UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

Policy review

Indonesia

eTrade Readiness Assessment

United Nations

Geneva, 2026

United Nations Publications
405 East 42nd Street
New York, New York 10017
United States of America

Email: publications@un.org
Website: https://shop.un.org

United Nations publication issued by the United Nations
Conference on Trade and Development

UNCTAD/DTL/ECDE/ 2026/1

ISBN: 978-92-1-159785-1
eISBN: 978-92-1-154605-7
ISSN: 2959-2658
eISSN: 2959-2666
Sales No. E.25.II.D.48

Acknowledgements

The *eTrade Readiness Assessment of Indonesia* of the United Nations Conference on Trade and Development (UNCTAD) was prepared by a team, led by Cécile Barayre, comprised of Sven Callebaut, Ina Hodge, Martine Julsaint Kidane and Zenathan Hasannudin. Valuable contributions were also received from other members of the UNCTAD Division on Technology and Logistics.

UNCTAD gratefully acknowledges the local assistance of Dandy Rafitrandi, national consultant, whose support was essential to the success of the project's activities and the completion of the report.

UNCTAD extends its sincere appreciation to Gita Sabharwal, United Nations Resident Coordinator, who facilitated coordination among members of the United Nations country team and resident development partners active in the area of digitalization in Indonesia. Comments and inputs provided by experts from the following eTrade for all partners substantially improved the final report: the International Trade Centre, the United Nations Commission on International Trade Law, the Economic and Social Commission for Asia and the Pacific and the Universal Postal Union.

UNCTAD further extends its appreciation to the Government of Indonesia for its contribution and trust in the course of the preparation of the report. UNCTAD also gratefully acknowledges the guidance, technical support and in-country coordination throughout the evaluation process of Ditya Agung Nurdianto, Director for International Trade, and Awidya Santikajaya, Gracia Indira Caroline Sidabutar and Fathia Maryam Perdata, from the Ministry of Foreign Affairs of Indonesia.

The assessment was made possible thanks to the timely support of Nurul Sofia and Vienna N.L. Adza at the Permanent Mission of Indonesia to the United Nations Office and other international organizations in Geneva. The assessment benefited from the inputs, through e-trade readiness assessment surveys, of more than 56 representatives of institutions from the public sector, 58 representatives of the private sector and 448 consumers. Visits to Makassar and Medan were conducted to expand the regional reach to stakeholders. In addition, UNCTAD expresses its appreciation to all who participated in multi-stakeholder consultations and focus group discussions, held in-person in Jakarta and virtually in February and May 2025, as well as the national validation workshop that took place in August 2025.

Robert Blackwell edited the publication. Cover design was provided by the UNCTAD Communication and External Relations Section, while Keel Chan undertook desktop publishing. Administrative support was provided by Diana Quiros.

UNCTAD extends particular appreciation to the Government of Australia, whose financial support through the Department of Foreign Affairs and Trade, was instrumental in enabling the assessment. Financial support from other core donors to the UNCTAD E-commerce and the Digital Economy Programme is likewise greatly appreciated.

Table of contents

Figures

Tables

Boxes

Foreword

Indonesia stands at a decisive moment in its digital journey. As the largest economy in South-East Asia, the only G20 member from the region and a country aspiring to join the Organisation for Economic Co-operation and Development, Indonesia has already emerged as a digital powerhouse. Its e-commerce market is now the largest in the region of the Association of Southeast Asian Nations and is expected to reach an estimated $137.5 billion by 2025. Leading global platforms, as well as home-grown technology giants, are transforming the way tens of millions of Indonesian consumers shop, pay and do business online. Meanwhile, digital payments are widely used: multiple e-wallets have proliferated and the Quick Response Code Indonesia Standard is expanding fast. That rapid growth is driven by a young, technology-savvy population, rising Internet penetration and smartphone usage, and bold government strategies, such as the Making Indonesia 4.0 road map, the Golden Indonesia Vision 2045 and other national strategies.

At the same time, challenges remain to ensure that digital transformation contributes to inclusive and sustainable development. Building trust in online markets, equipping micro-, small and medium-sized enterprises with the right tools, addressing gaps in digital skills, logistics and connectivity and strengthening policy coherence will be critical for Indonesia to realize the full potential of its digital economy.

In the present report, the authors provide a comprehensive review of the e-commerce and digital trade ecosystem of Indonesia, with recommendations across five policy areas. The report is built on extensive stakeholder consultations with government officials, private sector actors and development partners, as well as survey data and policy analysis. The proposed actions are designed to foster an enabling environment in which consumers are protected and empowered, micro-, small and medium-sized enterprises can participate fully in both domestic and global markets and digital opportunities translate into broad-based prosperity.

The assessment forms part of the work of the United Nations Conference on Trade and Development (UNCTAD) under its eTrade for all initiative, which was launched in 2016 to help developing countries harness the digital economy for the 2030 Agenda for Sustainable Development. Through that platform, UNCTAD and its partners seek to raise awareness, enhance synergies and mobilize resources to support e-commerce readiness worldwide. The present assessment is the forty-first globally and the fourth in South-East Asia, building on earlier studies in Cambodia, the Lao People's Democratic Republic and Myanmar.

I trust that the analysis and recommendations set out in the present report will contribute meaningfully to the ongoing efforts of Indonesia to focus its digital strategies, strengthen coordination among ministries and partners and ensure that the growth of e-commerce and digital trade is not only robust but also inclusive and sustainable.

Torbjörn Fredriksson
Head, E-commerce and Digital Economy Branch
Division on Technology and Logistics, UNCTAD

Abbreviations

ADB	Asian Development Bank
AI	artificial intelligence
ASEAN	Association of Southeast Asian Nations
BI-FAST	Bank Indonesia Fast Payment
e-KTP	electronic national identity
G20	Group of 20
GDP	gross domestic product
GMV	gross merchandise value
ICT	information and communications technology
IT	information technology
ITC	International Trade Centre
MSMEs	micro-, small and medium-sized enterprises
OECD	Organisation for Economic Co-operation and Development
PET	polyethylene terephthalate
QRIS	Quick Response Code Indonesia Standard
SMEs	small and medium-sized enterprises
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UN-Women	United Nations Entity for Gender Equality and the Empowerment of Women
UPU	Universal Postal Union
WTO	World Trade Organization

Note

Within the Division on Technology and Logistics of UNCTAD, the E-commerce and Digital Economy Branch carries out policy-oriented analytical work on the development implications of information and communications technology (ICT), e-commerce and the digital economy. It is responsible for the preparation of the annual Digital Economy Report, as well as thematic studies on ICT for development.

The Branch promotes international dialogue on issues related to ICT for development and contributes to building the capacities of developing countries to measure the digital economy and to design and implement relevant policies and legal frameworks. It also monitors the global status of e-commerce legislation (the Global Cyberlaw Tracker). Since 2016, the Branch has coordinated a multi-stakeholder initiative entitled eTrade for all, which is aimed at improving the ability of developing countries, particularly least developed countries, to use and benefit from e-commerce. The initiative is also behind the UNCTAD eTrade for Women initiative, launched in 2019, which is aimed at promoting a more inclusive digital economy, in particular, through its network of Advocates. Those women digital entrepreneurs are active in all developing regions and contribute to capacity-building, mentoring and awareness-raising activities for more inclusive gender policies.

Reference to companies and their activities should not be construed as an endorsement by UNCTAD of those companies or their activities.

Details and percentages may not add up to totals due to rounding. For the purpose of the present assessment, $1 is equivalent to 16,000 rupiah, which is the average rate published by Bank Indonesia for the period January–July 2025.

The term “dollars” ($) refers to United States of America dollars, unless otherwise indicated.

Executive summary

The digital economy of Indonesia is expanding rapidly, making it the largest in South-East Asia. With an estimated value of $90 billion in 2024, Indonesia represented approximately 34 per cent of the total digital economy of the Association of Southeast Asian Nations (ASEAN) (Google, Temasek and Bain & Company, 2024a and 2024b).

Seeking to further enhance its digital economy, the Government of Indonesia requested an eTrade Readiness Assessment (eT Ready), the first such assessment conducted by UNCTAD in a G20 country. In coordination with the Ministry of Foreign Affairs and with broad stakeholder engagement, in the present assessment, the authors evaluate the e-commerce and digital trade ecosystem of Indonesia across key policy areas, identify strengths and gaps and make actionable recommendations to boost innovation, competitiveness and inclusiveness in the digital economy. The process has involved surveys, desk research and consultations with public and private stakeholders across the country, ensuring that the perspectives of government agencies, businesses (including micro-, small and medium-sized enterprises (MSMEs), civil society and specific groups, such as women, youth and persons with disabilities, are reflected.

In chapter 1, the authors review the e-commerce and digital trade policy framework of Indonesia, highlighting national strategies and alignment with regional initiatives. In chapter 2, they examine technology adoption, including digital infrastructure and emerging technologies. In chapter 3, they assess the performance of MSMEs in e-commerce and digital trade, focusing on digitalization of MSMEs and capacity-building. In chapter 4, they evaluate the legal and regulatory framework for e-commerce and digital trade. In chapter 5, they discuss digital payment systems and financial inclusion. Throughout the report, environmental considerations are also highlighted to promote more sustainable e-commerce. The action matrix contains policy recommendations aimed at further strengthening the ecosystem for sustainable and inclusive e-commerce growth, in line with national development goals and the broader digital integration efforts of ASEAN.

E-commerce and digital trade policy framework

Indonesia has made significant strides towards building a robust e-commerce and digital trade environment. The National E-commerce Road Map (2017–2019), launched through Presidential Regulation No. 74/2017, laid the initial groundwork by addressing key enablers such as logistics, taxation, consumer protection, funding and digital skills. Government Regulation No. 80/2019 further strengthened the legal basis for online transactions, boosting trust for consumers and businesses. In addition, the Ministry of Trade Regulation No. 31/2023 regulates businesses, referred to as merchants, that conduct trade through electronic systems, whether through their own platforms or through third-party e-commerce providers. The Regulation also applies to the e-commerce platform providers themselves.

More recently, broader digital strategies, such as the Digital Indonesia Road Map 2021–2024 and the 2023 White Paper on the National Strategy for the Development of the Digital Economy 2030, have guided cross-sector coordination. Those frameworks align with long-term national development priorities, including the Making Indonesia 4.0 road map, the Golden Indonesia Vision 2045 (Law No. 59/2024) and the National Long-Term Development Plan 2025–2045, all of which recognize digital trade as a cornerstone of the country's transformation into a top-five global economy.

At the institutional level, multiple government bodies, including the Ministries of Communication and Digital Affairs, Trade, Foreign Affairs and National Development Planning, share responsibility for the digital economy. While high-level coordination mechanisms exist, the overlapping mandates and responsibilities of various agencies still pose operational challenges. Although measures such as the establishment of the E-commerce Task Force and interministerial working groups and platform-level data reporting by Statistics Indonesia have improved coordination, many stakeholders are calling for a revitalized steering committee or permanent coordination body to sustain the momentum of implementation.

Indonesia also places strong emphasis on stakeholder engagement. Public-private dialogue mechanisms are increasingly institutionalized, involving associations such as the Indonesian E-commerce Association and other business support organizations and leading e-commerce platforms, such as Tokopedia and Shopee, in regulatory consultations and digital literacy initiatives. To further enhance inclusivity, there is scope to broaden participation to include more MSMEs, regional actors and women-led enterprises, ensuring that policies reflect diverse market realities and foster inclusive growth, a role that could also be played by business support organizations.

On the monitoring front, business support organizations have introduced e-commerce indicators in national surveys and mandated platform data reporting. However, significant data gaps persist, especially on cross-border flows, consumer segmentation and informal commerce (i.e. commerce conducted through social media or messaging platforms without formal business registration). Capturing such informal activity remains methodologically challenging due to its decentralized, unregulated and often cash-based nature. Without more granular and timely indicators, policymakers risk not being able to identify key aspects of digital trade. Although the One Data initiative and emerging plans for a digital economy dashboard are promising, they require greater inter-agency data interoperability and private sector participation to be effective.

As Indonesia engages in regional initiatives, such as the ASEAN Digital Economy Framework Agreement, the Regional Comprehensive Economic Partnership, the ASEAN-Australia-New Zealand Free Trade Area and the World Trade Organization Joint Statement Initiative on Electronic Commerce, sustained progress on domestic policy coherence, evidence-based planning and inclusive dialogue will be essential to fully leverage digital trade for development.

Technology adoption

Indonesia has made real progress in building up its digital backbone. Major infrastructure projects, such as the Palapa Ring broadband network, a nationwide 4G roll-out, and early 5G trials show strong efforts by the Government to connect even remote parts of the country. While home broadband access is still low (about 15 per cent nationwide), mobile Internet is widely used; more than 75 per cent of people are online thanks to affordable smartphones and competitive data plans. However, the quality, affordability and speed of Internet access vary significantly, especially between Java and the outer islands.

The roll-out of digital public infrastructure – which includes a national digital identification system, real-time payments and government-run cloud platforms – has laid an important foundation for digital services, providing key building blocks for scale, inclusion and trust. Ensuring that those systems operate smoothly and integrate effectively will remain a priority, requiring continued investment in governance, capacity and infrastructure.

The adoption of emerging technologies, such as artificial intelligence (AI), the Internet of things, blockchains and cloud computing, is progressing, although unevenly. Government use of AI is still in its early stages, with a national AI road map and guidelines on AI ethics under development. In the business world, larger technology companies and multinationals are leading the way, while

MSMEs lag behind due to high costs, limited digital skills and constrained access to advanced infrastructure. Stakeholders emphasized the need for better ways to share knowledge, more targeted incentives for small businesses to adopt new technologies and safe environments, such as “regulatory sandboxes” in which companies can test innovations while safeguarding trust and inclusion.

Indonesia also has opportunities to advance sustainable technology adoption, particularly in logistics. Some large companies have already introduced electric delivery vehicles and eco-friendly packaging, showcasing the potential for greener practices. Scaling those innovations across the industry can be supported through regulatory incentives, monitoring tools and local governments’ tracking of packaging waste, emissions and delivery traffic. Such efforts will help to ensure that technology adoption contributes not only to efficiency and innovation but also to environmental sustainability. Success will depend on the Government’s ability to foster multi-stakeholder collaboration, strengthen institutional capacity at both national and local levels and mobilize green financing to accelerate the transition of Indonesia towards a low-carbon economy in line with its commitments made in relation to the Sustainable Development Goals.

Performance of micro-, small and medium-sized enterprises on e-commerce and digital trade

MSMEs are the backbone of the country’s economy, accounting for more than 60 per cent of gross domestic product and the majority of employment. MSMEs have increasingly gone online in recent years, a trend accelerated by the coronavirus disease (COVID-19) pandemic. The Government set a target to onboard 30 million MSMEs into the digital ecosystem by 2024, equivalent to approximately half of all MSMEs in the country.

Despite encouraging progress, the integration of MSMEs into e-commerce and digital trade remains limited. While approximately 40 per cent of MSMEs are already engaged in online selling – mostly through social media platforms – their participation in formal e-commerce marketplaces and regional supply chains is considerably lower.

Digital skills and know-how are key constraints. Survey data reveal that only 20 per cent of MSMEs have staff with intermediate ICT skills and less than 10 per cent use digital tools for inventory, customer management or cross-border sales. Government programmes, such as the Bangga Buatan Indonesia (Proudly Made in Indonesia) initiative, have been pivotal in supporting the digital transition of MSMEs and MSME onboarding programmes. Indonesia is also a key player in regional initiatives, such as Go Digital ASEAN, a digital skills training programme for MSMEs and the emerging workforce, aimed at training 200,000 underserved MSMEs in member States of ASEAN. However, most MSMEs still struggle with fragmented training offers, limited financial literacy and lack of trust from formal financial channels.

Leading e-commerce companies have themselves become key partners in MSME development. Marketplaces have programmes to onboard traditional artisans and farmers, offering free onboarding, analytical tools and access to logistics. The offline-to-online transition is crucial, especially for micro-entrepreneurs and home-based industries, as well as for informal businesses operating on social media. Simplified onboarding processes, user-friendly applications and training in basic digital skills can empower those with limited education or those in rural areas to succeed online.

There are also initiatives focused on women-led MSMEs and entrepreneurs with disabilities to ensure inclusivity – for example, specialized training modules for women entrepreneurs (who often face additional barriers such as lack of formal financing or societal constraints) and incubator programmes for persons with disabilities to leverage e-commerce as a livelihood.

Market saturation and competition in popular online marketplaces present significant challenges for MSMEs. To stand out, many require targeted support to improve product quality, branding and differentiation. There are ongoing efforts to help MSMEs climb the value chain, but achieving results takes time. Regulatory complexity, such as business licensing and taxation, can deter informal businesses from formalizing and growing online.

Digital literacy and skills gaps are a major constraint on the effective participation of MSMEs in the digital economy. A significant portion of small business owners lack the technical know-how to effectively market products online, analyse digital sales data or manage cybersecurity risks. The national financial literacy index, for instance, stands at approximately 65 per cent, indicating that many MSMEs may not be familiar with financial planning or digital finance tools to grow their businesses. Logistical challenges also disproportionately affect small sellers: shipping costs from remote areas are often high and reliable delivery services may not exist in every village, making it hard for rural MSMEs to fully participate in and benefit from the digital economy.

Legal and regulatory framework

The legal and regulatory framework of Indonesia for e-commerce and digital trade has evolved significantly to address the new issues arising from online transactions. Indonesia has developed a range of laws governing digital trade, including the Electronic Information and Transactions Law and the Consumer Protection Law. The Omnibus Law on Job Creation introduced simplified licensing for digital platforms and amended provisions related to e-contracts, digital signatures and cybersecurity.

A major breakthrough in the legal landscape was the passage of the Personal Data Protection Law in 2022, which for the first time established a comprehensive data privacy regime in Indonesia. The Law is aligned with the principles found in the European Union regulation on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation), requiring consent for data collection, imposing duties in relation to notification of data breaches and setting penalties for misuse of personal data. The Law addresses growing data privacy concerns as e-commerce and financial technology (fintech) companies collect increasing amounts of customer data.

While those developments represent progress, stakeholders noted several regulatory gaps and inconsistencies. For example, a major challenge in the country's data governance is the lack of implementing regulations for the Personal Data Protection Law, which creates uncertainty in relation to data exchange. Although the Ministry of Communication and Digital Affairs is responsible for implementing the Law, progress has stalled, leaving individual agencies to interpret and implement the Law independently. Another example is the uneven enforcement of consumer protection in e-commerce, especially for transactions on social media and informal platforms. The newly established National Consumer Protection Agency lacks enforcement powers. Furthermore, online dispute resolution mechanisms remain underdeveloped and costly for MSMEs and consumers.

In the realm of cybersecurity, Indonesia is working on dedicated cybersecurity legislation (a draft bill is under consideration) and has set up the National Cyber and Crypto Agency, which issues technical regulations and standards. Electronic payment regulations have also been modernized: Bank Indonesia has issued rules governing e-wallets, digital banking and fintech lending. In addition to ensuring secure and reliable access to finance, the Financial Services Authority has issued rules governing digital banking and fintech lending. Both the Financial Services Authority and Bank Indonesia commit to balance innovation with consumer protection.

Cross-border data governance is a rapidly evolving area. The Personal Data Protection Law is aligned broadly with international norms, while details of its implementation, such as the independence of the data protection authority and rules for cross-border data transfer, are still being finalized. The participation of Indonesia in international initiatives, including the Digital Economy Framework Agreement and the World Trade Organization Joint Statement Initiative on Electronic Commerce, provides opportunities to strengthen alignment with global best practices, while safeguarding domestic priorities.

Looking ahead, the upcoming Digital Economy Framework Agreement is expected to lead to Indonesia updating or reinforcing laws on cross-border data flows, mutual recognition of digital signatures and other areas. A key priority of the Agreement is to ensure trusted cross-border data flows; accordingly, Indonesia will need to calibrate its regulations to allow data exchange for business purposes while safeguarding privacy and security (building on the Personal Data Protection Law). Another area is individual digital identities: the electronic national identity system is relatively advanced at the domestic level, which could position the country to benefit from any future ASEAN initiatives on common principles or mutual recognition of digital identities, should such provisions be adopted. Moreover, paperless trade is a focus: Indonesia is part of the ASEAN Single Window and is supporting the implementation of new trade administration documents among member States of ASEAN and dialogue partners through the Single Window. That move towards paperless customs and trade documents is supported by domestic regulations under the National Single Window Agency.

While notable progress has been made, some regulatory gaps and implementation challenges persist. Going forward, it will be important for the Government to anticipate emerging issues related to AI, digital trust services, competition in platform markets and cybersecurity. Ensuring a future-ready digital environment will benefit from inclusive and forward-looking policymaking, greater legal and institutional coordination across ministries and regular regulatory reviews to support coherence and innovation.

Digital payment systems and financial inclusion

A robust digital payment ecosystem has been a cornerstone of the country's e-commerce success and a driver of broader financial inclusion. Over the past few years, Indonesia has witnessed an explosion in cashless payment methods, with e-wallets, mobile banking and QR code payments becoming mainstream.

The digital payment ecosystem has grown rapidly, driven by the expansion of the Quick Response Code Indonesia Standard (QRIS), the Bank Indonesia Fast Payment for real-time transfers and a surge in e-wallet adoption led by GoPay, OVO, DANA and ShopeePay. By 2024, QRIS had been accepted by more than 30 million merchants, significantly enhancing access to financial services. Moreover, Indonesia has taken a leading role in promoting financial inclusion through the cross-border expansion of the Standard to several partner countries in ASEAN and East Asia.

According to the National Strategy for Financial Inclusion of Bank Indonesia, approximately 80 per cent of Indonesians now use some form of banking services, including mobile accounts, agent banking or e-wallet-linked virtual accounts, up from just 50 per cent a decade ago. However, many account holders are not actively using their accounts. In 2025, the World Bank reported that, in 2024, 56 per cent of adults in Indonesia owned an account in the country, with 52 per cent having such an account with a bank or similar financial institution (up from 21 per cent in 2021) and 22 per cent having a mobile money account (up from 9 per cent in 2021). That leaves an estimated 44 per cent of the population unbanked. That apparent gap reflects the inclusion of digital wallets and informal channels in broader usage statistics in comparison with more conservative definitions of account ownership. Digital onboarding processes are improving through electronic know your customer mechanisms, but connectivity issues, low trust and lack of formal identity remain hurdles. The expansion of agent banking and mobile accounts has helped reach remote populations. Initiatives such as the National Strategy for Financial Inclusion and the newly formed National Council for Inclusive Finance underpin those efforts.

The role of digital identity in enabling secure transactions is expanding, although challenges persist in verifying records, ensuring data privacy and linking digital identity documents with e-wallets or government payments. Interoperability across platforms and providers is advancing, but fees, user interfaces and financial literacy gaps limit full usage.

Fintech innovation continues to expand the range of financial services available digitally. In addition to payments, Indonesia has seen growth in peer-to-peer lending, crowdfunding, digital insurance and digital investment platforms, which often target segments underserved by traditional banks. The financial literacy gap is significant: while three quarters of adults may have access to formal financial accounts or services, only about 65 per cent are considered financially literate.

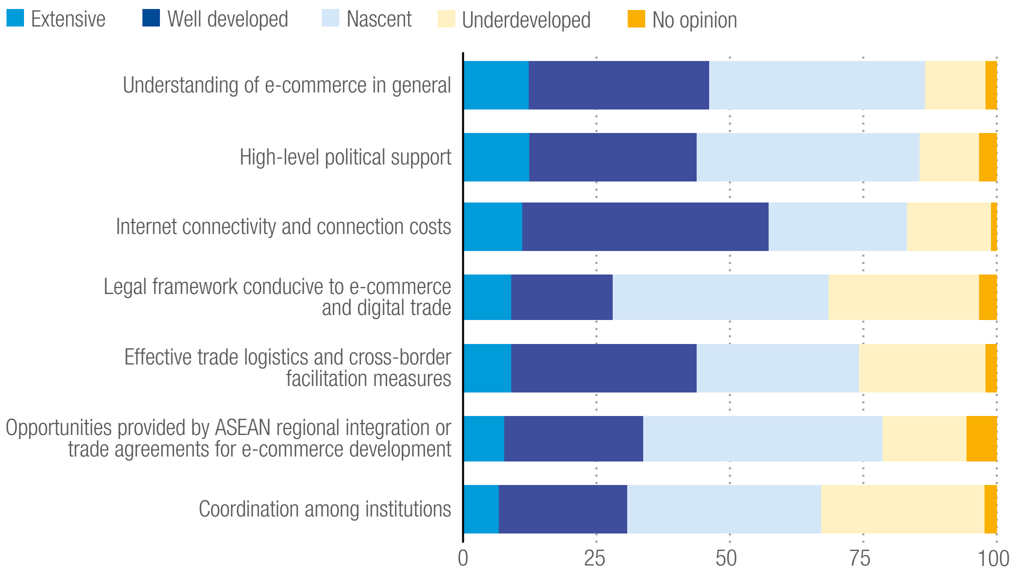
For MSMEs, limited access to digital financial services, including credit scoring tools and tailored lending, remains a key bottleneck. The development of public digital financial infrastructure, complemented by private sector innovation, will be essential for expanding access. The fintech road map of the Financial Services Authority and the Payment System Blueprints of Bank Indonesia lay out key milestones, but implementation gaps remain.

Environmental sustainability is also emerging as an important consideration in the digital payment ecosystem of Indonesia. Digital payments already reduce paper use and the need for physical travel, contributing to more efficient and environmentally friendly financial transactions. As fintech innovation expands, particularly with energy intensive technologies, such as blockchain-based services, monitoring and integrating sustainability principles will help ensure that the growth of digital finance aligns with broader environmental goals. Incorporating those practices early on can support a growing digital economy that is inclusive, accessible and sustainable in the long term.

In the figure below, the authors highlight the results of the surveys conducted in the public and private sectors between April and June 2025 regarding the maturity of e-commerce development in the main policy areas.

Respondents suggested that coordination among institutions, the legal framework for e-commerce and digital trade, and effective trade logistics and cross-border facilitation are the areas most in need of improvement.

Figure 1
Key factors supporting e-commerce development based on their maturity
(Percentage)



Source: UNCTAD survey data (public and private sector respondents, 89 responses).

Conclusion

The eTrade readiness journey of Indonesia is well under way, marked by strong achievements, as well as clear opportunities for further improvement. By acting on the recommendations – strengthening coordination, infrastructure, skills, regulatory agility and inclusivity – Indonesia can accelerate its progress towards a world-class digital trade ecosystem. Such progress will support the country's broader development visions, including the goal of becoming a top-five global economy by 2045. Moreover, it will enhance the country's integration with the regional and global digital economy, benefiting domestic stakeholders and international partners alike.

The present eTrade Readiness Assessment provides an evidence-based road map for policymakers and development partners to collaborate in those efforts. The actionable recommendations, aligned with stakeholder insights and international best practice, create a strong foundation for Indonesia to harness e-commerce and digital trade as engines of growth, innovation and inclusion. By using the results and recommendations of the assessment, Indonesia is poised to not only sustain its digital economy growth but also ensure that the benefits of digital trade are shared widely across society, driving prosperity in the digital age.

Methodology

The eTrade Readiness Assessment of Indonesia was conducted to identify key enablers and constraints in relation to e-commerce and digital trade across five policy areas prioritized by the Government. Those areas were chosen through joint consultations with national stakeholders to reflect the country's development goals and evolving digital landscape. The five thematic areas are: (a) the e-commerce and digital trade policy framework; (b) technology adoption; (c) performance of micro-, small and medium-sized enterprises (MSMEs) on e-commerce and digital trade; (d) the legal and regulatory framework; and (e) digital payment systems and financial inclusion.

Moreover, where relevant in the assessment, the authors integrate cross-cutting themes, such as gender mainstreaming, rural community support and environmental sustainability of e-commerce, while also addressing gaps in reliable statistics on e-commerce and digital trade. Those aspects are considered crucial to ensuring that the digital economy fosters inclusive growth and sustainable development.

While the primary focus is on e-commerce, the authors also underscore the significance of digital trade, defined as "encompassing all cross-border transactions facilitated by electronic means, including both digitally ordered and digitally delivered goods and services". The bottlenecks identified in e-commerce often overlap with those in broader digital trade, highlighting common challenges such as infrastructure gaps, regulatory barriers and skills shortages. As such, solutions proposed within that framework are intended to not only facilitate e-commerce development but also digital trade more broadly.

The assessment followed the five-phase methodology of the United Nations Conference on Trade and Development (UNCTAD) to: (a) ensure broad stakeholder engagement and ownership; (b) raise awareness of the opportunities and challenges in e-commerce; (c) strengthen public-private dialogue and institutional coordination; and (d) guide the mobilization of technical assistance for the digital economy.

Phase 1. Initial consultations, November 2024

Preliminary consultations between UNCTAD and the Government of Indonesia were held to define the scope and priorities of the assessment. Initial outreach was also conducted with national counterparts and eTrade for all partners. The official online and in-person launch was hosted by the Ministry of Foreign Affairs on 12 November 2024 in Jakarta, gathering key public and private actors to initiate the process and validate the five selected policy areas.

Phase 2. Institutional setting and stakeholder mapping, January – February 2025

The second phase involved the identification of national focal points across ministries and agencies and the setting up of coordination modalities with the Ministry of Foreign Affairs. It included stakeholder mapping across government institutions, the private sector, academia and civil society. Development partners active in digitalization were also identified for ongoing engagement. The second phase laid the groundwork for consultations and the action matrix.

Phase 3. Data collection, February–May 2025

The data collection phase consisted of the following:

Desk research: review of national policies, sectoral strategies, development plans, laws and digital indicators. Quantitative data from Statistics Indonesia, the Ministry of Communication and Digital Affairs, international databases and industry studies were reviewed.

eTrade readiness surveys: three surveys tailored to the public sector, private sector and consumers were disseminated nationally. A total of 58 responses from the private sector, 56 from the public sector and 448 from consumers were received and analysed. Certain insights in this report are based on answers to online consultation surveys made open to all interested participants. As survey participants were self-selecting, the results may not be statistically representative of specific populations such as businesses of certain sizes, operating in particular industries, or located in different regions of the country, or of consumers with specific characteristics. Nevertheless, they provide a useful indication of the issues relevant to different stakeholder groups.

Stakeholder consultations: bilateral and group consultations were conducted with more than 100 institutions across the five policy areas in the context of the online launch of multi-stakeholder consultations in February 2025 and in-person and online consultations in Jakarta in May 2025. Stakeholders included ministries, regulatory bodies, platforms, logistics providers, MSME associations, women’s groups and digital start-ups. The perspectives of women, youth, rural communities and persons with disabilities were integrated. Field missions were carried out in Medan (Sumatra) and Makassar (Sulawesi) in May 2025. Bilateral meetings with United Nations and development partners took place during the third phase, in addition to a survey distributed to collect information on existing digital initiatives and ensure alignment.

Follow-up questions to key line ministries and agencies: UNCTAD sent a list of focused questions to key agencies on specific policy areas. The following agencies provided detailed responses: Bank Indonesia, the Ministry of Communication and Digital Affairs, the Ministry of Trade, the Financial Services Authority, Statistics Indonesia and the Ministry of the Environment/ Environmental Control Agency.

Phase 4. Drafting of the report, June–August 2025

A comprehensive draft covering the five policy areas, and an accompanying action matrix, was prepared by UNCTAD with inputs from national stakeholders and the local consultant. Internal and external peer reviews were carried out in August 2025. Draft findings and priority actions were shared with the Government and selected stakeholders for feedback.

Phase 5. Finalization of the report, August–December 2025

A national validation workshop was held in Jakarta on 28 and 29 August 2025 with more than 100 representatives from the public sector, business, academia, development partners and civil society. Key findings and recommendations were discussed and participants were given two weeks to submit written comments to the authors. Final bilateral follow-ups were conducted with core agencies under the leadership of the Ministry of Foreign Affairs. Following the workshop, the final draft of the report was prepared and later submitted for editing, layout and printing.

Summary of key findings and recommendations

Main Findings	Main Recommendations
E-commerce and digital trade policy framework	
• Coordination between national and subnational levels shows promise, although stronger mechanisms would help to align e-commerce efforts across diverse provinces and local governments more effectively. • Digital strategies, policies and visions span several ministries and agencies and the White Paper on the National Strategy for the Development of the Digital Economy 2030 is aimed at centralizing digital efforts. Further alignment among sectoral plans and ensuring stronger coherence and coordination are needed to streamline national-level digital policy execution. • Policy discussions around digital trade have become more responsive, however, greater foresight and structured engagement with platforms could pre-empt reactive regulatory responses. • Public-private dialogue has increased in recent years, however, smaller enterprises and regional voices could be better represented in public-private platforms for inclusive policymaking. • Statistics Indonesia and Bank Indonesia have made meaningful efforts to gather e-commerce-related data. However, gaps remain, particularly in relation to capturing subnational variations in digital readiness. • Comprehensive monitoring of e-commerce environmental footprints remains underdeveloped in Indonesia, presenting an opportunity to design context-appropriate frameworks that simultaneously address sustainability gaps and create domestic value.	• Strengthen/revitalize the e-commerce steering committee or establish a high-level coordination body to drive implementation of reforms in e-commerce and digital trade with clearly defined roles for each ministry/agency and regular interministerial meetings. • Develop a dedicated national e-commerce strategy that enhances inter-institutional coordination and ensures alignment regarding key existing policies. • Encourage provincial and local governments to strengthen coordination mechanisms, develop aligned solutions and set up local e-commerce support hubs (e.g. digital innovation centres or helpdesks for MSMEs). • Facilitate structured, proactive dialogue with major platforms to anticipate regulatory needs and support the development of well-informed, balanced policy responses. • Institutionalize regular public-private dialogues on e-commerce (including MSMEs and regional stakeholders) through forums, business support organizations or advisory councils. • Establish comprehensive e-commerce data strategies involving Statistics Indonesia, Bank Indonesia and provinces to improve disaggregated monitoring. • Explore opportunities to align e-commerce sustainability initiatives with national development priorities, emphasizing domestic value creation and MSME accessibility, with implementation timelines appropriate to the circumstances and capacities of Indonesia.
Technology adoption	
• Broadband connectivity has expanded significantly, supported by major national projects, such as the Palapa Ring and the Nusantara Capital City, however, affordability and speed vary greatly, with rural and eastern provinces still facing major gaps in service quality and cost. • A growing number of data centres are being developed, supported by investment incentives and demand from fintech, e-commerce and government services. • The digital innovation ecosystem is vibrant in large cities, but its benefits are slow to diffuse into rural areas and traditional sectors; AI, the Internet of things and cloud solutions are growing among big firms, while MSMEs need more support to integrate such tools. • The national digital transformation agenda provides a clear governance framework that emphasizes service quality, resilience and inclusive digital access. • Indonesia is taking important steps to address sustainability challenges in information and communications technology (ICT), with increasing recognition of green data centres and logistics, signalling the early adoption of practices that have strong potential for wider mainstreaming.	• Accelerate the roll-out of 5G and next-generation networks by improving spectrum policy, reducing device costs, incentivizing infrastructure-sharing and public-private partnerships to reduce costs and expanding equitable access. • Incentivize the development of local data centres and cloud computing facilities by streamlining permits, resolving electricity supply constraints and providing targeted fiscal and investment incentives to improve data security and ensure resilience of government and commercial digital services. • Promote the digital transformation of traditional industries, especially MSMEs in agriculture, retail and manufacturing, through voucher schemes, extension services and dedicated outreach programmes. • Establish innovation hubs and accelerator programmes across multiple provinces to pilot emerging technologies and mitigate regulatory risks for start-ups. • Explore the development of environmentally sustainable logistics and ICT infrastructure (e.g. green data centres and energy-efficient networks) where economically viable, prioritizing approaches that strengthen domestic technology capabilities and remain accessible to MSMEs.

Main Findings	Main Recommendations
• Logistics innovation in cities is advancing quickly; replicating such smart delivery solutions in smaller towns might increase access and efficiency across the country's archipelago.	• Encourage the scaling of smart logistics innovations, such as drones, electric vehicles and digital routing platforms, beyond large cities to improve delivery efficiency and reduce carbon emissions across the country's archipelago, with adoption paced according to national infrastructure readiness and designed to benefit logistics MSMEs.
Performance of micro-, small and medium-sized enterprises on e-commerce and digital trade	
• Government and private sector training programmes are expanding, providing MSMEs with new skills and opportunities to experiment with digital solutions and online marketing. • MSMEs are highly active in online selling, particularly through social media platforms, but participation in formal e-commerce ecosystems remains limited, constraining growth and access to formal support measures. • Women-led and rural MSMEs show high engagement potential and targeted support could further unlock inclusive growth through tailored logistics, finance and digital services. • The growing variety of financial and digital identity solutions is beginning to open new pathways for microenterprises to transition from informality to formal e-commerce. • A large proportion of microenterprises continues to operate informally, without business licences or digital identity documents, restricting their eligibility for financial services and participation in regulated e-commerce channels. • Geographic and technological barriers mean that MSME access to reliable logistics and payment services varies widely across regions and income groups.	• Expand and consolidate digital skills development programmes for MSMEs, with targeted curricula for women, youth, persons with disabilities and microenterprises, delivered through blended and locally adapted training. • Encourage and incentivize the formalization of online businesses by linking e-marketplace registration to business licensing and taxation benefits. • Develop structured mentoring and incubation schemes for MSMEs to help them seize opportunities in regional and global digital markets, with targeted support for MSMEs led by women, youth and persons with disabilities. • Facilitate MSME participation in cross-border e-commerce by simplifying cross-border procedures for small parcels/low value shipments. • Provide tailored guidance and troubleshooting for MSMEs by platforms and business associations in collaboration with local and provincial authorities and stakeholders; and strengthen the inclusion of MSMEs led by women, youth and persons with disabilities. • Strengthen MSME access to tailored capacity-building, digital mentoring and peer-learning networks that respond to regional needs and demand from different industry sectors.
Legal and regulatory framework	
• The legal framework for e-commerce is well established, covering electronic transactions, cybersecurity and indirect taxation, and has been strengthened by landmark laws on e-commerce and personal data protection, which now require effective implementation and enforcement. • Online consumer protection has advanced in recent years, however, gaps persist for informal platforms and smaller sellers, where streamlined and affordable dispute resolution remains limited. • Participation in the negotiation of digital trade agreements, such as the Digital Economy Framework Agreement and the Regional Comprehensive Economic Partnership, demonstrates a strong regional engagement, however, legal coherence and alignment with these commitments need to be enhanced for effective domestic implementation. • Cross-border data flow regulations are evolving, providing opportunities for greater investment and interoperability, while ensuring that safeguards for privacy and security remain in place. • Overlaps and ambiguities in regulations occasionally reduce predictability for businesses, particularly in fast-changing digital sectors. • Digital identity and trust services are expanding, but fragmented legal frameworks continue to present challenges for wider adoption, scalability and trusted use across the public and private sectors.	• Finalize and adopt implementing regulations for the Personal Data Protection Law, supported by adequate institutional capacity, enforcement mechanisms and public awareness campaigns. • Strengthen e-commerce and consumer protection frameworks to address platform accountability, clarify liability rules and extend protections to informal online marketplaces, including access to effective dispute resolution. • Ensure that the legal framework is aligned with ASEAN and World Trade Organization digital trade commitments, including the provisions of the Digital Economy Framework Agreement, the Regional Comprehensive Economic Partnership, on cross-border data flows and digital products, taking into account national circumstances and priorities. • Promote legal harmonization for digital identity documents, electronic signatures and trust services, drawing on the Model Law on the Use and Cross-border Recognition of Identity Management and Trust Services, taking into account national circumstances and priorities. • Streamline overlapping regulations and clarify mandates across agencies to reduce uncertainty and improve the ease of doing business in the digital economy. • Develop forward-looking regulatory approaches to address emerging challenges from AI, the Internet of things and platform governance, ensuring that innovation can grow within a predictable and trusted legal environment.

Main Findings	Main Recommendations
	• Design and implement a national awareness campaign targeting consumers on recent and upcoming developments related to e-commerce, cybersecurity, data protection, electronic payments and consumer rights in the digital space.
Digital payment systems and financial inclusion	
• The rapid expansion of QRIS and e-wallets has reshaped everyday payment practices, with millions of consumers and merchants now transacting digitally; the next challenge is extending this momentum to MSMEs in rural and underserved areas. • Tiered onboarding, simplified know your customer practices and offline payment options are successfully opening doors to financial inclusion, creating opportunities to further scale access for women entrepreneurs and rural households. • Informal sellers often hesitate to accept digital payments due to lack of awareness, perceived risks or unfamiliarity with financial tools and terms. As a consequence, cash on delivery remains dominant in rural and lower-income areas. • Integration of digital identity documents into financial services is expanding but remains partial, limiting seamless access to mobile banking and e-wallet platforms. • Banks and fintech providers are building a dynamic payments ecosystem and improving interoperability, which will unlock even greater convenience and efficiency for users nationwide, although this still varies widely across providers. • Expanding financial literacy programmes are equipping more Indonesians with the skills to navigate digital payments, with significant scope to deepen outreach in local languages and rural areas. • Women-led microenterprises are showing strong potential to benefit from digital payment adoption, however, they still face higher barriers in adopting digital payments, due to both social norms and digital literacy gaps.	• Promote widespread QRIS adoption among MSMEs, particularly in underserved areas, through fee reductions, training and bundled incentives. • Expand tiered know your customer frameworks to allow simplified onboarding through mobile platforms and e-wallets for rural users, informal workers and women entrepreneurs. • Launch inclusive public trust campaigns on digital finance security, consumer protection measures and redress mechanisms. • Integrate verification of digital identity documents and biometric data into fintech and banking onboarding processes to strengthen trust and reduce exclusion. • Establish and enforce interoperability standards for domestic digital payment systems, including real-time settlement and open application programming interfaces across providers. • Scale up mobile-based digital financial literacy programmes in local languages, tailored to women, rural households and informal sector workers, using mobile-first delivery channels. • Promote inclusive payment adoption models targeting women-led MSMEs, with bundled training, tools and market-based incentives.

Findings

1. E-commerce and digital trade policy framework

Indonesia has made significant strides in building the foundation for its digital economy thanks to a series of national policies such as the National E-commerce Road Map (2017–2019), Government Regulation No. 80/2019 and the White Paper on the National Strategy for the Development of the Digital Economy 2030. Those initiatives – along with broader plans such as the Making Indonesia 4.0 road map and the Golden Indonesia Vision 2045 – highlight the country's clear intent to use digital trade as a tool for inclusive economic growth.

However, the current policy environment is still consolidating given the fast pace of digital trade development and the recent change of Government. Responsibilities often overlap between government ministries and coordination between national and local levels can be irregular. While dialogue between the public and private sectors is increasing and has taken multiple forms, it is still largely influenced by major digital platforms and unicorns. Compilation of data on e-commerce activity and digital trade in general has vastly improved thanks to the efforts of Statistics Indonesia. To fully unlock the potential of digital trade, Indonesia will need to improve coordination across institutions, clarify roles and ensure policy coherence based on solid data evidence, consensus-building and inclusivity.

1.1 National strategies and policy landscape

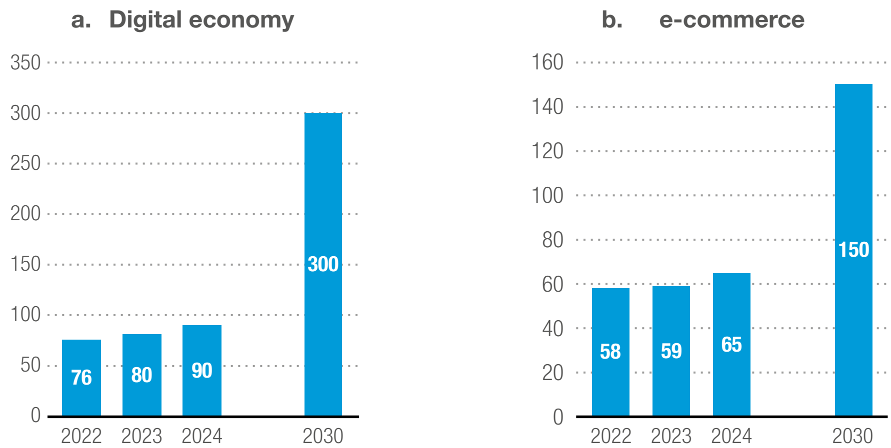
The strong macroeconomic performance of Indonesia over the past decade has provided a solid foundation for its digital economy. Gross domestic product (GDP) growth averaged more than 5 per cent annually between 2010 and 2023 (aside from the dip induced by the coronavirus disease (COVID-19) pandemic in 2020 and 2021) and inflation has been kept under 4 per cent, creating a stable environment conducive to digital transformation. The population surpassed 277 million in 2023, up from 244 million in 2010, representing a huge domestic market. A young demographic and a growing middle class are fuelling demand for online goods and services, driving innovation in the digital economy.

Over the past decade, the Government and private sector have invested heavily in expanding broadband networks, including the Palapa Ring project, completed in 2019, which has significantly improved connectivity across the archipelago, even in remote and underdeveloped regions (Rohman et al., 2025). Another critical factor is mobile Internet penetration, which reached more than 75 per cent of the population in 2023, with in excess of 210 million Internet users and rapidly rising smartphone adoption. Those developments have laid a strong foundation for widespread participation in digital platforms, particularly among younger and technology-savvy demographics. Those favourable conditions have put the digital economy of Indonesia on a rapid growth trajectory.

The digital economy of Indonesia[1] continues to expand at pace. Based on government projections, the gross merchandise value (GMV)[2] of the digital economy reached approximately $80 billion–$90 billion in 2023 (figure 2 (a)) and could grow to $300 billion by 2030, potentially accounting for nearly 18 per cent of national GDP (Google, Temasek and Bain & Company, 2024a). That underscores the sector's importance for future competitiveness, job creation and innovation. Growth is broad-based across sectors – for example, the World Trade Organization (WTO) estimated that exports of digitally deliverable services nearly tripled between 2010 and 2024, rising from $3.7 billion to $10.8 billion.

E-commerce remains the dominant force of the digital economy; e-commerce transactions in 2024 reached $65 billion, marking a 10.17 per cent increase compared with the previous year's total of $59 billion. That growth is supported by the increasing number of e-commerce users, 65.65 million people in 2024, a 12 per cent increase compared with 2023, according to the Ministry of Trade. Public sector estimates suggest that that e-commerce activity represents approximately 70–75 per cent of the country's broader digital economy, affirming its central role over other sectors such as online travel, food delivery, transport services and digital media.

Figure 2
Value of the digital economy
(GMV in billions of United States dollars)



Source: UNCTAD based on Google, Temasek and Bain & Company (2024a).

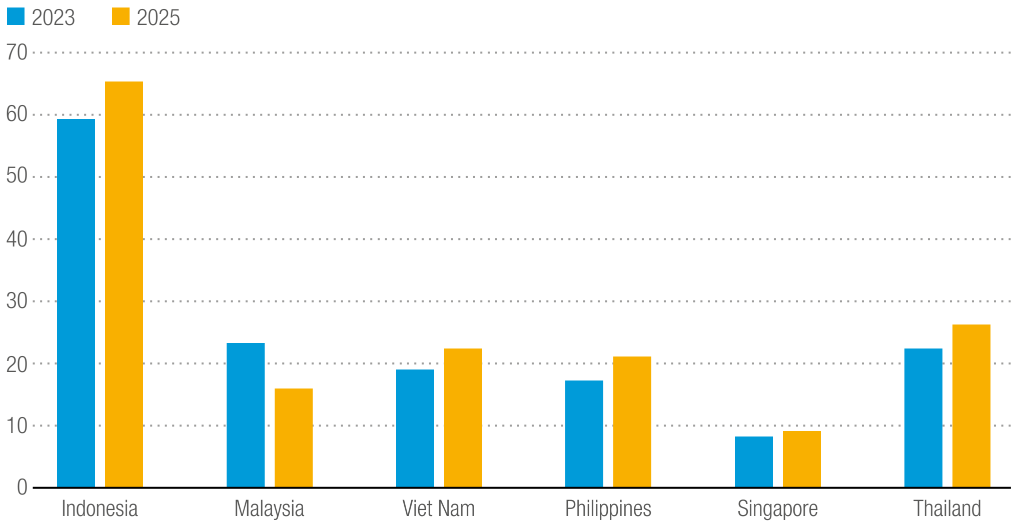
Indonesia remains the largest e-commerce market in South-East Asia, with Viet Nam and the Philippines trailing significantly behind. According to the Ministry of Industry and Trade of Viet Nam, the country's e-commerce market had grown

[1] Indonesia defines the digital economy as encompassing all economic activities that leverage digital technologies and Internet-based platforms to produce, distribute, trade and consume goods and services. That includes sectors such as e-commerce, fintech, online media and digital platforms, supported by enabling infrastructure, such as digital identity, payment systems, data governance and ICT connectivity.

[2] Gross merchandise value (GMV) refers to the total value of goods and services transacted through online platforms. It typically encompasses: (a) physical goods sold through e-commerce platforms (e.g. electronics, fashion and groceries); (b) digital goods (e.g. software and e-books); and (c) online services (e.g. ride-hailing, food delivery, travel bookings and digital entertainment).

to approximately $25 billion in 2024, representing a 20 per cent increase compared with the previous year. Meanwhile, estimates suggest that the digital economy (inclusive of e-commerce) of the Philippines had reached 2.25 trillion pesos in 2024, equivalent to approximately $40 billion, with e-commerce alone accounting for a major share. It is important to note that rankings across countries can vary depending on whether measurements reflect retail online sales or broader GMV. For broader regional forecasting, the study by Google, Temasek and Bain & Company (2024a) remains a useful secondary reference, indicating the dominant position of Indonesia in the region in terms of GMV.

Figure 3
Value of e-commerce in selected member States of the Association of Southeast Asian Nations
(GMV in billions of United States dollars)



Source: UNCTAD based on Google, Temasek and Bain & Company (2024a).

The contribution of e-commerce to the economy of Indonesia is increasingly significant. Although precise official GDP shares are still being refined, it is evident that online retail and services are generating new jobs, entrepreneurship and trade. According to Statistics Indonesia, the number of enterprises engaged in e-commerce reached nearly 4 million in 2023, up 27.4 per cent from the previous year (Statistics Indonesia, 2025). They range from large companies to micro-entrepreneurs leveraging platforms to sell beyond their localities. Many traditional MSMEs have hybridized their operations – combining a brick-and-mortar presence with online storefronts on Tokopedia or Shopee – blurring the line between e-commerce firms and others. What the data unequivocally show is that MSMEs form the backbone of the e-commerce boom in Indonesia. Women-led businesses are a substantial part of that story; Statistics Indonesia estimated that, in 2021, as many as 64.5 per cent of all MSMEs in Indonesia were managed by women.

Notwithstanding that progress, Indonesia still trails behind some of its regional peers on key readiness indicators. For instance, it ranked sixty-eighth out of 134 economies in the 2023 Network Readiness Index by the Portulans Institute, lagging behind Malaysia (thirty-eighth) and Thailand (fifty-second).[3] Those rankings highlight remaining

[3] The Index measures how well an economy is using ICT to boost competitiveness and well-being, based on the overall environment, readiness (which includes infrastructure, affordability and skills) and usage (which covers individuals, businesses and Government).

gaps in the business environment, skills development and digital infrastructure of Indonesia, areas critical to realizing the full potential of e-commerce and digital trade.

In 2017, Indonesia introduced the National E-commerce Road Map (2017–2019), in which it outlined key programmes across eight strategic areas: funding, taxation, consumer protection, education and human resources, communication infrastructure, logistics, cybersecurity and the establishment of an implementation management unit for the Road Map itself. The Road Map was overseen by a steering committee supported by 21 ministries and government agencies, chaired by the Coordinating Minister for Economic Affairs and co-chaired by the Coordinating Minister for Political, Legal and Security Affairs. Since 2019, various policy documents have addressed key aspects of e-commerce and digital trade, however, they have not resulted in a cohesive policy road map or overarching strategy. Establishing a dedicated strategy would provide a clear framework for future policy reforms and the definition of institutional roles.

In 2023, the Government launched the White Paper on the National Strategy for the Development of the Digital Economy 2030 to guide the broader digital economy. In the White Paper, the Government lays out six core pillars – infrastructure, human capital, the business environment and cybersecurity, research and innovation, funding and investment, and policy and regulation – designed to accelerate inclusive and sustainable digital growth. It calls for stronger coordination across sectors, institutional improvements and greater collaboration among the Government, the private sector and civil society. One example is the development of an open protocol that connects sellers across various e-commerce platforms under a unified national trade gateway. That protocol is aimed at standardizing core operational processes – such as catalogue creation, inventory management, order processing and fulfilment – thereby improving interoperability and efficiency. The aim is also to limit digital monopolies, enhance MSME participation and broaden consumer choice, ultimately creating a more competitive retail ecosystem that balances online and offline players. In the White Paper, the Government outlines a clear trajectory: moving Indonesia from a preparatory phase to a digitally transformed economy by 2030, with the longer-term goal of becoming a global digital leader by 2045; it is tightly aligned with broader national plans.

Another key initiative involves refining existing e-commerce regulations to strengthen consumer protection. Proposed reforms include requiring platforms to verify the legitimacy of goods sold, integrating e-commerce systems with government monitoring tools and enabling consumers to directly file complaints with the relevant authorities. Those efforts are aimed at fostering a more transparent, accountable and consumer-friendly digital marketplace.

Golden Indonesia Vision 2045, initiated in 2019 and codified through Law No. 59/2024, is aimed at placing Indonesia among the world's top five economies by 2045. Digital transformation is central to that long-term vision, as embodied in the National Long-Term Development Plan 2025–2045, which includes a mission focused on economic transformation through digitalization. The directions for policies under Vision 2045 are focused on creating transparent regulations and institutions for the digital economy, increasing digital infrastructure and connectivity, developing human capital with digital capabilities, increasing the engagement of MSMEs in e-commerce, boosting digital literacy, encouraging inclusive payment systems, offering financing for technological innovation, improving data management (i.e. establishing national data centres), enhancing cybersecurity, developing a competitive local digital industry and creating value in the digital economy. Those strategic priorities have been incorporated into medium-term planning. Sectoral

While existing policies provide a foundation for e-commerce and digital trade, Indonesia would benefit from a coherent strategy to guide policy reforms in the future.

plans play supporting roles. Notably, the Digital Indonesia Vision 2045 (drafted in 2023 by the Ministry of Communication and Informatics with partners) outlines an inclusive, innovative digital ecosystem road map with key performance indicators tied to the national plan. On the industrial side, the Making Indonesia 4.0 road map (launched in 2018) targets the digitalization of manufacturing and services – such as targets for accelerating nationwide 5G and fibre-broadband deployment, as well as enabling 3.7 million MSMEs through integration with e-commerce.

The Making Indonesia 4.0 road map contains three main objectives: achieving a 10 per cent net export contribution to GDP, doubling productivity relative to cost and increasing research and development expenditure to 2 per cent of GDP. Industry 4.0 plays a vital role in realizing those goals by enabling manufacturing systems that are more efficient, flexible and interconnected. To support that transformation, the Government has identified seven priority manufacturing sectors for development: food and beverage, textiles and apparel, automotive, chemicals, electronics, pharmaceuticals and medical devices. Key technologies driving Industry 4.0 include the Internet of things, AI, cloud computing, augmented reality, big data and advanced robotics.

The Digital Indonesia Road Map 2021–2024 is a national policy agenda designed to accelerate digital transformation, spearheaded by the former Ministry of Communication and Informatics. It is being implemented across four key domains (digital society, digital infrastructure, digital economy and digital administration) and six strategic directions:

- Building inclusive, safe and reliable digital/connectivity infrastructure with high-quality services
- Establishing open and integrated digital government institutions to improve public services
- Shifting from a consumer nation to a technology producer
- Harmonizing regulations and increasing funding to advance innovations
- Bolstering digital capability in priority sectors to strengthen geostrategic competitiveness
- Building digital culture among citizens

Policy support for the digital economy is also entrenched in the international undertakings of Indonesia. The prioritization of the digital economy in national plans, such as Digital Indonesia Vision 2045, as well as the National Long-Term Development Plan 2025–2045, is supported through alignment with efforts in regional integration (further detailed in section IV.C). For instance, digital economy targets were reflected in the country's chairing of ASEAN in 2023 and its work in the G20 Digital Economy Working Group. Such integration of domestic drive with international collaboration is a testament to the country's prioritization of digital trade as a driver of development and regional competitiveness.

Recent progress has been achieved by mainstreaming digital trade objectives across initiatives such as the Making Indonesia 4.0 road map and the forthcoming 2025–2029 development plan. In practice, that means ongoing support for e-commerce is also embedded in programmes for industrial innovation, MSME empowerment and regional development.

Indonesia and several other ASEAN countries are already part of digital-related agreements, such as the ASEAN Agreement on Electronic Commerce, the ASEAN-Australia-New Zealand Free Trade Area and the Regional Comprehensive Economic Partnership. The latter two include dedicated e-commerce chapters. At the bilateral level, the Indonesia-Australia Comprehensive Economic Partnership Agreement contains an e-commerce chapter, while the Indonesia-United Arab Emirates Comprehensive Economic Partnership Agreement includes provisions on digital trade. Unlike Singapore, which has signed stand-alone Digital Economy Partnership Agreements and Digital Economy

Agreements, Indonesia has yet to establish a dedicated digital-only trade agreement.

The ASEAN-China Free Trade Area 3.0 Upgrade Protocol, which was signed in October 2025, includes an e-commerce chapter. More recently, Indonesia and the European Union have concluded the negotiations on a Comprehensive Economic Partnership Agreement, which features substantial digital trade provisions. Indonesia is also in the process of joining the Organisation for Economic Co-operation and Development (OECD) and acceding to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, both of which require strong commitments to align certain domestic regulations with international standards.

1.2 Institutional coordination and public-private dialogue

Across the plans, visions and strategies mentioned above, several government agencies are represented. The key institutions involved are:

- The Ministry of Communication and Digital Affairs
- The Coordinating Ministry for Economic Affairs
- The Ministry of Foreign Affairs
- The Ministry of Trade
- The Ministry of Industry
- The Ministry of Micro-, Small and Medium-sized Enterprises
- The Ministry of Cooperatives

High-level coordination is essential to avoid duplicating efforts and ensure the successful implementation of those master plans.

The strategic direction described above is backed by evolving institutional arrangements. At the apex, the Coordinating Ministry for Economic Affairs oversees digital policy coordination, reflecting e-commerce's multisectoral nature. However, there is still no coordinated approach among government agencies in managing the multiple negotiations related to digital trade and e-commerce. Notable actors include:

- The new Ministry of Communication and Digital Affairs plays a pivotal role in expanding connectivity (including rolling out 5G networks), implementing cybersecurity measures and stewarding data governance frameworks.
- The Ministry of Communication and Informatics also spearheaded the enactment of the country's first Personal Data Protection Law in 2022 to build trust in online transactions.
- The Ministry of Foreign Affairs plays a major role in digital trade and e-commerce negotiations and serves as the national coordinator for the World Trade Organization Joint Statement Initiative on Electronic Commerce.
- More recently, the Ministry of Trade established the Directorate of Trade Through Electronic System and Trade in Services (Directorate General of Domestic Trade) and the Directorate of Trade in Services and E-Commerce Negotiations (Directorate General of International Trade Negotiations).
- The Ministry of Industry has plans to develop fibre-optic networks, as well as centres for data storage.
- The Coordinating Ministry for Economic Affairs has overseen the implementation of the National E-commerce Road Map (until 2019) and the National Strategy for the Development of the Digital Economy 2030 and the ongoing negotiations among member States in relation to the Digital Economy Framework Agreement.
- Bank Indonesia and the Financial Services Authority contribute by strengthening digital payment ecosystems and fintech oversight, complementing the goals of the National E-commerce Road Map in relation to a cashless society (e.g. through the National Payment Gateway launched in 2017).
- Development planning bodies, such as the National Development Planning

Agency, ensure that digital economy targets are integrated into national midterm plans, recognizing e-commerce as a driver of productivity, exports and job creation.

Together, those institutions form a growing, albeit complex, governance framework that underpins the country's rapidly expanding e-commerce sector.

Further coordination across ministries and regions will unlock the full potential of the country's ambitious digital economy agenda while reducing existing overlaps.

While notable steps have been taken to improve coordination and dialogue, ongoing institutional overlaps and gaps remain, which suggest the need for further reforms to support the country's digital transformation. For instance, both the Ministry of Communication and Digital Affairs and the National Cyber and Crypto Agency share mandates for data security and cybersecurity regulation, occasionally leading to overlapping or unclear jurisdiction in areas such as encryption standards, data breach responses and cybersecurity certifications. Similarly, multiple institutions regulate different aspects of e-commerce: the Ministry of Trade oversees online retail and consumer protection; the Ministry of Finance regulates digital taxation and cross-border duties; Bank Indonesia plays a role in digital payments and fintech oversight, including the Quick Response Code Indonesia Standard (QRIS), e-wallet licensing; and the Financial Services Authority regulates and supervises the fintech sector, including lending platforms and their licensing. Further overlap is seen in MSME digitalization, with initiatives led in parallel by the Ministry of Cooperatives, the Ministry of Micro-, Small and Medium-Sized Enterprises, the Ministry of State-Owned Enterprises (through platforms such as PaDi MSMEs), and the digital literacy programmes of the Ministry of Communication and Digital Affairs. Even in areas such as digital identity, coordination between the Ministry of Home Affairs (which manages the national identity system) and emerging digital identity pilots under the Ministry of Communication and Digital Affairs has at times lacked unified strategic direction. Those overlaps can result in duplicated efforts, inconsistent policies and regulations and stakeholder confusion, underscoring the need for stronger inter-agency coordination mechanisms and a more coherent governance structure for digital transformation.

Strong institutional coordination is therefore imperative given the cross-cutting nature of digital trade and e-commerce and the likelihood of overlapping mandates. The Government has implemented steps to enhance coordination by reorganizing agencies and establishing new mechanisms for collaboration. In an effort to harmonize policies and eliminate overlaps in regulation, the E-commerce Task Force was initially formed to implement the National E-commerce Road Map (2017–2019). It was chaired by the Coordinating Ministry for Economic Affairs with the Ministry of Communication and Digital Affairs as secretary. It involved officials from trade, finance, transport and other ministries. There is no direct evidence in the documents reviewed that that steering committee has remained active or that it regularly convenes meetings. Instead, coordination largely happens through interministerial working groups and committees on specific issues (e.g. on e-commerce taxation or logistics). Regular coordination meetings, often convened by the Coordinating Ministry or by the National Development Planning Agency, help align policies and avoid overlapping regulations.

One recent example of cross-agency collaboration is the initiative to improve e-commerce data collection. Since 2017, Statistics Indonesia has worked with various ministries and online platforms to capture the size and trends of the digital economy (Statistics Indonesia, 2024a). As of late 2023, 61 out of 136 registered digital commerce operators – including marketplaces, ride-hailing applications and social commerce platforms – were submitting data to Statistics Indonesia under a mandatory reporting scheme. In short, the institutional framework for e-commerce is maturing: it involves a matrix of agencies working in concert, guided by national strategies that treat e-commerce as integral to the future economic resilience and global competitiveness of Indonesia.

Underpinning those policy changes is an ongoing dialogue between the Government and stakeholders. Public-private dialogue on digital issues has been prioritized to ensure that policies respond to business requirements and tap private sector innovation. The strategy involves multi-stakeholder round table discussions, public consultation on draft laws and collaboration with industry associations. For example, the Ministry of Communication and Digital Affairs collaborates with the Industry Task Force, a volunteer forum that consists of key industry players, on improving the digital economy ecosystem through dialogue and consultations. The Indonesian E-commerce Association, founded in 2012, regularly engages with ministries to provide industry feedback on draft regulations. The Government regularly involves the Association in discussions on issues of regulation concerning online marketplaces, as well as consulting with ride-hailing and fintech businesses on payment and transport regulation. Those collaborations have played a crucial role in shaping inclusive digital transformation policies, improving MSME participation and guiding regulatory developments in the fast-evolving e-commerce sector (box 1).

Recent examples of smooth public-private dialogue include the case of the social media commerce ban and the introduction of a new digital tax collection policy. Those consultative processes are increasingly institutionalized. The Government often holds public hearings in relation to major e-commerce regulations, allowing platforms, MSME consumer associations and academics to participate. Ministries also rely on task forces or advisory councils – for instance, the ICT Council of the Ministry of Communication and Digital Affairs and the National Consumer Protection Agency – which incorporate digital economy topics and include private sector members.

Since 2019, the Ministry of Trade has held training sessions for e-commerce education facilitators in 17 regions, supported by various digital platforms. Once trained, those facilitators provide coaching to MSMEs. Moreover, several e-commerce platforms have launched their own training initiatives targeting MSMEs. One notable example is Grab Indonesia, which has held intensive training bootcamps for MSMEs joining its merchant ecosystem, Grab, in 13 cities between October 2021 and January 2025, as part of its campaign Real Collaboration for the Future. Similarly, Google Indonesia, through the Gemini Academy, has held some training sessions specifically on how to use AI for MSMEs and e-commerce education facilitators (through a Ministry of Trade programme entitled MSMEs Can Export), as well as government officials. Another example is Shopee, which is currently curating potential exporter MSMEs selected by the Ministry of Trade to expand its market overseas using the Shopee platform, specifically in Malaysia and Singapore. Tokopedia has worked closely with the former Ministry of Cooperatives and Small and Medium-sized Enterprises and the Ministry of Communication and Digital Affairs to support MSME digitalization, notably through its Tokopedia Academy and the People’s Market Digitalization initiatives. It has been a frequent participant in policy dialogues on MSME empowerment, digital taxation and local product promotion campaigns, such as Proudly Made in Indonesia. The company Bukalapak has partnered with the Ministry of Trade and other agencies to expand its Mitra Bukalapak programme, supporting traditional warungs (small, family-owned businesses) and small vendors with digital tools and inventory access. The platform has engaged in regulatory consultations on fintech integration, logistics infrastructure and the digitalization of informal retail. Gojek has collaborated with the Ministry of Communication and Digital Affairs, the Financial Services Authority and the Ministry of Manpower to facilitate the onboarding of MSMEs and improve financial inclusion through services such as GoPay. It has also contributed to discussions on labour classification in the gig economy, digital payment interoperability and data privacy. Moreover, the Indonesian Chamber of Commerce and Industry (Kadin) has launched its Go Digital initiative in partnership with eduCLaaS, rolling out digital transformation workshops such as those in Solo (Surakarta) during the Solo Great Sale 2024, which are aimed at accelerating digitalization efforts among its MSME members through competency-based, blended learning programmes.

Box 1
Role of the Indonesian E-commerce Association in advancing a collaborative e-commerce environment

The Indonesian E-commerce Association plays a vital role in fostering a collaborative and well-regulated e-commerce environment in Indonesia. Established in May 2012, the Association serves as a communication platform for industry players amid the country's rapid e-commerce growth. Its formation responded to the growing need for a healthy and coordinated digital trade ecosystem that facilitates engagement not only among businesses but also with government and other industry partners.

The Association's membership includes a broad spectrum of stakeholders in the digital economy. Those range from major e-commerce platforms such as Tokopedia, Traveloka, Lazada, Blibli, OLX and Shopee to ecosystem enablers, such as payment service providers, logistics and delivery companies, digital marketing agencies, financial institutions and infrastructure providers, such as DANA, Kredivo, Pos Indonesia and Amazon Web Services. That diverse representation allows the Association to act as a unified voice for the sector, ensuring that the interests of both large and emerging players are reflected in policy discussions.

As an industry bridge, the Association facilitates continuous dialogue between its members and relevant government agencies. It plays a consultative role in the formulation of e-commerce policies and regulations, including issues related to consumer protection, data governance, cross-border trade, logistics and fair competition. The Association frequently provides written policy inputs, participates in public hearings and engages in working groups organized by ministries such as the Ministry of Trade, the Ministry of Communication and Digital Affairs and the Coordinating Ministry for Economic Affairs. The Association also helps interpret and disseminate government regulations to its members, ensuring smoother and more consistent implementation across the sector.

The Association engages in public-private cooperation to enhance consumer protection and market integrity. One notable example is its memorandum of understanding with the National Agency of Drug and Food Control, which is focused on regulating the online distribution, advertising and sale of medicines and food products. Such initiatives help advance responsible digital commerce practices and contribute to the maturity of the digital economy.

Through its efforts to represent industry interests, facilitate dialogue and promote regulatory clarity, the Association has positioned itself as a key enabler of inclusive, innovative and sustainable e-commerce development in Indonesia.

Source: the Indonesian E-commerce Association.

Shopee has launched structured initiatives in cooperation with the Ministry of Trade and various local governments, including campaigns to support MSME exports. The platform has participated in national and ASEAN-level policy consultations, particularly on cross-border e-commerce and platform governance. In 2020, Blibli partnered with the former Ministry of Tourism and the Creative Economy and the Ministry of Micro-, Small and Medium-sized Enterprises to promote digital access for artisans and creative industry producers. Its support for initiatives such as #BeliKreatifLokal (Buy Local Creative Products) reflects its role in discussions on inclusive value chains and sustainability standards in digital trade.

However, current public-private dialogue mechanisms tend to favour those large technology giants with limited engagement from small businesses and start-ups outside of Jakarta, an issue needing attention to ensure inclusive policymaking.

To address fragmentation in public-private dialogue, Indonesia is also encouraging knowledge-sharing platforms among government agencies, academia and private business. Better interoperability of data between institutions is being sought so that policymaking is based on evidence. Moreover, the Government's One Data programme is aimed at ensuring harmonization of data throughout agencies, which helps track digital economy advancements in an integrated framework (see below).

1.3 Monitoring and measurement frameworks

Indonesia has taken several steps to develop statistical frameworks for e-commerce and digital trade and to ensure that their approaches and methodologies remain up to date. Public-private collaboration on statistics has been enhanced to overcome data provision issues.

Accurate monitoring and measurement of the digital economy are essential for evidence-based policymaking. To better capture the digital economy and trade landscape, Indonesia has invested in improving its official statistics and data collection methods, as well as developing a dedicated statistical framework. Historically, measuring e-commerce was challenging – much of it fell outside traditional retail surveys or GDP accounting. In recent years, Statistics Indonesia has made strides by leveraging big data from digital platforms and incorporating e-commerce modules into surveys.

In 2019, Statistics Indonesia became one of the first statistical offices in the region to implement mandatory reporting by e-commerce operators.[4] Under that scheme – established by Government Regulation No. 80/2019 – digital platforms above a certain user or transaction threshold must regularly submit data on their total sales, the number of sellers, the number of transactions and even workforce size to Statistics Indonesia. As noted, as of late 2023, 136 platforms had been registered and 61 had begun reporting data.

Statistics Indonesia was also mandated – in accordance with Ministry of Trade Regulation No. 31/2023 (art. 17) – to collect e-commerce transaction data from electronic system trade providers; technical details were set out in Statistics Indonesia Regulation No. 4/2023,[5] concerning in particular the scope and detail of data to be submitted by such providers. Statistics Indonesia works in close collaboration with the Ministry of Trade in recording e-commerce transactions by requiring platforms facilitating e-commerce to submit data to Statistics Indonesia.

In parallel to those developments, Statistics Indonesia launched the e-commerce statistics survey in 2019, in which it sampled businesses engaged in online selling to estimate transaction values

Strengthening public-private dialogue can ensure that smaller businesses also benefit from expanding digital trade policies.

4 According to Government Regulation No. 80/2019, e-commerce operators are business actors that provide an electronic system to enable e-commerce transactions. They include marketplaces, online retail, online classified advertisements, price comparison platforms and daily deals.

5 According to Statistics Indonesia Regulation No. 4/2023, the term "Perdagangan Melalui Sistem Elektronik" refers to trade through electronic systems, while the term "Penyelenggara Perdagangan Melalui Sistem Elektronik" refers to electronic system trade providers, defined as business actors that provide electronic communication facilities used for trade transactions. Statistics Indonesia seems to use the terms "electronic system trade providers" and "digital platforms" interchangeably.

and characteristics. In subsequent publications, such as e-commerce statistics reports for 2020, 2021 and 2022, Statistics Indonesia has shed light on trends, such as marketplace platforms by order volume, the average transaction value and regional penetration of e-commerce (Jakarta, West Java and East Java consistently lead the way).

In the most recent e-commerce statistics report for 2023, published in January 2025, Statistics Indonesia offers comprehensive national data on the number of e-commerce businesses, transaction values, business models, platforms used and digital payment methods. The report is compiled on the basis of a sample survey of formal business establishments engaged in e-commerce, using a structured questionnaire, which is aligned with international definitions and classifications. Statistics Indonesia distinguishes between businesses with websites, online marketplaces and social media commerce, and disaggregates data by sector, region and scale of operation. Those efforts contribute to the creation of a consistent and evolving evidence base for policy development and evaluation.

In the e-commerce statistics report for 2023, Statistics Indonesia noted that the majority of e-commerce transactions were concentrated in Java and dominated by small and medium-sized enterprises (SMEs). It showed that, in 2023, businesses in Indonesia had made e-commerce sales of approximately $72 billion. The data also revealed a growing reliance on mobile commerce and digital wallets. Furthermore, Statistics Indonesia tracks e-commerce growth over time, including changes in platform preferences, shipment methods and the use of digital services for business operations. While the current surveys primarily target formal businesses, Statistics Indonesia has acknowledged the need to improve coverage of informal and microenterprises, as well as cross-border transactions. The e-commerce statistics initiative thus plays a central role in informing the country's digital economy strategy and enabling targeted interventions, including support for MSMEs, digital infrastructure development and consumer protection policies (Statistics Indonesia, 2025).

The participation of Indonesia in the Task Group on Measuring E-commerce Value, convened by UNCTAD, further supports those efforts. Through the Task Group, Indonesia can enhance methodological standards, share best practices with other countries and strengthen the institutional and technical capacities needed to produce more granular, policy-relevant e-commerce statistics. At the same time, by participating in the Task Group, Indonesia is contributing to the efforts of the Task Group to develop internationally agreed guidelines and recommendations on measuring e-commerce value, which may further support the initiative to measure e-commerce in Indonesia once completed (UNCTAD, 2025).

Some monitoring tools are in place, such as the Information System for Monitoring and Fostering Trade Through Electronic Systems and Indonesian Market Surveillance. Moreover, the Ministry of Trade collaborates with eight other government institutions (including the Ministry of Communication and Digital Affairs, the Ministry of Finance, the National Cyber and Crypto Agency and the Indonesia Competition Commission) to strengthen the supervisory function on e-commerce through the E-commerce Supervision Assistance Team (Ministry of Trade Decision No. 6/2024). Bank Indonesia regularly publishes figures on digital payment transactions (chap. V below), providing another important indicator of digital economic activity. Moreover, the Ministry of Micro-, Small and Medium-sized Enterprises tracks MSME digitalization rates (number of MSMEs online, discussed in chapter 3 below).

Government statistics also highlight the rising importance of social media and messaging for commerce: a significant proportion of small merchants conduct sales through Instagram, Facebook and WhatsApp, often outside formal marketplace platforms. Policymakers have recognized that trend and are looking at ways to support those informal digital sellers, for instance through digital literacy programmes and simplified tax registration.

Box 2
Seventh e-commerce survey of Statistics Indonesia (2025)

To measure trading activities through the Internet, Statistics Indonesia is currently undertaking the seventh e-commerce survey by conducting direct interviews with businesses that sell online, whether through websites, marketplaces, social media or instant messaging. The following comments are worthy of note:

- The survey methodology has limitations in terms of coverage, as it does not cover all business categories. The categories covered in the seventh survey are categories A, C, G, H, I, J, M, N, P (except formal education), Q, R and S.[a]
- Questions related to cross-border e-commerce were covered in the e-commerce questionnaire. The e-commerce statistics report for 2023 also displays the percentage of businesses that make online sales abroad (cross-border e-commerce). Meanwhile, the value of cross-border e-commerce transactions is expected to be officially released in the report for 2025.
- To ensure the international comparability of e-commerce data for use in measuring the digital economy, the survey refers to international concepts and guidelines from OECD and UNCTAD.
- To support the formulation of government policies, Statistics Indonesia has released e-commerce statistics at a more granular level, namely the provincial level. Statistics Indonesia also presents e-commerce data that describe the characteristics of e-commerce businesses disaggregated by the gender of the business owner, business category/sector and others. However, the value of e-commerce transactions can only be presented at the national level due to the comparatively high relative standard error if given at the provincial level. In implementing e-commerce 2025, Statistics Indonesia is attempting to increase the sample size to support the presentation of all output variables at the provincial level.
- To fulfil the data needs for calculating quarterly GDP, Statistics Indonesia is also attempting to utilize administrative data from business actors in electronic trading by issuing Statistics Indonesia Regulation No. 4/2023, which requires digital platforms to report their transaction data to Statistics Indonesia. Efforts have also been made by Statistics Indonesia to share data in relation to trade through electronic systems with relevant institutions.

Source: Statistics Indonesia (2025).

[a] Category A (Agriculture, Forestry and Fishing), category C (Manufacturing Industry), category G (Wholesale and Retail Trade; and Repair of Motor Vehicles and Motorcycles), category H (Transportation and Warehousing), category I (Accommodation and Food Service Activities), category J (Information and Communication), category M (Professional, Scientific and Technical Activities), category N (Rental and Leasing Activities), category P (Education), category Q (Human Health Activities and Social Work Activities), category R (Arts, Entertainment and Recreation) and category S (Other Service Activities).

However, data collection remains constrained: it focuses mainly on aggregate transaction values and MSME participation, without disaggregating by product category, service type, cross-border versus domestic flows or consumer demographics. Moreover, the collection of data in relation to regularity and coverage across smaller platforms, social commerce and informal sellers remains limited.[6] The

[6] Social commerce refers to the activity of buying or selling products and services using social media channels.

digital economy measurement framework of Indonesia is still evolving and further investment in standardized, multidimensional data collection is needed to support more targeted and inclusive policymaking.

A major data gap is the limited availability of official statistics on digital trade, which encompasses digitally ordered trade in goods and services (international e-commerce) and digitally delivered trade in services (International Monetary Fund et al., 2023). Although differences with international approaches remain, Statistics Indonesia has acknowledged that gap and is working to improve data collection through platform reporting and surveys, with digitally ordered trade included in its seventh survey. However, methodological challenges persist (such as distinguishing online from offline sales by firms).

To strengthen measurement efforts, the Government is prioritizing improved data-sharing and targeted research, with support from knowledge institutions, such as OECD and the Asian Development Bank (ADB), while think tanks play a role in filling data gaps. For example, OECD, in a recent study, assessed the digital adoption levels of Indonesian firms and ADB analysed technology readiness among Indonesian MSMEs, which offered valuable metrics . Those external studies complement national efforts and highlight the need for better data interoperability across government agencies. The Government has also emphasized the importance of more targeted research on emerging topics, such as digital finance for MSMEs and the environmental impacts of e-commerce. An integrated “digital economy dashboard” is under consideration to consolidate current key indicators (Internet access, e-commerce sales, digital skill levels etc.) for more consistent monitoring. The success of such initiatives will depend on close collaboration between Statistics Indonesia and line ministries and possibly tapping into private sector data (from telecommunications companies and platforms), with appropriate safeguards for data privacy.

While still a work in progress, the strengthening of e-commerce statistics exemplifies a policy commitment to data-driven governance. Policymakers are increasingly relying on data to design interventions, whether it is to identify which regions need better e-commerce logistics or which sectors could benefit from digital upskilling programmes for sellers.

1.4 Inclusion-oriented initiatives

The e-commerce and digital trade policies of Indonesia are increasingly being shaped by cross-cutting considerations of inclusivity and sustainability. The Government and stakeholders recognize that digitalization must benefit all segments of society – including women, youth and rural communities – and be pursued in a sustainable manner to support long-term development.

Ensuring that the benefits of e-commerce and digital trade are widely shared is a priority for Indonesia. Indonesia faces stark disparities in Internet access and digital skills among regions and demographics. For example, only about one third of adults in the remote province of Papua were online in 2019, compared with more than half in the more developed Java-Bali region (Chen et al., 2023). Men are eight percentage points more likely to be Internet users than women nationally. Those gaps point to a possible need for targeted inclusion efforts.

Inclusion also includes reaching the country’s geographically dispersed population. E-commerce offers a lifeline to entrepreneurs in remote provinces by connecting them to national and global markets. The Government’s digital trade policy framework explicitly references reducing the digital divide among regions. For instance, the Universal Service Obligation Fund of the Ministry of Communication and Digital Affairs has been used to establish Internet access and ICT training centres on outer islands, with content on how local MSMEs can start e-commerce ventures. Collaborations with provincial governments have seen the launch of digital marketplaces for local products, such as the platform for the coconut farmers of North Sulawesi. One fruitful outcome of those efforts is that some remote areas are now exporting niche products through e-commerce channels (supported by improvements in logistics, such as the expansion of postal services and private couriers). However, challenges remain, including lower digital literacy outside urban centres and less reliable delivery infrastructure. To address that, policies are now intersecting with social programmes, such as providing subsidized smartphones, integrating e-commerce training in the national Smart Villages programme and encouraging local cooperatives to serve as intermediaries helping rural producers sell online. The overall narrative is one of ensuring that no one is left behind in the country's e-commerce journey.

To support the inclusion of MSMEs in e-commerce markets, the strategic Collaboration Centre initiative of Pos Indonesia is a masterclass in providing a comprehensive, end-to-end ecosystem designed to empower Indonesian MSMEs to level up, grow and become fiercely competitive in the digital marketplace. By providing a marketplace enabler, live streaming studio, fulfilment centre and a dedicated MSME Hub and Spoke, Pos Indonesia empowers MSMEs to become the driving force of a stronger and more resilient national economy. In 2024, the project won the Universal Postal Union TradePost award for public initiative for trade inclusion through the post (Universal Postal Union, 2024).

To further guide those inclusion efforts, the Ministry of Communication and Digital Affairs launched the Indonesian Digital Society Index to assess digital maturity across regions. Responding to the need for a standardized reference point, the Index provides granular insights into the digital landscape by measuring digital skills and competencies down to the district and city levels. The Index is built on four pillars: (a) infrastructure and ecosystem; (b) digital skills; (c) empowerment; and (d) jobs. It serves as a crucial evidence base for designing policies and programmes that foster the development of digital human capital, ensuring that digital transformation is inclusive, localized and responsive to real gaps.

To enable digital inclusion, Indonesia has prioritized expanding connectivity to rural and outlying areas through initiatives such as the Palapa Ring project. Completed in 2019, it involved laying 13,000 km of fibre-optic backbone to connect the country's islands and has significantly improved Internet access in eastern Indonesia . Complementing that, subsidies for telecommunications operators to extend mobile towers to remote villages have been provided through the Universal Service Obligation Fund. As a result, basic mobile network coverage is now virtually universal – only an estimated 1.3 per cent of the population in very remote locations lack any mobile signal (Chen et al., 2023). The dominance of mobile broadband (compared with fixed broadband) has helped include populations that would be costly to reach by wired infrastructure. Ongoing programmes, such as the Base Transceiver Station initiative, aim to cover the last unserved villages with at least 4G service by 2025.

Improving digital literacy is another pillar of inclusion. Several initiatives are worth mentioning. The Government launched the National Digital Literacy Movement in 2017, which by 2024 had trained more than 30 million Indonesians in basic digital skills (such as using smartphones, Internet safety and online entrepreneurship) – with a focus on women, youth and rural communities (data from the Ministry of Communication and Digital Affairs). Partnerships amplify those efforts: for instance, Grab and local governments have conducted digital literacy workshops for thousands of small vendors in secondary cities. Civil society and the private sector are active too; programmes such as Google's "Gapura Digital" provide free training to MSMEs on how to do business online. Those initiatives have begun to bear fruit, evidenced by increasing adoption of e-commerce outside major urban centres during the COVID-19 pandemic. However, ensuring the quality and depth of digital skills remains a challenge – many users have basic abilities but may lack the skills for more advanced usage (e.g. using digital tools for education or running an online business).

Inclusion efforts also specifically target women and persons in vulnerable situations. There is a strong focus on women's empowerment through digital trade. Women entrepreneurs have been remarkable participants in the rise of e-commerce in Indonesia, running online shops that range from home-based handicraft businesses to sizable fashion outlets. As noted, women account for approximately half of MSME owners and an outsized share of sellers on some e-commerce platforms. That has not gone unnoticed by policymakers. The Ministry of Women's Empowerment and Child Protection, for example, has partnered with the Ministry of Communication and Digital Affairs and platform companies to provide digital literacy training specifically for women entrepreneurs, teaching skills such as online marketing, branding and financial literacy. Such efforts align with national priorities; in the 2020–2024 National Medium-Term Development Plan there is an explicit call to increase the role of women in the economy through ICT and entrepreneurship programmes. The hope is that e-commerce can be a vehicle for more women-led businesses to scale up.

Targeted initiatives are widening digital access for women, youth and persons with disabilities, fostering more inclusive e-commerce participation.

From a policy angle, in national strategies, such as Digital Indonesia Vision 2045, inclusive digital development is emphasized. The National Financial Inclusion Strategy (discussed in chapter 5) enhances digital initiatives by promoting the expansion of digital financial services, including e-wallets, agent banking and QR-based payments, to underserved populations. The Government also leverages digital platforms for public services to reach underserved citizens – an example is the SatuSehat digital health application, which facilitates delivery of government-backed medical check-ups to citizens, making healthcare more accessible in rural areas. Similarly, e-government services (such as online application for identity documents, as noted in section V.C) save residents of distant regions making multiple trips to government offices.

Several United Nations agencies and partners have implemented programmes to empower women entrepreneurs through digital skills. For example, the United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women) (with support from Ant Group's Alipay) launched the Together Digital programme in 2022 (UN-Women, 2022). That initiative is aimed at reaching 1,000 women entrepreneurs in Greater Jakarta and Lombok, with training in digital marketing, e-commerce operations and financial literacy. It strengthens women's digital entrepreneurship skills and enhances their ability to benefit from the digital economy. The initiative creates networks and knowledge-sharing platforms for women digital entrepreneurs, offering mentorship, role models and insights into policies on the ASEAN digital economy. Activities in the region are carried out in close cooperation with the Economic Research Institute for ASEAN and East Asia.

Box 3
eTrade for Women

eTrade for Women is an UNCTAD-led initiative launched in 2019 to support women digital entrepreneurs in developing and transition economies. It is aimed at enabling women to thrive as leaders in the digital transformation and contribute to more inclusive and sustainable development

UNCTAD established the eTrade for Women community in Indonesia as part of the global initiative. The Indonesian community currently brings together 26 women-led digital businesses across a range of sectors, including e-commerce, education and software as a service. The entrepreneurs are not only building innovative ventures but are also leveraging digital solutions to generate employment and foster inclusive economic growth within their communities. Through a dedicated support system, the community fosters peer mentorship, collaboration and networking opportunities, enabling members to exchange insights, share best practices and build lasting cross-border partnerships with more than 400 fellow entrepreneurs across the global network. Those connections contribute to the scaling of women-led enterprises and to strengthening their leadership within the region's digital economy.

In addition, between 2019 and 2021, UNCTAD appointed Helianti Hilman, from Indonesia, as Advocate for South-East Asia. Ms. Hilman is the founder of Javara, a leading promoter of food biodiversity heritage in Indonesia; the company's products can be found on national and global markets. Ms. Hilman worked hand in hand with UNCTAD to elevate the role of women digital entrepreneurs in Indonesia and beyond.

Source: UNCTAD.

Beyond gender, there are programmes for youth (coding bootcamps and innovation labs to engage young people in technological development) and for persons with disabilities (e.g. special ICT training centres and efforts to improve website accessibility).

In recent years, the Government has increasingly recognized the importance of digital inclusion for persons with disabilities, including in the context of e-commerce. Presidential Regulation No. 68/2020 on the National Disabilities Commission affirms the right to equal access to technology and digital infrastructure. In support of that, the Ministry of Communication and Digital Affairs has implemented several initiatives, such as providing digital literacy training tailored for persons with disabilities and supporting assistive technologies in public digital infrastructure. In 2023, the former Ministry of Communication and Informatics also launched pilot programmes offering digital skills training to persons with disabilities in collaboration with community organizations and disability rights groups. Moreover, the Go Digital ASEAN initiative, which operates in Indonesia through the Centre for Women's Resource Development, includes a target of providing 2,000 persons with disabilities with digital literacy and entrepreneurship training across eight provinces.

In conclusion, the e-commerce and digital trade policy framework of Indonesia is evolving beyond a purely economic or technical focus, to encompass wider developmental goals. Over approximately a decade, Indonesia has moved from having virtually no e-commerce-specific policies to crafting a multifaceted approach that addresses regulatory needs, infrastructure, inclusion and now sustainability. The narrative is one of harnessing the digital revolution to advance national development objectives. The progress so far is evident – a thriving e-commerce market, improving coordination and active engagement with industry and civil society – however, work is ongoing.

2. Technology adoption

The digital transformation of Indonesia is gaining momentum, thanks to significant improvements in broadband coverage, mobile access and cloud computing, as well as a thriving start-up ecosystem. Initiatives such as QRIS and the Bank Indonesia Fast Payment (BI-FAST), and the launch of the SATRIA-1 satellite, showcase the Government's dedication to building advanced digital infrastructure. At the enterprise level, most MSMEs now maintain some form of online presence, with the majority relying on social commerce and major marketplaces.

However, usage remains shallow among MSMEs, with limited integration of digital tools into business processes. Major disparities persist, especially between Java and the outer islands, where access to reliable, affordable Internet remains a challenge. While the country is making careful progress in rolling out 5G and expanding data centre capacity, issues such as high electricity costs, supply constraints and complex regulations could hinder progress. Meanwhile, key sectors such as agriculture and manufacturing are beginning to explore the benefits of Industry 4.0 technologies, such as AI, the Internet of things and blockchain. Bridging those digital divides will be crucial for the digital transformation to drive productivity gains across the whole country, not just in the major cities.

2.1 Readiness of core digital infrastructure

The digital transformation continues to be driven by expanding physical infrastructure, including telecommunications networks, data centres and cloud computing resources. However, gaps remain in terms of geographic reach, affordability and inclusiveness, especially for underserved areas and vulnerable populations. The readiness of core digital infrastructure determines not only the scale of e-commerce and digital services but also the ability of MSMEs, government institutions and individuals to participate fully in the digital economy.

Indonesia has achieved near-universal electrification, with access rates in excess of 99 per cent, according to the Ministry of Energy and Mineral Resources (Institute for Essential Services Reform, 2022). However, disparities persist in the reliability and quality of electricity supply, particularly in remote and outer island regions, where outages and voltage instability continue to hinder consistent digital access. Ensuring stable, high-quality electricity services is essential for supporting the sustained growth of digital platforms and enabling MSMEs, government institutions and individuals to participate fully in the digital economy.

Indonesia has experienced a steady increase in Internet connectivity, with the percentage of the connected population increasing across the archipelago from 47.7 per cent in 2019 to 69.21 per cent in 2023 (figure 4 (a)) and early indications of 78.2 per cent in early 2025. In 2023, 98 per cent of the population accessed the Internet through a cellular phone, while only 10 per cent accessed the Internet through a laptop or tablet (figure 4 (b)). Fixed broadband density remains low, with just 4.82 subscriptions for every 100 people; Internet access outside urban areas is still largely mobile based, with inconsistent speed and quality (World Bank, 2025b). The increase in Internet access is driven primarily by significant investments in network infrastructure by the private sector and the Government, such as the development of the Palapa Ring project, which is aimed at extending the country's fibre-optic infrastructure to the outer islands in eastern Indonesia (World Bank, 2021).

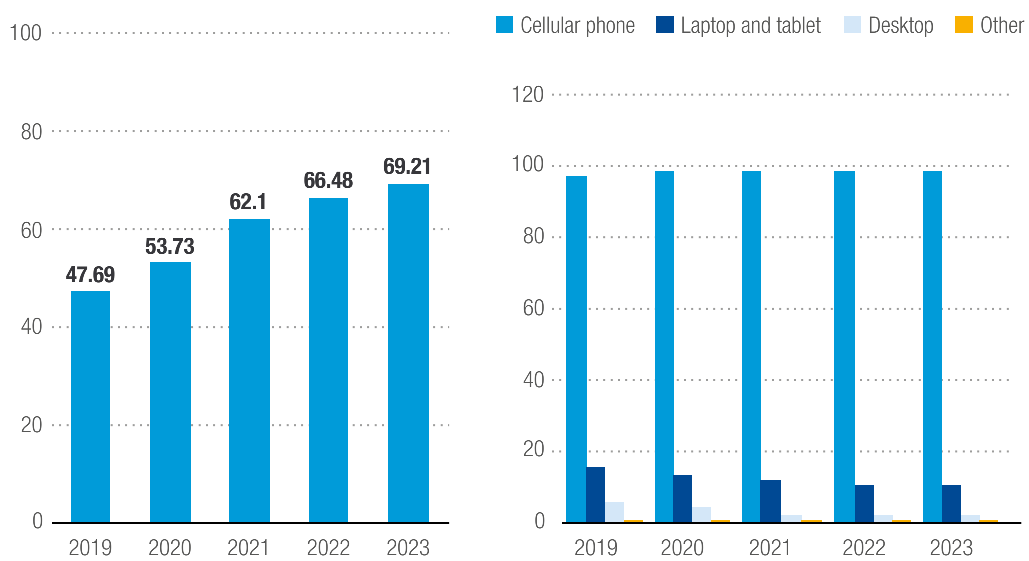
Last-mile challenges persist, with many villages lacking affordable and reliable local connections. Low return on investment and terrain-related construction costs continue to deter private investment. To address that, the Government has expanded its Universal Service Obligation fund to incentivize rural Internet service providers and community network initiatives. The Digital Economy Connectivity Grant Scheme, launched in 2025, is aimed at supporting village-based Internet cooperatives, with 30 per cent of resources earmarked for women-led or women-serving enterprises.

Mobile broadband is the foundation of Internet connectivity for most Indonesians. Mobile network coverage is now nearly universal – virtually all Indonesians have access to at least basic 2G voice/SMS services, even in remote areas. Only an estimated 1.3 per cent of the population in very remote locations lack any mobile signal (relying solely on satellite connectivity). The dominant mode of connectivity is 4G mobile broadband, accounting for approximately 85 per cent of all mobile connections in 2022 – the second-highest 4G uptake rate in ASEAN, behind only Malaysia (94 per cent) (OECD, 2023). That reflects significant investments by telecommunications operators over the past decade to expand 4G coverage across the islands of Indonesia.

The expansion of mobile broadband continues to dominate infrastructure growth. Major operators, including Telkomsel, Indosat Ooredoo Hutchison and XL Axiata, have extended 4G LTE coverage to more than 92 per cent of the population. However, signal strength and mobile download speeds vary significantly across regions.

Expanding broadband and satellite coverage offers new opportunities to close the digital divide between Java and the rest of Indonesia.

Figure 4
Use of the Internet in the previous three months
(Percentage of the population aged 15 or more)

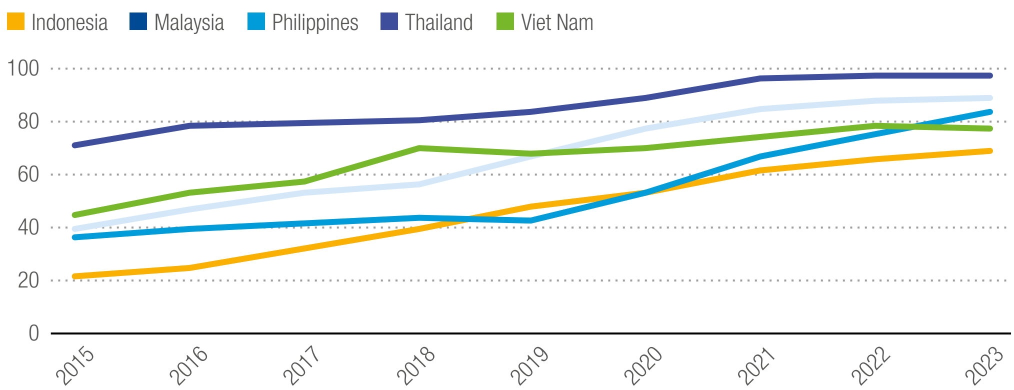


Source: International Telecommunication Union, based on Statistics Indonesia (2023).

The commercial roll-out of 5G, initiated in 2021, remains low and is concentrated in 13 metropolitan areas, including Jakarta, Bandung, Surabaya and Denpasar. Licensing issues, spectrum allocation delays and infrastructure investment costs have slowed national roll-out as hefty investment is needed to upgrade backhaul networks. The Government has encouraged industry consolidation and infrastructure sharing to strengthen operators' capacity to invest in 5G. For example, spectrum re-farming and incentives have been provided to accelerate 5G in urban centres. As at early 2025, 5G had expanded to cover about a quarter of the population, primarily in Greater Jakarta and other major cities, but coverage in secondary cities and rural areas will take longer. The upcoming allocation of additional spectrum (in 700 MHz and mid-band frequencies) is expected to improve 5G reach. Accelerating 5G is important not just for faster mobile services but for enabling advanced use cases, such as Internet of things networks and smart city applications (which are part of the Industry 4.0 goals). The Ministry of Communication and Digital Affairs is currently finalizing a 5G road map that includes regulatory relief and public-private investment models for rural deployment. Key implementing agencies, such as the Telecommunication and Information Accessibility Agency, are expected to play a critical role in extending 5G infrastructure to underserved regions, leveraging their experience with universal service obligations and broadband roll-out in remote areas.

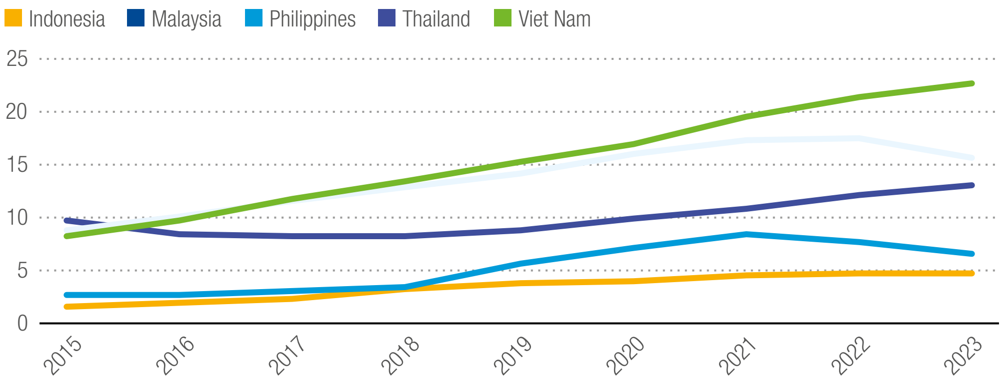
In contrast to mobile data services, fixed broadband infrastructure, illustrated in figures 5 and 6, remains an area of relative weakness. Fixed broadband penetration is low at only 4.8 subscriptions for every 100 people significantly below regional peers such as Viet Nam (22.7), Malaysia (13) and the Philippines (6.5) (World Bank, 2023). Many households rely exclusively on mobile data for Internet access. The high cost of fixed-line Internet is a major barrier – in a 2021 survey, it was found that 44 per cent of Indonesian households without fixed broadband cited affordability as the main reason. In rural areas, the lack of last-mile fibre or cable infrastructure means fixed connections are often unavailable regardless of cost (Indonesia Internet Service Provider Association, 2023). The Government has pursued initiatives such as the Indonesia Broadband Plan and partnerships with private Internet service providers to extend fibre to more neighbourhoods, but progress has been gradual. Some innovative approaches, such as using the electrical grid or community cooperatives, to deploy fibre are being tried to reduce costs. Moreover, satellite broadband projects are being explored to serve remote islands: for example, the SATRIA-1 satellite launched in 2023 to provide Internet to 150,000 public service points, including schools and village offices (Ramli, 2023).

Figure 5
Individuals using the Internet in the previous three months
(Percentage of the population)



Source: https://datahub.itu.int.

Figure 6
Fixed broadband subscriptions
(For every 100 people)



Source: https://datahub.itu.int.

The country's national data strategy is evolving alongside infrastructure expansion. Under the One Data initiative, more than 80 ministries and agencies are now connected to a unified cloud-based dashboard that supports real-time data-sharing and analytics for public policy and service delivery. That infrastructure underpins government digitalization and enables open data ecosystems, although challenges around data quality, interoperability and access controls persist

The growth of data centres and cloud infrastructure is a critical driver of the digital economy of Indonesia. Jakarta is now the second-largest hyperscale data hub in South-East Asia after Singapore, hosting global providers such as Amazon Web Services, Google Cloud and Microsoft Azure, alongside local firms such as DCI Indonesia and Telkomsigma. New data centre investments are under way in Batam, Surabaya and Balikpapan, driven by regulatory shifts and rising demand from e-commerce, financial services and government platforms. The Government Cloud Policy, adopted in 2023, mandates that all critical public data be stored domestically, accelerating demand for certified local data facilities.

Beyond access, service quality is a concern. Indonesia ranks among the lowest in the region for average Internet speed. In 2023, it had the slowest median fixed broadband and mobile broadband speeds in ASEAN (OECD, 2023). That stems from limited fibre-optic reach (most mobile base stations rely on microwave links, which have lower capacity) and network congestion in densely populated areas. To tackle that, operators and the Government are working to expand fibre backhaul networks beyond Java and Sumatra into less-connected islands. The Palapa Ring's completion greatly improved backbone capacity, but the last mile to homes and small businesses remains mostly wireless. Recognizing that, the Government is incentivizing infrastructure-sharing among telecommunications companies and encouraging public-private partnerships for broadband in underserved areas. For instance, an infrastructure sharing regulation (Ministry of Communication and Digital Affairs Regulation No. 2/2021) allows smaller carriers to piggyback onto the fibre network of Telkom Indonesia in certain zones, reducing duplication of investment.

Despite advances, in some areas, the digital divide in Indonesia remains a pressing challenge. Based on survey data from June 2025, UNCTAD highlighted that older adults, women and low-income individuals were less likely to have regular Internet access or own digital devices. Although smartphone ownership is near universal in urban areas, it falls below 55 per cent in rural districts. Women, especially those heading microenterprises, cite affordability, device quality and data literacy as key constraints. The Srikandi Initiative of the Ministry of Communication and Digital Affairs, launched in 2024, is expanding mobile access for women through subsidies, starter kits and bundled digital training.

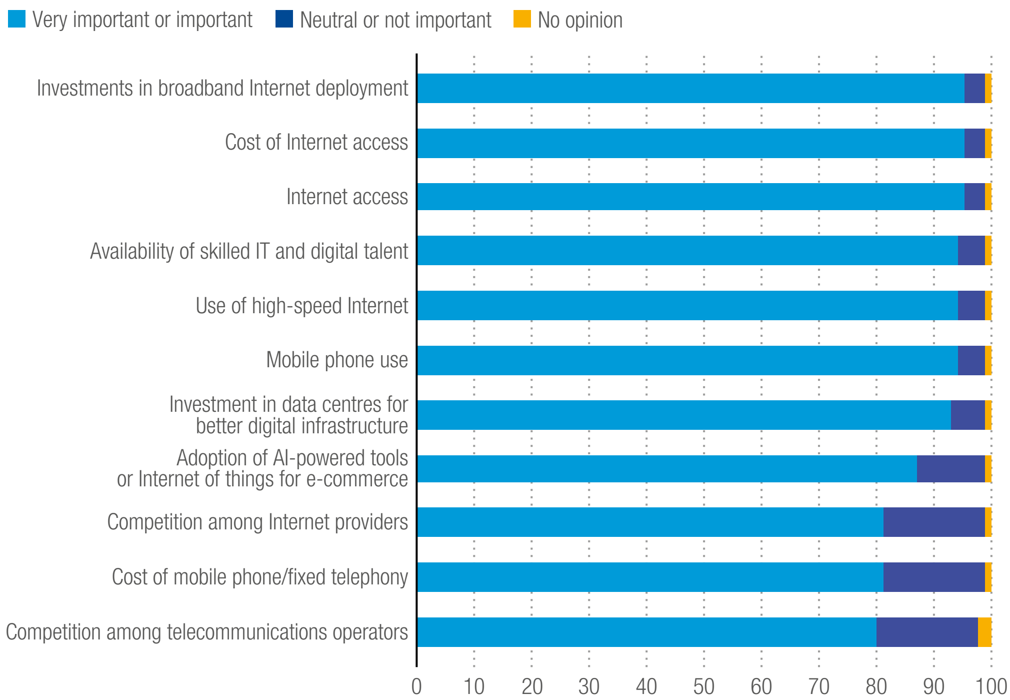
In summary, connectivity in Indonesia can be seen as a tale of two mediums: robust mobile coverage and usage, on the one hand, and underdeveloped fixed broadband, on the other. The continued expansion of 4G/5G mobile capacity (through more spectrum and base stations) and the broadening of affordable high-speed fixed Internet are both critical for scaling e-commerce. Without improvements in speed and reliability – especially for fixed connections – Indonesia may struggle to support advanced e-commerce applications, high-definition digital services and widespread remote work or learning in the future. In the recent National Connectivity Plan, the Government calls for fibre-optic networks to be extended to all district capitals and average broadband speeds to exceed 20 Mbps by 2025, which would be a significant step up if realized.

2.2 Adoption of digital and emerging technologies

Beyond infrastructure, the transformation of Indonesia into a digital economy depends on the extent to which individuals, businesses and public institutions adopt and leverage digital and emerging technologies. Adoption levels remain highly uneven, with promising momentum in certain sectors and regions, but persistent capacity gaps, especially among MSMEs and in outer islands.

Figure 7 describes the perceptions of surveyed public and private sector stakeholders regarding technology adoption, noting investments in broadband deployment, Internet access and the use of high-speed Internet as particularly important for e-commerce.

Figure 7
Key technology adoption factors enabling e-commerce
(Percentage)



Source: UNCTAD survey data (public and private sector respondents, 85 responses).

In the Digital Indonesia Road Map (2021–2024), technology adoption is identified as a key driver of productivity and innovation. The Ministry of Communication and Digital Affairs oversees strategic implementation, stakeholder coordination and digital skills development, including through its flagship Digital Talent Scholarship programme and Digital Entrepreneurship Academy. Based on the Indonesian Digital Society Index, the state of the country's digital workforce can also be understood through the use of digital technologies in the workplace. In terms of distribution, the availability of digital talent remains heavily concentrated in Java and Sumatra. Meanwhile, other regions, such as Sulawesi, Maluku and Papua, are still significantly lagging behind.

More broadly, the overall quality of digital skills among Indonesian workers remains very low, as illustrated by the types of applications or software that they use. Most workers only possess basic digital competencies, limited to using office applications and conducting Internet searches, while the proportion with intermediate or advanced skills is minimal. A closer look reveals that digital proficiency is closely linked to educational background; alarmingly, even basic digital literacy is lacking among those with lower levels of education.

Since 2019, more than 500,000 individuals have completed Digital Talent Scholarship training across fields such as AI, cloud computing, cybersecurity and development of mobile applications. A new specialization, Green Digital Talent, was launched in 2025 to train youth in eco-efficient programming, server sustainability and renewable ICT deployment. Women now represent 32 per cent of Digital Talent Scholarship graduates, an improvement from previous years, but still below parity. Stakeholders have recommended deeper outreach to women's networks and rural youth, particularly through vocational schools and polytechnics.

Major Indonesian digital firms are leveraging emerging tools such as AI, the Internet of things, cloud computing and big data analytics to enhance their services and operations (Deloitte, 2025). For instance, e-commerce platforms increasingly use AI algorithms for personalization – serving shoppers tailored product recommendations based on browsing and purchase history, which has been shown to boost customer engagement and basket sizes. Consumers are also embracing AI-driven features such as chatbots for customer service, visual search that can recognize products from images and real-time translation features to assist transactions in multiple languages. Those innovations are making the online shopping experience more seamless and customized in Indonesia. The presence of large, well-funded technology companies provides a strong impetus for technology adoption.

Home-grown unicorns – start-ups valued at more than $1 billion – act as pioneers in implementing new technologies at scale. Those companies not only invest in AI (for route optimization, fraud detection etc.), Internet of things-enabled logistics (e.g. delivery drone trials and parcel tracking sensors) and advanced cloud infrastructure, but they also create significant spillover benefits, such as supplier networks and talent development. Other unicorns, such as Traveloka (online travel) and Bukalapak (e-commerce, now publicly listed), similarly push innovation in areas such as dynamic pricing algorithms and cloud services.

Table 1
Home-grown unicorns

Unicorns	Sector
GoTo Group	Ride-hailing, e-commerce
Bukalapak	E-commerce
J&T Express	Logistics
OVO	Payment service
Ajaib	Online stock
Xendit	Payment
Kopi Kenangan	Food and beverages
Blibli	E-commerce
Kredivo	Alternative lending
DANA	Payments
Akulaku	Alternative lending

MSMEs are steadily adopting digital tools, with growing use of marketplaces and social platforms to reach wider customers.

The Government is actively promoting broader technology adoption and innovation: the manufacturing sector has seen gradual uptake of Industry 4.0 technologies, guided by the Making Indonesia 4.0 road map and encouraged by incentives such as tax allowances for machinery upgrades that incorporate digital technologies. The Ministry of Micro-, Small and Medium-sized Enterprises runs the SMEs Go Digital initiative offering training and a small grants scheme for businesses to develop online storefronts or adopt simple digital tools. The Ministry of Industry has launched Digital Transformation Centres in five regions to offer diagnostics, training and access to smart equipment. A parallel initiative focuses on women-led manufacturing MSMEs, providing grants and advisory support for transitioning to e-invoicing, inventory management and customer relationship management systems. In addition, technology innovation hubs and incubators are being expanded beyond Jakarta – cities such as Bandung, Yogyakarta and Makassar now host government-supported innovation labs where local start-ups and MSMEs can experiment with emerging technologies (three-dimensional printing, robotics etc.). Collaborations with academia are also part of the strategy, with universities encouraged to partner with industry on pilot projects (e.g. a university helping a farming cooperative deploy Internet of thing sensors for precision agriculture). On the regulatory front, Indonesia has thus far taken an enabling stance for most new technologies – there are regulatory sandboxes for fintech and digital health and currently no broad restrictions on AI deployment aside from ethics guidelines (see sect. IV.D).

The new capital city project, Ibu Kota Nusantara, represents a flagship initiative in applying advanced technologies to urban development and digital trade. Envisioned as a model Smart Forest City, Ibu Kota Nusantara integrates the Internet of things, AI and digital twin technologies to support real-time monitoring of transportation, energy, water systems and public services. As a national strategic project, Ibu Kota Nusantara is expected to serve as a testing ground for regulatory innovations and digital trade-enabling technologies that can later be replicated across Indonesia.

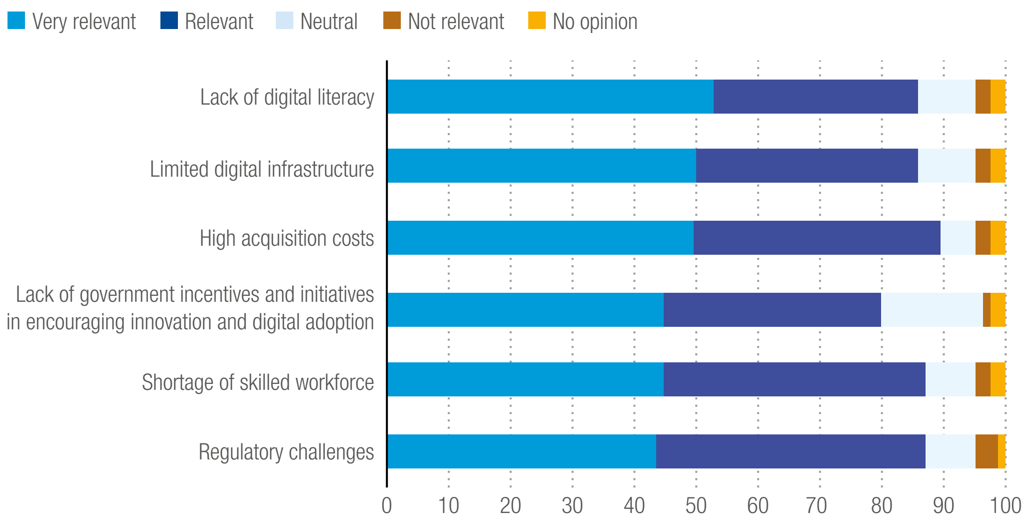
In 2020, Indonesia launched its National Artificial Intelligence Strategy to systematically guide AI adoption across key sectors, including healthcare, education, reform of bureaucracy, food security and mobility. Anchored in the

Digital Indonesia Vision 2045, the Strategy promotes responsible AI development aligned with national values and priorities. Policy frameworks for talent development, research infrastructure, ethical standards and AI innovation ecosystems are also outlined. The role of AI in improving public services and boosting competitiveness in digital industries is also emphasized. The initiative reflects the country's broader ambition to accelerate digital transformation while ensuring governance and inclusivity in emerging technology deployment. Currently, the Government is finalizing a national AI road map and guidelines on AI ethics, following a public consultation process that concluded in August 2025.

However, outside the top technology companies and some large corporations, technology adoption among Indonesian businesses remains uneven. While surveys indicate that only approximately 6 per cent of firms (mostly larger ones) have integrated advanced new technologies extensively into their operations and 30 per cent have done so to a moderate degree, the majority of surveyed firms use only rudimentary digital tools (such as basic office software or social media) without deeper integration into business processes, such as data analytics, automation and enterprise resource planning systems. Those findings, from an ADB study (2023), highlight the significant digital gap among smaller businesses. Similarly, OECD found that Indonesian firms scored below regional peers on various digital adoption metrics. For example, the share of firms with their own website – a simple indicator of online presence – is lower in Indonesia than the average in ASEAN or G20 countries (OECD, 2024b). Indonesian firms also lag behind in the use of more advanced technologies: relatively fewer firms use licensed foreign technology or maintain dedicated research and development budgets compared with benchmarks. In short, while the country's consumer-facing Internet economy is booming, many businesses (especially SMEs) have not yet fully embraced internal digital transformation in areas such as supply chain management, production automation or product development.

According to the UNCTAD surveys carried out in the context of the present assessment (figure 8), some of the main obstacles to adopting digital solutions include lack of digital literacy, limited digital infrastructure and high acquisition costs.

Figure 8
Main challenges in adopting digital solutions and emerging technologies in e-commerce and digital trade
(Percentage)



Source: UNCTAD survey data (public and private sector respondents, 85 responses).

Individual-level adoption of emerging technologies remains limited. AI-powered applications are primarily accessed through commercial platforms, such as personalized content feeds, recommendation algorithms in e-commerce and AI chatbots in fintech and e-government services. Active use of emerging technologies – such as blockchain wallets, Internet of things-enabled devices or AI development tools is still nascent. According to the Economic Research Institute for ASEAN and East Asia (Chen et al., 2023), consumer familiarity with technologies, such as blockchain and machine learning, remains below 10 per cent nationally, concentrated mostly among urban youth and early adopters.

Moreover, the proliferation of smart home devices, such as AI-enabled voice assistants, is mostly limited to middle-income urban households. Meanwhile, pilot programmes under the Digital Talent Scholarship now include modules on AI, cloud computing and cybersecurity, with more than 50,000 learners enrolled in emerging technology streams by late 2023. Sustained exposure to, and interaction with, such technologies by individuals remains highly dependent on access to advanced devices, localized content and affordable connectivity.

The public institutions of Indonesia are increasingly experimenting with AI, the Internet of things and blockchain to improve service delivery and decision-making. Under the Electronic-based Government System initiative, various ministries and agencies have begun deploying AI-based systems for fraud detection, public service chatbots and predictive analytics. For instance, the Ministry of Finance is leveraging AI to analyse tax compliance risks, while the Ministry of Health has piloted AI in disease surveillance and triage automation.

The SATRIA-1 satellite is expected to provide connectivity for more than 150,000 public service locations, enabling real-time Internet of things-enabled monitoring of public assets, especially in health, education and disaster management. The Ministry of Higher Education, Science and Technology promotes cloud-based digital learning platforms and is exploring AI to support adaptive learning models. Blockchain applications remain nascent but are being tested for secure records in land certification and verification of academic credentials. Despite those developments, fragmentation and lack of interoperability continue to hamper scalable adoption of such technologies across public services.

Several barriers contribute to that uneven adoption across sectors in Indonesia. A primary challenge is the digital skills and talent gap (explored further in section III.A). Many companies struggle to find employees with the necessary expertise to implement and manage emerging technologies. For instance, as AI adoption accelerates globally, Indonesia does not yet have a sufficient pool of AI specialists and data scientists to meet the growing demand. According to a recent LinkedIn Economic Graph assessment, 57 per cent of all job roles in Indonesia could be disrupted or augmented by AI technologies, however, the country faces a persistent shortage of AI-skilled professionals and generally low digital literacy in the workforce (LinkedIn, 2025). That skills deficit makes it difficult for firms outside the technology sector to integrate AI/Internet of things solutions or even to utilize data analytics for decision-making.

In addition to the skills gap, cost and awareness are significant barriers. For many MSMEs, adopting sophisticated digital tools (such as an e-commerce storefront or a cloud-based accounting system) can be perceived as expensive and overwhelming. Even if many cloud services are now available as affordable subscription models, a lack of awareness and understanding of the potential return on investment often leads to hesitation.

Another factor is infrastructure constraints. While basic Internet access is widespread, reliability remains an issue. Slow speed and frequent downtime can discourage businesses from relying on cloud computing or online tools. For instance, a company in a secondary city may struggle with inconsistent connectivity, making the use of a cloud enterprise resource planning system frustrating. Moreover, the uneven digital readiness of regions plays a role: businesses operating outside Jakarta and other technology hubs may not have local IT support services or vendors, further limiting their ability to implement solutions.

Lastly, a robust digital service and enabling effective online interactions between the Government and its citizens is also critical in developing an e-commerce ecosystem. The county's score on the e-Government Development Index has shown a significant upward trend, increasing from 0.66 in 2020 to 0.80 in 2024, indicating substantial improvements in the country's digital public service capabilities.[7] At the national level, Indonesia has the Electronic-based Government System Index, which measures the performance of digital governance at the local government level, based on the implementation of the Electronic-based Government System. The System utilizes information and communication technologies to provide services to its users, in line with Presidential Regulation No. 95/2018.

2.3 Inclusive trade logistics

As e-commerce grows in scale and scope across Indonesia, logistics infrastructure performance, including reach, efficiency, affordability and inclusiveness, remains central to realizing its development benefits. Growing online transaction volumes present both opportunities and challenges, with environmental considerations, such as packaging waste and delivery emissions, to be addressed through nationally appropriate approaches that reflect the development priorities, institutional capacities and MSME-dominated market structure of Indonesia.

E-commerce growth in Indonesia has triggered innovation in the logistics industry as businesses strive to navigate the country's challenging geography and make deliveries faster. Indonesia relies on complex logistics networks for the delivery of e-commerce orders, ranging from urban drop-offs to inter-island shipping. Over the past few years, rapid innovation has been observed in last-mile delivery, with a proliferation of services, such as Gojek, GrabExpress, J&T Express, Ninja Xpress and SiCepat. Those services have broadened access to logistics for small sellers by offering pay-as-you-go, mobile-based shipment booking and real-time tracking. Many platforms now offer bundled logistics, returns and warehousing services to MSMEs registered on their platforms. They use route optimization algorithms, strategically placed warehouses and partnerships with retail agents as drop-off/pickup points. Application-based courier services (integrated with services such as Tokopedia and Shopee) ensure that MSME vendors can schedule pickups with ease using just a few clicks, greatly simplifying their business. On the consumer side, features such as parcel tracking and delivery alerts have become the norm, enhancing both transparency and reliability.

Last-mile delivery challenges in remote and rural areas are also being met through innovation. To deliver goods to thousands of small islands and interior settlements, new methods are being tested. For example, Indonesia has tested the use of cargo drones to transport goods to inaccessible areas. JD.com, a Chinese e-commerce company, conducted its first government-approved drone delivery trial in Indonesia in January 2019. The drone transported backpacks and books from a village to an elementary school in West Java. That initiative was part of a larger donation of supplies from JD.com to the school, aiming to demonstrate the potential of drone technology in overcoming logistical challenges in remote areas. The trial was significant as it marked the first government-approved drone delivery operation in the history of the country.

[7] See https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/78-Indonesia/dataYear/2024.

Bluebird, a taxi service, has piloted the use of boats and motorcycles for deliveries in Jakarta's archipelago. E-commerce sites frequently employ an agency approach in smaller towns: rather than delivering items to homes, customers pick them up from a nearby agent (such as a small store acting as an agent for logistics services). Bukalapak's Mitra programme popularized the method of reducing delivery distances with local micro-entrepreneurs involved in the supply chain of e-commerce. Cold-chain logistics for online groceries are also developing – start-ups provide insulated boxes, as well as coolers attached to motorbikes, for delivering fresh produce in large cities, opening up opportunities for farmers and fishers in online commerce.

At the policy level, the Government has assisted in promoting logistics innovation. For instance, through Ministry of Transportation Regulation No. 37/2020 on Unmanned Aircraft Systems, trials of, for instance, drone deliveries have been permitted under controlled airspace and strict safety protocols. In addition, Ministry of Finance Regulation No. 13/2022 lowered import duties on electric vehicles and batteries, enabling fleet operators to transition more easily towards the adoption of electric vehicles. The Government has also introduced trade facilitation measures to accelerate cross-border logistics, including the digitalization of customs procedures to handle high parcel volumes more efficiently. At the same time, protective measures have been maintained by adjusting the de minimis threshold for low-value e-commerce shipments.

From electric vehicles to smart delivery systems, green logistics solutions are taking off, helping Indonesia lead the way towards a sustainable e-commerce future.

The Ministry of Communication and Digital Affairs issued Regulation No. 8/2025 on Commercial Post. One of its aims is to support parcel and logistics services in both urban and rural areas. In the Regulation, the Ministry also outlines what is permitted and prohibited in postal and courier activities. The Regulation includes encouragement-based provisions for green logistics technology in postal and courier services, reflecting appropriate policy sequencing that builds awareness and promotes voluntary adoption while domestic green technology capabilities and MSME capacities develop. More environmental requirements may be considered as domestic green technology capabilities mature and cost-effective alternatives become widely accessible. The Government's National Logistics Ecosystem initiative, led by the Coordinating Ministry for Economic Affairs, is aimed at addressing those challenges by integrating public and private logistics data, harmonizing port clearance procedures and improving multimodal connectivity. The initiative is linked to the National Single Window platform and is gradually rolling out across major ports and border points. For e-commerce actors, integration with the National Logistics Ecosystem initiative is expected to reduce administrative overheads, enable pre-clearance for small parcels and support more transparent logistics tracking. However, consultations indicate that MSME awareness of the initiative remains low and most logistics aggregators serving small vendors are not yet interoperable with government systems.

The country's expanding e-commerce sector presents both sustainability challenges and opportunities. Growing delivery volumes have raised considerations around emissions, road congestion and packaging waste, while current reliance on conventional packaging materials, particularly among cost-sensitive MSMEs, reflects supply constraints and price differentials rather than awareness gaps alone. Addressing those challenges effectively requires developing affordable domestic alternatives, supporting local green packaging industries and ensuring that sustainability pathways remain accessible to MSMEs, including women-led enterprises, without imposing disproportionate cost burdens.

In response, several forward-looking initiatives that balance environmental objectives with MSME accessibility and domestic industry development are under way. The Ministry of the Environment, with support from the National Research and Innovation Agency and the Ministry of Communication and Digital Affairs, has launched the Sustainable E-commerce Logistics Framework, which outlines green packaging guidelines, waste reduction targets and carbon accounting principles. Pilot programmes with Lazada, Tokopedia and Shopee are testing eco-packaging incentives – providing discounts or preferential search rankings for merchants adopting biodegradable, reusable or low-impact materials. To support uptake, the Ministry of Cooperatives has begun distributing subsidized green packaging kits through local MSME centres in five provinces.

In the context of accelerating a greener and more inclusive national logistics transformation, the Government emphasizes the importance of mainstreaming the national plastic waste reduction agenda into e-commerce logistics strategies. Indonesia has set a target of reducing marine plastic waste by 70 per cent by 2025 as part of its national and international environmental commitments, in line with Ministry of the Environment and Forestry Regulation No. 75/2019 on the Road Map for Waste Reduction by Producers.

The rapid growth of e-commerce transactions and the increasing volume of goods deliveries have direct implications for the rising use of single-use plastic packaging. Without intervention, that trend will further exacerbate the burden of urban waste management and increase the risk of plastic leakage into the ocean. Therefore, the agenda outlined in Regulation No. 75/2019 needs to become one of the main pillars of sustainable logistics policy, encouraging businesses to switch to environmentally friendly packaging and implement reverse logistics mechanisms to support packaging recovery and circularity.

The Government also recognizes the need to synchronize logistics regulations with plastic reduction policies, including providing incentives for logistics and e-commerce businesses that adopt biodegradable or reusable packaging.

To reinforce that policy framework, the Government, through the Ministry of the Environment highlights the strategic role of eco-labelling as the national standard for sustainable packaging, based on Ministry of the Environment Regulation No. 2/2014 on the Provision of Eco-labels. Eco-labels serve as an environmental control instrument ensuring that packaging meets sustainability criteria, such as reusability, recyclability, biodegradability or the use of recycled materials. Through eco-labelling, businesses have a clear reference for designing sustainable packaging, while consumers can identify and choose products with lower environmental impact.

The implementation of eco-labels in e-commerce logistics is not only expected to drive behavioural change within the industry, but also to create strong market incentives to prioritize sustainability. Eco-labels send a clear signal to businesses to transition to environmentally friendly packaging while strengthening consumer trust in e-commerce platforms that demonstrate social and environmental responsibility. In the long term, eco-labels will accelerate the growth of a more competitive green market and support packaging innovation in the national industry.

The Ministry of the Environment has promoted the synchronization of eco-label policies with plastic reduction regulations and national logistics strategies. That approach ensures that environmental instruments do not stand alone, but are integrated into the broader sustainable logistics policy framework, including the development of incentives for businesses adopting eco-label-certified packaging, harmonization with international standards and the integration of eco-labelling into national green logistics guidelines. Eco-labels thus become not only a compliance mechanism, but also a strategic business approach that strengthens the competitiveness of Indonesia in the global supply chain. Eco-labels play a bridging role between digital economic growth and environmental sustainability. Strengthening eco-label implementation is aligned with the national target for marine plastic reduction, supports industrial innovation, reduces the carbon footprint of the logistics sector and reinforces the position of Indonesia as a country strongly committed to environmental protection in the digital economy era. By establishing eco-labels as a key pillar of sustainable e-commerce logistics, Indonesia demonstrates that modern economic development can go hand in hand with environmental stewardship and a resilient transition towards a circular economy.

To mitigate the impact of emissions, businesses are exploring greener delivery options. Ride-hailing businesses Gojek and Grab, which also deliver large numbers of food and parcel orders, have initiated pilot programmes for electric vehicle fleets. Gojek's 2022 initiative introduced several hundred e-scooters into its drivers' repertoire in Jakarta, aiming to reduce fuel usage and test scalability. Similar logistics providers are optimizing routes with AI to reduce travel miles and fuel usage. In denser neighbourhoods, some are grouping deliveries by consolidating multiple packages into a single trip to improve efficiency overall and reduce emissions.

Recognizing the need for adequate policy space to integrate sustainability into digital trade in a manner consistent with national development priorities, the National Development Planning Agency is working with the Ministry of Transport and the Ministry of Communication and Digital Affairs on the digital green logistics road map, targeting completion in 2026. The road map will set out emissions baselines, incentives for electric vehicle use in logistics, public-private partnerships for green warehousing and data-sharing standards for emissions tracking, with implementation approaches reflecting national infrastructure readiness and fiscal capacity.

Innovation in logistics also involves modifying fulfilment infrastructure. Firms invest in automated warehouses with advanced inventory management systems to accelerate order processing. "Dark stores", mini-warehouses in city centres for fulfilling online orders, have emerged to facilitate same-day order delivery. Those facilities utilize software for inventory management and may employ gig workers for rapid order packing. The largest e-commerce platform in Indonesia, Shopee, launched auto-sorting centres for hundreds of thousands of packages a day, significantly reducing delays. Another development is the integration of logistics with fintech – delivery firms provide cash on delivery services with instant mobile point-of-sale equipment, as well as microcredit to help drivers maintain their vehicle, as driver well-being is known to impact the quality of service.

In conclusion, the adoption of digital technologies in Indonesia should be supported by an agile, affordable and reliable logistics ecosystem. Significant strides have been made in digital integration, last-mile innovation and public-private partnerships. The next phase must focus on extending those benefits beyond Java, ensuring that MSMEs, especially women-led and rural enterprises, are not left behind in the shift towards more thriving digital commerce.

3. Performance of micro-, small and medium-sized enterprises on e-commerce and digital trade

MSMEs are the heart of the economy of Indonesia and more of them are now going online through popular platforms such as Shopee, Tokopedia and Lazada. That move has been made easier by user-friendly digital storefronts, integrated payment systems and growing logistics support. Government initiatives, such as the Mekaar microfinance programme and various training efforts, have started weaving e-commerce into their offerings, while tools such as QRIS and e-wallets provide small vendors with more accessible ways to do business.

However, many small business owners, notably in the informal sector, struggle with digital literacy, face complicated regulations and deal with unreliable delivery networks outside major cities. Access to financing is also a common issue. For informal sellers, especially women and young people using social commerce platforms, making the leap to formal business operations can be particularly difficult. Unlocking the full potential of MSMEs in the digital economy will depend on advancing inclusive policies, expanding tailored support programmes and strengthening infrastructure nationwide, steps that can empower small businesses to thrive and compete more effectively in both domestic and international markets.

3.1 Micro-, small and medium-sized enterprises in the digital trade landscape

MSMEs form the backbone of the economy of Indonesia. As at 2024, the country had approximately 66 million MSME business units, accounting for 99 per cent of all enterprises. Collectively, MSMEs contribute approximately 61 per cent of national GDP and employ 117 million workers (97 per cent of the workforce).[8] That outsized role means that the inclusive growth of the country's digital economy depends heavily on the digital empowerment of its MSMEs. Historically, most MSMEs operated in the informal or traditional sector with very limited use of technology. However, recent years have seen a strong trend of MSMEs going online and participating in e-commerce, a shift accelerated by the COVID-19 pandemic (which forced many small businesses to adopt digital tools to reach customers during lockdowns).

Government estimates indicate a surge in MSME digitalization, with the number of MSMEs integrated into the digital ecosystem rising from approximately 7 million in 2020 to 30 million in 2024. The Government, through the former Ministry of Cooperatives and Small and Medium-sized Enterprises, has outlined two key targets for the future development of MSMEs. The first was to increase the number of MSMEs integrated into the digital ecosystem by 25 per cent,

8 See https://ekon.go.id/publikasi/detail/4065/coordinating-minister-airlangga-government-continues-to-encourage-strengthening-economic-foundations-by-establishing-digital-transformation-of-msmes-as-one-of-the-priorities.

MSMEs represent 99 per cent of all enterprises, yet many remain partially engaged in e-commerce, highlighting the need for targeted support to unlock their potential.

from 24 million in 2023 to 30 million in 2024.[9] The second target was to raise the export contribution of MSMEs to 17 per cent of total national exports by 2024.[10] While the export share of MSMEs is still relatively low (in single digits), e-commerce provides a potential channel for global reach that was previously unavailable to most of those firms. In other words, nearly half of all MSMEs in the country are projected to be using digital platforms in some capacity, a rapid growth that exceeded earlier targets and is considered a major success of the push for MSME digital adoption

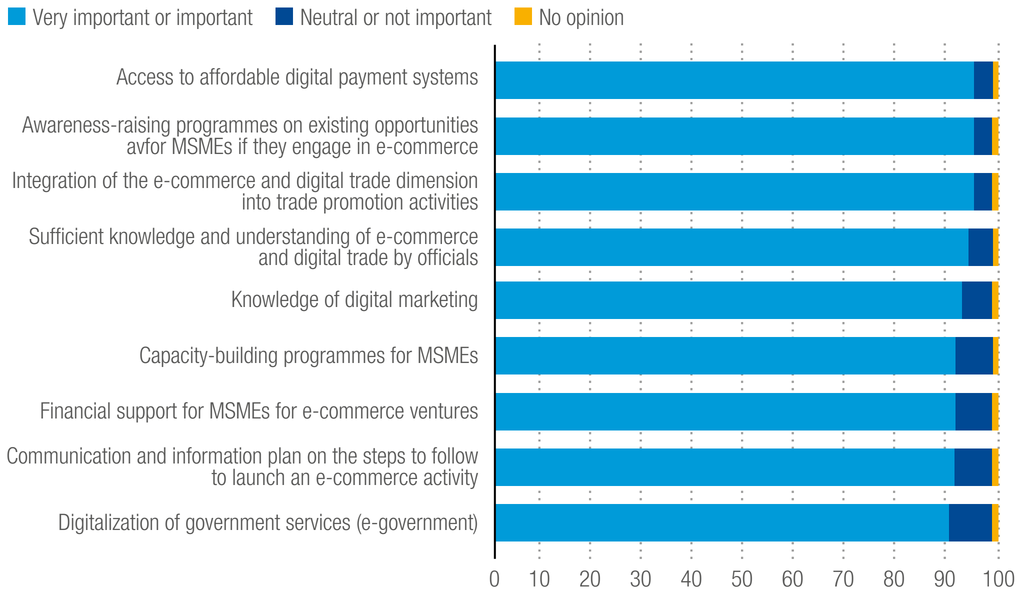
Despite the large numbers, many MSMEs remain only partially engaged in e-commerce. It has been suggested in recent assessments that the majority of small businesses still rely primarily on traditional offline sales, even as the economy digitalizes. For example, in a study, Bank Indonesia (2022) indicated that a relatively small share of MSMEs maintained a dedicated online store or utilized major marketplaces. More commonly, MSMEs adopt digital tools in incremental ways: using mobile payment applications to accept transactions or employing social media channels to advertise. The net result is a mixed picture: modern e-commerce platforms report millions of active sellers, but these sellers tend to be clustered among slightly larger micro- or small businesses; truly microenterprises (the smallest tier) are much less likely to sell online.

As illustrated by figure 9, access to affordable digital payment systems, integration of e-commerce and digital trade into trade promotion activities and awareness-raising tend to be perceived as most essential for engaging MSMEs in e-commerce and digital trade according to UNCTAD surveys in the context of the present assessment.

Figure 9

Factors for increasing the participation of micro-, small and medium-sized enterprises in e-commerce and digital trade

(Percentage)



Source: UNCTAD survey data (public and private sector respondents, 82 responses).

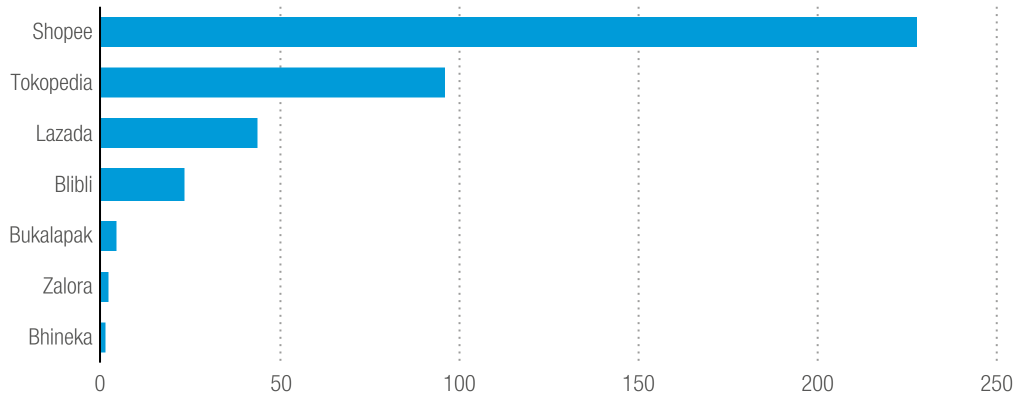
9 MSMEs are defined as having been integrated into the digital ecosystem if they have connected to the Internet for the purpose of marketing or selling a product, purchasing raw materials, taking out a fintech loan or searching for information (Statistics Indonesia, 2024b). As at May 2025, there had been no official confirmation that the 30 million target had been met. The latest available data indicate that, while significant progress has been made, the goal has not yet been fully realized.

10 According to the latest reports, the export contribution of MSMEs remains at approximately 15 per cent, indicating that the 17 per cent target has not yet been achieved.

Online marketplaces and social commerce have dramatically lowered the barrier to entry for small sellers. Platforms such as Tokopedia, Shopee, Bukalapak and Lazada have onboarded millions of cottage entrepreneurs, home-based industries and small shops, connecting them with consumers nationwide. Social media and messaging applications (Facebook, Instagram and WhatsApp, all owned by Meta) have also become popular channels for micro-entrepreneurs to market products and take orders. That democratization of market access allows even single-person businesses to become "e-tailers"[11] with minimal initial investment.

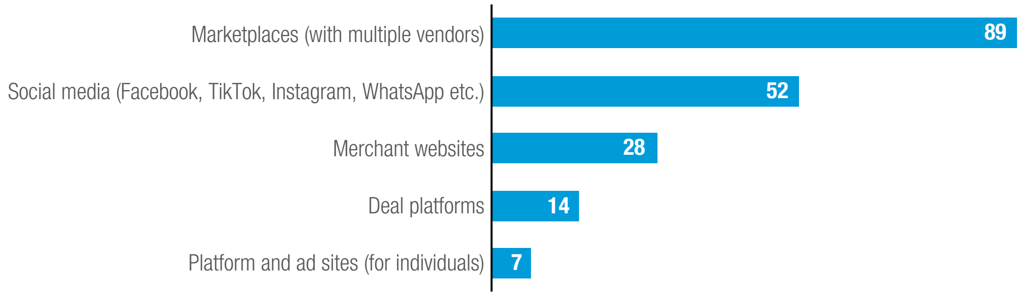
The critical role of commerce platforms in enabling MSMEs is evident when examining the traffic of leading online marketplaces in Indonesia. Shopee's dominance (with more than three times the traffic of its closest local rival) demonstrates how a strong regional platform can significantly drive e-commerce adoption among Indonesian MSMEs and consumers. Tokopedia, a homegrown platform, still has a large user base and Lazada (part of the Alibaba Group) also has a significant presence. Those platforms provide ready-made digital storefronts, payment integration and nationwide delivery logistics, which have been crucial in bringing tens of millions of MSMEs online, and they are also the ones mainly used by surveyed consumers (figures 10 and 11).

Figure 10
Leading e-commerce sites in Indonesia in February 2024
(Monthly traffic measured in millions of web visits)



Source: Statista, based on SimilarWeb data for February 2024.

Figure 11
Channels used by consumers for their purchases
(Percentage)



Source: UNCTAD consumer survey data (423 responses).

[11] The term "e-tailers" refers to electronic retailers, that is, individuals or businesses that sell goods or services online, typically through e-commerce platforms, such as Tokopedia, Shopee or Lazada, or through their own websites and social media channels.

Recognizing the importance of MSMEs in the digital economy, Indonesian authorities have rolled out numerous initiatives to support and enhance MSME performance in e-commerce. The policy environment for MSMEs is also evolving. Government programmes, such as the Mekaar microfinance programme, and training initiatives in digital marketing have begun to integrate e-commerce elements. For example, payment safety nets, such as QRIS and GoPay, have special features for small vendors and the tax authority has introduced simplified reporting for merchants who meet certain e-commerce thresholds. However, stakeholders still cite barriers: limited access to broadband (especially for rural businesses), low digital literacy, complicated compliance rules and insufficient access to logistics and financing. Notably, most MSMEs lack advanced IT systems; e-invoicing and electronic contracting (mandated for larger firms) remain optional for the vast majority of micro-businesses.

There is particular emphasis on training women entrepreneurs, who often face additional barriers in accessing technology and capital. The Government, with support from international partners, has introduced targeted initiatives to bolster women-led MSMEs in the digital economy.[12] Beyond women-specific programmes, general MSME digital training has also expanded. Government ministries (with responsibility for cooperatives, MSMEs, communication and digital affairs etc.), often in collaboration with platform companies and local business associations, regularly conduct workshops and online courses on how to join marketplaces, use social media for business and improve product quality for e-commerce. Some local governments have established SME digital hubs, some with the help of development partners, to assist small firms with things such as business registration, branding and logistics arrangements.[13]

Another supportive policy has been public procurement reform that benefits small firms. The Government has reserved a portion of public procurement for MSME-produced goods and services. Increasingly, those procurement opportunities are accessible through e-procurement platforms or partnerships with domestic e-commerce sites. That effectively creates guaranteed demand for MSME outputs and gives them an incentive to formalize and adopt digital tools (since selling to the Government often requires online tender participation, proper invoicing etc.).

Access to finance remains a core challenge for MSMEs, prompting targeted policy responses to ease capital constraints (e.g. the mandated MSME lending quotas for banks and the expansion of the subsidized People's Business Credit (Kredit Usaha Rakyat) scheme). In recent years, banking regulators have directed more credit towards MSMEs; banks were required to allocate at least 20 per cent of their loan portfolios to MSMEs by 2022, increasing to 30 per cent by 2024. That policy is aimed at ensuring adequate credit flows to the sector. The Government's flagship microcredit programme, People's Business Credit, which is run through State-owned banks, has also expanded significantly. It offers subsidized interest rates (as low as 3 per cent annually during COVID-19 stimulus periods) to micro- and small enterprises. In 2022, the Government raised the ceiling of the programme's lending by 30 per cent compared with the previous year, disbursing a total of about $23.4 billion in small loans. That injection of affordable credit has enabled many MSMEs to invest in the tools needed to conduct business online – whether purchasing a smartphone, upgrading equipment or buying inventory to sell on e-commerce marketplaces.

12 See https://en.tempo.co/read/1606541/indonesian-government-seeks-to-empower-women-led-msmes and https://inklusi.or.id/news-stories/news/inklusi-and-dana-collaborate-to-support-women-led-msmes-and-entrepreneurs-with-disabilities-through-sisberdaya-and-disberdaya.

13 See https://www.bmz-digital.global/wp-content/uploads/2024/08/GIZ-2024-Digital-Hub-Network-Guideline-Research-Report-Digital-Transformation-Center-Indonesia.pdf.

Box 4
Expanding inclusive access to finance through the Mekaar microfinance programme

The Mekaar programme of the National Capital Development Corporation is a State-led microfinancing initiative aimed at empowering ultra-micro entrepreneurs, particularly women, who lack access to conventional banking services. Operated by the National Capital Development Corporation, a subsidiary of the State-owned Bank Rakyat Indonesia, Mekaar provides group-based financing, entrepreneurial training and mentoring without requiring collateral. As at 2023, the programme had reached more than 14 million beneficiaries across Indonesia, helping them scale informal businesses and enter the digital economy. While Mekaar does not yet have a dedicated digital trade component, its wide grass-roots network and capacity-building model present a strong foundation to integrate digital literacy, e-commerce onboarding and fintech solutions, especially for women-led MSMEs.

Source: https://www.pnm.co.id.

The combined impact of those financial, capacity-building and market access measures has been a more enabling ecosystem for MSMEs to thrive in digital trade. International donors and private sector players have aligned efforts with the Government's agenda, multiplying the resources available to MSMEs.

3.2 Digital skills and know-how challenges of micro-, small and medium-sized enterprises

A critical challenge preventing MSMEs from reaching scale is human capacity. While millions of MSMEs have gone online in recent years, their ability to scale and succeed in e-commerce remains uneven, shaped by challenges such as limited digital skills, inadequate access to finance, weak visibility in crowded online marketplaces and the complexities of formalization. Transitioning such businesses online requires new skills – from basic computer literacy to digital marketing know-how.

The rapid influx of MSMEs into e-commerce has yielded positive outcomes. According to stakeholder consultations conducted by UNCTAD during the preparation of the present report, many MSMEs that have embraced digital channels report growth in sales and customer reach. By tapping into e-commerce marketplaces, even small village-based businesses can now serve customers nationwide – something that was impossible before. Digital payments and on-demand logistics services tailored for MSMEs (e.g. application-based courier pickups) further streamline their operations and reduce costs. Those improvements demonstrate the transformative potential of going digital for small businesses.

Young entrepreneurs and technology-savvy women are bridging some gaps. On the one hand, a notable cross-cutting insight is that women's participation in the digital economy is both an opportunity and a constraint: on the one hand, empowering women entrepreneurs through e-commerce can significantly raise household incomes, since women in Indonesia often decide on many routine purchases. On the other hand, cultural norms and limited Internet access in some regions mean that women can be the least connected group. To address that, policies have started including explicit gender targets: women are identified as a priority group in the national strategy on digital entrepreneurship and programmes to upskill MSMEs often run special modules for women business owners.

However, not all MSMEs have managed to prosper online and numerous barriers continue to impede many from fully realizing their digital potential. According to UNCTAD surveys conducted during the preparation of the present report, the primary challenge is limited human capital and business skills. Many small business owners have minimal formal training in business management, let alone specific e-commerce techniques such as search engine optimization, data analytics or online customer service. That skills gap means that some MSMEs struggle to stand out in the crowded online marketplace. According to interviews conducted with private sector stakeholders, simply listing products on a platform is not enough if the product does not stand out – issues such as poor branding, suboptimal product descriptions or photos and undifferentiated offerings can limit success. MSMEs often need guidance on improving product quality, branding and packaging to appeal to online consumers. Consistent training and advisory support are lacking for many; while support for onboarding exists, for instance, it may not reach all areas or be sustained long enough to change business practices deeply.

Furthermore, basic technology access and know-how remain an obstacle for some MSMEs, especially in rural regions. Many have not fully embraced commerce due to technological readiness issues – for example, an unreliable Internet connection in their store or municipality, a lack of devices (some micro-entrepreneurs do not even have a computer and operate everything from a simple phone) or their inability to use online commerce applications. In some cases, older entrepreneurs may find digital tools less intuitive and rely on younger family members or intermediaries to manage online transactions. While that support helps bridge the gap, it can also delay responses and reduce the personalized engagement that is often crucial for success in digital marketplaces, such as timely replies to customer inquiries.

Another hurdle is marketing and visibility in online spaces. With the explosion of sellers on major platforms, competition is intense. Small merchants can be “lost” in crowded marketplaces. The lack of rich information flow in e-commerce makes it hard for new small businesses to be discovered by consumers, meaning that they struggle to generate traffic and sales without costly advertising or platform promotions. In essence, while e-commerce lowers entry barriers, it does not guarantee customer attention. Larger or more established sellers often benefit from platform algorithms that favour listings with high sales or ratings, creating a virtuous cycle for them but a hurdle for newcomers. MSMEs may not have the budget for advertisements or the know-how to exploit algorithms, which can limit their growth online.

Digital platforms have lowered entry barriers for MSMEs by simplifying access to online marketplaces, reducing upfront costs associated with physical storefronts and enabling businesses to reach a wide consumer base with minimal investment in infrastructure. Those platforms often provide built-in tools for logistics, payments, customer engagement and analytics, services that would otherwise be out of reach for many small enterprises. However, many MSMEs, especially in rural or underserved areas, lack access to the broader support ecosystems needed to succeed online. Unlike urban centres in which MSMEs benefit from peer networks, incubators and regular engagement with digital platforms or associations, smaller towns often lack such enabling environments. Without mentorship, shared learning opportunities or local advisory services, MSMEs struggle to improve their digital presence, adapt to platform dynamics or access new markets. That ecosystem gap limits the ability of many small businesses to move beyond basic digital participation.

The Government and the private sector have responded by expanding training ecosystems. The Digital Talent Scholarship programme run by the Ministry of Communication and Digital Affairs includes an MSME stream, offering both in-person and online modules on topics such as mobile commerce, digital customer engagement and cybersecurity hygiene. Between 2021 and 2025, more than

250,000 MSME beneficiaries completed the programme, of whom 43 per cent were women.[14] The Digital Entrepreneurship Academy of the Ministry of Communication and Digital Affairs is intended for the general public, prospective MSMEs, as well as MSME business actors who want to move up a class in terms of utilizing digital technology to be able to improve their businesses. The Academy's training is aimed at encouraging the improvement of digital skills from basic to intermediate for prospective entrepreneurs and MSME business actors. Complementing that, local governments have launched Digital MSME Hubs, community centres that offer hands-on training, peer mentoring and Internet access points. Those Hubs are increasingly embedded in village-owned enterprises, supporting contextual learning in agriculture, fisheries and rural tourism (Ministry of Communication and Informatics, 2023).

Feedback from consultations conducted by UNCTAD in May 2025 in West Sumatra and South Sulawesi emphasized the need for more localized mentorship models. Entrepreneurs expressed a preference for peer-led coaching, testimonials and business simulation exercises over formal training. Respondents also called for improved after-training support, such as helpdesk services and refresher sessions. The Ministry of Communication and Digital Affairs is piloting a Digital Companion scheme, whereby successful digital entrepreneurs are trained to coach other MSMEs within their community. Early results from pilot districts indicate improved e-payment adoption, better online catalogue quality and increased digital customer retention.

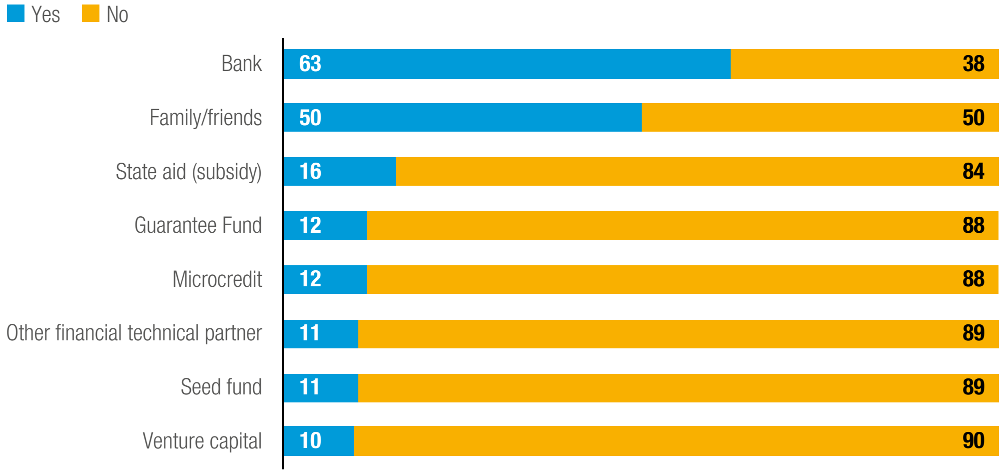
Government programmes such as the Digital Talent Scholarship, Digital MSME Hubs and the Digital Companion scheme have been designed with national coverage in mind, with a specific focus on extending reach to rural and underserved areas. As at 2024, the Ministry of Communication and Informatics reported that more than 40 per cent of those participating in the Digital Talent Scholarship scheme originated from non-urban districts, with dedicated quotas for youth, women and individuals from eastern Indonesia. The Digital Companion scheme, implemented in partnership with local governments and universities, has been deployed in 514 regencies and cities, with priority given to regions with low MSME digital adoption rates. Meanwhile, Digital MSME Hubs, including those embedded in village-owned enterprises or local one-stop service centres, have been piloted in at least 25 provinces, including Papua, East Nusa Tenggara, North Kalimantan and West Sulawesi. Those efforts illustrate the Government's intent to promote inclusive digital transformation by targeting remote, outer island and economically disadvantaged regions.

Financing and digital payment infrastructure also affect MSME uptake. Many micro-businesses are hesitant to accept non-cash payments due to costs or perceived complexity. Access to finance, despite improvements through the People's Business Credit and other schemes, is still insufficient for a significant segment of MSMEs. Approximately, 19 per cent of MSMEs cite trouble obtaining business capital as a major issue hindering their growth (United Nations Development Programme (UNDP) and the Institute for Economic and Social Research, Faculty of Economics and Business, University of Indonesia, 2020). Very small enterprises, especially women-led ones, may not meet bank lending criteria or even be aware of microloan facilities. Fintech lenders and peer-to-peer platforms have started to fill that gap by providing alternative credit scoring and quick loans. Internal funds and bank loans remain primary sources, while limited use of venture capital and government programmes signals opportunities for improving access to diversified financing, especially for MSMEs (figure 12).

Expanding digital literacy programmes will empower MSMEs with the skills that they need to innovate, grow and succeed in the digital economy.

[14] See https://digitalent.komdigi.go.id/# (in Indonesian).

Figure 12
Sources of financing for the private sector
(Percentage of responses)



Source: UNCTAD survey data (private sector survey, 23 responses).

> While government programmes support MSMEs in transitioning into the formal digital economy, further tailored guidance would facilitate their shift towards formalization.

As discussed in chapter 4, consumer protection concerns have prompted the Financial Services Authority to tighten rules on digital lending, which might inadvertently restrict the access of some MSMEs to those new financing sources. That dynamic tension means that MSMEs still face financing bottlenecks for expansion (e.g. to buy more inventory when online demand surges).

Government-backed credit programmes increasingly require or incentivize digital channels: for instance, disbursement of certain microloans now uses e-wallets or e-signatures. The growth of digital payment acceptance (discussed below) is expected to bring more MSMEs into the formal digital economy. Even so, analysts note that improving the business environment (e.g. simplified business licensing and better consumer protection) is also vital – when sellers feel legally secure and customers trust online transactions, MSMEs have more incentive to invest in digital platforms.

Lastly, the transition from informal to formal economic participation can be daunting for many micro-entrepreneurs. Getting online typically involves formalization in some way, such as obtaining an identification number for a business or complying with tax obligations linked to digital revenue.

Although the Government has made business registration easier through online single submission systems, many micro-entrepreneurs are not knowledgeable about them. In addition, navigating regulatory requirements, such as consumer protection obligations and data reporting, can be complex without adequate guidance. Recent initiatives by the Government to involve more MSMEs in formal procurement processes encourage formalization, but dedicated support is necessary to facilitate this shift.

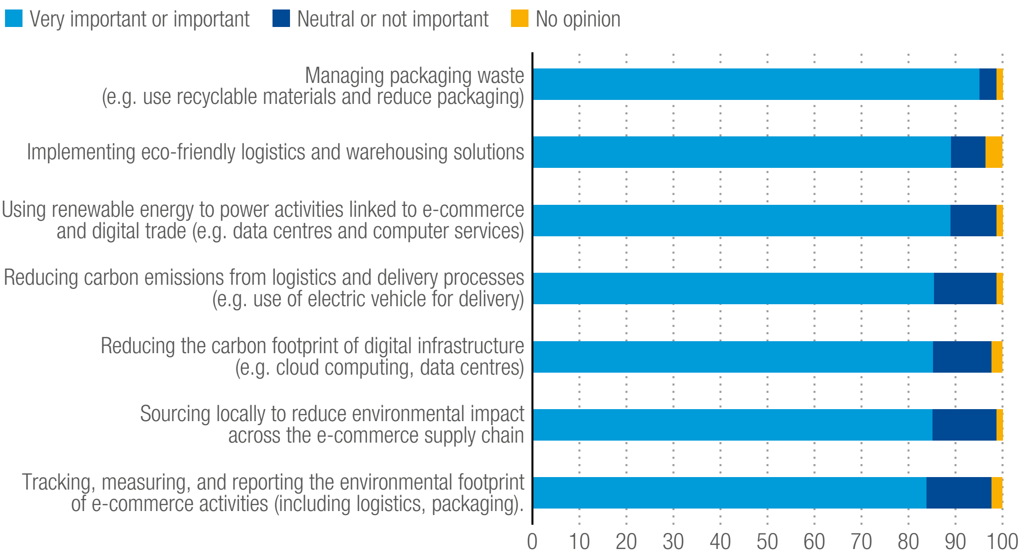
3.3 Development-oriented environmental sustainability in digital trade

The environmental impact of e-commerce and digital trade, approached through the lens of national development priorities rather than external benchmarks, is an emerging concern in the policy discourse of Indonesia. As more small enterprises join digital supply chains, the cumulative impact of packaging waste, last-mile emissions, energy consumption and unsustainable procurement practices becomes significant. Like many countries, Indonesia has yet to fully assess the environmental footprint of its expanding e-commerce sector. However, awareness of the sector’s implications for sustainability is steadily growing. Global experience indicates that the sector presents both environmental challenges – such as increased packaging waste and delivery emissions – and opportunities for greener solutions. Indonesia is developing context-appropriate frameworks to address associated environmental considerations, while ensuring sustainability measures remain accessible to MSMEs and support domestic industry development. Those include leveraging digital innovation, optimizing logistics and promoting circular economy models (UNCTAD, 2024). Packaging waste, energy efficiency in data centres and green logistics emerge as the most critical, reinforcing the need for sustainability-oriented policies (figure 13).

The Government, through the National Development Planning Agency, has incorporated environmental sustainability into its long-term vision (Golden Indonesia Vision 2045 includes goals for a greener economy and net-zero emissions by 2060). It also introduced a National Circular Economy plan in 2021, in which e-commerce is identified as a potential enabler for recycling industries (e.g. by connecting waste collectors to recyclers more efficiently).

For MSMEs, Indonesia is exploring approaches that generate co-benefits rather than compliance burdens. E-waste management initiatives are aimed at creating domestic recycling industry opportunities while addressing disposal challenges. Many MSMEs engage in selling electronics or using electronics for business; the Government has a plan for tackling e-waste through recycling and critical mineral recovery. Ensuring MSMEs are aware of e-waste disposal programmes (and possibly incentivized to return old devices) will be part of making the digital economy environmentally sustainable, while ensuring that such initiatives remain accessible and economically viable for small enterprises. The Government recognizes that effective sustainability pathways for MSMEs must account for their resource constraints and competing priorities, with approaches phased according to support infrastructure availability and MSME capacity development.

Figure 13
Importance of key factors in managing the environmental impact of e-commerce and digital trade



Source: UNCTAD survey data (public and private sector respondents, 82 responses).

UNCTAD survey data show that only 8 per cent of the surveyed e-commerce MSMEs currently integrate resource efficiency into their operations. Most use non-recyclable packaging materials, single-use plastics and unoptimized delivery routes. Moreover, very few participate in formal recycling programmes or track energy consumption from digital operations, such as data storage or device use. However, awareness is growing. In a 2025 study, UNDP (2025) found that 47 per cent of MSMEs would be willing to adopt more sustainable practices if provided with financial or logistical support, highlighting significant untapped potential.

The growth of e-commerce has contributed to increased packaging volumes, with many MSMEs using conventional packaging materials that reflect cost constraints and supply availability rather than lack of environmental awareness. While sustainable packaging alternatives exist, their higher cost and limited domestic availability present challenges for small enterprises operating on narrow margins.

Encouragingly, some e-marketplaces have introduced voluntary sustainable initiatives, including options to reduce packaging or to right-size packages. On a broader scale, Indonesia is observing regional best practices – Singapore recently convened an Alliance for Action on Packaging Waste Reduction for the E-commerce Sector to develop voluntary guidelines. Indonesia is developing its own approach to sustainable e-commerce packaging that balances environmental objectives with MSME accessibility, domestic industry development and cost considerations. That includes exploring opportunities to develop Indonesian bio-packaging industries using local agricultural resources and designing support mechanisms that enable, rather than burden, MSME participation in greener supply chains.

Logistics efficiency is another key area. According to the Ministry of Communication and Digital Affairs, several postal and courier operators have implemented smart logistics principles through:

- Real-time tracking (Internet of things, GPS and radio frequency identification)
- Package position visibility
- Decentralized fulfilment centres (mini fulfilment outside Java) and route optimization using AI (machine learning and big data)
- Route adjustment based on traffic congestion, weather and road conditions
- Flexible last-mile delivery (locker pickup and crowdsourced delivery)
- Digitalization of logistics processes
- Warehouse automation and smart warehouses (warehouse management systems)
- Partnerships and collaborative ecosystems
- Transportation management systems to monitor the movement of goods in real time

According to interviews and consultations conducted in the context of the present assessment, pilot programmes are beginning to enable MSME participation in sustainable e-commerce through phased and voluntary approaches appropriate to enterprise capacities. The Green SME Certification scheme, supported by the National Research and Innovation Agency and the Indonesian Chamber of Commerce and Industry, provides recognition and incentives for MSMEs that adopt sustainable packaging, use renewable energy or reduce carbon emissions in delivery. Certified MSMEs receive digital badges that improve visibility on e-marketplaces and qualify for green procurement opportunities from public agencies. Initial implementation in Bandung and Surabaya has seen more than 1,200 MSMEs certified, 35 per cent of which are women-led businesses.

Box 5
Grab's initiative towards a more sustainable e-commerce ecosystem

In response to growing concerns about food packaging waste, particularly from the food delivery sector, Grab has set an ambitious target of achieving zero packaging waste in nature by 2040. That commitment is especially significant in South-East Asia, where waste management systems remain underdeveloped: an estimated 70 per cent of waste goes uncollected or is illegally dumped.

Grab's road map towards sustainability emphasizes both short- and long-term milestones, including diverting 30 per cent of plastic packaging by 2030 and implementing circular economy practices. The company's strategy targets key areas such as reducing overpackaging, discouraging unnecessary single-use items (e.g. sauce sachets, napkins and cutlery), promoting compostable alternatives and developing reverse logistics systems to facilitate the reuse and responsible disposal of packaging.

One example of behaviourally informed design is the cutlery opt-out feature, which has been implemented across all Grab markets since 2019. By setting cutlery exclusion as the default option, Grab encourages consumers to forgo single-use plastics unless specifically needed.

Grab also serves as a test bed for circular initiatives through collaborations with local partners. In Indonesia, the GrabExpress Recycle programme – launched in partnership with Waste4Change, Yayasan Mahija Parahita Nusantara, Amandina Bumi Nusantara and Benih Baik – offers consumers a doorstep pickup service for used polyethylene terephthalate (PET) bottles. Those bottles are processed into new packaging materials (e.g. Coca-Cola bottles), with users rewarded through OVO cash. By 2024, the initiative had expanded to Bali, Bandung, Cilegon and Cirebon. In a separate effort with PlasticPay, Grab has also introduced reverse vending machines for PET bottle recycling across multiple Indonesian locations, again offering OVO incentives to promote participation.

By leveraging its technological platform, user base and regional partnerships, Grab demonstrates how platforms can play a catalytic role in advancing sustainability within e-commerce ecosystems, particularly in contexts in which public waste infrastructure is limited.

Source: Grab (2024).

Building on those pilots, the Ministry of the Environment, in collaboration with the National Development Planning Agency and the Ministry of Cooperatives, is initiating a national dialogue on green e-commerce practices for MSMEs. The Ministry of the Environment has also indicated it will study e-commerce packaging and possibly issue guidelines. Currently, regulations such as Government Regulation No. 27/2020 on Specific Waste Management and Regulation No. 22/2021 on Environmental Protection provide general frameworks for waste management (including electronic waste), but there are no e-commerce-specific packaging rules yet. Many MSMEs would likely adopt greener packaging if cost-effective options, market incentives and clear guidelines were available.

Logistic efficiency presents both environmental and economic opportunities for the e-commerce sector of Indonesia (see section II.C). The commerce sector (online and offline retail combined) is estimated to account for approximately 3.4 per cent of the country's carbon dioxide emissions, mainly from transport/delivery. While that figure is not broken down by online or offline commerce, e-commerce deliveries concentrate transport emissions into the "last mile problem". E-commerce logistics can be designed to reduce per-transaction emissions through route optimization, delivery consolidation and load efficiency, approaches that simultaneously reduce costs and environmental impacts. For

MSMEs have growing opportunities to adopt greener e-commerce practices and sustainable business models.

MSMEs operating online, they typically rely on third-party logistics, so an individual business has limited control over delivery methods. However, MSMEs can choose to partner with platforms or couriers that have sustainability initiatives (for instance, some businesses proudly advertise using a courier that has electric bike options). Larger sellers and platforms in Indonesia are starting to explore carbon offset programmes, where they invest in tree planting or renewable energy to offset emissions from delivery – but this is still at an early stage.

Data centres and energy use also form part of the digital economy's environmental footprint (UNCTAD, 2024). As global demand for digital services grows, the infrastructure supporting e-commerce (servers, data centres and cloud computing) may consume substantial increasing amounts of energy and resources. The country's data centre industry is growing rapidly and, under certain circumstances, reliance on fossil fuel-based electricity contributes to higher emissions. Consistent with the ongoing energy-transition strategy, the Government's approach to attracting data centres includes ensuring that they are subject to environmental regulations. Some large e-commerce companies have committed to sourcing renewable energy for their server needs, but MSMEs usually use shared cloud services and have little direct influence. However, raising awareness about digital energy consumption (such as encouraging efficient use of cloud resources) could be an area of future focus.

On the positive side, e-commerce and digital trade can contribute to environmental goals by enabling dematerialization and more efficient resource use. For example, digital platforms can reduce waste in supply chains by improving inventory management (selling products just in time, thus lowering overproduction). There are also growing green product segments online – MSMEs selling eco-friendly products (bamboo straws, recycled fashion etc.) have found national markets through e-commerce that they would not have locally, thereby expanding the green economy. Indonesia has a number of start-ups in the circular economy space (e.g. online thrift marketplaces and recycling applications) that indicate how digital trade can support sustainability.

As digital trade in Indonesia continues to expand, environmental sustainability remains an emerging area of policy development. The rapid growth in online transactions has implications for packaging waste, delivery-related emissions and digital infrastructure energy use. However, data on the scale and distribution of those impacts remain sparse and comprehensive studies on the environmental consequences of digital commerce are limited. That lack of measurement constrains policymaking and private sector efforts to mitigate negative effects or promote sustainable practices among small online businesses.

In conclusion, as MSMEs in Indonesia are steadily entering the digital economy, ensuring that that transition is inclusive, equitable and sustainability oriented is an important long-term aspiration. While substantial progress has been made in onboarding, infrastructure and basic skills development, digital capabilities and environmental consciousness among MSMEs remain uneven. To maximize the potential of e-commerce as a driver of economic resilience, it will be important to implement targeted interventions that are gender responsive, regionally adapted and sustainability oriented – thereby supporting social inclusion and environmental stewardship throughout Indonesia. International support in finance, technology and knowledge-sharing will also be essential to ensure that developing countries such as Indonesia can pursue digital sustainability without compromising broader development objectives.

4. Legal and regulatory framework

Over the past decade, Indonesia has developed a comprehensive legal foundation for digital trade, anchored in the Electronic Information and Transactions Law, Government Regulation No. 80/2019 on e-commerce and the Personal Data Protection Law. Those instruments provide recognition for digital contracts and signatures, define online consumer rights and strengthen cybersecurity provisions.

However, enforcement remains uneven and implementation regulations are still missing (such as for the Personal Data Protection Law) with MSMEs often struggling to navigate overlapping and complex regulations. The country's engagement in the Regional Comprehensive Economic Partnership, WTO e-commerce discussions and the ASEAN Digital Economy Framework Agreement and preparations for OECD membership position it within evolving regional digital norms. Looking to the future, issues such as AI governance, digital trust services and platform competition demand anticipatory regulation. Ensuring coherence, clarity and capacity in implementation will be key to building trust and resilience.

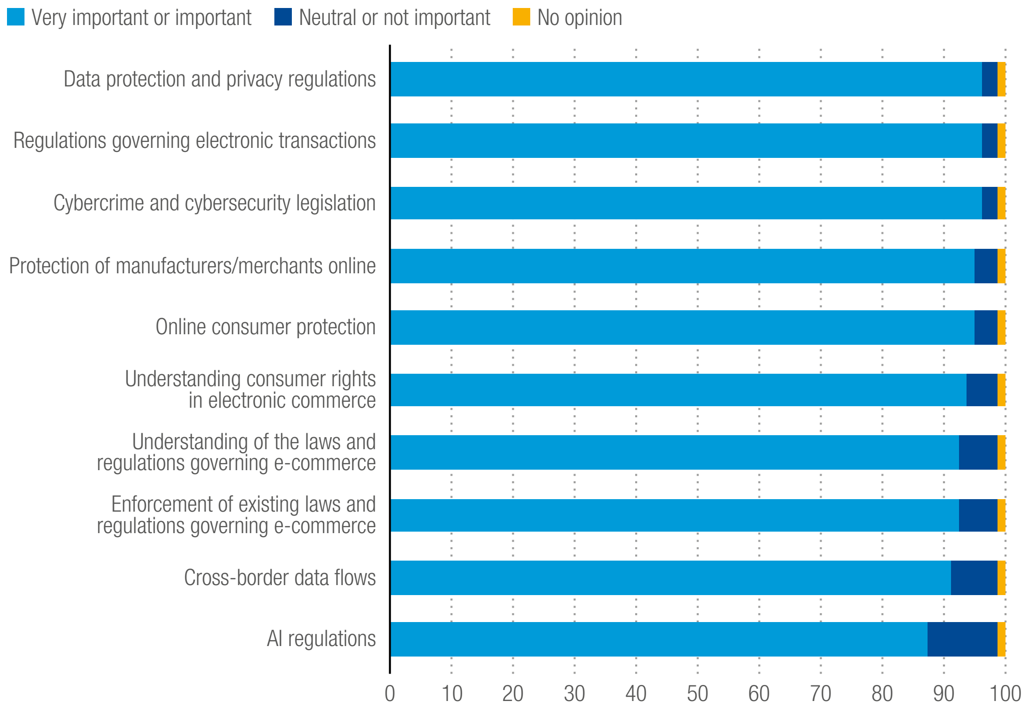
4.1 Core legal instruments for e-commerce and digital trade

Indonesia has made significant progress in developing a comprehensive legal and regulatory framework to support the growth of e-commerce and digital trade. Over the past decade, the Government has enacted key laws and regulations that define the parameters of electronic transactions, digital platform operations, data protection and online consumer rights. Together, those instruments have laid the legal foundations for the development of a vibrant digital economy while supporting the broader goals of inclusion, trust and innovation. However, as is the case in many developing countries, the enforcement of those laws remains uneven and gaps in institutional capacity and compliance mechanisms often limit their impact in practice.

According to the surveys conducted during this assessment, while public and private sector stakeholders see data protection, electronic transactions and cybercrime/cybersecurity as top priorities for e-commerce and digital trade development, AI regulation appears as an emerging area of interest.

The evolving legal framework of Indonesia strengthens trust in digital trade, although stronger enforcement is needed.

Figure 14
Most important factors for creating a legislative and regulatory framework conducive to e-commerce



Source: UNCTAD survey data (public and private sector survey, 80 responses).

The core legal instruments in Indonesia include:

- The digital legal ecosystem of Indonesia is anchored in Law No. 11/2008 on Electronic Information and Transactions, as amended several times and lastly by Law No. 1/2024. It gives legal recognition and enforceability to electronic contracts and certain types of electronic signatures. It provides the legal validity of electronic contracts and signatures, making digital agreements enforceable. It prohibits cybercrimes, such as hacking, identity theft and online defamation. For digital trade, it establishes that electronic records are admissible as evidence and that digital signatures are legally recognized, which is fundamental for e-commerce operations. The 2024 amendment of the law included provisions to better tackle cyberbullying and to refine intermediary liability (clarifying the responsibilities of online platforms in monitoring illicit content).
- Government Regulation No. 71/2019 on the Organization of Electronic Systems and Transactions serves as a key implementing regulation under the Electronic Information and Transactions Law, designed to modernize the country's regulatory framework, ensure legal certainty, protect personal data, support digital economy growth and balance security with innovation. It replaces Government Regulation No. 82/2012 and aligns with amendments to the Electronic Information and Transactions Law. According to Government Regulation No. 71/2019, e-signatures are classified into two categories: certified e-signatures that comply with the requirements under the Regulation and that are created using an electronic certificate issued by an Indonesian Electronic Certification Authority; and non-certified e-signatures that are created without using such an authority. In practice, the Electronic Information and

Transactions Law primarily recognizes digital signatures based on public key infrastructure, while other forms of electronic signatures commonly used internationally receive limited recognition. The approach centred on public key infrastructure highlights the country's strong commitment to security and authentication; however, it may present challenges for cross-border interoperability, particularly regarding the recognition of foreign digital signatures that do not employ such infrastructure. That framework contrasts with the broader ASEAN policy trajectory, which has for many years encouraged adoption of the relevant texts of the United Nations Commission on International Trade Law (UNCITRAL) to promote technological neutrality and mutual recognition of digital signatures. By emphasizing a system focused on public key infrastructure, Indonesia underscores the priority accorded to security and reliability, which has implications for cross-border interoperability and the broader landscape of regional trade and digital integration. In Government Regulation No. 71/2019, there is a distinction made between public and private sector systems. It introduces a risk-based approach to compliance obligations. Notably, it relaxed earlier requirements for data localization, allowing cross-border data transfers under certain safeguards, an evolution welcomed by both domestic and foreign investors. However, critical infrastructure sectors, such as banking, telecommunications and health, are still subject to stricter data residency requirements under sectoral regulations.

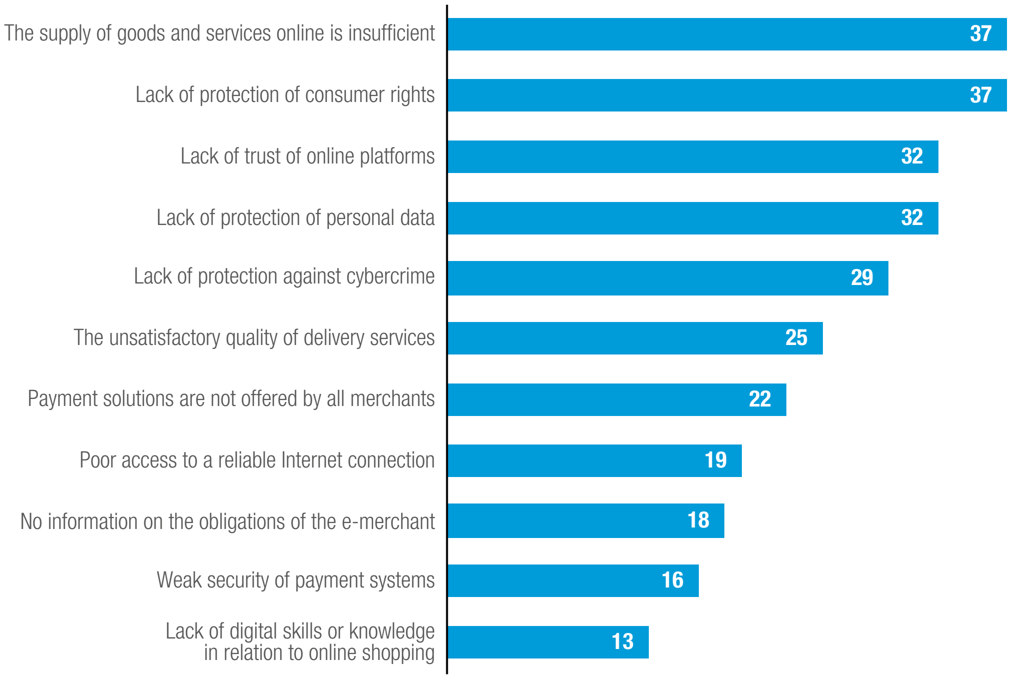
- Ministry of Communication and Digital Affairs Regulation No. 11/2022 on Management Procedures for the Organization of Electronic Certification. Under that Regulation, the Ministry maintains a root certificate and accredits national Electronic Certification Authorities. The use of e-signatures is growing rapidly, especially in the banking, insurance and public procurement sectors. Platforms such as PrivyID, VIDA and Peruri Digital Security have expanded their services to support contract management for MSMEs and digital identity verification for fintech providers.
- Building on the Electronic Information and Transactions Law, Government Regulation No. 80/2019 on Trading through Electronic Systems provides the central regulatory framework for e-commerce operations. It outlines the obligations of merchants, intermediaries, marketplaces and digital platforms, covering issues such as business licensing, electronic contracts, consumer rights, return and refund policies and advertising standards. It clarifies that both domestic and foreign e-commerce actors operating in Indonesia are subject to national regulations. That principle of regulatory parity has been reinforced through Ministry of Trade Regulation No. 50/2020, which sets out implementation mechanisms for e-commerce registration and compliance, including detailed provisions on product labelling, taxation and dispute resolution channels. The Regulation was replaced by Ministry of Trade Regulation No. 31/2023, aimed at creating a fairer, transparent and competitive digital marketplace.
- The Consumer Protection Law (Law No. 8/1999) applies to online transactions as well. A proposed amendment to that law is currently under review by parliament. The Law establishes consumer rights to safety, information and redress and the obligations of businesses to ensure fairness and transparency. In the e-commerce context, it means online sellers must not engage in misleading advertising, must honour guarantees/refunds etc. The Electronic Information and Transactions Law supplements that by addressing the responsibilities of electronic system providers (which

include e-commerce platforms) to maintain secure and reliable services. Taken together, those Laws require digital businesses to treat consumers fairly and provide mechanisms for complaints. Enforcement, however, is challenging due to the sheer number of online sellers. The Government has set up an online dispute resolution system and a complaints portal (through the National Consumer Protection Agency) for e-commerce issues, but awareness is still growing. Based on consumer survey results, top barriers to online shopping include trust issues, product quality concerns and unreliable delivery, underscoring areas in which regulation and consumer protection are urgently needed.

- Law No. 17/2006, which amended the Customs Law (1995), provides the statutory basis for customs administration in the digital era. While originally focused on physical goods, its provisions on customs valuation, classification and clearance procedures have since been interpreted to cover electronic transmissions and intangible digital products. In particular, the law frames the scope of customs duties, a crucial point in the light of the country's WTO moratorium commitments on customs duties for electronic transmissions. For digital trade, the law underpins the mandate of the customs authorities to regulate cross-border flows of intangible goods, reinforcing the country's ability to align with regional and multilateral obligations on paperless trade and data reporting for digital products.
- Law No. 7/2014 represents the main legal framework for trade in Indonesia, explicitly recognizing electronic transactions as legitimate trade activities. It provides the Government with regulatory authority over both goods and services, including those delivered digitally, by requiring fair business practices, transparency and consumer protection. The Law also mandates licensing, monitoring and potential restrictions on digital trade to protect public interests and national security. As such, it serves as a legal foundation for regulating intangible goods, ensuring that cross-border digital transactions are treated consistently with conventional trade. It also interacts with the Electronic Information and Transactions Law, reinforcing the country's ability to adapt its trade regime to the realities of the digital economy.
- Complementing that legal framework is Law No. 27/2022 on Personal Data Protection. It was enacted in October 2022 and is the country's first comprehensive data protection law . It aligns with many principles of the European Union General Data Protection Regulation, imposing strict requirements on how personal data are collected, processed, stored and transferred. Businesses (including e-commerce platforms, payment providers etc.) must obtain consent for data collection, specify purposes, secure the data and report breaches. Individuals have rights, such as the right to access and correct their data. The Law also sets conditions for cross-border data transfer (discussed in section B below) and mandates the appointment of data protection officers for certain data controllers and processors. For MSMEs, that Law can be challenging as it introduces compliance obligations that they might not have had to consider before (like drafting privacy policies and implementing cybersecurity measures). The Government is phasing implementation to allow time for adjustment. Once adopted, the Law will be a significant step in boosting user trust in digital services, addressing public concerns about data misuse. The Law also mandates the establishment of an independent Data Protection Authority, which reports to the President and is tasked with monitoring compliance, handling complaints and imposing administrative

sanctions (as of December 2025, the Agency is not operational yet). The Law introduces the concept of "adequate jurisdiction" for cross-border data transfers, echoing models seen in the General Data Protection Regulation and contributing to greater legal certainty for digital trade actors. Moreover, the implementation guidelines for the Law require that all data protection notices and user agreements be made available in accessible and gender-neutral language. Regulatory authorities have also emphasized the need to ensure that women-owned MSMEs are not disproportionately burdened by registration costs or documentation requirements. The Digital Inclusion for Women initiative of the Ministry of Communication and Digital Affairs includes a legal literacy component that explains key regulations through short videos, infographics and community-based workshops. With the Law now enacted, the issuance of several implementing regulations provides an opportunity to ensure that key provisions, such as data subject rights enforcement and institutional oversight (e.g. establishing the supervisory authority), are effective, setting the stage for stronger trust and compliance across the digital economy.

Figure 15
Biggest obstacles to online shopping
(Percentage of responses)



Source: UNCTAD survey data (422 responses from consumers who could choose several options).

- Indonesia has various sector-specific regulations on digital business conduct. Its regulatory framework for digital business conduct was significantly updated with the issuance of Ministry of Trade Regulation No. 31/2023, which replaced the earlier Regulation No. 50/2020 as an implementing regulation of Government Regulation No. 80/2019. Effective since September 2023, the new Regulation introduces a stricter set of rules to level the playing field for domestic businesses, particularly MSMEs, and to ensure greater accountability of digital

Guidance and support for MSMEs are essential as the Personal Data Protection Law takes effect, paving the way for greater trust in digital services while full implementation and oversight mechanisms are still being developed.

platforms. One of the key provisions is the restriction on social commerce platforms, which are now prohibited from facilitating direct payment transactions on their platforms, effectively limiting their role to product promotion rather than enabling purchases. The Regulation also imposes a minimum price threshold of $100 (free on board) for finished goods purchased from abroad through cross-border e-commerce, a move aimed at curbing the influx of ultra-cheap imports that could undermine local producers. According to the Ministry of Trade, that rule applies to all imported products that can be traded, except those included in the list of products stipulated in the Decree of the Ministry of Trade No. 1998/2023 on the determination of finished goods from abroad with prices below the minimum price of goods. In addition, compliance obligations for both domestic and foreign e-commerce operators have been strengthened. Platform providers are now required to verify that merchants comply with Indonesian licensing and product safety standards and display evidence of compliance with relevant standards, such as Indonesian National Standard Certification, Halal Certification, Security, Safety, Health and Environment Certification and a Distribution Permit Number for Medicines, Cosmetics and Food, if obligated by regulations. Based on the results of the monitoring of marketplace platforms carried out by the Ministry of Trade, no finished goods valued at less than $100 were found from abroad that were sold directly to Indonesia through e-commerce platforms. Those platforms have closed cross-border facilities, so that shipping of goods from abroad to Indonesia through them can no longer be done. As a result, imported goods sold on e-commerce platforms are likely to be products that have already entered the country, rather than products that enter directly through e-commerce.[15]

- Moreover, Indonesia has regulations to ensure fair competition in e-commerce; the Indonesia Competition Commission has warned against predatory pricing online and has the authority to investigate anti-competitive practices (such as price-fixing among online sellers or abuse of dominant position by a major platform). Those developments reflect a continuation of the country's long-standing principle of supporting local enterprises, maintaining consumer protection and safeguarding market integrity.
- A suite of laws on intellectual property – the Copyright Law (No. 28/2014), the Patents Law (No. 13/2016), the Trademarks and Geographical Indications Law (No. 20/2016) and the Trade Secrets Law (No. 30/2000) – provide protection for creations and inventions, which is crucial for digital content and innovation. Those Laws collectively ensure that software, digital content and technological innovations are legally protected. In practice, however, challenges remain with enforcement online, such as piracy of digital media or the sale of counterfeit goods on e-marketplaces. The Government has been stepping up enforcement of intellectual property laws by collaborating with platforms (e.g. requiring e-commerce sites to take down listings of counterfeit products when notified). The participation of Indonesia in international treaties on intellectual property also influences its intellectual property regime; commitments under the WTO Agreement on Trade-related Aspects of Intellectual Property Rights and the Regional Comprehensive Economic Partnership reinforce intellectual property protections relevant to digital trade.

[15] Information provided by the Ministry of Trade in the context of the present assessment.

- In addition to the provisions on cybersecurity in the Electronic Information and Transactions Law, Indonesia issued Presidential Regulation No. 47/2023 regarding the National Cybersecurity Strategy and Cybercrisis Management, which strengthens the mandate of the National Cyber and Crypto Agency. Those regulations and related policies require companies, especially critical infrastructure operators and large digital service providers, to implement robust cybersecurity measures and report incidents promptly. For example, an incident in June 2024 – a cyberattack on a national data centre that temporarily disrupted airport immigration systems – underscored the need for vigilance. In its aftermath, the Government announced a review of public sector cybersecurity protocols, accelerated the roll-out of mandatory incident response frameworks and increased investments in national cyberresilience programmes. Businesses involved in digital trade are encouraged – and in some cases obligated – to adhere to security standards, such as data encryption, multi-factor authentication and routine security audits. Law enforcement, through the Cyberpolice Unit, continues to combat phishing and online fraud schemes that could undermine trust in e-commerce.
- While Indonesia does not yet have laws specifically regulating AI, it has released ethical guidelines. The Ministry of Communication and Digital Affairs issued Circular No. 9/2023 on AI Ethics, providing broad principles for responsible AI development. The Financial Services Authority also put out guidelines on the use of AI in fintech to ensure that it is fair and transparent. Those are not binding laws but signal future regulatory directions. As AI becomes more prevalent in e-commerce, those guidelines may serve as a foundation for future laws and regulations to manage algorithmic transparency, bias etc. (this is discussed in greater detail under section D below).

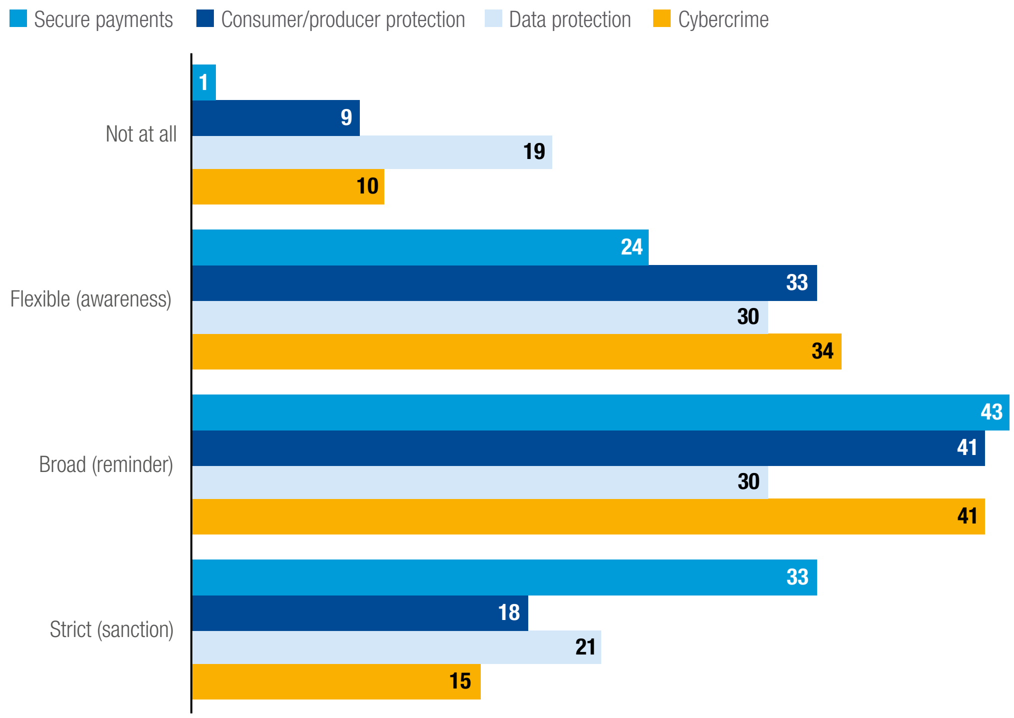
Regulations are essential for promoting trust. However, many MSMEs and new entrants to the digital economy, especially if they are transitioning from informal operations, face challenges in navigating the evolving legal landscape. Compliance can be complex due to overlapping regulations issued by different agencies, as well as the novelty of many rules still being socialized.

As in other developing countries, questions remain around clarity, alignment with international standards and consistent enforcement, which can limit the practical effectiveness of those frameworks. That underscores the need for clearer guidance and support mechanisms to help businesses operate in confidence.

UNCTAD surveys of the public and private sectors indicate that, while consumer/producer protection and secure payments are generally perceived as well enforced, data protection and cybercrime are perceived as the least enforced, highlighting the need to strengthen oversight and enforcement (figure 16).

Multiple, complex and “virtual” regulations limit MSME participation in digital trade.

Figure 16
Enforcement of the legal framework
(Percentage of responses)



Source: UNCTAD survey data (public and private sector respondents, 80 responses).

4.2 Trade facilitation and cross-border data governance

Trade facilitation and cross-border data governance are increasingly interconnected in the digital trade strategy of Indonesia. With e-commerce transactions involving digital goods, cloud services and platform intermediation across borders, the ability to move data securely and efficiently across jurisdictions is fundamental to the country's competitiveness in the regional and global economies. Those policies are crucial for integrating the e-commerce market of Indonesia into regional and global markets, while also addressing important considerations related to domestic decision-making and economic security.

Indonesia has made notable progress in implementing electronic customs procedures and paperless trade systems. However, as those efforts remain largely limited to public key infrastructure recognition, their potential to fully promote paperless trade has yet to be realized. The country has deployed the National Single Window to streamline cross-border trade documentation. Integrated with the ASEAN Single Window platform through the eForm D system since 2018, Indonesian exporters can now submit and verify certificates of origin digitally for intra-ASEAN shipments. In addition, since October 2022, Indonesia has been exchanging ePhyto Certificates with the Philippines and Thailand through the ASEAN Single Window. The Directorate General of Customs and Excise has also piloted a pre-arrival processing system and expanded the use of the eSKD (taxpayer residency certificate) to support faster clearance for MSMEs. Those initiatives are aimed at reducing average cargo clearance times and documentation costs, particularly for first-time exporters.

The Ministry of Trade is developing various mechanisms to help MSMEs more easily meet export requirements, especially regarding certification. One of them is the use of the Online Single Submission Risk-based Approach system, which simplifies the licensing process, including for MSMEs that want to export digitally.

A pivotal change occurred in 2020 when the Ministry of Finance drastically lowered the de minimis threshold for duty-free imports from $75 to $3. That significantly affected low-value parcels, especially those ordered online. That policy was aimed at protecting domestic MSMEs from an influx of ultra-cheap foreign goods. While local producers welcomed the measure for fostering fairer competition, stakeholders in cross-border e-commerce observed that it encouraged structured customs handling, ensuring that consigned goods were processed in a formal and consistent manner. The Directorate General of Customs and Excise implements customs, excise and taxation provisions on consigned goods pursuant to Ministry of Finance Regulation No. 96/2023, as amended by its Regulation No. 4/2025. Those regulations govern the declaration mechanism, imposition of import duties and taxes, as well as simplified documentation and inspection procedures.

The Directorate General of Customs and Excise implements customs, excise and taxation provisions on consigned goods pursuant to Ministry of Finance Regulation No. 96/2023 as amended by its Regulation No. 4/2025. Those regulations govern the declaration mechanism, imposition of import duties and taxes, as well as simplified documentation and inspection procedures. Consigned goods are classified into four categories. First, letters, postcards and documents – exempted from import duties and import taxes. Second, shipments with a (free on board) value of up to $3 (de minimis threshold) – declared using a consignment note, exempted from import duties and income tax, but subject to value added tax. Third, shipments with a (free on board) value of more than $3 but no more than $1,500 – declared with a consignment note under the simplified declaration scheme. Those are exempted from income tax, subject to 7.5 per cent import duty, except for eight commodities that are subject to most-favoured-nation tariffs, namely: knowledge books (zero per cent, exempted from income tax); watches, cosmetics, iron and steel (15 per cent with 5 per cent income tax), and bags, textiles, footwear and bicycles (25 per cent with 5 per cent income tax). Value added tax remains applicable. Fourth, shipments with a (free on board) value greater than $1,500 – declared through a full declaration using a customs import declaration. Simplification procedures apply to the second and third categories, which include paperless documentation through a consignment note, application of the de minimis threshold, excise exemption for certain excisable goods, a single import duty rate of 7.5 per cent (except for the aforementioned eight commodities), and cooperation with e-commerce platforms under the Delivered Duty Paid scheme. Participating marketplaces must transmit electronic catalogues and electronic invoices to the customs authorities under the Customs Excise Information System and Automation. Moreover, in accordance with the Delivered Duty Paid scheme, they are obligated to sell goods at prices that include import duties and taxes, thereby supporting the customs authorities in revenue collection. That scheme helps optimize data-sharing between customs and marketplaces while improving the efficiency of revenue collection. Participating marketplaces also benefit from reduced customs clearance times, making the partnership mutually advantageous.

The regulatory framework ensures administrative efficiency for the public and businesses, while maintaining effective oversight, transparency and legal certainty. According to the Directorate General of Customs and Excise, all shipments are subject to mandatory X-ray inspection, with physical checks conducted selectively. Clearance is completed in less than one hour for X-ray only and within two hours if physical inspection is required. Temporary storage facilities must also comply with regulatory standards, including postal operator licensing, customs access approval, monitoring equipment, such as X-ray scanners and CCTV, and electronic data exchange with the Directorate through the Customs Excise Information System and Automation consignment goods application. Furthermore, those provisions are aligned with Ministry of Trade Regulation No. 31/2023, which requires marketplaces or merchants conducting direct imports to Indonesia to apply a minimum (free on board) price of $100 for each unit.

As stated above, the customs authorities have introduced simplified clearance procedures, such as bulk processing, electronic declarations and risk-based profiling, to mitigate bottlenecks. The country is also piloting cross-border data exchange initiatives, such as the transmission of advance package information, with China to accelerate customs risk assessment and clearance. Complementing those regulatory efforts, Indonesia is experimenting with solutions, such as bonded fulfilment centres in free trade zones (e.g. Batam), where foreign goods can be stockpiled and only incur duties upon sale, thus speeding delivery to local buyers. Improvements in logistics, such as the rise of international shipping consolidators and last-mile delivery partners, also facilitate faster cross-border e-commerce. Those measures align with the commitments of Indonesia under agreements such as the Regional Comprehensive Economic Partnership (which calls for simplified customs procedures and paperless trade for e-commerce), and are aimed at making it easier for Indonesian products to reach export markets and vice versa.

For digital services, recent regulations require large Internet companies – defined as those with more than 100,000 users in Indonesia or those generating more than 1 million daily traffic requests – to register and, among other things, remove unlawful content within 24 hours or face penalties. That reflects a growing focus on content governance as part of digital policy. While not directly “trade” measures, such requirements influence which foreign digital players enter the market (e.g. several had to register by mid-2022 to avoid being blocked).

Data governance has been a focal point in digital trade policy, balancing openness with national policy priorities. The Personal Data Protection Law sets conditions for cross-border data transfers – data can be exported only to jurisdictions with equal or higher data protection standards, or under specific agreements. That ensures that Indonesian personal data are safeguarded even when handled abroad; it requires businesses to navigate complex compliance requirements. Moreover, Government Regulation No. 71/2019 on the Organization of Electronic Systems and Transactions mandates that public sector and certain critical sector systems store data domestically. Private electronic system operators can store data offshore if they guarantee the Government access for the purposes of oversight and enforcement. In practice, that means government databases and some critical sectors (such as banking, if the business meets certain asset thresholds) must have local data centres, whereas e-commerce platforms and cloud services can be foreign hosted if they cooperate with the Indonesian authorities when necessary.

Sector-specific data regulations remain influential. Bank Indonesia, the Financial Services Authority and the Ministry of Health maintain stricter requirements for data localization or approval-based cross-border transfers in the financial and healthcare sectors. In practice, that means that cloud service providers and digital banks must design data architecture that accommodates both international services and domestic regulatory compliance. Stakeholders from the Indonesian Fintech Association emphasized the need for clearer guidelines and greater coordination among regulators to avoid conflicting interpretations of data governance rules.

Those policies reflect national priorities around security, privacy and safeguarding public interests in the digital economy while attempting to preserve an investment-friendly environment. For example, the clarification provided in 2019 allowing private sector data flows was meant to reassure businesses worried about overly restrictive data localization requirements.

4.3 Regional and global digital trade commitments

Digital trade agreements and e-commerce provisions in free trade agreements increasingly shape domestic policy reforms and influence the competitiveness of national firms. Commitments under the ASEAN Agreement on Electronic Commerce, the Regional Comprehensive Economic Partnership[16] and the future commitments under the ASEAN Digital Economy Framework Agreement are expected to drive the regulatory alignment of Indonesia in areas such as cross-border data flows, digital identity and AI governance, pushing forward reforms that improve interoperability and support the scaling of digital services regionally. The Digital Economy Framework Agreement is built upon earlier instruments such as the ASEAN Digital Integration Framework, the ASEAN Framework on Personal Data Protection (2016) and sectoral memorandums of understanding on e-commerce, fintech and digital tax.

Table 2
Relevant trade agreements for Indonesia

ASEAN-Australia-New Zealand Free Trade Area	In force
Regional Comprehensive Economic Partnership	In force
Indonesia-Australia Comprehensive Economic Partnership Agreement	In force
Indonesia-European Union Comprehensive Economic Partnership Agreement	Substantially concluded
ASEAN-China Free Trade Area (Upgrade)	Signed
ASEAN Digital Economy Framework Agreement	Under negotiation

Indonesia is deeply engaged in regional and global initiatives shaping digital trade rules. Within ASEAN, Indonesia has been a key proponent of the upcoming Digital Economy Framework Agreement, with negotiations on the text of the Agreement targeted for conclusion by the end of 2025. The Agreement is poised to be a pioneering region-wide digital economy pact, addressing areas such as trade facilitation, cross-border data flows, online consumer and data protection, cybersecurity, digital payments interoperability, digital identities and cooperation on emerging technologies. It is aimed at expanding the ASEAN digital economy from an estimated $300 billion in 2023 to $1 trillion by 2030 through deeper regional integration. The involvement of Indonesia in the Agreement reflects its interest in setting common standards that will benefit its businesses (e.g. mutual recognition of digital certificates and smoother e-commerce logistics across ASEAN borders). As the largest economy in ASEAN, the domestic policies of Indonesia (on data, payments etc.) often serve as a model for regional norms and, conversely, the Agreement's eventual provisions may drive domestic regulatory updates.

Indonesia balances international obligations with a rules-based digital trade approach tailored to national priorities.

The Coordinating Ministry of Economic Affairs is spearheading the country's team negotiating the Digital Economy Framework Agreement, ensuring strategic coherence across sectors, with inputs from the Ministry of Trade, the Ministry of Communication and Digital Affairs, the

[16] While it is beyond the scope of the present report to assess treaty compliance, it is noted that the members of the Regional Comprehensive Economic Partnership are expected to adopt relevant UNCITRAL texts, an area in which the alignment of Indonesia remains incomplete.

National Development Planning Agency, Bank Indonesia, the Financial Services Authority and the Ministry of Foreign Affairs, and other related ministries and stakeholders. The Indonesia E-commerce Association and the Indonesian Chamber of Commerce and Industry have organized regional consultations to gather the views of MSMEs, especially from outer islands. The Agreement's final text is anticipated to be the country's most binding digital economy commitment at the regional level to date.

Indonesia is also a member of the Regional Comprehensive Economic Partnership, which entered into force in 2022. Chapter 12 of the Regional Comprehensive Economic Partnership Agreement on electronic commerce contains commitments to facilitate the use of e-commerce, including promoting paperless trading and adopting measures to protect consumers from unsolicited commercial electronic messages (spam). It reaffirms members' commitments under WTO decisions by continuing the practice of not imposing customs duties on electronic transmissions, although the provision (art. 12.11) clarifies that this is subject to the WTO Work Programme on Electronic Commerce and does not preclude internal taxation. Article 12.15 on cross-border transfer of information by electronic means requires members to allow cross-border data flows for business purposes but provides broad exceptions in situations in which restrictions are necessary to achieve a legitimate public policy objective. Similarly, members are encouraged not to require the use or location of computing facilities in their territory, again with exceptions. Indonesia secured sufficient policy space in those provisions to maintain and enforce its domestic data protection regulations – particularly the Personal Data Protection Law – without being required to fully liberalize cross-border data flows or prohibit data localization. At the same time, the Partnership Agreement signals the willingness of Indonesia to align gradually with international practices, as members also agreed to cooperate on personal data protection, which supports implementation of the Personal Data Protection Law. Lastly, the Partnership Agreement includes provisions for technical assistance and capacity-building, which Indonesia can leverage to strengthen its digital trade environment.

At the multilateral level, Indonesia actively participates in the WTO Work Programme on Electronic Commerce. In this context, Indonesia has consistently raised concerns regarding the WTO Moratorium on Customs Duties on Electronic Transmissions, particularly in relation to the need to preserve policy space for developing and least developed countries. These concerns include the importance of improving the availability of trade statistics on digital goods, ensuring a level playing field between tangible and intangible goods, supporting the digital participation of MSMEs, and addressing potential risks associated with digital trade, such as tax base erosion, intellectual property infringement, and other cross-border enforcement challenges. While the moratorium has been periodically renewed through collective decisions of WTO Members, Indonesia continues to engage constructively in discussions within the Work Programme framework to ensure that emerging digital trade disciplines adequately reflect development considerations. That policy is designed to support several strategic objectives: data collection, by establishing a framework for the customs administration to gather statistical data on digital trade flows to inform public policy; maintaining policy flexibility, by preserving the option to align tariff treatment of digital and physical goods in the future, including with a view to support domestic MSMEs in the digital and creative sectors; and content monitoring, by enabling oversight of digital content flows to prevent the circulation of material deemed harmful to society. That approach reflects the effort of Indonesia to balance its commitments under the multilateral trading system with national development priorities in the digital economy.

Indonesia is also one of the 91 WTO member States to participate in the WTO

Joint Statement Initiative on Electronic Commerce, although it remains cautious about certain binding obligations. Indonesia has engaged in multilateral discussions on e-signatures, consumer protection, unsolicited messages and customs duties on electronic transmissions. It has yet to endorse the stabilized text circulated in July 2024 citing concerns over the extended moratorium on customs duties for electronic transmissions and its potential impact on national fiscal policies. Based on stakeholder interviews in the context of the present assessment, Indonesian trade negotiators emphasized the need to preserve policy space and regulatory flexibility for domestic economic priorities, particularly on matters related to cybersecurity and digital taxation.

Box 6
World Trade Organization Work Programme on Electronic Commerce and the Joint Statement Initiative on Electronic Commerce

The WTO Work Programme on Electronic Commerce, established in 1998, explores trade-related aspects of electronic commerce across four WTO bodies: the Councils for Trade in Goods, Trade in Services and Trade-related Aspects of Intellectual Property Rights, as well as the Committee on Trade and Development. The Work Programme is aimed at better understanding the implications of e-commerce on global trade and development, particularly for developing and least developed countries. Since 1998, WTO members have also maintained a moratorium on customs duties on electronic transmissions.

In parallel, the Joint Statement Initiative on Electronic Commerce was launched in 2019 by a group of WTO members (now 91), including Indonesia. Co-convened by Australia, Japan and Singapore, the Initiative seeks to establish baseline global rules for digital trade, covering areas such as the moratorium on customs duties for electronic transmissions, privacy and security and digital trade facilitation through simplified customs procedures and use of electronic documents.

In July 2024, the co-convenors announced the stabilization of the text for the agreement. It contains a mix of binding rules and provisions on best endeavours aimed at encouraging e-commerce and using technology to facilitate traditional trade.[a]

[a] See https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/ECOM/87.pdf&Open=True.

To date, Indonesia has not signed any digital-only trade agreement but is studying models such as the Digital Economy Partnership Agreement between Chile, New Zealand, the Republic of Korea and Singapore for potential application. However, the bilateral economic agreements of Indonesia increasingly include chapters on digital trade. For example, the Indonesia-Australia Comprehensive Economic Partnership Agreement includes e-commerce provisions on non-discrimination, transparency and regulatory cooperation. Negotiations with the European Union under the Indonesia-European Union Comprehensive Economic Partnership Agreement also feature robust chapters on digital trade.

Regulatory agencies and ministries involved in those negotiations stress the need for regulatory alignment while protecting national digital policy priorities. The Ministry of Trade has developed a dedicated Digital Trade Unit to manage those processes, supported by legal specialists and a newly established Advisory Council on Digital Trade Law, which includes academic experts, civil society and industry representatives. At the regional forum level, Indonesia has been vocal in the Asia-Pacific Economic Cooperation forum about supporting multilateral e-commerce in the WTO Work Programme on Electronic Commerce. Moreover, during its G20 presidency in

2022, Indonesia championed discussions on the digital economy and post-pandemic digital transformation, culminating in a G20 declaration supporting digital trade and inclusion. A notable outcome was its proposal for the G20 Digital Innovation Network and support for the Bali compendium of good practices on digital inclusion, in which scalable models to bridge digital divides across G20 members are highlighted.

Furthermore, Indonesia contributes to discussions within UNCITRAL and UNCTAD, particularly on harmonization of e-commerce laws and legal reform assistance to developing countries. The alignment of Indonesia with the UNCITRAL Model Laws on Electronic Commerce and Electronic Signatures is being reviewed for formal accession and the Ministry of Communication and Digital Affairs is examining the feasibility of adopting the UNCITRAL framework on automated contracting and AI-driven decision-making in trade.

4.4 Future regulatory outlook

Proactive regulation on AI, cybersecurity and emerging technologies will help ensure that the digital economy of Indonesia remains trusted and globally competitive.

As the digital economy of Indonesia evolves, regulators face the task of addressing emerging challenges and ensuring the long-term legal relevance of the legal and regulatory framework, anticipating future technological developments.

One such challenge is keeping pace with rapid technological change – particularly in areas such as AI, the Internet of things and blockchain technology. The current approach of Indonesia has been to issue ethical guidelines (as with AI ethics in 2023) and observe global trends before enacting hard law. However, the growing use of AI in e-commerce may necessitate more specific rules around algorithmic transparency, fairness and accountability. For example, ensuring that AI-driven credit scoring or job-matching platforms do not inadvertently discriminate is a prospective regulatory issue (Chen et al., 2023). While Indonesia has launched the National Artificial Intelligence Strategy (2020–2045) and initiated ethical principles for AI, there is no specific legislation governing AI systems. The Government may need to draft an AI act or integrate AI provisions into existing consumer protection and labour laws in the coming years. The same holds true for the Internet of things: as smart devices proliferate, standards for data security and interoperability might be required. With blockchain, while Indonesia has recognized its potential in areas such as digital identity, supply chain traceability and trade finance, regulation remains limited to cryptocurrency supervision under the Commodity Futures Trading Regulatory Agency.[17] The Government must determine how to regulate high-risk AI-use cases, define liability in automated services and ensure algorithmic fairness. In response, the Ministry of Communication and Digital Affairs is preparing a white paper on AI regulation, with stakeholder inputs expected in early 2026.

Digital taxation is another area of focus. Indonesia has already imposed a 10 per cent rate of value added tax on digital services provided by foreign companies (such as streaming services and applications) since 2020, ensuring a level playing field with local businesses, which are exposed to the same level of value added tax. Looking ahead, Indonesia is supportive of the global OECD Inclusive Framework discussions on taxing digital giants, the so-called Pillar One agreement, which is aimed at ensuring that countries receive a fair share of taxing rights from significant digital economic activity within their borders.[18] Once finalized, implementing such global tax rules will require substantial legal reforms. In parallel, the Government is considering the introduction of a dedicated e-commerce tax and strengthening the

[17] In 2024, the Ministry of Trade transferred the task of regulating and supervising digital financial assets, including crypto assets and financial derivatives, to the Financial Services Authority and Bank Indonesia.

[18] See https://www.internationaltaxreview.com/article/2bp434q4bk15xf8s5t14w/indonesias-hopes-for-pillar-one.

enforcement of income tax compliance among online sellers as more commerce shifts online, ensuring effective and equitable taxation will be essential. The key challenge lies in striking the right balance: designing tax policies that promote fairness and revenue generation without hindering the growth of the digital economy.

Competition policy in the digital era, another Digital Economy Framework Agreement discussion topic, poses future regulatory questions. The Competition Law of Indonesia (1999, amended in 2021) will need to grapple with issues of digital market dominance, such as how to handle large online platforms that may engage in anti-competitive practices. While Indonesia does not yet face the same degree of Big Tech dominance as some larger markets, signs of it are emerging (e.g. one e-commerce platform controlling a majority of traffic or certain "super applications" expanding into many sectors). Ensuring markets remain open to start-ups and MSMEs may require updating merger review guidelines (to scrutinize acquisitions of technology start-ups by dominant firms) and possibly new rules to prevent abuse of data advantage. Other economies are enacting specific ex ante rules for major online gatekeepers – Indonesia will observe these developments and consider if similar approaches are needed regionally or nationally.

Content moderation and online safety will continue to be a regulatory tightrope. The 2020 regulation (Ministerial Regulation No. 5 as revised by Ministerial Regulation No. 10) that requires digital platforms to remove prohibited content within 24 hours tested the waters and Indonesia did briefly block some services that failed to register. Going forward, regulators will refine how to combat harmful or illegal online content (hate speech, misinformation etc.) without hampering free expression and business certainty.

Trust and safety in digital spaces demand stronger regulatory attention. Digital gender-based violence, online fraud, phishing, fake reviews and platform manipulation are growing threats to consumer confidence. Although the Electronic Information and Transactions Law includes broad criminal provisions, specific civil remedies and enforcement pathways remain limited. The implementation of online dispute resolution platforms and the proposed Consumer Protection Law revision are aimed at providing faster, more accessible remedies. Stakeholders propose mandatory transparency reports from large platforms and minimum standards for content moderation, echoing global trends such as the European Union Digital Services Act.

Regulatory fragmentation across sectors poses challenges to both compliance and enforcement. During consultations held in 2025, stakeholders consistently emphasized the overlapping roles of the Ministry of Communication and Digital Affairs, the National Cyber and Crypto Agency, the Financial Services Authority, Bank Indonesia and sectoral ministries. For example, a single fintech platform may be subject to the data rules of the Ministry of Communication and Digital Affairs, the licensing regulations of the Financial Services Authority, the cybersecurity standards of the National Cyber and Crypto Agency and the tax obligations of the Ministry of Finance. That complexity can overwhelm MSMEs and deter foreign investment.

Capacity and coordination within the Government will be tested as regulatory demands grow. The newly formed Ministry of Communication and Digital Affairs will need to coordinate with sectoral regulators (financial, trade etc.) on overlapping digital issues. Institutional capacity must be scaled to match regulatory ambitions. The newly created Data Protection Authority and expanded Ministry of Communication and Digital Affairs require trained personnel, secure digital infrastructure and enforcement tools to carry out their mandates effectively. Regional disparities in implementation remain acute, particularly in eastern Indonesia. To address that, the Ministry of Communication and Digital Affairs and the National Development

Planning Agency plan to establish digital regulation support units in 20 provinces by 2027, offering legal helplines, regulatory briefings and small business support in local languages. There is also a need for continuing stakeholder engagement – the pace of change means policies could quickly become outdated if not regularly consulted on with industry and civil society.

In conclusion, the legal and regulatory framework of Indonesia for digital trade has evolved significantly, establishing key foundations for e-commerce growth and cross-border digital exchange. Initiatives on data protection, e-commerce regulations and electronic trade facilitation tools position the country to play a strong regional role. Strengthening coordination across institutions and enforcement, addressing capacity gaps and ensuring policies remain responsive to emerging technologies will be essential. It is equally important that digital trade governance continues to foster gender equality, protect consumer rights, support MSMEs and encourage innovation, enabling the country's digital economy to grow sustainably and inclusively.

5. Digital payment systems and financial inclusion

The booming e-commerce sector of Indonesia has been fuelled by a fast-growing digital payments ecosystem, led by tools such as e-wallets, QRIS and BI-FAST. By 2024, more than 30 million merchants were accepting QRIS, significantly widening access to financial services across the country. E-wallets, such as GoPay, OVO, DANA and ShopeePay, now serve hundreds of millions of users, including many who previously did not have access to traditional banking. Thanks to those advances, the country's financial inclusion rate climbed to nearly 89 per cent in 2024.

However, challenges remain. Many users still do not fully engage with their accounts and gaps in digital literacy and trust continue to limit broader adoption. Recent innovations, such as QRIS Tap and QRIS Tuntas, are helping to bring services to more remote communities, while fintech companies are expanding their offerings to include things such as microsavings and buy-now-pay-later options. Even with that progress, issues such as uneven Internet access and usage across regions show that more work is needed, especially in boosting digital financial literacy, protecting consumers and improving how those systems connect and work together.

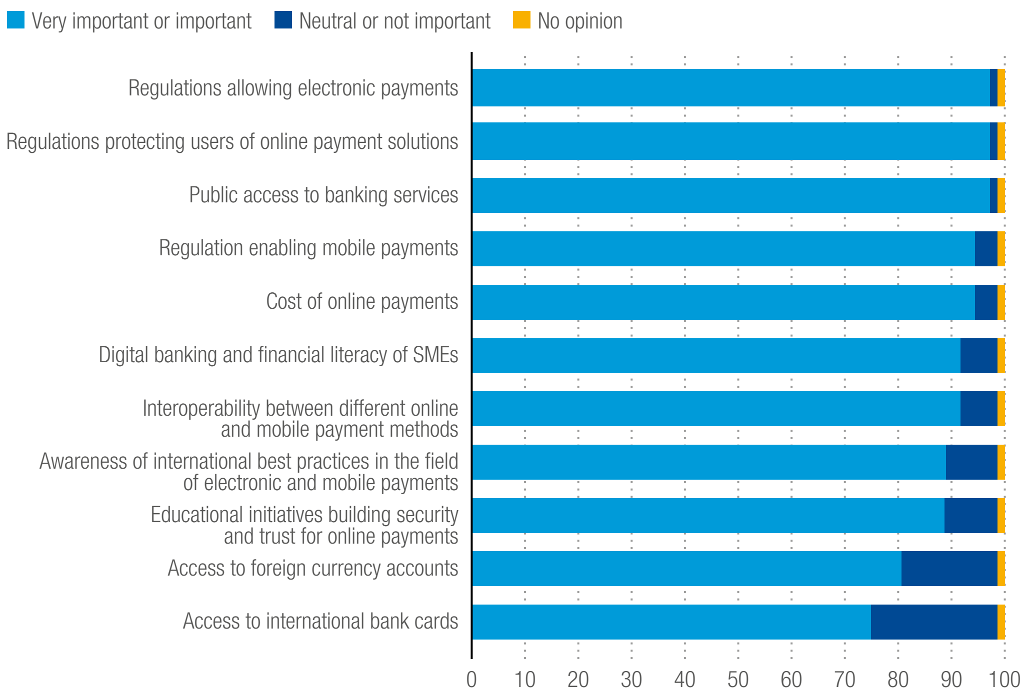
5.1 Development of digital payment infrastructure

The digital payment infrastructure of Indonesia has undergone a rapid transformation over the past decade, evolving from fragmented systems to an increasingly integrated, interoperable ecosystem that serves both urban and rural users (Centre for Indonesian Policy Studies, 2024). As digital transactions become central to the country's commerce, services and public administration, the development of reliable, secure and inclusive payment systems remains a critical enabler of the digital economy.

When asked to identify main factors for an enabling environment for e-commerce in terms of payment solutions, public and private sector respondents identified the following three most important areas: regulations allowing electronic payments, regulations protecting users of online payment solutions and public access to banking services.

At the institutional level, Bank Indonesia has led the modernization of payment systems through its multiphase Payment System Blueprint 2025, in which it articulates a vision for open, interconnected and efficient payment infrastructure. The Blueprint includes reforms in five key areas: industry consolidation, retail payment interoperability, cybersecurity, financial innovation and cross-border linkages.

Figure 17
Priority factors enabling e-commerce in terms of online payment solutions
(Percentage of responses)



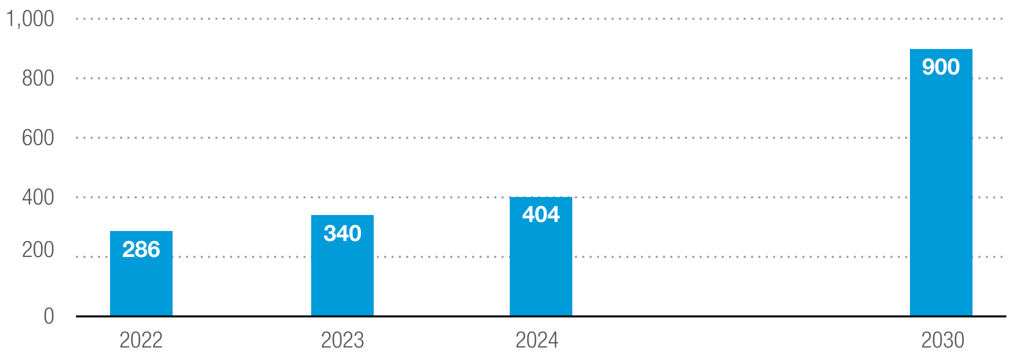
Source: UNCTAD survey data (public and private sector respondents, 72 responses).

A core component of that strategy is BI-FAST, the real-time retail payment system launched in December 2021, which offers 24/7 low-cost interbank transfers. Customers can now send money between banks in seconds, up to approximately $17,000 for each transaction, with a fee as low as approximately $0.17. BI-FAST has significantly improved interoperability and reduced the cost of payments, benefiting both consumers and businesses (especially MSMEs that rely on quick cash flow). By mid-2025, BI-FAST had onboarded more than 120 banks, reaching in excess of 85 per cent of the national banking market. The system has significantly reduced transaction costs, with average interbank fees falling to approximately $0.17, thus improving affordability for low-income users and MSMEs.

In tandem, the traditional card payment network has seen innovation: the National Payment Gateway was established to reduce reliance on foreign card switches and lower transaction fees. The Government's push for the gateway and a forthcoming domestic credit card network are aimed at increasing card usage by making it cheaper for merchants to accept cards. Nonetheless, industry trends show that mobile wallets and instant transfers have leapfrogged cards in popularity. Cards and bank transfers remain common, but wallet payments (often through QRIS) have become extremely prevalent. Buy-now-pay-later services have also emerged; although they still account for a small share of e-commerce payments (approximately, 3–5 per cent according to recent estimates), they are projected to grow.

The digital payments sector has expanded rapidly, driven by widespread smartphone adoption and strong consumer preference for cashless methods, such as e-wallets and QR code payments. In 2024, the gross transaction value reached $404 billion – nearly 50 per cent higher than in 2022 – making Indonesia the largest digital payments market in South-East Asia by value. That strong growth trajectory is expected to continue, with projections indicating that the gross transaction value of digital payments could approach $900 billion by 2030 (figure 18). Those figures not only reflect the size of the population but also highlight how deeply embedded cashless payments have become in daily transactions.

Figure 18
Gross transaction value of digital payments
(Billions of United States dollars)



Source: UNCTAD on the basis of Google, Temasek and Bain & Company (2024b).

Within the digital payments space, different segments have grown in tandem. E-commerce payments (payments for online purchases of goods/services) and mobile point-of-sale payments (in-person payments through mobile devices or QR codes) are two major components. In 2018, digital commerce payments in Indonesia were approximately $39.8 billion, while mobile point-of-sale payments were approximately $61.2 billion. By 2024, each of those figures had approximately tripled – with digital commerce transactions reaching an estimated $137.3 billion and mobile point-of-sale payments approximately $194.9 billion. That dramatic increase reflects both the boom in online shopping and a parallel shift in how people pay in physical stores (moving from cash to scanning phones or cards). A major driver of the cashless revolution has been the proliferation of user-friendly e-wallet applications and the unification of QR code payments. More than 100 million Indonesians are now active users of one or more digital wallet platforms and virtually all major banks have rolled out mobile banking applications.

The acceleration of cashless payments has been facilitated by an expanding fintech ecosystem. Indonesia is home to more than 350 registered fintech companies, operating across payments, lending, wealth management and InsurTech. Mobile wallets, such as OVO, GoPay, DANA, LinkAja and ShopeePay, dominate daily retail payments, offering cashback programmes and embedded financial services that appeal to digitally connected consumers. Those platforms have expanded to cover bill payments, transportation, health insurance and charitable donations. The widespread adoption of mobile payments was especially pronounced during and after the COVID-19 pandemic, when physical distancing and contactless commerce became essential.

Complementing BI-FAST, Indonesia has adopted the QRIS framework, which has become the backbone of mobile payments interoperability. QRIS allows users to scan a single QR code regardless of the issuing bank or e-wallet provider. As at April 2025, more than 37 million merchants – 90 per cent of which are MSMEs – had adopted QRIS and in excess of 290 million

> BI-FAST, QRIS and e-wallets are transforming payments, bringing millions of small merchants and consumers into the formal economy.

transactions a month were being processed. Bank Indonesia mandates that all QRIS providers comply with security protocols, fraud detection mechanisms and data privacy requirements, creating trust in the ecosystem. The continued growth of QRIS usage, especially among informal sector vendors and women-led microenterprises, reflects its accessibility and ease of use. The implementation and expansion of QRIS is now supported by the Government, industry players and the public sector. It plays a key role in onboarding MSMEs into the digital ecosystem, enabling them to open payment accounts and participate in digital commerce platforms, such as e-commerce, social commerce and live commerce. QRIS also supports multi-instrument payment capabilities, allowing merchants to broaden their customer base and expand business operations. That leads to improved service quality and increased profitability. Furthermore, QRIS unlocks access to broader financial services such as financing and investment. As all transactions are digitally recorded, they help build credit profiles, especially for those previously underserved. QRIS facilitates more efficient cross-border payments through back-end infrastructure interlinkages, offering a lower-cost alternative to traditional methods.

Importantly, the payment innovations of Indonesia are also extending regionally. In its Payment System Blueprint 2030, Bank Indonesia prioritizes cross-border QR payment linkages to drive regional e-commerce integration, aligning directly with the ASEAN Digital Economy Framework Agreement. Currently, QRIS Cross-Border of Bank Indonesia has been connected with three countries: Thailand (since August 2022), Malaysia (since May 2023) and Singapore (since November 2023). The development of the QRIS Cross-Border connection between Indonesia, China and Japan is already in the pipeline. In its strategy, Bank Indonesia focuses on ASEAN payment connectivity, which is built on five key elements: (a) QR interoperability; (b) fast payment interconnectedness; (c) standardization of application programming interfaces; (d) real-time gross settlement interconnectedness; and (e) expanded local currency transactions and local currency bilateral swap agreements.

Box 7
Regional cross-border payment integration

Indonesia has made significant progress in integrating cross-border payment systems with neighbouring ASEAN countries, notably Malaysia, Singapore and Thailand. Those linkages allow users to make instant retail payments across borders using QR code standards, such as QRIS. Those developments are part of a broader regional effort to enhance digital financial inclusion and interoperability.

In May 2023, Bank Indonesia and Bank Negara Malaysia officially launched the Indonesia-Malaysia cross-border QR payment linkage, following a successful pilot phase that began in January 2022. That commercial arrangement includes both bank and non-bank financial institutions, enabling Indonesians and Malaysians to use their mobile applications to scan QRIS or DuitNow QR codes at physical or online merchants. Participating institutions from Indonesia include major banks and e-wallet providers, such as Bank Central Asia, Bank Mandiri, LinkAja, DANA and ShopeePay. Malaysian participants include CIMB, Maybank, Public Bank, TNG Digital and Razer Merchant Services, among others.

Indonesia has also launched similar linkages with Singapore and Thailand. In November 2023, Bank Indonesia and the Monetary Authority of Singapore introduced cross-border QR payments, allowing customers in both countries to scan QRIS or NETS QR codes at merchants. Earlier, in August 2022, Bank Indonesia and the Bank of Thailand inaugurated a similar system involving 76 payment service providers. Bank Indonesia and the Bank of Thailand are also exploring fast payment systems for cross-border transfers. However, challenges remain in implementing those initiatives, particularly in achieving regulatory harmonization and addressing potential data privacy and governance issues.

Cross-border QR payment systems offer wide-ranging benefits across consumers, merchants and financial service providers. For consumers, they provide a convenient and secure alternative to carrying cash or exchanging currency, with more competitive foreign exchange rates and lower fees, thanks to local currency transactions, which reduce reliance on hard currencies and support faster, cheaper and more efficient payments. Merchants in the tourism ecosystem – such as retailers, hoteliers, transport operators and food establishments – benefit from lower transaction costs compared with credit cards, easier installation, increased sales through greater tourist spending and access to value-added services offered by banks and e-wallet providers. For financial service providers, cross-border QR systems expand their user base, increase application engagement and generate rich transactional data to support new digital products. With approximately 18 million intra-ASEAN tourists spending $19 billion annually, an interoperable QR payment ecosystem capturing just 15–20 per cent of that value could facilitate up to $4 billion in transactions, while also accelerating digital adoption and deepening regional economic integration.

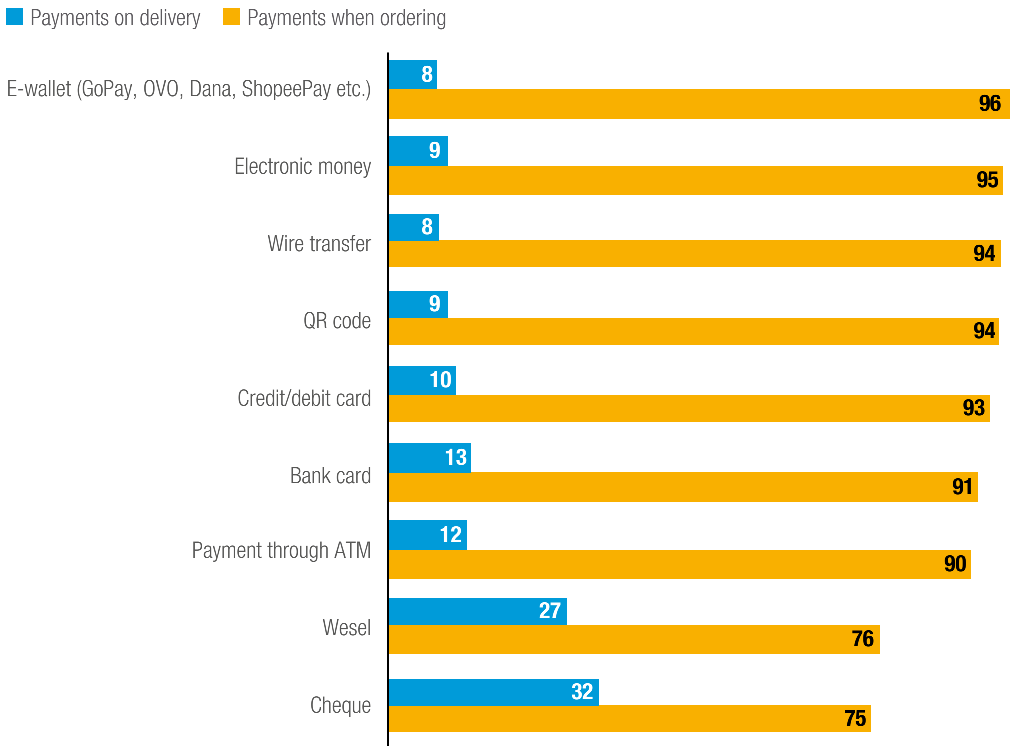
Source: UNCTAD, based on Boston Consulting Group and ASEAN Business Advisory Council (2023).

Looking ahead, Bank Indonesia plans to explore a retail central bank digital currency, known as Rupiah Digital. A white paper was published in late 2023 and stakeholder consultations are ongoing. The potential introduction of Digital Rupiah is aimed at enhancing monetary policy transmission, strengthening the integrity and resilience of payment systems and offering a safe, government-backed digital alternative to commercial e-money. As discussions evolve, legal frameworks and privacy safeguards will need to be defined and interoperability with existing platforms must be carefully managed to avoid disruption.

Despite the rapid uptake of digital payments, cash still plays a role in certain contexts as observed during the field mission in Medan and Makassar. However, payment infrastructure disparities persist. While major cities, such as Jakarta, Surabaya, Bandung and Medan, enjoy dense networks of cashless points of sale, many rural areas still lack reliable mobile coverage or agent banking networks. UNCTAD survey data confirm that in eastern Indonesia, particularly Papua, Maluku and parts of Nusa Tenggara, less than 40 per cent of microenterprises report regular use of digital payments. Infrastructure limitations, digital illiteracy and the cost of smartphones and data plans remain key barriers. In smaller towns or among older generations, cash on delivery or in-store cash payments for online purchases remain common, as confirmed by consumer surveys carried out by UNCTAD in May and June 2025 (figure 19).

To reduce geographic disparities in access to digital payments, Bank Indonesia is expanding QRIS and BI-FAST in underserved regions, including eastern Indonesia and the 3T regions (frontier, outermost and underdeveloped). Although those regions have traditionally faced infrastructure constraints, limited Internet connectivity is no longer a binding barrier, as QRIS supports transactions that can be completed once a network becomes available and, in some cases, without an active connection. Solutions such as QRIS Tap, which relies on near field communication, and QRIS Tuntas enable payments, transfers between QRIS users and cash withdrawals and deposits through ATMs, cash deposit machines or authorized agents. Users can access those services through interoperable applications provided by banks and non-bank payment service providers, using bank accounts or server-based electronic money as the source of funds. All transactions are digitally recorded with time, amount and recipient details, reducing the need for physical bank branches and strengthening financial inclusion in remote and unbanked communities.[19]

Figure 19
Payment methods used to make online purchases
(Percentage)



Source: UNCTAD survey data (consumer respondents, 419 responses).

Many e-commerce platforms still offer cash on delivery payments to accommodate unbanked customers or those who remain hesitant about digital payments. However, the share of cash-based payments is steadily declining year by year. To accelerate that shift, the Government is working to build trust in digital financial services through stronger consumer protection measures and regulatory oversight of fintech providers (Google, Temasek and Bain & Company, 2024a). Those efforts are aimed at further reducing reliance on cash and expanding access to the formal financial system through secure and inclusive digital payment solutions.

5.2 Expanding access through digital finance

The digital financial ecosystem has grown remarkably in scope and sophistication, offering an increasingly diverse suite of financial products to previously unbanked and underbanked populations. Digital finance – ranging from e-wallets and mobile savings to peer-to-peer lending and Insurtech – has emerged as a key lever for financial inclusion, helping individuals and MSMEs gain access to capital, manage risk and participate in the digital economy

The national financial inclusion rate reached 80.5 per cent in 2024, a significant rise from 76.2 per cent in 2019, according to

[19] This information was received from Bank Indonesia in the context of the present assessment.

the Financial Services Authority.[20] That expansion is largely attributable to digital financial services, which have outpaced conventional banking in outreach and user acquisition. Platforms such as GoPay, OVO and DANA now provide microsavings, instalment payment options and bill aggregation services. E-wallet accounts surpassed 380 million by early 2025, many of which are held by individuals who do not maintain traditional bank accounts.

Fintech tools have enabled millions, especially in underserved areas, to access financial services without relying on traditional bank infrastructure. Peer-to-peer lending and buy-now-pay-later options have further expanded access to credit for consumers and small businesses. Individuals can now save money, make payments and even borrow small amounts of money with just a mobile phone. The Government actively furthers inclusion through its National Strategy for Financial Inclusion, working towards increasing the number of adults with bank or e-money accounts. Initiatives include the digitalization of government payments (the delivery of payments directly to accounts instead of cash), as well as an expansion of the network of bank agents in towns for opening accounts and cash in/out for e-money. Those actions overcome two traditional impediments: distance from a bank and a lack of trust in the formal system.

In terms of policy, Bank Indonesia and the Financial Services Authority have cooperated with respect to the Payment System Blueprint 2025, which, inter alia, is aimed at an inclusive digital finance environment (Bank Indonesia, 2019). That involves interoperable payments (enabled through QRIS as well as BI-FAST), open banking standards (to enable collaboration between fintech and bank players) and proportional regulation that provides smaller e-money players with some room for manoeuvre while protecting customer funds. The Government also leverages digital finance as an instrument for development programmes: for example, amid the COVID-19 pandemic, cash disbursements were made digitally whenever possible, which increased account ownership rates significantly for the recipients.

This impact is evident in the rise of account ownership (at a bank or mobile money provider) to some 56 per cent of adults in 2024, as recorded by the World Bank's Global Findex Database, from about 36 per cent in 2014 (World Bank, 2025a). Millions of previously excluded Indonesians are now using the a savings wallet[21] or simple savings account. Nevertheless, nearly half of adults still have no account, with the unbanked mainly found in hard-to-reach areas and low-income segments. Women, in particular, are less financially included than men when it comes to digital payments. The gap in digital payment account ownership between men and women stood at about 8 percentage points in 2024 (34 per cent of women compared with 42 per cent of men had an account). Plugging such gaps demands focused efforts. One solution is simplifying know-your-customer conditions on low-tier accounts: Bank Indonesia and the Financial Services Authority permit e-wallet operators to sign up customers with just a national identification number for an account with a limited balance, facilitating sign-up remotely for people. The omnipresence of a universal electronic national identity (e-KTP) system and its linkage with SIM registration has greatly supported electronic know-your-customer requirements for fintech firms, allowing for mass account opening with verified confirmation in mere seconds. Using ubiquitous devices – in particular, the mobile phone – has helped in reaching women and rural customers

[20] See https://iru.ojk.go.id/iru/BE/uploads/event/files/file_a41d74e8-b72c-4ebb-bc48-1b822ec2b12b-07052025145313.pdf.

[21] A "savings wallet" refers to a basic digital financial account provided by a mobile money operator or fintech platform, which allows users to store funds, make payments and in some cases earn interest or access savings features, without requiring a traditional bank account. Examples in Indonesia include GoPay, OVO, Dana, and LinkAja, which offer e-money accounts that can function as savings wallets.

Digital financial inclusion is rising, but usage gaps remain.

in an efficient and cost-saving manner.

Simultaneously, the mass adoption of QRIS has brought millions of MSMEs and microvendors into the formal financial system for the first time by enabling them to receive digital payments without the need for special hardware. That low-cost, interoperable solution not only facilitates daily transactions but also helps build digital financial histories that can support future access to credit and other formal financial services.

Peer-to-peer lending has emerged as a fast-growing sector in the financial inclusion agenda of Indonesia. By mid-2025, 102 licensed platforms facilitated more than $1.75 trillion in outstanding loans, primarily for working capital, education and emergency needs. The Financial Services Authority has introduced enhanced safeguards, including borrower credit caps, interest rate ceilings and transparent disclosures. Platforms such as Amartha and Investree target underserved segments, particularly women-owned MSMEs in rural areas. Amartha, for instance, combines credit with social performance indicators, rewarding borrowers for sustainability practices and community leadership. However, challenges persist around borrower overindebtedness, risk modelling and digital fraud. In its updated 2025 Fintech Regulation Framework, the Financial Services Authority calls for improved grievance redress mechanisms, AI-based fraud detection and integrated supervision with the Ministry of Communication and Digital Affairs and the National Cyber and Crypto Agency.

Digital microinsurance is gaining traction as a complementary inclusion tool. Providers such as PasarPolis and Qoala offer low-premium policies bundled with ride-hailing, logistics or e-commerce services. For example, delivery drivers are automatically enrolled in accident coverage during shifts. Bundled health insurance is also expanding through partnerships with the national social insurance agency, offering digitally managed claims and telemedicine access. That model is particularly relevant for informal workers, gig economy participants and women-headed households without formal employment contracts.

Encouragingly, the outlook is positive. To help sustain gains in inclusion, consumer protection and financial literacy are key. Many first-time digital finance customers must learn how to use services securely, avoid fraud and use credit prudently. The Government and the private sector have initiated training sessions – for instance, learning how to safeguard one-time passwords, recognize fake emails or SMSs (phishing) or budget when using instalment payment facilities. Building trust is key: when customers have positive experiences and feel secure, they will be more inclined to use formal finance over cash.

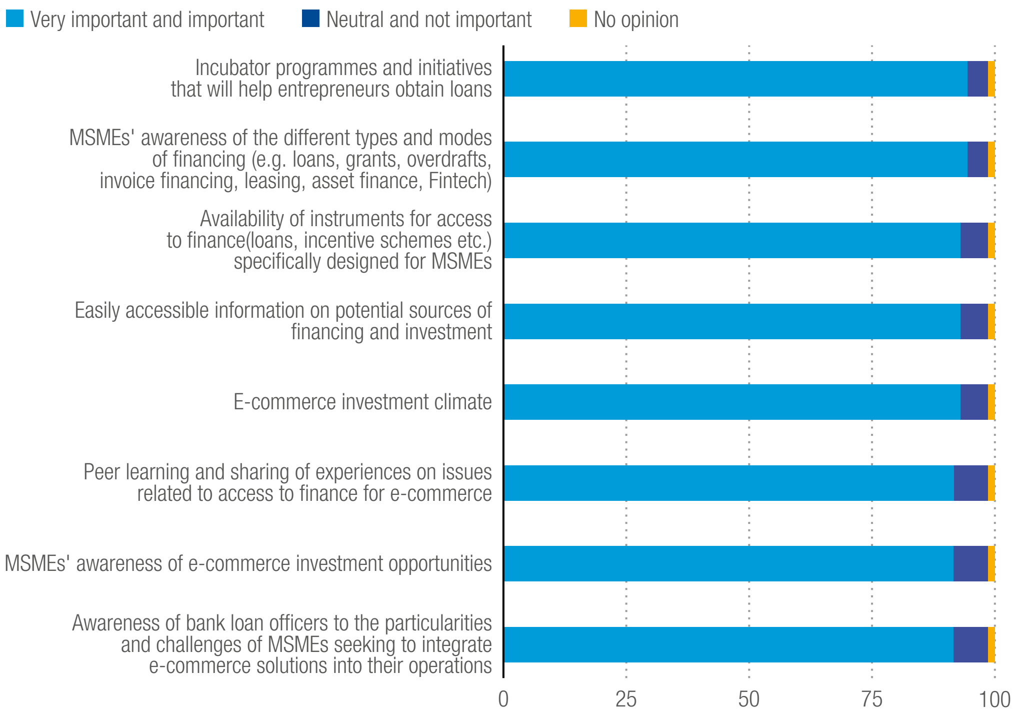
A further dimension of inclusion is ensuring active use of accounts, not mere ownership. Many of the newly opened accounts risk dormancy unless linked with ongoing needs. That is where digital payments and e-commerce establish a virtuous circle: as individuals discover the utility in using an account as a means of payment for online shopping, bill payments or wage receipt, their use of the financial system intensifies. Across Indonesia, the sheer size of transactions already being channelled through digital streams – from payments for ride-hailing services through online purchases – indicates that a major proportion of newly included customers are regularly transacting. The challenge is then to extend the range of services offered digitally to the newly included customers. Microsaving, microinsurance and pensions through digital channels are just some examples of such services. Those could significantly enhance financial protection for the majority. Already, several of the fastest-growing fintech start-ups, as well as the major e-commerce players, are providing innovative services such as gold savings starting from a few thousand rupiah or low-cost add-on insurance for online purchases. Accident coverage is offered for ride-hailing customers; users of some e-wallet services can invest small change in money market funds. Those expansions extend the benefits of inclusion from payments to full financial health.

Access to digital loans in Indonesia has increased, both for productive and consumer loans. For sustainable growth and in order not to expose borrowers to risks involved with digital loans, the Financial Services Authority, through Regulation No. 10/POJK.05/2022, imposed the requirement that, from January 2024, the daily interest rate of consumptive loans is limited to 0.3 per cent, while for productive loans, the ceiling is 0.1 per cent. Borrowers are also restricted in their ability to access multiple lending platforms. While the measures are aimed at avoiding overindebtedness, they could be burdensome for MSMEs in need of credit for productive purposes, affect the ability of consumers to spend online or have an effect on the expansion prospects of the digital loan portfolios of the platforms.

To mitigate the potential downsides of stricter lending caps and platform restrictions, several complementary measures could be considered. Those include allowing more flexible terms for productive loans while maintaining stricter controls on consumer borrowing and encouraging the use of alternative credit-scoring methods – such as transaction histories or QRIS payment data – to responsibly expand access to credit for underserved MSMEs. Gradual implementation of borrowing limits, paired with targeted exemptions for creditworthy borrowers, could ease the adjustment. In addition, public credit guarantee schemes and borrower education initiatives can help reduce default risk and promote more responsible digital borrowing.

Overall, public and private sector stakeholders rated incubator programmes and initiatives, MSME awareness of financing and the availability of instruments specifically designed for MSMEs as the most important factors for creating access to finance conducive to the development of e-commerce in the country.

Figure 20
Most important factors for creating access to finance conducive for e-commerce
(Percentage)



Source: UNCTAD survey data (public and private sector stakeholders, 72 responses).

5.3 Digital identity systems for secure transactions

Digital identity and innovative fintech solutions will strengthen trust and accelerate adoption of secure online financial services.

Secure and inclusive digital identity systems are indispensable for scaling digital payments and financial services. They facilitate customer due diligence, prevent fraud, ensure targeted service delivery and reduce transaction costs. The cornerstone is the e-KTP system – a biometric-based national identity system – which has issued identity cards to more than 190 million Indonesians. The e-KTP system provides each citizen with a unique identification number and has an embedded chip storing fingerprints and other data, creating a reliable base for identity verification. The system, managed by the Directorate of Population and Civil Registration, has been leveraged, in particular, to enable electronic know your customer across banking, fintech and e-commerce services. For example, when someone registers for an e-wallet or an online bank account, the service provider can (with user consent) ping the database of the Directorate of Population and Civil Registration to verify the person's unique identification number and match their name and birthdate. That back-end integration has drastically reduced the time and effort needed to open financial accounts – what once required an in-person visit and paperwork can now often be done through a smartphone in minutes, with e-KTP serving as the trusted source of proof of identity.

Building on e-KTP, Indonesia is now rolling out a digital identity mobile application.[22] As at December 2024, approximately 18 million Indonesians had activated their digital identity in the application, a number expected to grow rapidly. The application essentially stores a person's e-KTP information (and QR code) on their smartphone, allowing them to prove their identity electronically for various services.[23] Officials at the Directorate of Population and Civil Registration note that greater digital identity uptake can improve efficiency by saving on card printing and enabling fully online verification for public and private services. For instance, travellers may no longer need to show a physical identity document at airports if their digital identity can be scanned. During COVID-19, Indonesia experienced increased usage of digital credentials – the PeduliLindungi application (now SatuSehat) became a quasi-digital identity for health/vaccine status, familiarizing millions with the concept of application-based credentials.

The role of private sector digital identity providers is growing. Firms such as PrivyID and VIDA offer digital signature services, identity verification and age authentication tools that are recognized under the Electronic Information and Transactions Law and the accreditation framework of the Ministry of Communication and Digital Affairs. Those services support secure transactions in e-commerce, banking, health services and education. For example, online lending platforms use PrivyID to sign digital loan agreements, while education technology firms use VIDA to confirm parental consent for minors' enrolment.

The synergy between digital identity and digital finance is evident: fintech providers use biometric verification (such as facial recognition matching the identity photo) to authenticate users remotely. Telecommunications operators similarly rely on e-KTP data for SIM card registration (mandatory since 2018), which has helped reduce anonymous fraud. A person's mobile number and fintech accounts are tightly linked to their official identity, enhancing trust in transactions. Moreover, the Government's push for a single identity across services means that databases (tax, social security and electoral roll) are being unified through a unique identification number, improving service delivery and reducing duplication.

Based on the Indonesian framework for digital signatures and certificates, the Electronic Information and Transactions

[22] While e-KTP has been successfully deployed for know your customer in financial services, current approaches to digital identity are often tied to a single, high level of assurance, which may limit their scalability and broader application. A universal and flexible model of digital identity would allow for more diverse-use cases beyond know your customer.

[23] See https://www.biometricupdate.com/202502/indonesia-aims-to-boost-digital-id-uptake-in-bid-for-greater-efficiency.

Law recognizes digital signatures as legally binding and a number of licensed certificate authorities (both public and private) operate to issue digital certificates. The system has been adopted by the Government for signing electronic documents and is gradually being offered in the private sector, including banking for high-value transactions. For MSMEs, the ability to sign contracts or invoices digitally (using a verified certificate tied to their identity document) could simplify e-commerce and procurement processes. However, the Electronic Information and Transactions Law ties legal recognition to specific technologies and licensed certificate authorities, creating technological rigidity that can increase costs, slow adoption and limit innovation for MSMEs. Efforts are under way to integrate those digital identities and signatures into e-procurement and business licensing on the Online Single Submission system, further streamlining business dealings.

Despite those advances, challenges remain in achieving a fully inclusive and secure digital identity ecosystem. One is coverage and adoption: while e-KTP is nearly universal among adults, not everyone is technologically savvy enough or has the device to utilize the digital identity application. As at early 2025, the digital identity user count (18 million) was a fraction of the total population. Older persons, persons with disabilities and residents in remote areas face challenges in accessing mobile devices and completing biometric registration. There are also privacy and security concerns. Civil society organizations have raised issues about centralized data storage, the risk of profiling and insufficient transparency on data-sharing agreements with third parties. The Government is accelerating socialization and making the application easy to use, but it will take time to get tens of millions on board. Another challenge is privacy and data security. High-profile incidents, such as a breach of the Directorate of Population and Civil Registration data in the past, have raised concerns. The new Personal Data Protection Law provides a framework for protecting personal data and the Directorate of Population and Civil Registration insists on strong safeguards for its systems. However, as more services tap into the central identity database, ensuring that access is controlled and data are not misused are critical for maintaining public trust.

Digital identity is also essential for cross-border payments and trade. Indonesia is engaged in discussions under the ASEAN framework for mutual recognition of digital identities, which is aimed at enabling trusted, interoperable digital identity systems across member States. It could facilitate labour mobility, remittances and cross-border e-commerce participation for MSMEs and individuals alike. Pilot programmes with Singapore and Malaysia are already under way, with mutual recognition of know-your-customer standards and biometric templates being tested under sandbox arrangements.

In conclusion, the advances of Indonesia in terms of digital payments, finance and identity are reshaping the landscape of inclusion, innovation and economic empowerment. The integration of payment infrastructure with identity systems, the expansion of fintech access and the growing emphasis on trust have laid strong foundations for the country's digital economy. Going forwards, sustained progress will depend on closing geographic and gender gaps, strengthening consumer protection and embedding environmental sustainability in financial digitalization.

Conclusions and the way forward

1. Conclusions

In the present assessment, the authors provide a comprehensive view of the progress and challenges of Indonesia in using e-commerce and digital trade to drive inclusive, sustainable development. Through in-depth research, surveys and wide-ranging consultations, at both the national and regional levels, the findings show that, while Indonesia has a strong digital foundation, there are still notable gaps, especially in coordinating policy, supporting the adoption of e-commerce by small businesses, building legal certainty and fostering trust in digital systems.

In the area of e-commerce and digital trade policy, stakeholders recognized the country's strong commitment to digital transformation, illustrated by its national strategies, such as the Golden Indonesia Vision 2045, the Making Indonesia 4.0 road map and the Digital Indonesia Vision 2045. Those highlight a comprehensive, whole-of-government approach that integrates digital transformation embedded into broader national development planning. The consultations revealed the need for greater alignment across agencies and improved private sector engagement, particularly to ensure that digital policies and policy frameworks are not only inclusive and implementable, but also aligned with international standards. In responses to the surveys, public and private sector respondents also emphasized the urgency of harmonizing regulatory approaches and ensuring coherence between digital trade strategies and ongoing OECD accession efforts.

Regarding technology adoption, positive feedback on broadband expansion and the SATRIA-1 satellite initiative were highlighted in surveys, particularly in responses from public stakeholders. Nonetheless, persistent concerns around urban-rural disparities and the readiness of MSMEs to absorb new technologies were flagged during consultations. Participants across sectors noted that more localized, user-friendly interventions were needed, especially to support women-led and rural enterprises in leveraging digital tools.

As regards MSME participation in e-commerce and digital trade, there is great momentum and growing interest, as confirmed by both public and private sector respondents. Many MSMEs are already selling online, often through social commerce platforms. However, the consultations showed that a significant proportion of MSMEs remain informal, lack access to affordable digital services and are therefore underrepresented in business-to-consumer and business-to-business marketplaces. Concerns persist around lack of awareness of support programmes and the limited reach of existing capacity-building initiatives. Stakeholders consulted stressed the need for more inclusive outreach, simplified registration processes and targeted support for smaller or less digitally mature businesses. Those challenges were echoed in survey results, particularly in relation to the lack of trust in logistics providers and low awareness of available government support programmes. At the same time, stakeholders highlighted the untapped potential for MSMEs to engage in cross-border e-commerce, especially as Indonesia prepares for deeper regional integration through the ASEAN Digital Economy Framework Agreement. Realizing those opportunities will require capacity-building efforts tailored to cross-border trade, covering skills such as compliance with foreign market regulations, digital marketing abroad, quality standards and interoperable payment systems, so that MSMEs can compete and grow beyond the domestic market.

Regarding the legal and regulatory framework for e-commerce, legislation on e-transactions and e-signatures will benefit from an alignment with international standards. In the assessment, the authors found strong momentum, with important laws in place or under development covering consumer protection, data privacy and cybersecurity. However, stakeholders, particularly from the private sector, called for more consistency, predictability and coordination among regulators. Overlapping regulations and legal ambiguity remain key barriers as revealed by the extensive consultations held with private sector stakeholders.

With respect to digital payments and financial inclusion, the consultations and survey results converged around three key points: the growing trust in e-wallets and QRIS systems, the need to address continued reliance on cash on delivery (especially, in tier 2 and 3 regions), and the importance of further strengthening consumer protection and financial literacy. Private sector actors also raised concerns about the uneven regulatory treatment of traditional banks in comparison with fintech, while public sector agencies highlighted ongoing efforts by Bank Indonesia and the Financial Services Authority under the Payment System Blueprint 2025 to foster inclusive digital finance.

Sustainability is an emerging and promising dimension of the digital economy of Indonesia. While the environmental footprint of e-waste, packaging and delivery emissions is still being fully assessed, the Government has already launched important circular economy and e-waste initiatives. Those efforts provide a strong foundation for further targeted policies that promote sustainable e-commerce practices among businesses. There is a growing opportunity to strengthen the management of the environmental footprint associated with e-waste, packaging waste and delivery emissions.

Across all policy areas, one message was highlighted consistently: inclusion must be prioritized. That means designing digital strategies that meet the needs of women, youth and persons with disabilities and putting in place robust systems to track progress and ensure accountability.

Looking ahead, Indonesia is well positioned to play a leading role within ASEAN in shaping a digital trade environment that is inclusive, interoperable and trusted. Continued success will depend on effective coordination among agencies, maintaining momentum in regulatory reforms efforts, expanding successful pilot programmes and making digital inclusion a core part of policy and implementation at every level.

2. The way forward: action matrix

1.	E-commerce and digital trade policy framework			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
1.1	Strengthen/revitalize the e-commerce steering committee or establish a high-level coordination body to drive implementation of the different policies supporting e-commerce and digital trade growth. The body should also include local government and private sector representatives, have clearly defined roles for each ministry and agency, convene regular interministerial meetings and incorporate a mechanism to support the country's convergence with best practices in digital trade policy frameworks and legal instruments.	Improved governance and oversight of e-commerce initiatives through cohesive inter-agency coordination, minimizing overlapping efforts and ensuring timely implementation of strategic initiatives.	High	The Ministry of Communication and Digital Affairs; the Coordinating Ministry for Economic Affairs; the Ministry of Trade; the Ministry of Foreign Affairs; the Ministry of Micro-, Small and Medium-sized Enterprises; the Ministry of the Creative Economy; the Indonesian E-commerce Association; UNCTAD
1.2	Develop a dedicated national e-commerce strategy that enhances inter-institutional coordination and aligns with the Golden Indonesia Vision 2045; and ensure coordination and synergies with the White Paper on the National Strategy for the Development of the Digital Economy 2030 where relevant.	A coherent national e-commerce strategy that fosters effective inter-institutional coordination and supports long-term economic growth.	High	The Coordinating Ministry for Economic Affairs; the Ministry of Foreign Affairs; the Ministry of Communication and Digital Affairs; the Ministry of National Development Planning; the Ministry of Micro-, Small and Medium-sized Enterprises; the Ministry of Trade; the Ministry of Finance; the Ministry of State-Owned Enterprises; Danantara Indonesia (sovereign wealth fund); the private sector; UNCTAD
1.3	Streamline and communicate institutional mandates in the digital economy (e.g. delineate responsibilities between the Ministry of Communication and Digital Affairs, the National Cyber and Crypto Agency, the Ministry of Trade etc.) through regulations that eliminate overlaps and establish a coherent framework for cybersecurity, data protection and electronic system providers.	Clear division of responsibilities among government bodies in charge of digital trade leading to more efficient policy execution and reduced regulatory duplication.	High	The Coordinating Ministry for Economic Affairs; the Ministry of Communication and Digital Affairs; the National Cyber and Crypto Agency; the Ministry of Trade
1.4	Institutionalize regular public-private dialogue on e-commerce (including SME associations, women's business associations and organizations representing youth and persons with disabilities, and regional stakeholders) through forums or advisory councils to gather feedback on policies and address industry concerns.	More inclusive and responsive policymaking, as input is systematically gathered and used to fine-tune regulations and initiatives.	Medium	The Ministry of Communication and Digital Affairs; the Ministry of Trade; the Indonesian E-commerce Association; chambers of commerce; the Ministry of the Creative Economy; the Ministry of Villages and Underdeveloped Regions Development; local governments

1.	E-commerce and digital trade policy framework			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
1.5	Enhance the existing proactive dialogue mechanisms, facilitated by the Ministry of Trade, with major e-commerce platforms to anticipate regulatory needs and avoid reactive, ad hoc policymaking ("viral regulations"). That framework should also incorporate a regulatory sandbox to test and refine policies in collaboration with industry stakeholders.	Improved regulatory predictability and trust between public authorities and major e-commerce platforms.	High	The Ministry of Trade; the Ministry of Communication and Digital Affairs; the Coordinating Ministry for Economic Affairs; National Consumer Protection Agency; the Indonesian E-commerce Association; MSME associations
1.6	Build the capacity of government officials (national and local) on e-commerce and digital trade through dedicated training, workshops, knowledge exchange programmes and multi-stakeholder discussions. The mechanism should take into account structured discussions among e-commerce platforms, MSME entrepreneurs, consumer associations and government representatives.	Enhanced understanding and skills among policymakers and regulators, resulting in more effective implementation of e-commerce policies and regulations.	Medium	The Ministry of Communication and Digital Affairs; the Ministry of Trade; the National Civil Service Agency; local governments; International Trade Centre (ITC); UNCTAD; ASEAN
1.7	Ensure that provincial and local governments strengthen coordination mechanisms with national authorities on digital trade policy implementation, develop solutions aligned with the National Strategy for the Development of the Digital Economy 2030 and establish local e-commerce support hubs (e.g. digital innovation centres or MSME help desks).	Establishing equality between the central and regional governments in order to create an ecosystem with balanced knowledge regarding the growth of local ecommerce.	Medium	The Ministry of Home Affairs; the Ministry of Communication and Digital Affairs; the Ministry of Trade; the Ministry of Micro-, Small and Medium-sized Enterprises; provincial and city governments; UNDP
1.8	Enhance data collection and measurement of the digital economy by increasing visibility and expanding the One Data initiative to include e-commerce indicators, especially in underserved areas.	Better monitoring of e-commerce enabling evidence-based decisions and adjustment of policies as the market evolves.	High	Statistics Indonesia; Bank Indonesia; the National Development Planning Agency; the Ministry of Communication and Digital Affairs; the Ministry of Micro-, Small and Medium-sized Enterprises; UNCTAD; the International Telecommunication Union; World Bank
1.9	Take into account environmental impacts in e-commerce policy initiatives by encouraging green e-commerce practices, by establishing an incentive and recognition mechanism for MSMEs and e-commerce platforms that implement green policies, in order to motivate other stakeholders to participate in such initiatives.	Digital trade expansion that is environmentally conscious, contributing to national sustainability goals and enhancing the long-term resilience of the e-commerce sector.	Medium	The Ministry of Communication and Digital Affairs; the Ministry of the Environment; the Ministry of Trade; the National Development Planning Agency; UNDP (green economy programmes); ITC
1.10	Adopt the UNCTAD eTrade Reform Tracker to monitor the implementation of the eT Ready and ensure that progress and results are made publicly accessible.	Improved coordination, transparency and accountability in implementing eT Ready actions through structured tracking data-driven decisions and stakeholder engagement.	Medium	The Ministry of Communication and Digital Affairs; the Ministry of Foreign Affairs; the National Development Planning Agency
1.11	Develop a regulatory framework for digital trade that is oriented towards cybersecurity, data protection and electronic system organizers.	A comprehensive framework for consumer data protection in digital commerce.	High	The Ministry of Trade; the Coordinating Ministry for Economic Affairs; the National Cyber and Crypto Agency

2.	Technology adoption			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
2.1	Accelerate the roll-out of 5G and next-generation networks by streamlining spectrum allocation, reducing spectrum fees, incentivizing 5G device adoption, encouraging infrastructure sharing and providing fiscal support to close infrastructure gaps, especially fibre-optic networks in eastern Indonesia, to lower costs, expand access and enable a gradual transition from 4G.	Higher network capacity and speed across the country, enabling advanced digital services and supporting innovation in e-commerce platforms.	Medium	The Ministry of Communication and Digital Affairs; Telecommunications regulators; major telecommunications operators; the International Telecommunication Union (technical guidance); the Indonesian E-commerce Association
2.2	Incentivize the development of local data centres and cloud computing facilities by streamlining permits, addressing electricity capacity challenges and offering targeted incentives to enhance domestic hosting capacity and meet data localization needs.	Increased local cloud and data centre capacity, resulting in lower latency and greater data security for Indonesian e-commerce platforms and enhanced sustainable infrastructure supporting digital services growth.	Medium	The Ministry of Industry; the Ministry of Communication and Digital Affairs; the Ministry of Investment and Downstream Industry (Investment Coordinating Board); private data centre investors
2.3	Support the digital transformation of traditional businesses (especially MSMEs in manufacturing, agriculture and food, and retail) by promoting adoption of modern digital tools (enterprise resource planning, cloud software, the Internet of things in production etc.), through outreach and voucher programmes. Digital transformation of traditional businesses should be recognized as a strategic agenda to enhance efficiency, productivity and competitiveness.	Broader technology adoption beyond the technology sector leading to productivity gains and a narrowing of the digital divide between leading firms and the rest.	High	The Ministry of Industry; the Ministry of Micro-, Small and Medium-sized Enterprises; the National Cyber and Crypto Agency; the Ministry of Communication and Digital Affairs; the Ministry of Finance; the Ministry of Higher Education, Science and Technology; the Indonesian E-commerce Association; chambers of commerce; technology industry partners (platforms and IT firms); ADB; ITC
2.4	Establish innovation hubs and sandbox programmes aligned with the national AI road map, focusing on emerging technologies (AI, blockchain, big data and fintech) for e-commerce and trade; and encourage start-ups and enterprises to pilot new solutions with regulatory support.	A vibrant innovation ecosystem in which new digital solutions for e-commerce are tested and scaled, leading to home-grown innovations.	Medium	The Ministry of Communication and Digital Affairs; the National Research and Innovation Agency; technology incubators/accelerators; private sector research and development laboratories; World Bank; ITC
2.5	Continue promoting environmentally sustainable logistics by incentivizing e-commerce delivery providers to adopt green practices (such as electric vehicles, bike couriers and recyclable or biodegradable packaging) and by facilitating collaboration among e-commerce and logistics providers.	Reduced carbon emissions and waste associated with e-commerce fulfilment, contributing to the country's environmental targets while maintaining efficient logistics.	Medium	The Coordinating Ministry for Economic Affairs; the Ministry of Transportation; the Ministry of the Environment; logistics associations; major e-commerce platforms; the State Electricity Company; UNDP (sustainability programmes)
2.6	Encourage the development of smart logistics solutions, such as route optimization software, automated warehouses and digital freight platforms, by supporting partnerships between technology firms and logistics providers and promoting Open API standards for interoperability.	Greater efficiency in the e-commerce supply chain, which lowers the cost of delivery and improves service speed.	Medium	The Ministry of Communication and Digital Affairs; the Ministry of Transportation; logistics technology start-ups; logistics associations

3.	Performance of micro-, small and medium-sized enterprises on e-commerce and digital trade			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
3.1	Scale up digital skills programmes for MSMEs, offering training in e-commerce operations, digital marketing, information security for self-assessment for MSMEs and ICT/cybersecurity skills based on their level of digital adoption, leveraging online courses and public-private partnerships for wider reach.	MSME owners and employees acquire the know-how to operate online businesses effectively.	Medium	The Ministry of Micro-, Small and Medium-sized Enterprises; the Ministry of Communication and Digital Affairs; Ministry of Trade; the National Cyber and Crypto Agency; the Ministry of Manpower; the Coordinating Ministry for Economic Affairs; the Ministry of Industry; Pos Indonesia; the Indonesian E-commerce Association; technology companies (training support); ITC; UNCTAD; the International Labour Organization; Universal Postal Union (UPU)
3.2	Encourage formalization of online businesses by simplifying business registration and tax processes for micro-online sellers (e.g. through the online single submission system) and providing incentives (such as fee waivers or tax allowances) for newly formalized e-commerce MSMEs in support of implementation of Government Regulation No. 7/2021 on the Facilitation, Protection and Empowerment of Cooperatives and MSMEs.	More informal e-commerce entrepreneurs transition into the formal sector; and government oversight and tax revenue from the digital economy increase.	Medium	The Ministry of Investment and Downstream Industry; the Ministry of Finance (tax); the Ministry of Law; the Ministry of Micro-, Small and Medium-sized Enterprises; local MSME support centres; World Bank (business climate support); UNCTAD (Division on Investment and Enterprise)
3.3	Develop sustainable mentorship and incubation programmes targeting e-commerce start-ups and MSMEs (through business incubators, accelerators and large-company mentorship initiatives) to provide coaching on logistics, financial access, branding, customer service and export marketing, with special emphasis or modules on MSMEs led by women, youth or persons with disabilities.	Strengthened capabilities of e-commerce entrepreneurs and start-ups, resulting in improved business practices and higher survival rates of new e-commerce ventures.	Medium	The Coordinating Ministry for Economic Affairs; the Ministry of Communication and Digital Affairs; the Ministry of Industry; the National Research and Innovation Agency; the Ministry of Micro-, Small and Medium-sized Enterprises; the Ministry of Trade; start-up incubators and accelerators; universities (entrepreneurship centres); UNDP (innovation programmes); ITC
3.4	Promote MSME participation in cross-border e-commerce by simplifying and integrating export procedures for small parcels (e.g. streamlined export clearance or “export facilitation” for MSMEs).	Reduced time and cost for MSMEs to complete export formalities for small parcels, leading to higher export volumes of small consignments, particularly from new-to-export MSMEs.	High	The Ministry of Trade (export promotion); Pos Indonesia; the Directorate General of Customs and Excise; logistics providers (international shippers); the Ministry of Micro-, Small and Medium-sized Enterprises; ITC (e-commerce export facilitation programmes); ITC; the Economic and Social Commission for Asia and the Pacific; UNCTAD; UPU TradePost

3.	Performance of micro-, small and medium-sized enterprises on e-commerce and digital trade			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
3.5	Develop and implement targeted training and mentoring programmes for MSMEs to help them identify, prepare for and seize cross-border trade opportunities created by the country's participation in digital trade agreements and in regional/global value chains. Topics should include compliance with cross-border e-commerce regulations, digital marketing for foreign markets, quality standards and interoperable payment systems.	Increased MSME readiness to export through improved understanding of cross-border e-commerce regulations, standards and market entry strategies.	Medium	The Coordinating Ministry for Economic Affairs; the Ministry of Trade; Bank Indonesia; the Ministry of Trade (export promotion); the Ministry of Micro-, Small and Medium-sized Enterprises; Pos Indonesia; private sector associations; ITC; the Economic and Social Commission for Asia and the Pacific; UNCTAD; UPU Heya Project; ASEAN Coordinating Committee on MSMEs
3.6	Implement special initiatives for women entrepreneurs in e-commerce (e.g. women-focused training modules, networking and mentorship programmes and dedicated microloan schemes for digital businesses led by women, youth or persons with disabilities).	A higher number of women-led businesses successfully operating online, helping to close the gender gap in digital entrepreneurship.	High	The Ministry of Women's Empowerment and Child Protection; the Ministry of Micro-, Small and Medium-sized Enterprises; Ministry of Trade; Pos Indonesia; associations of women entrepreneurs; UN-Women; UPU Heya Project; ITC; UNCTAD eTrade for Women; Economic Research Institute for ASEAN and East Asia
3.7	Raise the awareness and capacity of MSMEs on sustainable e-commerce practices – for instance, through guidelines or workshops on reducing packaging waste, improving energy efficiency in operations and responsibly recycling e-waste.	MSMEs increasingly adopt green practices in their e-commerce operations, reducing environmental harm and potentially cutting costs.	Medium	Ministry of the Environment; the Ministry of Micro-, Small and Medium-sized Enterprises; MSME associations; environmental non-governmental organizations; the United Nations Environment Programme (sustainable business initiatives); the Ministry of Trade
3.8	Foster partnerships between large e-commerce platforms and local MSMEs (e.g. anchor companies mentoring smaller sellers or marketplace programmes that help uplift small artisans/producers) to improve product quality, compliance and the market reach of MSME products.	Improved performance of MSME sellers on e-commerce platforms. Larger platforms benefit from a more diverse and higher-quality product offering.	Medium	Major e-commerce companies; the Ministry of Micro-, Small and Medium-sized Enterprises; the Indonesian E-commerce Association; the Ministry of Trade; local craft and producer associations; ITC
3.9	Encourage large e-commerce platforms to scale up structured MSME onboarding, capacity-building and digital skilling programmes in underserved regions and for MSMEs led by women, youth or persons with disabilities, in collaboration with government MSME agencies and local stakeholders.	Accelerated MSME digital transformation and greater inclusion of small businesses in the national e-commerce ecosystem.	High	The Ministry of Communication and Digital Affairs; major e-commerce companies; the Ministry of Micro-, Small and Medium-sized Enterprises; the Ministry of Trade; local chambers of commerce; ITC
3.10	Monitor and evaluate the engagement of MSMEs in e-commerce by including e-commerce disaggregated metrics in national MSME surveys and conducting periodic assessments of the needs of MSMEs in the digital market; and use the findings to refine support programmes.	Timely data and feedback on MSME e-commerce uptake and challenges (e.g. percentage of MSMEs selling online and common obstacles faced), ensuring policies remain relevant and effective for MSME development in e-commerce.	Medium	Bank Indonesia; Statistics Indonesia; the Ministry of Micro-, Small and Medium-sized Enterprises; the Ministry of Trade; research institutes; UNCTAD (e-commerce metrics expertise)

3.	Performance of micro-, small and medium-sized enterprises on e-commerce and digital trade			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
3.11	Develop inclusive e-commerce onboarding programmes for informal sellers and entrepreneurs with disabilities.	Greater participation of underserved groups in digital trade and smoother transition to formalization.	High	The Ministry of Trade; associations of entrepreneurs with disabilities; marketplace platforms; ITC
3.12	Upgrade logistics infrastructure to support e-commerce growth, including modernizing the postal network and incentivizing private logistics firms to extend last-mile delivery services to remote islands (possibly through public-private partnerships).	Faster, more reliable delivery of online orders nationwide, resulting in improved trust in e-commerce across all parts of Indonesia.	Medium	The Ministry of Transportation; Pos Indonesia; logistics companies; private sector associations; the Ministry of State-owned Enterprises; UPU; ADB
3.13	Facilitate integration of traditional sectors (agriculture, crafts and tourism) into the e-commerce ecosystem by extending access to digital marketplace platforms to producers in these sectors (e.g. farmers, artisans and local tourism operators).	Producers in traditional sectors gain new market access through e-commerce, boosting rural incomes and diversifying the range of products available online.	Medium	The Ministry of Communication and Digital Affairs; the Coordinating Ministry for Economic Affairs; the Ministry of Agriculture; the Ministry of Tourism; the Ministry of Micro-, Small and Medium-sized Enterprises; the Ministry of Trade; e-commerce platform companies; UNDP; ITC

4.	Legal and regulatory framework			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
4.1	Address gaps in the e-commerce legal framework by enacting or updating laws/regulations, such as the implementing regulations for the Personal Data Protection Law, a comprehensive cybercrime law, stronger provisions for electronic signatures and authentication, explicit rules on online consumer protection, electronic transferable records and guidelines on digital marketplace liability and competition.	A complete and up-to-date legal framework that underpins secure and fair e-commerce, giving businesses clear rules and consumers strong protections.	High	The Coordinating Ministry for Economic Affairs; the Ministry of Law; the Ministry of Communication and Digital Affairs; the Ministry of Trade; the Competition Commission; UNCITRAL (model laws); UNCTAD; ITC; the National Cyber and Crypto Agency
4.2	Conduct legal gap assessments and capacity-building to align the digital economy regulations of Indonesia with the provisions of the ASEAN Digital Economy Framework Agreement, OECD instruments and objectives of the National Strategy for the Development of the Digital Economy 2030.	Increased regulatory convergence supporting international commitments and enhanced investor confidence.	High	The Coordinating Ministry for Economic Affairs, the National Development Planning Agency; the Ministry of Foreign Affairs; the Ministry of Law; the Ministry of Communication and Digital Affairs; the National Cyber and Crypto Agency; OECD; the Economic Research Institute for ASEAN and East Asia; ITC
4.3	Develop an in-depth study, framework and practical guide to enable secure cross-border data flows in line with international best practices (e.g. adopt standard contractual clauses for data transfer and define criteria for data storage abroad) under the Personal Data Protection Law, while safeguarding privacy and security.	Clear and practical mechanisms and responsibility for businesses to transfer and host data across borders in compliance with the law. Indonesia meets emerging ASEAN data standards	High	The Ministry of Communication and Digital Affairs; the National Cyber and Crypto Agency (cybersecurity/data authority); the Ministry of Trade; the Ministry of Law; ASEAN Secretariat (the Digital Economy Framework Agreement guidance); industry technology experts; ITC

4.	Legal and regulatory framework			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
4.4	Enhance international cooperation on cybersecurity and cybercrime by participating in relevant international frameworks and improving information-sharing with other countries on online fraud and threats.	Stronger capabilities to prevent and prosecute cybercrime affecting e-commerce thanks to collaboration with global partners, which results in a safer e-commerce environment.	Medium	The National Cyber and Crypto Agency; National Police cyberunits; the Ministry of Foreign Affairs; the International Criminal Police Organization/ASEAN Association of Heads of Police; the International Telecommunication Union (cybersecurity initiatives)
4.5	Strengthen enforcement of e-commerce and digital economy regulations by leveraging the Anti-Scam Centre under the Illegal Financial Activities Eradication Task Force to monitor compliance with consumer protection (e.g. ensuring online sellers adhere to consumer protection on financial transactions, data protection and tax requirements).	Greater compliance with e-commerce laws as authorities more proactively oversee online marketplaces and digital businesses; and consumers gain confidence.	High	Relevant ministries/government agencies participating in the Illegal Financial Activities Eradication Task Force
4.6	Introduce or strengthen alternative dispute resolution mechanisms for e-commerce, such as an online mediation platform or e-commerce ombudsperson, to help resolve consumer-seller disputes quickly and fairly without court litigation.	Faster resolution of disputes arising from online transactions leading to greater consumer trust in e-commerce.	Medium	The Ministry of Trade (consumer protection); the National Consumer Protection Agency; the judiciary (for legal recognition of alternative dispute resolution); consumer associations; UNCITRAL (online dispute resolution best practices); ITC; community consumer protection institutions
4.7	Improve cross-border e-commerce trade facilitation by implementing paperless trade systems (e.g. by considering accession to the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific) and risk-based customs clearance for low-value shipments, and by reviewing the de minimis import duty threshold to ensure a balance between trade facilitation and protection of local MSMEs.	Faster and more efficient processing of international e-commerce parcels (imports/exports) while customs policies strike a balance that supports domestic industry.	High	Directorate General of Customs and Excise; the Ministry of Trade; the National Single Window Agency; ASEAN Secretariat (ASEAN Single Window); World Bank/ADB (trade facilitation support); the Economic and Social Commission for Asia and the Pacific; ITC (Business-driven Trade and Investment Trade Facilitation Section)
4.8	Simplify and harmonize business regulations for e-commerce by removing overlapping or conflicting requirements (e.g. streamline the multiple registration/licensing processes for e-commerce platforms into a single window).	Reduced administrative burdens on e-commerce businesses. The regulatory environment becomes more business-friendly without sacrificing oversight.	High	The Coordinating Ministry for Economic Affairs; the Ministry of Investment and Downstream Industry (one-stop licensing agency); the Ministry of Communication and Digital Affairs; the Ministry of Trade; business associations; ITC
4.9	Provide clear guidelines and capacity-building to businesses (especially MSMEs) on key digital laws – such as the Personal Data Protection Law and the Electronic Information and Transactions Law – including easy-to-understand manuals or help desks for legal compliance in relation to e-commerce.	MSMEs are better equipped to comply with data protection, electronic contract rules etc., leading to improved overall compliance and fewer inadvertent breaches.	Medium	The Ministry of Communication and Digital Affairs; the Ministry of Trade; business associations (the Indonesian E-commerce Association etc.); legal aid clinics; UNCTAD (training on e-commerce law); ITC
4.10	Design and implement a national awareness campaign targeting consumers on recent and upcoming developments related to e-commerce, cybersecurity, data protection, electronic payments and consumer rights in the digital space.	Consumers gain a better understanding of their rights and obligations in the digital economy; and increased trust and responsible behaviour in online transactions.	Medium	The Ministry of Communication and Digital Affairs; the Ministry of Trade; the Financial Services Authority; the National Cyber and Crypto Agency; consumer organizations

4.	Legal and regulatory framework			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
4.11	Establish a comprehensive and adaptive framework to address emerging challenges related to new digital trade regulations. The framework should strike a balance between fostering innovation and ensuring a predictable, trusted and rights-based digital environment. It should include horizon scanning of new technologies, regulatory sandboxes to test innovations and coordination mechanisms across ministries and agencies	Regulatory guidelines on AI, the Internet of things and platform governance adopted and pilot regulatory sandbox initiatives operational to facilitate adoption of new technologies by businesses.	Medium	The Ministry of Communication and Digital Affairs; the Ministry of Trade; the National Development Planning Agency; the National Research and Innovation Agency; the Financial Services Authority, in collaboration with the private sector and academia

5.	Digital payment systems and financial inclusion			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
5.1	Strengthen national digital payment infrastructure and interoperability by broadening the adoption of the QRIS standard to all merchants (including micro- and informal vendors) and ensuring that all e-wallets, fintechs and banks are integrated into the National Payment Gateway.	Consumers can pay digitally anywhere using any platform. That interoperability boosts convenience and usage of digital payments.	High	Bank Indonesia; payment service providers (banks and e-money issuers); payment associations
5.2	Promote the use of digital payments (QRIS) in everyday transactions, including government services and traditional markets, offer incentives (e.g. discounted transaction fees and small tax credits) for merchants who adopt e-payments and mandate e-payment options for public services/utility payments.	A significant increase in merchants accepting non-cash payments and citizens transacting digitally, which expands the digital payments ecosystem.	High	The Ministry of Finance; Bank Indonesia; local governments; the Ministry of Trade (market traders programmes); payment providers (for incentive schemes)
5.3	Leverage the national digital identity system (e-KTP and its digital identity application) to streamline customer onboarding (electronic know your customer) for financial services by integrating digital identity verification into bank and e-wallet account opening processes and e-commerce checkout for more secure transactions, while also promoting interoperability for ASEAN payments.	Simplified and faster account opening for users (including remote verification), resulting in more people being able to open accounts/wallets remotely. Online transactions become more secure.	Medium	The Ministry of Home Affairs; Bank Indonesia; banks and fintech providers; World Bank (identification for development); ITC
5.4	Strengthen consumer protection in digital payments and access to financing by enforcing robust security standards (e.g. mandatory two-factor authentication and strict data privacy for payment providers) and establishing clear, fast complaint channels and resolution mechanisms for fraud or errors (such as a dedicated e-payment ombudsperson or hotline).	Increased trust in digital payment systems, leading to higher adoption and frequent use of digital payments instead of cash.	Medium	Bank Indonesia; the Financial Services Authority; the National Cyber and Crypto Agency (for cybersecurity standards); consumer protection agencies; industry associations (to implement best practices)

5.	Digital payment systems and financial inclusion			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
5.5	Leverage government digital transactions to drive financial inclusion, such as channelling welfare benefits, scholarships and civil servant salaries, into bank or e-money accounts, and require certain government fees (licences and taxes) to be paid digitally, while exploring the use of the Digital Rupiah (Central Bank Digital Currency) for government-to-person payments.	Large numbers of currently unbanked individuals are brought into the formal financial system when they must use an account to receive government payments.	Medium	Ministry of Social Affairs (for welfare payments); the Ministry of Finance; Bank Indonesia; local governments (for local fees)
5.6	Increase access to financing for e-commerce-oriented MSMEs by promoting fintech and bank lending products that use alternative data (e.g. platform sales history for credit scoring) and strengthen credit guarantee schemes for digital businesses.	Greater availability of affordable credit for small online businesses, enabling them to invest in inventory and technology.	High	The Financial Services Authority; Bank Indonesia; banks and fintech lenders; credit guarantee institutions; United Nations Capital Development Fund (inclusive finance)
5.7	Expand agent networks and promote QRIS interoperability for small retailers in rural areas (last-mile focus), while also expanding financial literacy programmes starting with the basics of the banking system.	Improved last-mile access to digital payment systems and financial inclusion.	High	Bank Indonesia; the Ministry of Villages and Underdeveloped Regions Development; fintech associations; local banks
5.8	Encourage innovative fintech solutions tailored to underserved segments (e.g. microinsurance through mobile, sharia-compliant e-wallets or buy-now-pay-later plans with consumer protections) through proportional licensing that enables growth under regulatory oversight and integrate digital payments into e-commerce logistics to strengthen ecosystem connectivity.	New financial products that cater to low-income, rural or unbanked citizens become available, helping people manage risks and payments in affordable ways.	Medium	The Financial Services Authority (Fintech Office); Bank Indonesia; fintech start-ups; Islamic finance institutions; ADB (digital finance initiatives)
5.9	Continuously monitor financial inclusion progress and digital payment adoption by enhancing data collection and analysis (e.g. annual inclusion surveys and data on account usage disaggregated by gender and persons with disabilities) and use this evidence to refine the National Strategy for Financial Inclusion.	Data-driven adjustments to policy: identification of population segments or regions lagging in usage allows for targeted interventions.	Medium	The Coordinating Ministry for Economic Affairs; the National Financial Inclusion Council; Statistics Indonesia; Bank Indonesia; World Bank (Global Findex data and technical support); the Financial Services Authority
5.10	Increase financial inclusion to underserved communities by scaling up agent banking and mobile money services – supporting banks/fintechs to recruit and equip more agents in remote villages (including post offices and retail shops as agents) for cash-in/cash-out and account opening services.	Higher account ownership in remote and rural populations as banking/services reach the last mile, narrowing regional gaps in financial access.	High	Bank Indonesia; the Financial Services Authority; banks and e-money providers; Pos Indonesia; the United Nations Capital Development Fund (inclusive finance support); UPU

5.	Digital payment systems and financial inclusion			
No.	**Indicative action**	**Expected results**	**Priority level**	**Potential support from**
5.11	Support nationwide digital financial literacy programmes (such as modules and social media campaigns) focusing on safe and effective use of e-payments and online financial services – with tailored modules for first-time users, women, older persons and persons with disabilities – delivered through community workshops and digital media.	New users gain confidence in using digital finance: increased understanding of how to use mobile banking/e-wallet applications, awareness of fraud scams and how to avoid them and improved personal financial management when using credit or buy-now-pay-later services.	High	The Financial Services Authority (Financial Literacy Department); Bank Indonesia; the Ministry of Communication and Digital Affairs (digital literacy initiatives); non-governmental organizations and community organizations; the United Nations Capital Development Fund

References

ADB (2020). Innovate Indonesia: Unlocking Growth through Technological Transformation. Asian Development Bank. Manila.

ADB (2023). Asia Small and Medium-Sized Enterprise Monitor 2023: How Small Firms Can Contribute to Resilient Growth in the Pacific Post COVID-19 Pandemic. Manila.

ASEAN (2023). ASEAN launches world's first regionwide Digital Economy Framework Agreement. 3 September.

Astuti NC and Nasution RA (2014). Technology readiness and e-commerce adoption among entrepreneurs of SMEs in Bandung City, Indonesia. Gajah Mada International Journal of Business. 16(1):69–88.

Bank Indonesia (2019). Blueprint Sistem Pembayaran Indonesia 2025. Jakarta.

Bank Indonesia (2022). Profil Bisnis Usaha Mikro, Kecil, dan Menengah (UMKM) di Indonesia Tahun 2022. Jakarta.

Bank Indonesia (2024a). Perkembangan BI-FAST: Jumlah Peserta dan Transaksi Terus Meningkat. Jakarta.

Bank Indonesia (2024b). Blueprint Sistem Pembayaran Indonesia 2030. Jakarta.

Boston Consulting Group and ASEAN Business Advisory Council (2023). Interoperable QR Code Payment Ecosystem in ASEAN: What it Means for the World.

Centre for Indonesian Policy Studies (2024). Policy Brief on Indonesia's Strategies for Joining the ASEAN Digital Economy Framework Agreement. Jakarta.

Chen L, Ramli K, Hastiadi FF and Suryanegara M (2023). Accelerating Digital Transformation in Indonesia: Technology Market, and Policy. Economic Research Institute for ASEAN and East Asia. Jakarta.

Coordinating Ministry for Economic Affairs (2021). Buku Putih Strategi Nasional Pengembangan Ekonomi Digital Indonesia 2030. Jakarta.

Coordinating Ministry for Economic Affairs (2022a). Coordinating Minister Airlangga: Government continues to encourage strengthening economic foundations by establishing digital transformation of MSMEs as one of the priorities. 31 March.

Coordinating Ministry for Economic Affairs (2022b). Laporan Pelaksanaan Strategi Nasional Keuangan Inklusif (SNKI) Tahun 2021. Jakarta.

Deloitte (2025). AI for Business: APAC Trends in AI Platform Adoption.

Economic and Social Commission for Asia and the Pacific (2024). Indonesia: ESCAP-ECA-ECLAC Regional Digital Trade Integration Index (RDTII) 2.0 Economy Profile 2024. Bangkok.

Economic Research Institute for ASEAN and East Asia (2024). Empowering ASEAN's women digital entrepreneurs: Jakarta hosts eTrade for women community gathering. 23 October.

Financial Services Authority (2020). Perkembangan Fintech Lending: Data Maret. Jakarta.

Google, Temasek and Bain & Company (2024a). e-Conomy SEA 2024 Report: Profits on the Rise, Harnessing SEA's Advantage.

Google, Temasek and Bain & Company (2024b). e-Conomy SEA 2024 Report: Profits on the Rise, Harnessing SEA's Advantage – Indonesia.

Grab (2024). Grab ESG Report 2024: Building an Ecosystem for All.

HSBC (2024). ASEAN Digital Economy Framework Agreement (DEFA). 15 October.

Indonesia Internet Service Provider Association (2023). Indonesia Internet Survey Report 2023. Jakarta.

Institute for Economic and Social Research, Faculty of Economics and Business, University of Indonesia (2024). LPEM FEB UI research: GoTo makes a significant contribution to encourage 5 important sectors driving Indonesia's GDP in 2023. 5 June.

Institute for Essential Services Reform (2022). Indonesia Energy Transition Outlook 2023: Tracking Progress of Energy Transition in Indonesia – Pursuing Energy Security in the Time of Transition. Jakarta.

International Monetary Fund, OECD, United Nations and WTO (2023). Handbook on Measuring Digital Trade: Second Edition. Geneva.

Kearney (2018). Indonesia 4.0: The Transformation Opportunity.

Lazada and Kantar (2024). Artificial Intelligence Adoption in Ecommerce in Southeast Asia.

LinkedIn (2025). Harnessing AI: Transforming Southeast Asia's Workforce.

Marsan GA, Litania A, Sabrina LM and Sanders A (2022). Empowering Women Entrepreneurs in Eastern Indonesia. Economic Research Institute for ASEAN and East Asia. Jakarta.

Ministry of Communication and Digital Affairs (2025). Program Nasional Literasi dan Regulasi Digital. Jakarta.

Ministry of Communication and Informatics (2020). Rencana Strategis 2020–2024 Kementerian Komunikasi dan Informatika. Jakarta.

Ministry of Communication and Informatics (2023). Digitalisasi Desa: Percepatan Transformasi Digital untuk Pemberdayaan Masyarakat Desa. Jakarta.

Ministry of Industry (2018). Making Indonesia 4.0: Seminar Nasional Standardisasi. Available at https://bsn.go.id/uploads/download/making_indonesia_4.0_-_kementerian_perindustrian.pdf.

National Development Planning Agency (2023). The National Medium-Term Development Plan for 2020–2024. Jakarta.

OECD (2011). OECD Guide to Measuring the Information Society 2011. Paris.

OECD (2023). Extending Broadband Connectivity in Southeast Asia. Paris.

OECD (2024a). Services Trade in Indonesia: Exploring Patterns, Policies, and Reform Scenarios. Paris.

OECD (2024b). OECD Economic Surveys: Indonesia 2024. Paris.

Office of the United States Trade Representative (2024). 2024 National Trade Estimate Report on Foreign Trade Barriers. Washington, D.C.

Partnership for Action on Green Economy (2024). Circular Economy Roadmap and National Action Plan Indonesia for 2025-2045 (Bahasa Indonesia Version). 8 August. Available at: https://www.un-pageindonesia.org/en/publication/read/circular-economy-roadmap-and-national-action-plan-for-2025-2045.

Ramli K (2023). Policy development to accelerate digital transformation. In Chen L, Ramli K, Hastiadi FF and Suryanegara M, eds. Accelerating Digital Transformation in Indonesia: Technology Market, and Policy. Economic Research Institute for ASEAN and East Asia. Jakarta.

Reuters (2024). Cyber attack compromised Indonesia data centre; ransom sought. 24 June.

Rohman IK, Naufal MM and Naufal I (2025). Indonesian service sector review: telecommunications. Discussion Paper Series No. 552. Economic Research Institute for ASEAN and East Asia.

Shirbeeni AZ (2024). How TikTok and Tokopedia plan to elevate the future of retail in Indonesia post-partnership. Marketing-Interactive. 20 May.

Statistics Indonesia (2022). Survei Sosial Ekonomi Nasional (Susenas). Jakarta.

Statistics Indonesia (2023). Telecommunication Statistics in Indonesia 2023. Jakarta.

Statistics Indonesia (2024a). Strengthening digital transactions: BPS pushes for enhanced e-commerce data reporting. 16 December.

Statistics Indonesia (2024b). Profile of Micro and Small Industries 2023. Jakarta.

Statistics Indonesia (2025). Statistik E-Commerce 2023. E-Commerce Statistics 2023. Jakarta.

UNCTAD (2019a). Digital Economy Report 2019: Value Creation and Capture – Implications for Developing Countries (United Nations publication. Sales No. E.19.II.D.17. Geneva).

UNCTAD (2019b). Voluntary Peer Review of Consumer Protection Law and Policy: Indonesia (United Nations publication. Geneva).

UNCTAD (2023). Measuring the Value of E-commerce (United Nations publication. Sales No. E.23.II.D.5. Geneva).

UNCTAD (2024). Digital Economy Report 2024: Shaping an Environmentally Sustainable and Inclusive Digital Future (United Nations publication. Sales No. E.24.II.D.12. Geneva).

UNCTAD (2025). The Task Group on measuring e-commerce value (TG-eCOM). Available at: https://unctad.org/fr/node/48315.

UNDP (2025). Independent Country Programme Evaluation: Indonesia. New York.

UNDP and the Institute for Economic and Social Research, Faculty of Economics and Business, University of Indonesia (2020). Impact of COVID-19 Pandemic on MSMEs in Indonesia.

Universal Postal Union (2024). 2024 TradePost Awards: recognizing postal services as drivers of trade inclusion. 23 September.

UN-Women (2022). UN Women and Ant Foundation launch “Together Digital” to empower women entrepreneurs in the digital economy. 21 July.

Wicaksono TY and Simangunsong A (2022). Digital technology adoption and Indonesia’s MSMEs during the COVID-19 pandemic. Discussion Paper Series No. 426. Economic Research Institute for ASEAN and East Asia.

World Bank (2021). Beyond Unicorns: Harnessing Digital Technologies for Inclusion in Indonesia. Washington, D.C.

World Bank (2023). Fixed broadband subscriptions (per 100 people). Based on data from the International Telecommunication Union. Available at https://data.worldbank.org/indicator/IT.NET.BBND.P2

World Bank (2025a). Global Findex Database 2025. Available at https://www.worldbank.org/en/publication/globalfindex/download-data.

World Bank (2025b). Fixed broadband subscriptions (per 100 people) – Indonesia. Available at: https://data.worldbank.org/indicator/IT.NET.BBND.P2?locations=ID.

WTO (2025). Work Programme on E-Commerce. Available at https://www.wto.org/english/tratop_e/ecom_e/ecom_work_programme_e.htm.

Annex I

A selection of trade agreements with Indonesia relevant to digital trade

Regional	Entry into force in respect of Indonesia	Digital trade provisions
	Agreements by Indonesia	
Indonesia-United Arab Emirates Comprehensive Economic Partnership Agreement	1 September 2023	Yes, in chapter 9 on digital trade
Indonesia-European Free Trade Association States Comprehensive Economic Partnership Agreement	1 November 2021	Not included
Indonesia-Australia Comprehensive Economic Partnership Agreement	5 July 2020	Yes, in chapter 13 on electronic commerce
Indonesia-Japan Economic Partnership Agreement	1 July 2008	Not included
	Agreements by ASEAN	
ASEAN Digital Economy Framework Agreement	Under negotiation	Yes
Regional Comprehensive Economic Partnership Agreement	2 January 2023	Yes, in chapter 12 on electronic commerce and other provisions to support digital trade
ASEAN-Hong Kong, China Free Trade Agreement	4 July 2020	Not included
ASEAN-Australia-New Zealand Free Trade Agreement	10 January 2012	Not included
ASEAN-Republic of Korea Free Trade Agreement	1 January 2010	Not included
ASEAN-India Trade in Services Agreement	1 October 2010	Not included
ASEAN-Japan Comprehensive Economic Partnership Agreement	1 December 2010	Not included
ASEAN-China Agreement on Trade in Services of the Framework Agreement on Comprehensive Economic Cooperation	1 July 2007 (updated in 2015)	Not included
	Agreements intra-ASEAN	
ASEAN Trade in Services Agreement	20 February 2023	Not included
ASEAN Comprehensive Investment Agreement	8 August 2011	
ASEAN Framework Agreement on Services	30 December 1995	Not included

Annex II

List of eTrade Readiness Assessments

- Algeria (June 2025) (in French)
- Zimbabwe (April 2025)
- Timor-Leste (March 2025)
- Trinidad and Tobago (March 2025)
- Mauritania (March 2024) (in French)
- Ghana (November 2023)
- Peru (November 2023) (in Spanish)
- Mongolia (June 2023)
- Member States of the Economic Community of West African States (September 2022)
- Kenya (June 2022)
- Tunisia (February 2022) (in French)
- Jordan (February 2022)
- Côte d'Ivoire (February 2022) (in French)
- Iraq (November 2020)
- Member States of the West African Economic and Monetary Union (November 2020)
- Niger (July 2020) (in French)
- Benin (June 2020) (in French)
- United Republic of Tanzania (April 2020)
- Mali (December 2019) (in French)
- Malawi (December 2019)
- Kiribati (October 2019)
- Tuvalu (October 2019)
- Lesotho (March 2019)
- Bangladesh (March 2019)
- Afghanistan (March 2019)
- Madagascar (January 2019) (in French)
- Zambia (December 2018)
- Uganda (December 2018)
- Burkina Faso (September 2018) (in French)
- Togo (September 2018) (in French)
- Solomon Islands (July 2018)
- Vanuatu (July 2018)
- Senegal (July 2018) (in French)
- Lao People's Democratic Republic (April 2018)
- Liberia (April 2018)
- Myanmar (April 2018)

- Nepal (December 2017)
- Samoa (October 2017)
- Bhutan (April 2017)
- Cambodia (April 2017)

All reports are available at https://unctad.org/topic/ecommerce-and-digital-economy/etrade-readiness-assessments.

unctad.org

ISBN 978-92-1-159785-1

Printed at United Nations, Geneva
2601240 **(E)** – February 2026 – 330

UNCTAD/DTL/ECDE/2026/1

United Nations publication
Sales No. E.25.II.D.48