

Forging a resilient digital nation

Proposals for
Indonesia's future





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Executive summary



Realising the vision of a digital nation

The government of Indonesia is keen to build a digital nation, in which digital technologies help improve the livelihoods of citizens and drive productivity in key sectors of the economy. This has been highlighted in several digitalisation plans announced in recent years. The main elements of the plans align with the five components of a digital nation: infrastructure, innovation, data governance, security and people.

Although steps have been taken towards a digital nation, there remains room for improvement and an opportunity to accelerate progress. This is particularly crucial in the context of 5G and other emerging technologies (such as AI and quantum computing) transforming Indonesian society and contributing to the government's target for the country to become a top 10 global economy by 2030. The industry (mobile operators and other ecosystem players) will invest nearly \$18 billion between 2024 and 2030, mostly on 5G networks. 5G technology is projected to contribute \$41 billion to Indonesia's GDP during that period.

Realising the government's vision of building a resilient digital nation and using digital technologies to drive economic growth relies on formulating and implementing policies to advance each of the five components of a digital nation. In practice, this involves the following actions:

- **Infrastructure** – Implement spectrum pricing policies and other policy initiatives to ensure sustainable private sector investment in digital networks. Such policies will facilitate the continued expansion of the high-performance mobile networks and other digital infrastructure required to build a resilient digital nation.
- **Innovation** – Take a holistic approach to digital innovation across government, supported by agile policy approaches, such as regulatory sandboxes and policy labs, and make a concerted effort to increase research funding in Indonesia.

- **Data governance** – Continue on the path to the full enforcement of the personal data protection law, which was enacted in 2022, and consult widely with stakeholders across the public and private sectors on guidelines on the use of AI and other emerging technologies.
- **Security** – Develop a comprehensive cybersecurity law to streamline current fragmented laws, and adopt ecosystem-wide collaboration to strengthen cyber resilience, disrupt cybercrime and tackle other online threats.
- **People** – Accelerate efforts to bring more people online by closing the remaining coverage and usage gaps. Implement initiatives to build a digitally-ready workforce with the necessary knowledge and skills to utilise digital technologies across different sectors of the economy.

The task of becoming a digital nation is multidimensional, involving many different actors from the public and private sectors and non-state institutions. Meanwhile, digital technologies continue to evolve rapidly, offering new opportunities but also challenges that need to be approached holistically. In this context, a whole-of-government approach (WGA) is essential to streamline efforts and realise efficiencies in formulating and implementing digital nation initiatives. This approach will bring together multiple stakeholders and diverse resources to provide a common solution to key issues.

01 Indonesia on the path to a digital nation



1.1

Plans and priority areas

Governments in Asia Pacific and around the world have placed digitalisation at the core of their nation-building efforts to serve as a pathway to sustainable and inclusive economic growth. In practice, this means working to incorporate digital technologies and services into all sectors of the economy, to become a digital nation. The rationale for this objective is clear: it provides an opportunity to build economies that can withstand future shocks; it improves efficiency and productivity with limited resources; it bridges the digital and economic divides among citizens and communities; and it helps governments and businesses realise their decarbonisation goals.

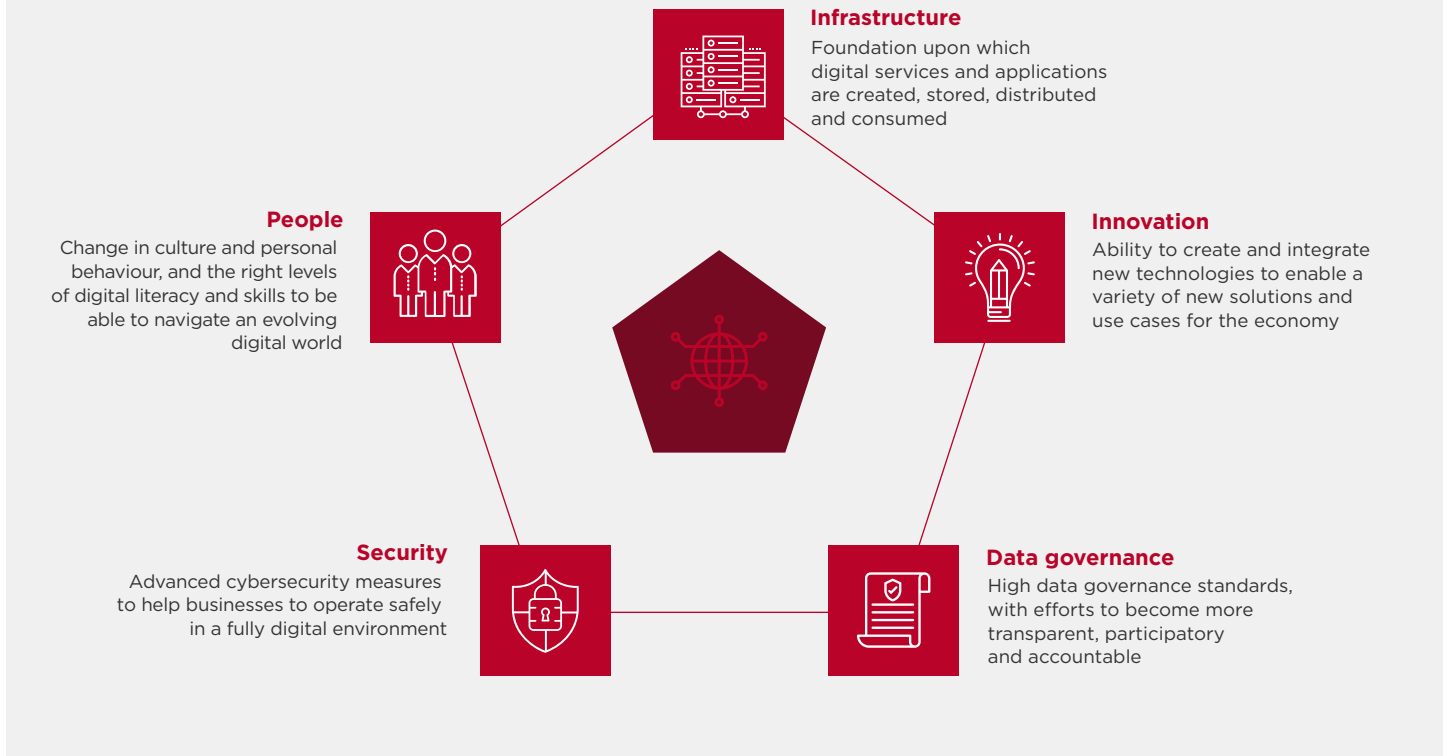
In Indonesia, the government has in recent years outlined several digitalisation plans that underline its digital nation ambitions, including the following:

- The 2021-2024 Digital Indonesia Roadmap, which serves as a strategic blueprint for the transition to a digital nation. The plan provides a framework and phases to achieve inclusive economic development based on innovation, digital connectivity and technology, and is being implemented across four key domains (digital society, digital infrastructure, digital economy and digital administration) and six strategic directions:
 - inclusive, safe and reliable digital/connectivity infrastructure with high-quality services
 - open and integrated digital government institutions to improve public services
 - the shift from a consumer nation to a technology producer
 - harmonisation of regulations and increasing funding to advance innovations
 - bolstering digital capability in priority sectors to strengthen geostrategic competitiveness
 - building digital culture among citizens.
- The National Artificial Intelligence Strategy 2020-2045, which has four focus areas: ethics and policies; data and infrastructure; talent development; and industrial research and innovation. AI is one of several emerging technologies that will have a transformative impact on the way people live and businesses operate in a digital nation. Others include quantum computing, the Internet of Things (IoT), cloud computing and blockchain.
- The Making Indonesia 4.0 initiative, with the goal of transforming five priority sectors (food & drinks, automotive, textiles, electronics and chemicals) by developing 10 key areas, including a nationwide digital infrastructure and incentivising technology investment through tax subsidies and support funding.

Figure 1

Key components of a digital nation

Source: GSMA Intelligence



GSMA Intelligence has identified the key components required to become a digital nation (see Figure 1). These are interconnected and must be developed together to avoid potentially costly gaps and delays in the implementation of digitalisation initiatives.

The priority areas of Indonesia's digitalisation plans align with the five components of a digital nation. Therefore, the realisation of the government's Making Indonesia 4.0 initiative and the country's ambition to be a top 10 global economy by 2030 directly maps to the advancement of each of the components.

02

The components of a digital nation in Indonesia



2.1 Infrastructure

Indonesia is a collection of more than 18,000 islands (of which about 6,000 are inhabited), spanning three timezones and approximately 3,200 miles from east to west. Building terrestrial infrastructure across the country is therefore challenging. Despite this, Indonesia has achieved an expansive network of digital infrastructure, including terrestrial and subsea fibre-optic networks, mobile networks and satellites.

The development of ICT infrastructure is a major part of Indonesia's national medium-term plan, (RPJMN 2020–2024). It has an estimated budget of IDR435.2 trillion (\$31.1 billion), with 98% expected to come from the private sector.¹ In 2020, for example, Indonesia completed the \$1.5 billion Palapa Ring project, which brought 4G internet services to more than 500 administrative regions and saw the laying of more than 35,000 kilometres of land and sea cables.² 4G networks now cover over 96% of Indonesia's population.

Indonesia began its 5G journey in 2021, with the launch of commercial 5G networks by Telkomsel and Indosat. 5G is a key component of the infrastructure required to power future digital nations, given its ability to deliver reliable network-based services (such as edge compute and ultra-low-latency applications) and enable the emerging technologies that will help reshape the local economy and modernise industries. The technology is projected to contribute \$41 billion to Indonesia's GDP between 2024 and 2030.³

The rollout of 5G in Indonesia has been relatively slow so far. As of December 2023, 5G population coverage in Indonesia stood at 16%, compared to 90% in Thailand. However, the government has set an ambitious target to bring 5G coverage to current 4G coverage levels by 2024/2025, indicating faster 5G than 4G rollout. According to GSMA Intelligence data, the industry (mobile operators and other ecosystem players) will invest nearly \$18 billion between 2024 and 2030, mostly on 5G networks. This bodes well for the expansion of 5G services, given the capital requirement for 5G infrastructure rollout.

Micro, small and medium-sized enterprises (MSMEs) are a key driver of economic growth in Indonesia. They contribute more than 60% to GDP and employ over 95% of the workforce.⁴ MSMEs stand to benefit from advances in digital infrastructure, including 5G, as it opens access to new local and international markets, and enables new technologies to drive productivity and improve efficiency. As an example, India's Department of Telecommunications launched a 5G testbed for MSMEs in August 2022 to provide a controlled environment for testing the potential of the technology to boost productivity, in line with the government's Aatmanirbhar Bharat and Make in India initiatives.

For policymakers, there is an opportunity to complement operators' commitment by addressing two key factors of mobile infrastructure rollout in Indonesia (highlighted in Figure 2). In addition to enabling the continued rollout of 4G, which will support the connectivity needs of many users, these factors will facilitate the deployment of 5G in areas where the technology is urgently needed – primarily where priority industries in Indonesia's digital nations plans are located and in major urban areas with significant growth in data traffic.

1 See <https://www.trade.gov/market-intelligence/indonesia-digital-economy-opportunities>

2 "Indonesia's Palapa Ring: Bringing Connectivity to the Archipelago", ASEAN Briefing, January 2020

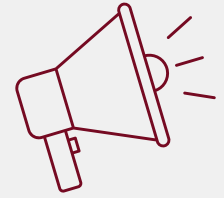
3 [Sustainable spectrum pricing to boost Indonesia's digital economy](#), GSMA Intelligence, 2023

4 "Increasing Financial Inclusion for MSMEs through the Utilization of Digital Technology, the Government Launches the PROMISE II Impact Program", Coordinating Ministry for Economic Affairs, Republic of Indonesia, March 2023

Figure 2

Policy imperatives to accelerate the rollout of 5G infrastructure in Indonesia

Source: GSMA



Sustainable spectrum pricing

Currently, 452 MHz of mobile spectrum is assigned in Indonesia, comprising 92 MHz in low bands (below 1 GHz) and 360 MHz in mid-bands (between 1 GHz and 7 GHz).⁵ Compared to many Asia-Pacific markets, Indonesia is facing a shortage of mobile spectrum, especially mid-band spectrum, which is crucial for reliable high-speed mobile broadband services in heavily populated urban areas.⁶

Furthermore, spectrum fees in Indonesia are already high. Annualised, WACC-adjusted spectrum cost to recurring cellular revenue is currently at 12.2%, compared to the Asia Pacific and global median values of 8.7% and 7.0%, respectively.⁷ A high burden of ongoing spectrum cost means reduced investment and slower deployment of the latest network technologies. This, in turn, means lower availability of mobile connectivity, reduced adoption and a missed opportunity to benefit from the economic growth unlocked by advanced mobile use cases.

Call to action

- Set reserve prices conservatively below estimates of market value to enable price discovery and reduce the risk of unsold spectrum.
- Review the formula for calculating annual spectrum fees (BHP IPFR) and consider adjustments to the parameters to provide the right long-term incentives and avoid disproportionate increases in costs that are not aligned with evolving market conditions.
- Ensure a clear spectrum roadmap that considers not only current bands being planned but also the longer term needs for Indonesia, especially for mid-bands in the 2025–2030 timeframe. Greater certainty around the availability of spectrum and associated conditions is crucial for operators to prepare investment plans, secure financing and develop strategies for network deployment and service delivery.

Sustainable investments in digital networks

The rollout of 5G is set to drive an increase in smartphone demand and data traffic. In Indonesia, shipments of 5G models grew 54% in Q3 2023 and accounted for 19% of the total.⁸ However, operators' ability to expand network capacity and coverage is often hindered by regulatory constraints, market structures and excessive tax burdens.

This has created an investment gap; market conditions for private investment in telecoms networks are not favourable enough to meet ambitious national and regional digital policy targets.

Call to action

- Encourage voluntary infrastructure sharing (passive and active) to reduce the cost of network rollout, particularly in difficult terrains.
- Reduce red tape for obtaining the necessary permits and right-of-way (RoW) for cell-site location and fibre deployment to ease network rollout, particularly 5G densification. For example, the amendment of RoW rules in India in 2022 has been credited for the rapid rollout of 5G and fibre infrastructure in the ensuing months.
- Reduce and simplify sector-specific taxes and fees (including tower taxes and tower building permission fees, and various fees imposed by municipal authorities) to ease the cost burden of network rollout and operations, and ensure the financial sustainability of the mobile industry.
- Provide policy incentives to encourage investment in infrastructure. In South Korea, government incentives in the form of tax credits and tax reductions for operators announced in 2020 helped unlock investment of around KRW25.7 trillion (\$22 billion) in 5G networks.⁹ In the UK, the Shared Rural Network (SRN) agreement between the government and mobile operators, announced in March 2020, will see operators invest £532 million and the government another £500 million to bring 4G coverage to 95% of UK landmass by 2025.¹⁰
- Allow further consolidation in the telecoms sector to drive synergies and the scale required for expansive infrastructure rollout.

5 In Indonesia, the current assignments are 850 and 900 MHz in low bands, and 1800, 2100 and 2300 MHz in mid-bands.

6 The GSMA estimates that on average, a total of 2 GHz of mid-band spectrum will be required per market to support the growth of 5G by 2030.

7 Based on GSMA analysis of information from Kominfo, Coleago Consulting and other sources. The Asia Pacific sample includes selected countries where data was available.

8 "Indonesia smartphone market grows after 2-year decline", Mobile World Live, November 2023

9 "South Korean operators to invest \$22 billion in 5G networks by 2022", RCR Wireless, July 2020

10 See <https://www.gov.uk/government/news/shared-rural-network>

2.2

Innovation

The government of Indonesia has been at the forefront of promoting digital innovation through programmes and initiatives to support the startup ecosystem. Examples include the following:

- The 1000 Digital Startups National Movement programme, now in its eighth year, focuses on developing digital talent, encouraging the creation of digital solutions and building a startup ecosystem.
- The Ministry of Communication and Informatics aims to nurture 150 early-stage businesses by 2024 through the Startup Studio Indonesia programme.
- The Merah Putih Fund, a government-backed venture-capital firm, secured \$300 million in September 2023.¹¹ The initiative brings together five state-owned venture-capital companies – Mandiri Capital Indonesia, MDI Ventures from Telkom Group, BRI Ventures, BNI Ventures and Telkomsel Mitra Inovasi – to identify and invest in promising startups in Indonesia.

Indonesia is home to some of Asia Pacific's best known tech startups and holds the record for producing the greatest number of 'unicorns' in Southeast Asia (nine), and two 'decacorns' (startups with a valuation exceeding \$10 billion). Digital innovation in the country stretches across industries and utilises the latest technologies. For instance, the GoTo Group, formed by the merger of GoJek and Tokopedia, is developing a super-app that includes e-government, transport, education, logistics, communications and financial services. Meanwhile, startup Mimin provides chat commerce solutions driven by generative AI technology to more than 55,000 businesses across 20 provinces and 55 cities in Indonesia. It recently announced its expansion into Malaysia and Singapore.¹²

According to the Global Innovation Index (GII), Indonesia ranked 61st among 132 economies in 2023,¹³ compared to 75th in 2022 and 87th in 2021. Of the roughly 80 indicators that make up the index, Indonesia ranked in the top 10 for entrepreneurship policies and culture (ranking 5th), state of cluster development (5th), university-industry R&D collaboration (5th), domestic market scale, PPP \$ billion (7th) and finance for startups and scaleups (8th). While this reflects the strength of the innovation landscape, there remain weaknesses that must be tackled to enhance the innovation component of Indonesia's digital nation ambition.

¹¹ "Indonesian Government-Backed Merah Putih Fund Raises \$300 Million for Soonicorn Startups", AsiaTechDaily, September 2023

¹² "Indonesian Startup Mimin expands generative AI services to Malaysia and Singapore", TNGlobal, November 2023

¹³ Global Innovation Index 2023, WIPO



Key steps to enhance digital innovation in Indonesia

- Take a holistic and coordinated approach to digital innovation across government agencies and the private sector. This will require collaboration among key stakeholders to avoid fragmentation in the innovation policymaking process.
- Accelerate the rollout and adoption of the digital ID scheme to facilitate uptake of online services and drive further innovation and digitalisation. As of September 2023, the scheme recorded just 4.5 million active users, representing less than around 2.2% of the eligible population.
- Introduce agile policy frameworks and approaches to innovation (e.g. regulatory sandboxes and policy labs) to ensure the government can leverage the benefits of emerging technologies, such as AI and quantum computing, in a safe and secure manner, engendering trust.
- Close the knowledge gap among staff at relevant policymaking agencies through targeted upskilling and reskilling initiatives. This will ensure that relevant personnel can keep track of global innovation trends and can support local innovators and entrepreneurs with enabling policies.
- Increase funding for R&D. In 2021, Indonesia invested around 0.24% of GDP in R&D. Singapore, the leading innovation hub in Southeast Asia, had the highest investment in R&D, at 1.9% of GDP.¹⁴
- Implement policies to cut red tape and reduce entry barriers, particularly for international innovators and entrepreneurs. Indonesia ranks 73rd out of 190 in the 2022 World Bank Ease of Doing Business Index. Its Southeast Asia neighbours Singapore and Malaysia are in the top 15.
- Enforce laws to protect intellectual property (IP) rights. A European Commission report on the protection and enforcement of IP rights in third countries cites Indonesia as a Priority 2 country, due to concerns in the area of IP protection and enforcement, such as high levels of trademark counterfeiting and copyright piracy, lack of customs IP protection, weak civil court enforcement systems and a lack of dedicated criminal IP enforcement units.¹⁵

¹⁴ Statista

¹⁵ "Commission releases its Report on Intellectual Property Rights in Third Countries", European Commission, May 2023

2.3

Data governance

With growing use of emerging technologies, a high-standard and enabling data governance framework is essential to maintain ethics, ensure transparency and build trust within the digital environment. In September 2022, Indonesia's House of Representatives passed the Personal Data Protection Bill, followed by the Presidential assent a month later. The PDP Law (PDPL) establishes responsibilities for the processing of personal data and rights for individuals in a manner similar to other international data protection laws, most notably the EU's General Data Protection Regulation (GDPR).

In September 2023, the Ministry of Communications and Informatics released the draft government regulation on the implementation of the PDPL to provide clearer guidelines on elements of data processing. The PDPL will become fully enforceable in October 2024, by which time an independent PDP Agency is expected to have been established, as stipulated in the law. The PDPL marks a significant step towards improved data governance, given that Indonesia previously lacked a comprehensive law, with provisions on personal data protection distributed across several different laws and regulations.

Governments are the biggest collectors and custodians of data covering all aspects of society, such as healthcare, housing, economic development and education. Government agencies also produce census figures, financial market information, weather data, transport routes and more. As such, the timely release of accurate and reliable datasets is an important first step in realising the potential of emerging technologies and the benefits they can bring to society.

In June 2019, the President issued Presidential Regulation No.39 of 2019 concerning One Data Indonesia. The regulation requires the harmonisation of data obtained by each ministry and agency, so that it is more accurate, up to date, integrated, accountable, accessible and shareable. Open data initiatives have contributed significantly to national planning efforts and private sector investment. They will play an even more important role in the development of emerging technologies. A recent Unesco report highlights the importance of open data principles to the development of AI technologies.¹⁶

However, the use of open datasets for AI and other emerging technologies raises risks around bias, data privacy and security. As a result, AI governance has moved up the agenda for governments around the world, including in Indonesia. In August 2023, the Ministry of Communication and Informatics announced it was developing ethical guidelines for the use of AI. The goal would be for data processing activities, including provision of open data and utilisation of personal data, to be regulated as derivative rules under the PDPL. This is a step in the right direction and should reflect the following principles to align with international best practices.

¹⁶ Open data for AI - What now? Unesco, 2023



Best practices to prepare for an AI-enabled future

- Collaborate with relevant stakeholders, including industry players, academics and innovators, in producing the AI ethics guidelines. A whole-of-government approach (WGA) is essential to foster ethical and safe development of AI and other emerging technologies.
- Cooperate with international partners on AI governance. There is an opportunity for Indonesia and other countries, particularly in Asia Pacific, to benefit from a collaborative mechanism to devise a common, mutually beneficial AI framework that works for the whole region. For example, Singapore is working with other ASEAN countries to produce a set of guidelines on the responsible use of AI in the region, to be released in early 2024 at the ASEAN Digital Ministers' Meeting. Singapore's Ministry of Communications and Information expects the guide to serve as a "practical and implementable step" towards supporting the safe deployment of "responsible and innovative AI" in the region.¹⁷
- Ensure that new AI-specific guidelines are consistent with existing laws to avoid duplication or conflicting requirements, especially on issues relating to data privacy, security and bias.
- To keep pace with innovation, AI guidelines should be globally interoperable, durable and flexible. This means providing a framework for the continued evolution of AI systems without being restricted to specific technologies or timeframes.

17 "Singapore, Asean to develop new regional guidelines on AI by early 2024", The Straits Times, June 2023

2.4

Security

As digital technologies permeate every aspect of life and society, the risks associated with operating in an online environment will become more prominent and pervasive. The range of online threats is already broad and continues to expand rapidly, with new threats emerging on an almost daily basis. These include phishing, ransomware, identity theft and cyber-espionage. Between 1 January and 26 October 2023, Indonesia's National Cyber and Encryption Agency (BSSN) recorded 361 million cyberattacks, of which 43% were from malware activity and 35% from Trojan activity.¹⁸

Figure 3 shows Indonesia's performance on various metrics in the National Cyber Security Index – a global index that measures the preparedness of countries to prevent cyber threats and manage cyber incidents.

According to the index, Indonesia received the highest score (100%) in the protection of essential services and personal data. The lowest scores were in the protection of digital services (20%) and contribution to global cyber-security (17%). In December 2022, Indonesia released new cybersecurity rules for the financial sector, including banks, insurance companies and other financial services providers. These were the first dedicated cybersecurity rules specifically for the financial sector, and followed a report that the country's financial services institutions were attacked 2,730 times, more than twice the global average, in the first half of the year.¹⁹

Beyond conventional cyberattacks, Indonesia is also grappling with other forms of cyber threats, notably online scams and online misinformation and disinformation (false information). The latter is particularly worrisome in the context of the February 2024 general elections. In November 2023, it was reported that the government officially requested Facebook to remove more than 450 pieces of disinformation in response to the escalating dissemination of false information relating to the upcoming elections.²⁰ False information has also been reported on several other social media platforms.

The impact and consequences of the spread of false information are mostly felt in local communities across a range of areas, including particularly sensitive themes such as politics, climate change, religion and health. Outcomes for affected individuals and communities include increased stigmatisation and victimisation, human rights violations and even violence. Arguably the most significant and widespread impact of false information online (irrespective of the theme or target audience) is the growing mistrust of institutions and disruption to democratic processes. This could have dire consequences for social cohesion and inclusive progress in affected communities and across the wider society.

Addressing the aforementioned and other online security threats in Indonesia is a necessary step in the country's digital nation journey. In addition to protecting vulnerable individuals, communities and businesses, this also has the potential to build the required trust in digital services among citizens and businesses of all sizes.

18 "BSSN Records 361 Million Cyber Attacks in Indonesia", Tempo, November 2023

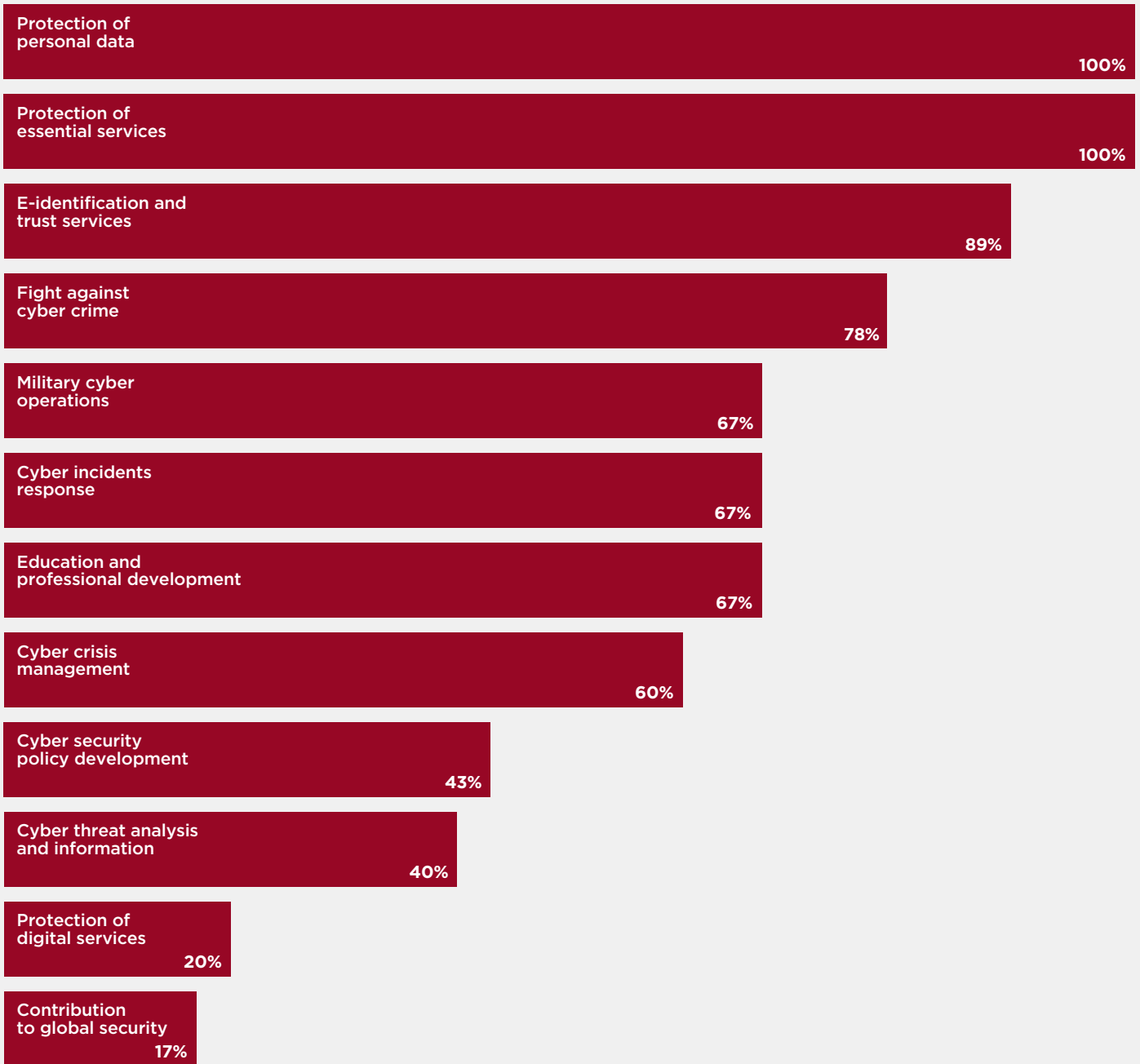
19 "Financial institutions in Indonesia facing a crisis due to the rise in cyber-attacks", Tech Wire Asia, August 2022

20 "Fake news on Indonesia election spreading as govt asks Facebook to take down over 450 'hoaxes'", The Star, November 2023

Figure 3

National Cyber Security Index for Indonesia by indicator, April 2023

Source: National Cyber Security Index





Practical steps to improve online security in Indonesia

- Develop a comprehensive cybersecurity law, building on the PDPL, to streamline the currently fragmented laws, regulations and responsibilities on cybersecurity across multiple government ministries and agencies.
- Consult widely across stakeholder groups, including public & private sector players and consumer groups, to understand the nature and impact of online threats and inform policymaking on response and remedial measures.
- Create awareness campaigns to engage with, inform and reassure the public on the various forms of cyber threats, and educate them on how to stay safe in an online environment.
- Engage with social media companies on efforts to identify and minimise the spread of false information online. The dedicated unit established by Kominfo to monitor the spread of false information on social media and other online platforms can play a role here in collaboration with similar units at social media companies.
- Increase participation in and contribution to regional and global efforts to mitigate cyber threats. A report by the International Institute for Strategic Studies identified the lack of a common cyber lexicon on cyber threats among ASEAN member states as a factor hindering the establishment of a regional cyber emergency-response capability, with Indonesia among countries yet to define a cyber emergency in similar terms to Malaysia and Vietnam.²¹

21 ASEAN Cyber-security Cooperation: Towards a Regional Emergency-response Framework, The International Institute for Strategic Studies, 2023

2.5 People

A digital nation is only as effective as the skills level of its citizens – as innovators and creators of digital services and as users of those services. Indonesia has achieved remarkable success in its efforts to close the digital divide, demonstrated by the steady shrinking of the connectivity (coverage and usage) gap over the last decade. That said, the country still has a considerable digital divide that must be closed for it to realise the full potential of a digital nation. According to GSMA Intelligence data, just over half the population, equivalent to around 145 million people, do not yet subscribe to a mobile internet service (Figure 4).

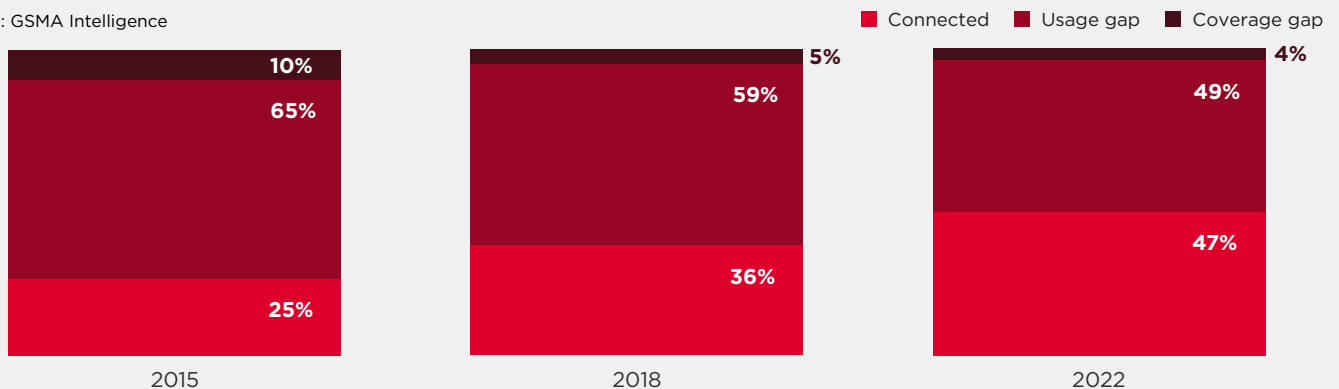
Further efforts, supported by enabling policies, are needed to bring more people online. This involves extending network coverage to unserved populations, through innovative solutions and partnerships. Mobile operators are leading in this regard. In June 2023, Lintasarta, a subsidiary of Indosat Ooredoo Hutchison partnered with Intelsat to improve mobile coverage in remote areas in Indonesia by deploying around 400 sites across central and western Indonesia.

It also involves addressing the barriers to mobile internet adoption for citizens covered by a mobile broadband network but not yet subscribing to a mobile internet service. This includes efforts to increase awareness of the internet (particularly among rural dwellers), improve online safety for vulnerable groups (including women and children), promote digital literacy and skills programmes, and rolling out other initiatives that can help close the usage gap. The GSMA State of Mobile Internet Connectivity 2023 report shows that lack of digital skills and safety & security concerns are among the main barriers to mobile internet adoption among those already covered by a mobile broadband network.²² The lack of affordability of devices and services is also a major challenge for many consumers. Service affordability is affected by the high costs associated with infrastructure rollout across the country's difficult terrain.

Figure 4

The connectivity gap in Indonesia

Source: GSMA Intelligence



22 The State of Mobile Internet Connectivity 2023, GSMA, 2023



The importance of locally relevant content to closing the usage gap

Lack of locally relevant content is a significant barrier to mobile internet adoption, as it can serve as a disincentive for communities who do not perceive value from available content or, worse still, view available online content as offensive or disrespectful to local cultures. This is evidenced by several recent developments in Indonesia:

- In June 2023, the Baduy community petitioned the Indonesian government to make its area internet-free, considering the impact of the technology on their traditional way of life.
- In July 2023, the Ministry of Communication and Informatics announced plans to collaborate with operators to block access to gambling content banned under the country's criminal code.

These developments highlight the detrimental impact of unsuitable online content on internet adoption and, by extension, efforts to close the usage gap. More importantly though, they show the opportunity for policymakers and other stakeholders to help ramp up the creation of online content that reflects local cultures and traditions, with demonstrable value for local users.

Beyond having citizens who can use mobile internet services, developing a workforce with the right skills and entrepreneurial prowess to innovate is an important factor in realising Indonesia's digital nation goals. The government estimates the country will need around 9 million people with digital skills from 2015 to 2030 to close the skills gap.²³ As a result, the government and its partners have introduced programmes and initiatives to boost general digital skills among the public, as well as specific skills among the workforce:

- The government has launched a national digital literacy programme for the general public, a digital talent scholarship programme for professional workers, and a digital leadership academy for managers. The digital literacy initiatives conducted by Kominfo have helped bridge the gap between digital literacy levels in urban and rural areas, and have helped narrow the mobile internet usage gap to 49% in 2022.
- As part of the Digital Indonesia Roadmap 2021-2024, the government is promoting four important digital skills areas to accelerate the digital economy: AI, bitcoin, cloud computing and data analytics.
- In January 2023, the Coordinating Ministry for Economic Affairs launched Skills for Jobs Indonesia, in partnership with Microsoft, to provide free digital literacy, skills and job preparation training for at least 1 million Indonesians by 2024.
- In September 2023, Indosat Ooredoo Hutchison and the International Telecommunication Union (ITU) signed a joint declaration to strengthen digital literacy and facilitate digital skills training in remote and underserved communities in Indonesia. The collaboration will focus on scaling and enhancing digital skills training programmes delivered by the Digital Transformation Centres Initiative and other ITU initiatives in Indonesia.

Developing a workforce with the right skills and entrepreneurial prowess to innovate is an important factor in realising Indonesia's digital nation goals.

²³ "Indonesia needs nine million digital talents in 2030: Minister", Antara News, March 2022



Considerations for building a digital workforce in Indonesia

- Analyse the national digital workforce capacity needs and the status of the workforce to identify the scale and scope of training required.
- Ensure that funding mechanisms support digital workforce capacity development, especially the upskilling and reskilling of the existing workforce, particularly in the public sector, to prepare them for the jobs of the future and minimise the impact of disruptive technologies.
- Incorporate digital technology into the school curriculum at all levels and facilitate the establishment of institutions, especially at the tertiary level, that specialise in specific technology areas, such as AI. In India, for example, the government plans to add AI courses to the academic curriculum, establish an AI university and train 3 million government officials in AI, AR, drones, blockchain and other emerging technologies as part of the Digital India initiative.
- Cultivate a culture of innovation, inclusivity and lifelong learning among the workforce, especially segments that will likely be most resistant to change.

03

Taking a whole-of-government approach to accelerate progress



3.1

Driving the digital nation ambition

A whole-of-government approach (WGA) brings together multiple stakeholders and diverse resources to provide a common solution to a particular issue. This principle is especially important in a digital nation, given the increasing integration of digital technologies across all industries and verticals, and the need for holistic and cohesive planning and implementation of digitalisation initiatives. The alternative is a disjointed and fragmented approach that will at best be ineffective and costly, and at worst dangerous on numerous grounds, including national security and social cohesion.

As Indonesia goes into the final year of the 2021–2024 Digital Indonesia Roadmap and the country welcomes new leadership, the need for a WGA in efforts to build a digital nation has never been more urgent. It would help the country accelerate progress with the components of a digital nation and achieve its short- and long-term digital transformation plans. This requires leadership from the highest level of government, cross-ministry collaboration, extensive engagement with private sector stakeholders, and cooperation with international partners. The One Data Indonesia policy, which brings together multiple ministries and agencies for a single purpose, provides a template for WGA-based initiatives that can drive Indonesia’s digital nation ambition.

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