innovation through startup recognition, mentorship networks, intellectual property support, and government procurement reforms.

With more than 120 unicorns valued at more than US$ 350 billion, India has become the third-largest startup ecosystem in the world.[49] Artificial intelligence and digital technology innovation has been bolstered by government backing through Startup India, the IndiaAI Mission, and the MeitY Startup Hub. With an INR 10,371.92 crore authorised budget, the IndiaAI Mission seeks to increase AI infrastructure, startups, and research capacities. By enabling startups to create scalable solutions in the fintech, healthtech, agritech, and deep-tech sectors while promoting economic growth and digital transformation, these projects enhance India's Digital Public Infrastructure ecosystem.

One of the main pillars of India's digital innovation ecosystem is the Startup India initiative. As of mid. 2026, over 2.35 lakh DPIIT-recognized startups have been officially registered under the Startup India Initiative,

creating more than 2.4 million direct jobs.[50] The ecosystem has boosted entrepreneurship in the fintech, healthtech, agritech, and deep-tech sectors with the help of Digital India, startup laws, and organisations that prioritise innovation. According to research, digital startups are boosting India's standing as one of the top startup hotspots in the world while making a substantial contribution to economic growth, technological innovation, and job creation. [51]

4. Digital and AI Policies, Strategies and Initiatives in ASEAN

ASEAN has been developing policies and institutions for the digital economy, with the goal of reducing trade costs, enhancing competitiveness, and strengthening the region's position as a digital trade hub (OECD, 2026). To achieve these goals, ASEAN has launched many initiatives to support regional integration through different aspects of digital integration. These efforts show ASEAN's aim to build an interoperable and integrated digital economy in the region.

These initiatives started in the late 1990s with the e-ASEAN Framework Agreement[52] in 2000. It aims to promote the development of information and communications technology (ICT), e-commerce, and the digital economy across the ASEAN region. It is widely regarded as the starting point of ASEAN's digital integration journey.

The ASEAN Digital Integration Framework (DIF) (ASEAN Secretariat, 2020), adopted in 2018, is recognised as the foundation for ASEAN's digital integration efforts. This framework is a strategic vision with the aim of accelerating progress to build an integrated digital economy, strategically expanding upon the e-ASEAN framework. These were further developed in the ASEAN Digital Integration Framework Action Plan 2019-2025 (DIFAP) in 2019. It provides a detailed implementation roadmap for the DIF, expanding scope from ICT towards integrating ASEAN's digital economy. The DIFAP is noted for

its integrated approach, bringing together previously separated areas of action into a comprehensive policy framework.

The key existing ASEAN initiatives enhancing various aspects of the digital economy are presented in Table 1. ASEAN has created numerous initiatives to achieve regional integration through various aspects of digital integration, including the comprehensive framework, e-commerce, data protection, cybersecurity, cross-border data flows, and artificial intelligence (AI).

Table 1. Key Existing ASEAN Initiatives for the Digital Economy

Aspect	ASEAN Initiatives
Comprehensive	● Bandar Seri Begawan Roadmap,[53] 2021 ● ASEAN Digital Masterplan 2030 (ADM 2030),[54] 2026 ● Digital Economy Framework Agreement (DEFA):[55] scheduled for signing in November 2026
E-Commerce	● ASEAN Agreement on Electronic Commerce (AAEC),[56] 2019; in force since December 2021
Data Protection	● ASEAN Framework on Personal Data Protection (AFPDP) [57] – 2016
Cross-border Data Flows	● ASEAN Data Management Framework (DMF)[58] and Model Contractual Clauses (MCCs), [59] 2021
Artificial Intelligence (AI)	● ASEAN Guide on AI Governance and Ethics,[60] 2024 ● ASEAN Responsible AI Roadmap (2025-2030),[61] 2025

Source: Adapted from Tech for Good Institute (2023), incorporating data from Ing et al. (2025); Isono and Prilliadi (2023); and OECD (2026).

The development of ASEAN's overall digital integration is enhanced by the comprehensive initiatives including the Bandar Seri Begawan Roadmap (BSBR), ASEAN Strategic Plan 2026-2030, ASEAN

Digital Masterplan 2030 (ADM 2030), and Digital Economy Framework Agreement (DEFA).

4.1. Bandar Seri Begawan Roadmap (BSBR)

The Bandar Seri Begawan Roadmap (BSBR), endorsed in 2021, was designed as an economic recovery and resilience plan created to mitigate the impacts of the COVID-19 pandemic. It aims to provide a single coherent strategy for an economy in which the seamless and secure flow of goods, services, and data is enabled by appropriate rules, regulations, infrastructure, and human capital development. The BSBR is structured around three phases: (1) Recovery (2021–22), focusing on accelerating the delivery of initiatives under the Digital Integration Framework Action Plan (DIFAP); (2) Acceleration (2022–24), emphasing trade facilitation and digitalisation, cross-border data flow, cybersecurity, digital skills development, and interoperability of cross-border digital payments; and (3) Transformation (2025), which marked the launch of negotiations for an ASEAN Digital Economy Framework Agreement (DEFA).

4.2. ASEAN Digital Masterplan 2030 (ADM 2030)

The ASEAN Digital Masterplan 2030 (ADM 2030), adopted in 2026, serves as ASEAN's flagship strategic framework for advancing regional digital integration and providing a shared strategic direction for digital cooperation over the period 2026-2030. Succeeding the ASEAN Digital Masterplan 2025, ADM 2030 responds to emerging technological and economic developments, including artificial intelligence (AI), the expansion of digital government, rising cybersecurity threats, the growth of cross-border digital trade and digital payments, evolving data governance frameworks, and the increasing importance of digital skills and talent development. ASEAN recognised that digital technologies are becoming deeply embedded in all dimensions of economic and social life, requiring a renewed regional framework to guide collective action through 2030.

ADM 2030 seeks to build a integrated, secure, trusted, innovative, and inclusive digital community that empowers every citizen and business

to access opportunities, build innovation capabilities and thrive in the global digital economy. The masterplan is operationalised through eight desired outcomes, covering digital infrastructure, digital government, digital society, digital ecosystems, innovation and start-ups, digitally transformed industries, green and AI-driven digital transformation, and the development of digital talent and future skills.

Interoperability and capability uplift are emphasised as cross-cutting priorities (Ing et al., 2025). Interoperability, in particular, constitutes a core pillar of the masterplan and a key enabler of deeper regional digital integration. Recognising the diverse levels of digital readiness among ASEAN member states, the masterplan places strong emphasis on capability-building, collaborative approaches, and the development of shared enablers. ADM 2030 is closely aligned with the ASEAN Economic Community (AEC) Strategic Plan 2026-2030 and its associated Strategic Measures, thereby ensuring policy coherence with ASEAN's broader economic integration agenda and reinforcing digital transformation as a cross-cutting driver of growth, competitiveness, and resilience.

4.3. Digital Economy Framework Agreement (DEFA)

ASEAN officially concluded negotiations on the Digital Economy Framework Agreement (DEFA) on 29 May 2026 in Manila, the Philippines, with the agreement scheduled for signing in November 2026. DEFA will become the world's first binding regional agreement on the digital economy and represents the final deliverable under the 2021 Bandar Seri Begawan Roadmap (BSBR). The agreement is designed to provide a comprehensive framework to empower businesses and stakeholders across ASEAN by accelerating digital trade, enhancing interoperability, fostering a safe and trusted online environment, and expanding the participation of micro, small, and medium-sized enterprises (MSMEs) through enabling rules, infrastructure, and talent development. By establishing region-wide regulations for cross-border e-commerce, digital payments, and data flows, DEFA is expected to double the size of ASEAN's digital economy from an estimated US$ 1 trillion to US$ 2 trillion by 2030.

DEFA sets out comprehensive binding obligations across nine core areas: (1) trade facilitation, (2) e-commerce, (3) cross-border digital invoicing and payments, (4) digital identity and electronic authentication, (5) online safety and cybersecurity, (6) cross-border data flows and data protection, (7) business competition and consumer choice, (8) cooperation on emerging and future topics such as AI, and (9) digital talent development and mobility.

4.4. ASEAN Agreement on Electronic Commerce (AAEC)

For the electronic commerce aspect, ASEAN launched the ASEAN Agreement on Electronic Commerce (AAEC) in 2019, which entered into force on 2 December 2021. The AAEC is a legally binding regional agreement aimed at promoting and facilitating cross-border e-commerce within ASEAN. It seeks to strengthen cooperation on digital trade issues, enhance trust and confidence in online transactions, promote a predictable, transparent, and secure digital business environment, and support the participation of MSMEs in digital trade. The agreement covers key areas such as cross-border e-commerce facilitation, electronic authentication and electronic signatures, paperless trading, consumer protection, personal data protection, cybersecurity, as well as electronic payments and logistics. The AAEC is significant as it creates a more integrated ASEAN digital market, reduces transaction costs, supports regional economic integration, and enables ASEAN businesses, especially MSMEs, to better access regional and global markets through digital platforms.

4.5. ASEAN Framework on Personal Data Protection (AFPDP)

Data governance has become increasingly important, and ASEAN has recognised this growing importance. One key regional initiative in this area is the ASEAN Framework on Personal Data Protection (AFPDP), adopted in 2016. The framework aims to promote consistency and interoperability in data processing practices by providing a unified

approach to personal data protection across the ASEAN region. Its core principles include obtaining consent, providing notification, defining the purpose for data collection, ensuring data accuracy, implementing robust security safeguards, facilitating data access and correction, addressing data transfers to other countries or territories, determining data retention policies, and establishing accountability. The AFPDP serves as a reference for ASEAN member states in developing or revising their national laws and regulations on personal data protection.

4.6. ASEAN Data Management Framework (DMF) and Model Contractual Clauses (MCCs)

Both the ASEAN Data Management Framework (DMF) and the Model Contractual Clauses (MCCs) were endorsed in 2021. The ASEAN DMF is a comprehensive framework that supports the strategic objective of managing data throughout its life cycle and ecosystem. It promotes effective data governance across different data types within organisations, while ensuring appropriate protection for different categories of data throughout the data life cycle. By adopting the DMF, private businesses in ASEAN are better equipped to protect their data, build trust and confidence among customers and partners, and leverage data for innovation. The ASEAN MCCs are voluntary, standardised contractual templates designed to support the cross-border transfer of personal data within ASEAN by providing a contractual mechanism to ensure that personal data is transferred and protected in accordance with agreed data protection principles.

4.7. ASEAN Guide on AI Governance and Ethics

The ASEAN Guide on AI Governance and Ethics was published in 2024 with the objective of empowering governments and organisations to design, develop, and deploy artificial intelligence (AI) systems in a responsible manner, while strengthening user trust. The guide serves as a practical reference with an emphasis on supporting alignment across ASEAN and fostering interoperability of AI governance frameworks

among different jurisdictions. It also provides recommendations for both national- and regional-level initiatives that governments in the region may consider in promoting the responsible design, development, and deployment of AI systems. The guide sets out seven guiding principles: (1) transparency and explainability, (2) fairness and equity, (3) security and safety, (4) robustness and reliability, (5) human-centricity, (6) privacy and data governance, and (7) accountability and integrity. Moreover, it identifies four governance frameworks to support the responsible and ethical use of AI, covering internal governance structure and measures, the determination of appropriate levels of human involvement in AI-augmented decision-making, operational management, and stakeholder interaction and communication. In 2025, the guide was expanded through the publication of the *Expanded ASEAN Guide on AI Governance and Ethics – Generative AI*, which builds on the original framework to address issues specific to generative AI systems.

4.8. ASEAN Responsible AI Roadmap (2025-2030)

The ASEAN Responsible AI Roadmap (2025-2030) was adopted in 2025 with the objective to supporting ASEAN member states in developing and adopting a coordinated regional approach to responsible AI. The roadmap provides practical guidance for policymakers and regulators to promote the inclusive, responsible, and sustainable adoption of AI by 2030, while empowering a wide range of stakeholders to operationalise responsible AI in ways that reflect to national contexts and capacities. It also seeks to align national AI initiatives with ASEAN's broader digitalisation agenda, particularly commitments under the Digital Economy Framework Agreement (DEFA). The roadmap identifies a set of key priority areas, including: the development and accessibility of digital infrastructure and connectivity, the promotion of the free and secure flow of data across borders, the reduction of barriers to AI adoption for businesses of all sizes, and the strengthening of digital literacy across the region.

5. Digital and AI-led Transformation in ASEAN

ASEAN has prioritised digital transformation as a key driver of inclusive growth, regional connectivity, and economic resilience. Through the development of regional digital frameworks, the strengthening of digital infrastructure, and the promotion of innovation-driven ecosystems, ASEAN is advancing its collective digitalisation agenda while accommodating diverse national contexts and levels of digital readiness. Initiatives under the ASEAN Digital Masterplan, the Digital Economy Framework Agreement (DEFA), and related digital cooperation mechanisms reflect ASEAN's commitment to building trusted, interoperable, and inclusive digital systems across the region. In this context, ASEAN's ongoing efforts in areas such as digital economy, digital trade, fintech, healthcare, and education are presented.

5.1. Digital Economy

ASEAN's digital economy has continued to grow strongly, with gross merchandise value (GMV) exceeding US$ 300 billion in 2025. Over the past decade, both GMV and revenue have grown at an average rate of around 15 per cent year-on-year (Google et al., 2025). This growth has been driven by a major digital transformation, starting with more than 200 million new users coming online since 2016. ASEAN consumers have widely adopted digital lifestyles, leading to a major shift in commerce: three out of five people now shop online, and over 60 per cent of all transactions are conducted digitally.

The six main sectors of ASEAN digital economy are e-commerce, food delivery, transport, online travel, online media, and financial services. Among them, e-commerce contributes the largest share of GMV, followed by online travel, transport and food delivery, and online media. By 2030, e-commerce GMV is expected to nearly double, increasing from US$ 185 billion in 2025 to US$ 359 billion. Video commerce continues to expand rapidly, while AI has become an essential part of the online shopping experience, influencing search, recommendations, and consumer engagement.

Despite macroeconomic pressures, demand for food delivery has remained resilient, reaching US$ 23 billion GMV in 2025. Platforms are increasingly focusing on affordability by offering lower-cost meals, new product categories, and more diverse menus. As a result, food delivery services are shifting from being a premium option to a more accessible service for a wider range of consumers.

ASEAN's transport GMV is projected to rise from US$ 11.5 billion in 2025 to US$ 22.5 billion in 2030. The sector is rapidly adjusting to digital transformation, particularly through the adoption of electric vehicles (EVs). Governments across the region are supporting EV adoption with incentives and regulations, while transport platforms are using digital tools to respond to demand for cleaner and efficient mobility. In addition, pilot projects for autonomous vehicles show ASEAN's effort to prepare for future transport systems by testing new technologies and business models. As travel demand continues to recover, online travel GMV is growing gradually from the GMV of US$ 51 billion in 2025 to reach US$ 81 billion in 2030.

Online media, which includes advertising, gaming, video, and music, generates the highest revenue share relative to GMV among the six major digital sectors in ASEAN. GMV in this sector is forecast to reach US$ 55 billion by 2030, up from US$ 34 billion in 2025, representing growth of around 60 per cent. Advertising remains the largest contributor, followed by gaming, video, and music. Digital technology and AI are key drivers for this sector. For example, as content formats continue to merge, short-form drama is emerging as a fast-growing segment, with both Chinese and local players investing heavily to compete with global platforms.

ASEAN's digital financial services sector is expanding beyond payments to include digital lending, wealth management, and insurance, with all segments expected to double by 2030. As QR codes and e-wallets lower payment fees, providers are shifting toward value-added services.

Lending remains the largest revenue source but faces slower growth, while digital wealth is expanding rapidly through low-cost platforms. Insurance is still largely human-led, despite growing digital channels.

With around 500 million internet users, ASEAN is well positioned for AI-driven transformation. Interest in AI is higher than the global average, with about 700 AI startups in the region. Over the past year, 30 per cent of private investment has gone to AI, and the share of VC portfolios focused on AI is expected to rise sharply in the coming year.

5.2. Digital Trade

Digital trade in ASEAN is expanding faster than the global average, although participation differs widely among ASEAN member states. Between 2005 and 2022, ASEAN's digital trade exports grew by nearly 10 per cent per year, about 4 percentage points faster than global growth. By 2022, digital trade reached US$ 387 billion, accounting for almost 20 per cent of ASEAN's total exports and 6 per cent of global digital trade. Singapore dominates this trade, contributing nearly two-thirds, while the Philippines, Malaysia, Indonesia, and Thailand together account for around one-third. The CLMV countries represent about 5 per cent (OECD, 2026).

Digitally deliverable services, such as finance, insurance, and other business services, are the main drivers of growth, expanding at 11 per cent annually, much faster than goods and non-digital services. Most ASEAN digital trade is conducted with external partners, as intra-ASEAN trade makes up only 12 per cent, highlighting the region's strong reliance on global markets.

ASEAN is also advancing paperless trade by digitalising key trade documents and expanding the ASEAN Single Window (ASW), which has reduced costs and improved customs efficiency. The planned ASEAN Single Window (ASW) 2.0 aims to strengthen interoperability among ASEAN members and with key partners such as China, Japan, Korea,

and the United States. Moreover, deeper integration under the Digital Economy Framework Agreement (DEFA) is a major step for ASEAN, with the potential to increase regional trade by 13–20 per cent, depending on the level of ambition.[62]

5.3. FinTech

Thailand is undergoing one of the fastest digital banking transformations in Southeast Asia. In 2023, the country recorded over 107 million mobile banking accounts, far more than its population of around 70 million. Internet access is also widespread, reaching more than 85 per cent of the population.[63] One of the key drivers of this transformation is PromptPay, Thailand's national digital payment system.[64] With the widespread use of QR code payments, PromptPay enables real-time transfers in Thai Baht among individuals, businesses, and government agencies. Over time, the system has expanded to include services such as bill payments, request-to-pay, e-donations, and government-to-person transfers. It is also widely used by the government to distribute social welfare directly to citizens via national ID numbers.

Building on its domestic success, the Bank of Thailand (BOT) has extended PromptPay to the regional level under the ASEAN Payment Connectivity initiative. This includes real-time cross-border QR payments and fund transfers at lower costs. Thailand has become a regional leader, linking its system with major partners such as Singapore (via PayNow), China (Alipay, UnionPay, WeChat Pay), and several ASEAN countries, as well as Japan and Hong Kong.[65] Beyond payments, Thailand is continuing to deepen its fintech ecosystem. Three new digital bank licenses have been approved, with operations beginning in 2026.

At the regional level, initiatives such as *Nexus Global Payments*, led by ASEAN monetary authorities and the BIS Innovation Hub, aim to connect national payment systems through a single multilateral platform.[66] At the same time, digital financial services across ASEAN are rapidly expanding. Most ASEAN countries now operate national

QR payment systems, and many already support cross-border QR interoperability (Google et al., 2025).

5.4. Healthcare

Digital health is changing healthcare across ASEAN. New technologies such as telemedicine, big data analytics, and artificial intelligence (AI) make healthcare cheaper and easier to access, especially in remote areas, extending the reach of high-quality healthcare. These tools also support Universal Health Coverage (UHC) and help countries respond better to public health challenges (ASCC, 2023).

Telemedicine and digital health apps are now common in most ASEAN countries. For example, Indonesia's Halodoc and Malaysia's teleconsultation services allow patients and rural clinics to connect with specialist doctors online. Digital health also supports older people. Thailand's DoCare Protect uses sensors to monitor elderly health at home, while Singapore's Dementia Friends app helps communities support people with dementia.

Digital systems and big data also play an important role. The ASEAN BioDiaspora Virtual Center collects and links health data from different countries. It helps governments monitor health risks and respond quickly to disease outbreaks.

Artificial intelligence (AI) is increasingly used in healthcare. In Singapore, AI chat systems help screen patients. In Indonesia, the CekMata start-up uses AI to detect cataracts early. In Thailand, AI tools support doctors in choosing treatment plans for cancer patients.

5.5. Education

ASEAN countries are gradually transforming their education systems through digital technologies that reflect national needs and capacities. Progress has been driven by government policies, targeted programmes, and improved digital infrastructure. Among the ASEAN members,

Singapore stands out for its advanced use of digital education tools. Platforms such as the Student Learning Space (SLS) support online learning for students nationwide, while home-based learning systems were developed to ensure continuity during health emergencies. For Indonesia, the focus is on reducing gaps between schools through initiatives like Digitalization of Indonesian Education and MEdukasi, as well as the Kartu Prakerja programme, which delivers skills training through digital platforms. In the case of Lao PDR, online learning through the Khang Panya Lao education platform has been developed.[67]

AI is also increasingly being integrated into education across the region. Malaysia and Vietnam are investing in AI-based EdTech research to enhance digital learning, while universities in Singapore lead research on smart campuses and automated student services. At the same time, Thailand and the Philippines are building teacher capacity through AI-related training, and countries such as Indonesia and Malaysia have begun including AI courses in higher education curricula (Goh and Hamid, 2026; Indonesia Cyber Education Institute and UNESCO, 2025).

The key initiatives undertaken by ASEAN countries to support AI-driven transformation in the education sector are as follows:

- Brunei Darussalam: Promotes AI in education through school toolkits, GenAI guidance, and university cooperation with ASEAN partners.
- Cambodia: Introduces GenAI through pilot projects with international partners, including ADB's TIESEA Project for teacher and student training.
- Indonesia: Uses AI for adaptive and distance learning, such as Universitas Terbuka's Teman Belajar, supported by AI guidelines, training, and the Dikti AI Center.
- Lao PDR: Focuses on capacity building and education quality, supported by Lao–China cooperation on smart technology research.
- Malaysia: Applies AI for personalised learning and university management, embeds AI in degree programmes, and has established the country's first Faculty of AI.

- Myanmar: Is at an early stage of AI adoption in higher education, with growing use of GenAI tools and AI-related courses.
- The Philippines: Integrates GenAI to support teaching, personalised learning, assessment, language services, and administrative tasks.
- Singapore: Leads AI in education through the National AI Strategy, with initiatives for AI talent, adaptive learning, and automated assessment via the Student Learning Space.
- Thailand: Promotes AI-powered language learning and tutoring, with universities using AI for teaching, writing support, and real-time feedback.
- Timor-Leste: Has limited GenAI use, but its education strategy supports e-learning and technology access for disadvantaged groups.
- Viet Nam: Strengthens digital education by integrating AI into school and university curricula and expanding teacher training.

ASEAN countries are increasing the use of AI in education to improve learning quality and widen access, though progress differs across the region. Singapore, Malaysia, Thailand, Indonesia, and the Philippines lead in applying AI for adaptive learning, tutoring, assessment, and student services. Viet Nam is also advancing through AI-based curricula and teacher training. Other ASEAN members remain focused on building capacity, expanding distance learning, and strengthening international cooperation.

6. Comparative Analysis of Approaches Taken by India and ASEAN

This section compares India's and ASEAN's digital and AI policies, across various parameters such as overall objective, focus, strategy, institutional framework, governance, international cooperation, and challenges. It depicts that there are shared priorities such as digital inclusion and skills development, as well as divergences in governance models, policy coordination, and implementation at national and regional levels (Table 2). The analysis offers insights into opportunities for closer India–ASEAN cooperation in digital and AI development.

Table 2. Comparative Analysis between India and ASEAN Digital and AI Policies

Unit	India	ASEAN
Overall objective	• To leverage AI for inclusive social and economic development. • The National AI Strategy emphasizes a unique approach called #AIforAll, which focuses on using AI to enhance human capabilities, address societal challenges, and ensure equitable access to technology.	• To drive economic growth and sustainable development by building an integrated digital economy
Focus	• Opportunity: the economic impact of AI for India • AI for Greater Good: social development and inclusive growth • AI Garage for 40 per cent of the world: solution provider of choice for the emerging and developing economies across the globe	• Interoperability • Recognizing different levels of digital development • Inclusive, innovative, resilient, and sustainable
Strategy	• Democratizing AI Resources • Leveraging AI for Economic Growth & Social Good • Develop Secure & Trusted AI • AI for Science and Access for Social Empowerment • Human Capital Development • Development of Resilient, Efficient & Innovative AI Systems	• Develop a multi-layered regulatory ecosystem • Alignment and harmonization between ASEAN member states and the region-wide framework

Table 2 continued....

Table 2 continued....

Institutions	• Indian government (Central and States) • Industry (Public and Private Sector) • Academia/Research • Start-ups	• ASEAN Secretariat bodies and governments of ASEAN countries
Digital infrastructure	• Focus on Digital Public Infrastructure (DPI)-led model	• Focus on universal access
Digital skills	• Focus on enhancing Digital literacy	• Focus on developing digital skills through education and capacity building
Data and AI governance	• DPDP Act 2023 • Data Empowerment and Protection Architecture (DEPA) (NITI Aayog) • FREE AI Framework (RBI)	• Tailored for ASEAN—DEFA • Fragmented rules and regulations
International cooperation	• Focus on enhanced cooperation with countries for joint R&D, access to advanced technologies, access to frontier models and AI infrastructure • India is the founding member of the Global Partnership on Artificial Intelligence (GPAI). Currently, it comprises 46 member countries and the European Union. • India hosted the AI Impact Summit in February 2026. 92 countries and international organisations endorsed the New Delhi Declaration.	• Cooperate with many external partners including China, Japan, Korea, US, EU, Australia, and India through formal ASEAN frameworks, working groups, capacity-building, and pilot projects.

Table 2 continued....

Table 2 continued....

Challenges	• Difficulty in accessing industry-specific data required to build customised platforms and solutions currently concentrated in the hands of a few major players. • Fragmented data ecosystem • Supply chain disruption • Geopolitical risks	• Different digital readiness • Uneven development of digital infrastructure • Shortage of digital skills. Interoperability: ASEAN countries' initiatives start at the national level with the region-wide framework, so the ability to operate across the region and also connect with external partners

Source: Authors' compilation.

7. India–ASEAN Digital Cooperation: Way Forward

The digital transformation of India and ASEAN creates a significant opportunity to deepen cooperation around a shared vision of an inclusive, secure, interoperable, and innovation-driven digital economy. The analysis shows considerable convergence between India's DPI-led approach and ASEAN's efforts to build an integrated digital economy. While India has developed scalable digital platforms in identity, payments, health, education, agriculture, financial inclusion and e-commerce, ASEAN has developed regional frameworks centred on interoperability, cross-border data flows, digital trade, cybersecurity, digital skills and responsible AI. The next phase of India–ASEAN cooperation should move beyond knowledge sharing towards institutionalised, outcome-oriented and mutually beneficial digital partnerships.

First, interoperability and DPI should become a central pillar of cooperation. India's experience with Aadhaar, UPI, DigiLocker, Account Aggregator, ABDM and other interoperable platforms provides opportunities for technical cooperation, capacity building and pilot projects with ASEAN member states. Rather than promoting a single technological model, India and ASEAN should develop interoperable and adaptable digital solutions that respond to different levels of digital readiness and national policy priorities. Such cooperation can particularly benefit financial inclusion, digital health, education, agriculture and public-service delivery.

Second, digital trade and cross-border digital connectivity should receive greater policy attention. The emerging DEFA, together with the ASEAN Agreement on Electronic Commerce, provides an important regional foundation. India could explore closer alignment and practical cooperation with ASEAN on electronic transactions, digital payments, e-invoicing, digital identity, paperless trade, consumer protection and MSME participation. Greater interoperability between India's digital commerce ecosystem, including ONDC, and ASEAN digital platforms could help small businesses and start-ups access wider regional markets.

Third, data governance and trusted cross-border data flows should form a core area of cooperation. Differences in national data protection regimes can create barriers to digital integration. India and ASEAN should promote dialogue on interoperable data governance frameworks, privacy protection, consent-based data sharing, cybersecurity and trusted mechanisms for cross-border data flows, balancing innovation and economic opportunities with individual rights, data security and national regulatory interests.

Fourth, responsible and human-centred AI should become a strategic pillar. India's Responsible AI principles, IndiaAI initiatives and evolving AI governance framework can complement ASEAN's Guide on AI Governance and Ethics and Responsible AI Roadmap. Joint research, regulatory dialogue, AI safety and evaluation mechanisms, responsible deployment standards and shared approaches to algorithmic accountability can contribute to a trusted regional AI ecosystem. Particular emphasis should be placed on AI applications addressing development challenges in healthcare, agriculture, education, climate resilience and public administration.

Fifth, cooperation must focus on digital skills, innovation and institutional capacity. Uneven digital readiness, shortages of skilled personnel and differences in institutional capabilities remain important constraints. India and ASEAN could establish joint digital-skilling programmes, university and research partnerships, start-up exchanges, innovation challenges and fellowships in AI, cybersecurity, cloud computing and emerging technologies. Greater collaboration among governments, industry, academia and start-ups would strengthen regional innovation ecosystems.

Finally, India–ASEAN digital cooperation could be guided by inclusive and sustainable digital transformation. Connectivity and technology adoption must reach women, rural communities, MSMEs and other underserved groups. Cybersecurity, consumer protection and trust should be embedded into digital expansion from the outset. A

structured India–ASEAN digital cooperation mechanism, supported by regular policy dialogue, sectoral working groups and demonstrable pilot projects, could provide an institutional platform for translating shared priorities into action.

The way forward is, therefore, not simply to replicate India's digital model in ASEAN, but to co-create interoperable, inclusive and context-sensitive digital solutions. India's experience with DPI, digital finance, digital health, education, agriculture, e-commerce and AI provides a strong foundation, while ASEAN's regional approach offers an important framework for interoperability and collective governance. Together, India and ASEAN can shape a distinctive Global South approach to digital transformation one that combines technological innovation with trust, inclusion, regulatory cooperation, and sustainable development.

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