POLICY NOTE

DIGITAL IN THE MALDIVES:

PATHWAYS TO DEVELOPMENT

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LIST OF ACRONYMS

ADB	Asian Development Bank
AI	Artificial Intelligence
BPM	Business Process Management
CC4G	Computer Clubs for Girls
COVID	Coronavirus Disease
CSC	Civil Service College Singapore
CSIRT	Cyber Security Incident Response Team
CSO	Civil Society Organization
DCMS	Department for Digital, Culture, Media & Sport
DEIs	Digitally Enabling Industries
DPA	Data Protection Authority
DPA	Data Protection Authority
DSIT	Department for Science, Innovation & Technology
DSL	Digital Skills for Life
EGDI	E-Government Development Index
FSQs	Functional Skills Qualifications
GEMS	Government E-Mail Service
GTMI	GovTech Maturity Index
IAX	India-Asia-Xpress
ICT	Information and Communications Technology
ICTA	Communication Technology Agency
IMDA	Infocomm Media Development Authority, Singapore
IT/BPM sector	Information Technology- Business Process Management
ITC	International Trade Centre
ITU	International Telecommunication Union
KII	Key Informant Interview
MSME	Micro, Small, and Medium Enterprises
NAISR	National AI Strategy Roadmap
NALO	National Assessment of Learning Outcomes
NAS-IT	Nepal Association for Software and IT Services Companies
NASSCOM	National Association of Software and Service Companies, India
NCIT	National Centre for Information Technology
NCSA	National Cybersecurity Agency
OECD	The Organization for Economic Cooperation and Development
PEACE	Pakistan and East Africa Connecting Europe
PIKOM	The National ICT Association of Malaysia
PMGDISHA	Pradhan Mantri Gramin Digital Saksharta Abhiyan
PwD	Person with Disabilities
SDGs	Sustainable Development Goals
SEA-ME-WE 6	South East Asia-Middle East-West Europe 6
SGDE	Singapore Digital Economy
SLASSCOM	Sri Lanka Association for Software and Service Companies
SMEs	Small and Medium-sized Enterprise
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WIPO	World Intellectual Property Organization

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Executive Summary

The Maldives has made notable progress in advancing its digital agenda. However, further efforts are needed to realise its full potential. The Maldives leads regional peers in global indices examining basic digital indicators but lags in those assessing complex legal and regulatory frameworks. For example, the Maldives performs well on the E-Government Development Index (EGDI), which uses basic indicators such as internet penetration and literacy rates, where the country excels. However, it fares less well in other indices looking at more complex indicators, such as the GovTech Maturity Index (GTMI) (see table 1).

This policy note identifies key gaps in the current digital landscape and offers policy options to help address them. The note draws on policy, legal and regulatory analysis, secondary research, and interviews with a wide range of stakeholders. It provides recommendations for the country's journey toward inclusive and sustainable digital development. Table 2 maps the key issues identified in Section 1 to corresponding high-level recommendations, which form the foundation for the intervention pathways outlined in Section 2.

Table 1. Performance on key global indices

Index (Agency)	Country Performance	Comparison with South Asia
GovTech Maturity Index (World Bank)	69 out of 198 countries	Second lowest in South Asia, only behind Afghanistan
E-Government Development Index (UN)	94 out of 193 countries	Leading in South Asia, ahead of Sri Lanka, Nepal, and Bangladesh
ICT Regulatory Tracker - Level of Readiness (ITU)	G5 Limited (lowest of four stages)	In the lowest category, alongside Nepal and Afghanistan, India is leading

Sources: World Bank (n.d.), United Nations (2024), International Telecommunications Union (n.d.)

Table 2. Mapping key issues to recommendations

Key issue	Recommendations
1. The digital economy is undefined and unmeasured, making growth targets difficult to set and track.	1.1. Define and measure the digital economy using international good practices and adjust targets based on findings
	1.2. Develop a digital strategy by identifying priority projects for the government, mapping relevant stakeholders, and establishing a precise sequence for implementation
2. Lack of clear leadership, coordination and role separation in digital transformation	2.1 Establish apex policymaking body to set vision and ensure that vision is achieved, advised by an multistakeholder advisory council
	2.2. Ensure a clear separation of functions in implementing agencies, including between standard setting and compliance versus technology development and operation
3. Lack of regulatory independence of Data Protection Authority (DPA)	3. Amend the draft personal data protection bill to separate the DPA from NCIT and establish it as an independent regulator
4. Inadequate institutional mechanism for cybersecurity, the existence of a draft Cybersecurity Bill	4.Prioritise the passage and enactment of the Cybersecurity Bill, which establishes the National Cybersecurity Agency and Cyber Security Incident Response Team (CSIRT)
5. Inadequate governance of AI	5. Ensure the establishment of an AI governance framework to promote innovations that protect individuals' rights

6. Fragmented government systems, with limited standards and coordination, undermining interoperability and efficiency	6.1. Develop a government system architecture 6.2 Further develop and consolidate the tech stack, expanding use across government and private sectors 6.3. Develop data definitions and standards, considering national security, privacy and innovation needs 6.4. Develop and enact government data-sharing legislation (including open data)
7. Limited competent IT professionals in the government sector	7.1. Conduct periodic skills gap assessments within government organizations to meet digitalization targets 7.2. Conduct capacity-building programs to address skills gaps among IT professionals and revise pay scale to attract and retain skilled talent
8. Limited digital skills across civil servants	8. Develop online training modules on key areas such as data protection, cybersecurity, and responsible AI use for the broader government workforce, to be regularly updated and completed at periodic intervals
9. Digital literacy amongst the public is neither defined nor measured	9.1. Define and measure digital competencies to perform day-to-day tasks online according to international standards 9.2. Provide and expand access to affordable digital tools and training programmes designed to improve basic digital literacy in line with assessment
10. Female participation in ICT education and the ICT workforce is low	10.1. Make curriculum changes, establish clubs targeting girls, and connect girls and young women with role models that inspire them to pursue studies in the ICT field 10.2. Support female ICT graduates' access to job opportunities in the sector through improving access to information, networking opportunities, training, providing flexible work arrangements, recognising companies that enable women to thrive in the sector, and investing in women-owned businesses.
11. Low Digitalization among MSMEs	11.1. Regularly assess the digitalization level of MSMEs and startups, keeping pace with ongoing technological advancements, and identify areas needing support. 11.2. Provide targeted, needs-based programmes to help businesses identify digital solutions, connect with solution providers, secure funding, and equip employees with the necessary skills to implement and use these technologies effectively.
12. ICT sector is unorganized, lacks a niche, has limited scalability and has a limited supply of job ready new entrants to work in the sector.	12.1. Set up an industry body to increase collective power 12.2. Prepare a roadmap for achieving scale by identifying niche areas in the ICT sector that Maldives can export to the world 12.3. Build world-class Maldivian companies by tweaking public procurement rules 12.4. Curriculum design and job placements for graduates to enhance industry-relevant skills. 12.5 Support startups by offering training and mentorship from successful founders, including those from successful startups outside of the Maldives
13. Lack of protection for the intellectual property of Maldivians internationally and lack of access to published works for PWDs	13. Become signatories to international IP conventions and agreements and implement them in the country. Become signatories to the Marrakesh Treaty to facilitate access to published works for PWDs.

1. Context

Digitalization is becoming central to the Maldives' development agenda, though gaps remain in measurement, strategy and institutional coordination. His Excellency President Dr Mohamed Muizzu has recognized that "digitalisation is the cornerstone of the Maldives' national vision" (The President's Office, 2024), emphasising the role of digital tools in managing scarce resources, enhancing public service delivery, and promoting sustainability. The government has also set a target for digital to contribute to 15% of the economy by 2030. However, the current size and contribution of the digital economy are not measured, and there is no overarching strategy to guide progress toward this target. The Ministry of Homeland Security and Technology and its affiliated agencies are primarily responsible for governing the digital landscape. Yet, evidence of a concerted effort or institutional mechanism to link digital transformation with broader government development priorities is limited. Moreover, placing digital functions under a ministry that oversees defence increases the risk of overemphasising security considerations at the expense of a more comprehensive, development-oriented approach.

Lack of role definition and role separation in government organizations related to digital. The distinction between policymaking and implementation roles is unclear in some instances. For example, the State Minister also serves as the head of the National Centre for Information Technology (NCIT). In addition, multiple institutions are involved in similar functions. NCIT and TradeNet, for instance, both play roles in technology development and operations. NCIT has developed shared services such as the Government E-Mail Service (GEMS) (Gems workspace, n.d.) and e-Faas (the national digital ID) (efaas, n.d.), while TradeNet (TradeNet, n.d.), initially established to support trade facilitation under the Ministry of Economic Development, also develops and hosts government services through the OneGov platform. The blurring of responsibilities among agencies implementing e-government solutions has confused some stakeholders.

Some legal and regulatory landscape developments are underway, but governance challenges such as coverage and regulatory independence remain. The Maldives is drafting multiple new laws, strategies, and policies, including core areas such as data protection, cybersecurity and AI. The country has several key legal and policy frameworks in place, such as competition, consumer protection, electronic transactions, and right-to-information laws, with some legislation on areas such as data protection and cybersecurity under development (see table 3). Some draft legislations prove room for improvement. For example, the draft Personal Data Protection Bill establishes the Data Protection Authority (DPA) under the NCIT, raising concerns about its independence as a regulator. The country is developing a strategy for artificial intelligence (AI). Still, it is unclear whether the plan includes a proper governance framework for AI to ensure the ethical adoption of technology. In addition, the Maldives is not a party to international agreements on intellectual property, such as the Marrakesh Treaty, limiting both the global recognition of Maldivian intellectual property and access to published works in accessible formats for persons with disabilities.

Gaps exist in critical areas, such as common services and standard setting. Some digital public infrastructure and common services, such as e-Faas (the national digital identity), are being developed. Still, the Maldives lacks a government system architecture that identifies common services and interoperability standards. Consequently, many government departments independently build their systems with little interoperability and limited cost-effectiveness. This includes a data centre managed by NCIT, which lacks capacity and disaster recovery preparedness. Not all government organizations utilise this resource.

Digital service delivery has progressed, but room exists for further improvement. The Maldives performs relatively well (scoring 0.74 out of 1) on the GTMI Public Service Delivery Index (World Bank, n.d.-a), reflected in the development of the OneGov platform, a one-stop shop allowing access to 122 (Government of Maldives, n.d.-a) services across 12 entities, with options to apply for key services online. There are currently over 178 (refer KII) government portals that operate outside OneGov, and not all of the services are integrated. The integration of e-Faas is expanding but not yet universal, particularly in the private sector. The adoption rate is rising [40 percent of the population in late 2023 (Government of Maldives, n.d.-b)] but remains below benchmark countries such as India and Singapore. The government's open data portal also requires improvement, with limited data coverage and openness issues such as infrequent updates, limited data availability, and incomplete metadata and machine readability.

The Maldives performs relatively well in network

infrastructure, led by two market leaders, Dhiraagu and Ooredoo. Multiple international cables are operational, contributing to high international bandwidth usage per user (World Bank, n.d.-b). Additional developments are underway, such as SEA-ME-WE 6, IAX and PEACE (TeleGeography, n.d.). Telecom network infrastructure in the Maldives is relatively well developed, with potential for improvement in middle-mile connectivity and data centres.

Table 3. Key legal documents

Area	Laws
Data protection and privacy	The Penal Code (No. 6/2014) The Constitution (2008) Privacy and Personal Data Protection Bill (2024 draft) Right to Information Act (No. 1/2014)
Human rights	The Constitution (2008) Right to Information Act (No. 1/2014)
Cybersecurity	The Penal Code (No. 6/2014) The Cyber Security Bill (draft)
Consumer Protection	The Consumer Protection Act (No. 12/2020) The Electronic Transactions Act (No. 2/2022)
Fair Market Competition	Competition and Fair Business Practices Act (11/2020) The Telecommunications Law (No. 43/2015) The Copyright and Related Rights Act (No. 23/2010)
Emerging Technologies	N/A; however, drafting of the National Artificial Intelligence (AI) Masterplan (Draft) is underway

Source: Compiled by the author based on existing laws and key informant interviews
*Note: In black: existing laws; in blue: **draft document***

New developments are emerging to support digital businesses, though funding, staffing, and scaling encounter challenges. Larger resorts, especially those with international links, tend to have high digitalization levels. However, it is uncertain whether smaller local businesses have achieved the same level of digitalization. The software and services sector in the Maldives is small and has no industry body; hence, local software firms rely disproportionately on government software purchases for revenue. Despite these challenges, there are some success stories of firms scaling effectively. The Maldives offers a growing but fragmented ecosystem to support MSMEs, SMEs, and startups, including initiatives focused on physical infrastructure, training, funding, and market access. However, founders struggle to commercialise their products and grow their startups.

Attracting and retaining IT professionals is challenging in both government and private sectors. Large-scale digitalization initiatives require skilled personnel with specialised IT skills. However, many spoke of challenges attracting and retaining staff for specialised IT jobs. Only 3% of students graduated from ICT programmes in 2019, behind Singapore (9%), India (8%) and Sri Lanka (5%) (UNESCO Institute for Statistics, n.d.). However, this number may have increased more recently with higher educational institutions introducing programmes to upskill individuals in advanced digital skills. Compensation is seemingly a challenge in attracting individuals into the sector, given alternatives in areas such as tourism. Given the relatively lower pay scales, this is a further challenge for the government sector. In addition, employers also noted the mismatch between the skills of graduates and their ability to meet workplace needs. Fewer women pursue studies or careers in the ICT field than men are also noteworthy—in 2019, only 1.8% of female tertiary education graduates in the Maldives completed ICT programmes, compared to 5.9% of their male counterparts (UNESCO, n.d.). In the same year, women held just 22% of jobs in the ICT sector (Asian Development Bank, 2022).

Internet use in the Maldives is high, with progress in digital education, but gaps remain in basic skills and

skilling initiatives. The Maldives scores well in internet access (92%) and use (84%) (World Bank, n.d.-c), the second highest in South Asia, behind Bhutan. Anecdotal evidence suggests that basic digital skills are lacking, including the ability to safely navigate online spaces, identify threats and securely engage in financial activities. However, no systematic evidence confirms this, as basic digital literacy is unmeasured, and a National Skills Framework is absent. Digital skills are present in the skills competency framework at the school level (National Institute of Education, n.d.), though they are neither monitored nor evaluated. The Maldives performed well in integrating digital into the curriculum, supported by widespread access to devices and teachers with Google Certifications. This allowed for pivoting to online education during COVID-19. Some training initiatives are being implemented across the government; however, regular training in some areas, such as data protection and cybersecurity, is not commonplace. Furthermore, all training occurs via face-to-face interactions, allowing for limited scalability.

2. Intervention pathways

This section elaborates on the recommendations provided in Table 2, drawing on good practices of benchmark countries where relevant.

Key Issue 1: The digital economy is undefined and unmeasured, making growth targets difficult to set and track.

Recommendation 1.1: Define and measure the digital economy using international good practices and adjust targets based on findings.

Different countries and international organizations (e.g. ADB, OECD) have defined and measured digital economies using various methods. Table 4 indicates how other countries have scoped out their digital economy and their approach to compiling statistics on the digital economy. There are two broad ways to define and measure the digital economy: (1) The “bottom-up approach” narrowly looks at specific economic activities that produce ICT goods and digital services, and (2) the “top-down approach” which reflects digitalization across the entire economy, considering all economic activities enabled by ICT and digital services.

The first, narrower approach to measuring the digital economy may be easier to implement, as it relies on established product and industry classification systems relevant to ICT products and industries. However, this approach is limiting, as it underestimates digitalization in other parts of the economy, such as education, finance and logistics (Quill et al., 2023). Gathering data relevant for application into frameworks like digital supply and use tables (which “increase the visibility of digitalization within the existing macroeconomic statistics”) will be necessary with the “top-down approaches” to measure the digital economy (Quill et al., 2023). The Maldives could draw on the approaches of others to develop its own framework, although moving towards a recognised international framework for measuring the digital economy, such as the OECD approach, would allow for benchmarking. Other key considerations should be data availability, the capacity to collect new data, and the ability to analyse relevant statistics. Performing a baseline measurement would help establish a clearer picture of the digital economy’s current contribution and, if needed, allow for revising the national target based on evidence.

Recommendation 1.2: Develop a digital strategy by identifying priority projects for the government, mapping relevant stakeholders, and establishing a clear sequence for implementation

Establishing a clear digital strategy with realistic and achievable targets is critical to guiding digital transformation in the Maldives. A well-defined strategy should provide a unifying vision, prioritise key projects, map relevant stakeholders across various sectors such as government, private, and civil society, and outline a realistic implementation roadmap. It should take a whole government approach (for proposed institutional mechanisms, see recommendations 2.1 and 2.2.), particularly when prioritising projects. The strategy could be a single comprehensive document, as seen in the UK. Its Digital Strategy (published under the 2019 to 2022 government) covers many areas, such as infrastructure, education, industry, public services, and societal resilience (Government of the United Kingdom, 2022).

Alternatively, it could follow a layered and modular approach, as seen in Singapore, where multiple strategies—including the Digital Enterprise Blueprint, Digital Government Blueprint, National AI Strategy, Digital Connectivity Blueprint, and Cybersecurity Strategy—coexist and complement one another (Smart Nation and Digital Government Office, n.d.). Efforts should focus on cross-referencing relevant initiatives and sectoral strategies to clarify ownership, particularly where progress in one area depends on actions in another.

Key Issue 2: Lack of clear leadership, coordination and role separation in digital transformation

Even though digitalization efforts are led by various government organizations, the country lacks clear leadership and coordination to lead digital transformation.

Recommendation 2.1: Establish apex policymaking body to set vision and ensure that vision is achieved, advised by an multistakeholder advisory council

The Maldives should consider establishing a dedicated and sufficiently empowered apex policymaking body to lead its digital transformation agenda. This institution should be mandated to oversee digital affairs at the highest level, ensuring strategic leadership and effective cross-sectoral coordination. In countries such as Singapore and Malaysia, standalone ministries, such as the Ministry

Table 4. Definition of the digital economy in select countries that measure the size of or contribution from their digital economy

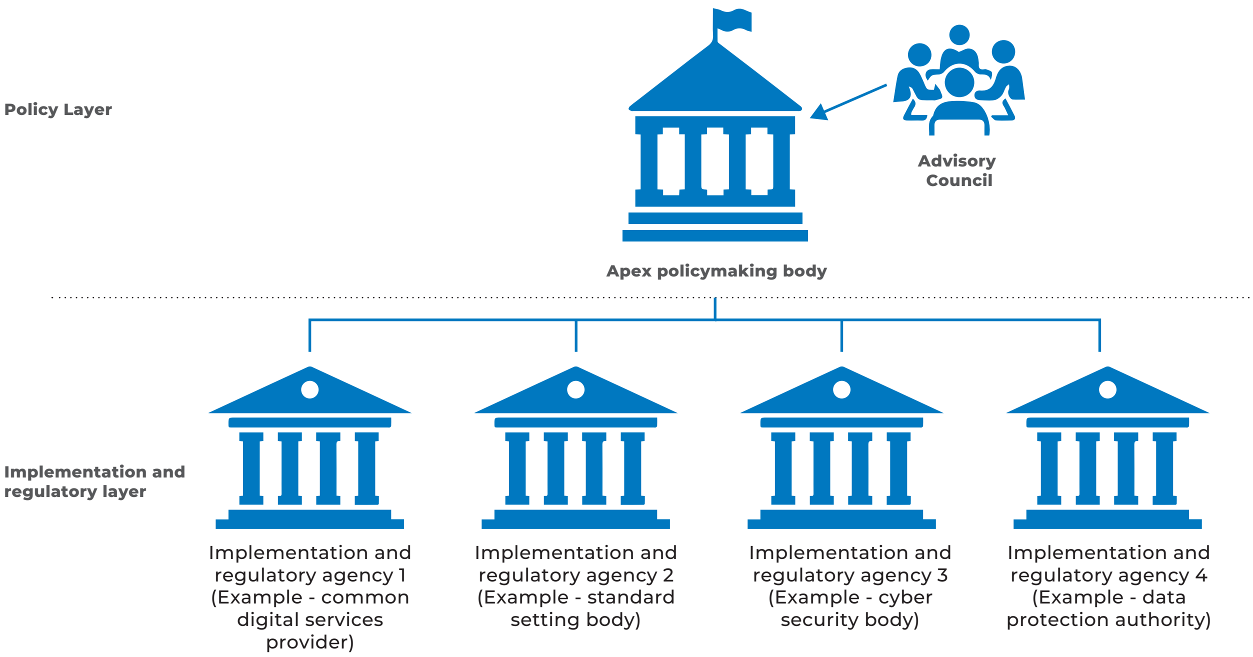
Country	Singapore	India	UK
Scoping of the digital economy	Digital Economy (SGDE) is defined to comprise of the 1) Value-add from the Information & Communications (I&C) sector - businesses that provide core digital services, like telecommunications, cloud computing, software development, and the production and distribution of digital content and media 2) Value-add from the digitalization of the rest of the economy - finance and insurance, wholesale trade and manufacturing	The country uses the OECD approach of defining seven digital industries: 1) digitally enabling industries (DEIs) 2) digital intermediary platforms charging a fee 3) data and advertising-driven digital platforms 4) firms dependent on intermediary platforms 5) e-tailers 6) digital-only firms providing financial and insurance services 7) other producers only operating digitally	The digital sector is composed of* 1) Computer programming, consultancy and related activities 2) Film, TV, video, radio and music 3) Telecommunications 4) Information and service activities 5) Software publishing 6) Manufacturing of electronics and computers 7) Publishing (excluding translation and interpretation activities) 8) Repair of computers and communication equipment 9) Software publishing (compute games and others) 10)Wholesale of computers and electronics *changes to this definition have been proposed
Approach of measuring	Top-down	Top-down	Bottom-up

Sources: IMDA (2023); ICRIER (2025); DCMS & DSIT (2024)

of Digital Development and Information and the Ministry of Digital respectively, have been created to serve as apex bodies driving national digital strategies (Ministry of Digital Development and Information, n.d.; Government of Malaysia, n.d.). These structures allow digital priorities to be mainstreamed across all sectors, rather than being confined to ministries with broader mandates. There are also models where digital affairs are housed within a non-dedicated ministry—for instance, in Estonia, where the Ministry of Justice and Digital Affairs oversees the agenda. However, such arrangements may dilute focus. Alternately, it may focus digital efforts on one particular thing (over emphasis of the national security aspects of digital technology) instead of viewing digital as a truly cross cutting phenomenon. Where a standalone ministry is not feasible, digital affairs could be grouped with an aligned portfolio, such as economic development. Regardless of the structural arrangement, it is essential that the person in charge of digital affairs has the political stature, domain knowledge, and operational bandwidth, and is elevated to cabinet minister status (and his/her next level to secretary status) in order to be able to convene other ministry heads and senior civil service members, cut through bureaucratic silos, and drive implementation of implementing agencies (Recommendation 2.2).

The policymaking body should be advised by a high-level council which would provide strategic oversight and help ensure a unified digital direction, including leading the development of the country's digital strategy (recommendation 1.2). This committee must necessarily be multistakeholder in its constitution – with senior level representatives from private, public, civil society, academia and technical community having the opportunity to have a member in the committee and serving defined terms. Convened by the body established for policy making, the council would complement the policy making body's role by

Figure I Proposed institutional structure for digital transformation



bringing together secretary-level representatives from key ministries—such as Finance and Planning, Economic Development and Trade, Tourism and Environment, and Education—reflecting the cross-cutting nature of digital transformation, as seen in Estonia. The council should be multistakeholder, as seen in Estonia and Malaysia (see Table 5). Malaysia's approach of including representatives from industry, academia, and civil society could help ensure that a variety of different groups are represented, ideally nominated through a sector-led voting process to safeguard impartiality. An Advisory Council would operate at the policy level, providing guidance to the apex policymaking body and ensuring that a whole-of-Maldives view is taken in digital transformation.

The apex body would oversee both the implementation and regulatory agencies (see figure 1).

Recommendation 2.2. Ensure a clear separation of functions in implementing agencies, including between standard setting and compliance, and technology development and operation

A key issue currently is the lack of clarity in institutional roles, with multiple agencies being involved in technology development and operations, while standard-setting and compliance functions are underemphasized. To address this, agencies responsible for implementing the digital vision should have clearly differentiated mandates. This would also enable the proper alignment of incentives with the roles each organization. This can be achieved through separate divisions within the same organization, as seen in Singapore with the existence of GovTech (Heysara, 2021; Joint Learning Network, 2022), or two completely different organizations. If a single-agency model is preferred for the Maldives, it would be more appropriate to establish two internal divisions—one focused on standard-setting, cross-sector collaboration, and monitoring and evaluation of government digitalization efforts, and the other on technology development and operations.

Key Issue 3: Lack of regulatory independence of Data Protection Authority (DPA)

The draft Personal Data Protection Bill proposes establishing the Data Protection Authority under NCIT, which compromises the authority's independence.

Recommendation 3: Amend the draft personal data protection bill to separate the DPA from NCIT and establish it as an independent regulator

Ensuring the independence of regulatory bodies is crucial for effectively implementing laws and maintaining impartial oversight. In the Maldives, CAM operates as an independent regulator overseeing communications and broadcasting

Table 5 Compositions of multi-stakeholder councils for digital agenda in Estonia and Malaysia

Country	Apex policymaking agency	Name	Advisory Council	
			Function	Members
E-Estonia	Ministry of Justice and Digital Affairs	E-Estonia Council	"E-Estonia Council directs the development of Estonian digital society and e-governance, especially the implementation of national digital agenda."	Chair: Prime Minister Minister of Economic Affairs Minister of Entrepreneurship Minister of Education Minister of Public Administration The President of the Estonian Association of IT and Telecommunications A handful of seasoned IT experts
Malaysia	Ministry of Digital	National Digital Economy and 4IR Council-Malaysia	Sets policies for digital economy and 4IR, monitors implementation, ensures inclusive growth.	Prime minister Ministers Private sector representatives Academicians CSO representatives

Source: Government Office of Estonia (n.d.); Marcus (2021); Economic Planning Unit, Prime Minister's Department (2021); Government of Malaysia (n.d.)

sectors (Communications Authority of Maldives, 2015). Positioning the Data Protection Authority as an autonomous body, separate from entities involved in policymaking and implementation, maintains the authority's independence. The Parliament has not yet passed the bill; thus, the draft may be amended before it is presented to the Parliament to ensure the regulatory independence of the authority. Table 6 depicts the independence of data protection regulatory authorities in a few selected countries.

Key Issue 4: Inadequate institutional mechanism for cybersecurity, the existence of a draft Cybersecurity Bill

Inadequate institutional mechanisms for cybersecurity in the Maldives create a significant challenge as the country is moving towards digitalization, exposing critical systems and data vulnerable to cyber threats. The President has established the National Cybersecurity Agency, but there is no evidence of its notable operations yet (The President's Office, 2024).

Recommendation 4: Prioritise the passage and enactment of the Cybersecurity Bill, which establishes the National Cybersecurity Agency (NCSA) and Cyber Security Incident Response Team (MV-CSIRT)

The draft of the Cybersecurity Bill establishes the NCSA with the MV-CIRT as a division of the agency (Draft Bill on Personal Data Protection, 2025). The NCSA is currently established under NCIT, but the draft bill specifies that the agency is to be established as a separate legal entity and will not be part of the civil service. Presenting the draft bill to Parliament and implementing the necessary steps to ensure its passage would support the timely implementation of the legislation.

Key Issue 5. Inadequate governance of AI

Lack of governance in AI would expose society to risks such as bias, discrimination, and compromised privacy and security. Governing AI is essential to promote innovation and creativity while maintaining ethics.

Recommendation 5: Ensure establishing an AI governance framework to promote innovations that protect individuals' rights.

The Maldives is in the process of drafting an AI master plan. Here, it is essential to include a proper governance framework to ensure the safe and ethical use of AI tools and systems (IBM, n.d.) and to encourage innovation in protecting individuals' rights. The governance mechanisms for AI are varied and evolving. The AI Act (European Commission, n.d.) introduced in the European Union aims to legislate AI governance. At the same time, the United States takes a decentralized approach to governing AI, with sector specific strategies driven by voluntary commitments from the private sector (Davtyan, 2024). There are no rigid laws governing AI in the Asian region; however,

Table 6. Independence of data protection regulatory authorities of selected countries

Country	Data Protection Legislation	Relevant Authority	Independent / Not Independent
Estonia	General Data Protection Regulation (GDPR)	Estonian Data Protection Inspectorate (DPI) is the independent supervisory authority responsible for enforcing GDPR. The DPI's duties include monitoring compliance, providing guidance on data protection matters, and representing Estonia on the European Data Protection Board	Independent
Singapore	Personal Data Protection Act 2012	Personal Data Protection Commission (PDPC)- responsible for administering and enforcing the Personal Data Protection Act Data Protection Appeal Panel - hears appeals against directions or decisions made by the PDPC concerning data protection provisions	Not independent - operates under the Infocom Media Development Authority (IMDA) Independent
Japan	Amended Act on the Protection of Personal Information (2017)	Personal Information Protection Commission – responsible for protecting the rights and interests of individuals while ensuring the proper and effective use of personal information	Independent

Sources: Noyb (n.d.); Andmekaitse Inspektsioon (n.d.); Parliament of Singapore (2012); Personal Data Protection Commission (n.d.); Personal Information Protection Commission (n.d.)

table 7 depicts a few approaches taken by regional peers, which the Maldives could consider.

Key Issue 6: Fragmented government systems with limited standards and coordination, undermining interoperability and efficiency

Fragmented government systems in the Maldives, driven by limited standards and poor coordination, severely affect interoperability and efficiency as the country pursues digitalization.

Recommendation 6.1: Develop a government system architecture

The Maldives should establish a government systems architecture to guide how digital systems are designed, built, and integrated across the public sector. This framework would provide a unified structure for aligning government processes, data, applications, and technology infrastructure, ensuring agency coherence and interoperability. The United States was an early adopter of such an approach, which has since been adapted and built upon by countries such as Singapore. Malaysia developed a comprehensive Public Sector Enterprise Architecture (MyGovEA), illustrated in figure II. MyGovEA includes key architectural domains—processes, data, applications, and technology—underpinned by governance mechanisms, shared principles, and structured methodologies for design, implementation, and continuous improvement.

Recommendation 6.2: Further develop and consolidate the tech stack, expanding use across government and private sectors

The Maldives should develop and consolidate its government tech stack into a coherent, modular set of digital building blocks. This includes expanding the use and functionality of existing services, such as e-Faas and GEMS while introducing other core components like document exchange, payment interfaces, and cloud infrastructure. These services should be made available for reuse across government

Table 7. Approaches to AI governance of select countries

Country	Approach to AI Governance
Singapore	Singapore National AI Strategy 2.0 (NAIS 2.0) has the vision of "AI for the public good for Singapore and the world".
	AI verify, an "AI governance testing framework and toolkit", developed by Infocomm Media Development Authority, Singapore, introduces a testing framework with 11 AI ethics principles.
	The Advisory Council on the Ethical Use of AI & Data (established in 2018) advises the government on ethical, policy, and governance issues related to data-driven technologies in the private sector. It also supports the government in guiding businesses to mitigate risks and minimise negative consumer impacts.
Philippines	The National AI Strategy Roadmap 2.0 (NAISR 2.0) includes "fostering an AI ecosystem that prioritises ethical considerations".
Sri Lanka	The draft National AI Strategy envisions "rapidly accelerating the responsible development and adoption of AI to realise a digitally empowered Sri Lanka that fosters innovation, inclusion, social good, and sustainable growth, in alignment with the UN Sustainable Development Goals (SDGs)." Seven core principles guide the strategy: "inclusivity and responsibility, trustworthiness and transparency, human-centricity, adoption-focus and impact-orientation, agile and adaptive governance, collaboration and global engagement, and sustainability and future-readiness".

Sources: Smart Nation and Digital Government Office (2023); Personal Data Protection Commission (2020a); Personal Data Protection Commission (2020b); Sri Lanka's National Strategy on AI (2024); DTI National AI Strategy Roadmap 2.0 (2024)

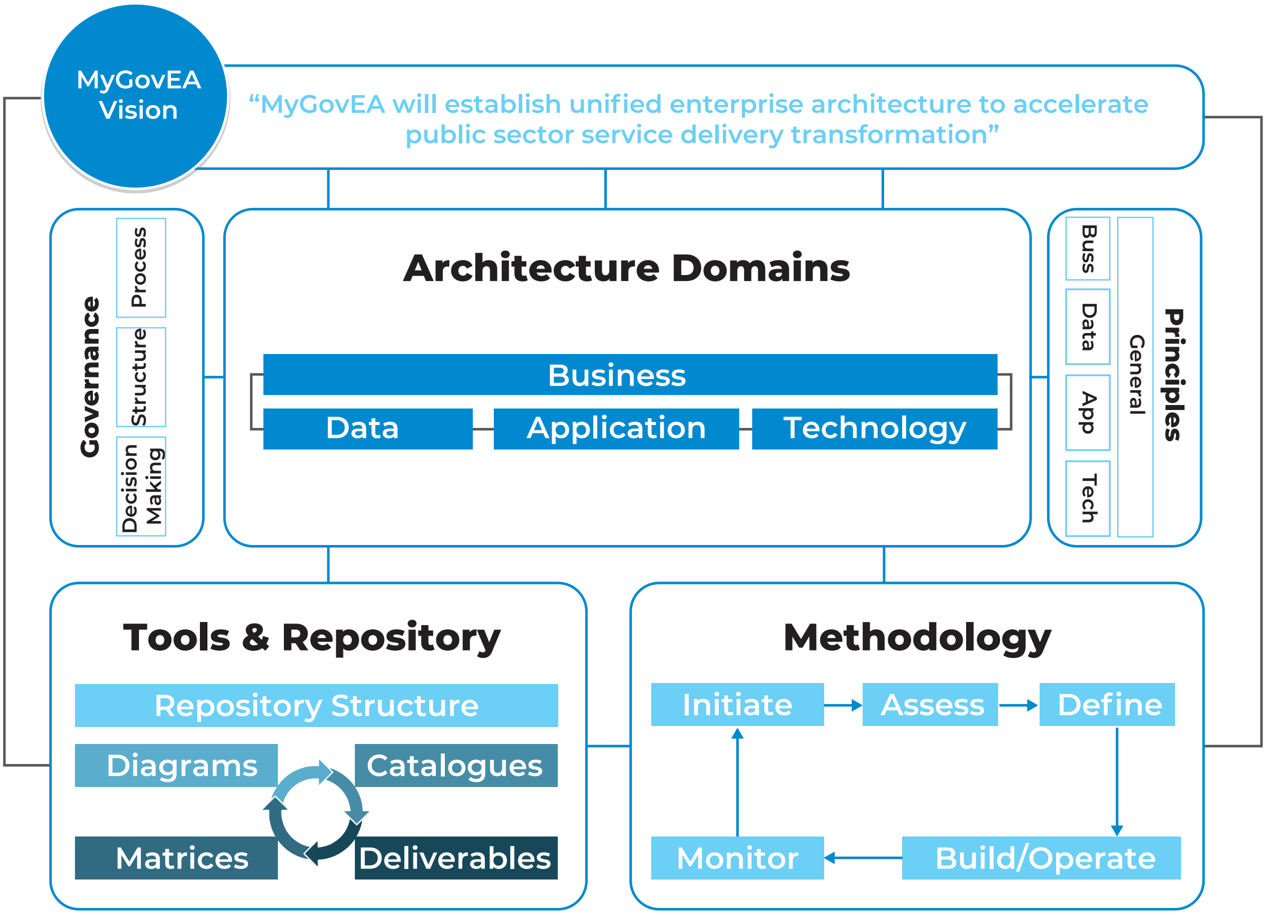
agencies and, where appropriate, to private service providers. Agencies should adopt standard services unless a strong case is made for alternatives. This will improve compatibility, reduce duplication, and promote cost-effectiveness. Different approaches exist: Singapore's more centralised approach (Ministry of Digital Development and Information, n.d.-b), using secure, government-developed services—contrasts with India's more open, API-based model that enables a wide range of public and private actors to build on shared infrastructure. The tech stack should include technical systems to support structured and secure data sharing.

It is essential to prioritise facilitating core services within the tech stack. For example, e-Faas should be rolled out more widely to high-demand applications, including the private sector. Introducing yes/no identity verification (Nilekani, 2015), like India's Aadhaar system, would allow organizations to authenticate user identities without accessing personal data. This could increase trust and adoption of the service, even in the absence of broader data-sharing legislation. This push for integration should also expand to services like OneGov, which sits on top of the tech stack.

Recommendation 6.3: Develop data definitions and standards, considering national security, privacy and innovation needs

The Maldives should develop clear national data definitions and standards to enable seamless, secure, and trustworthy data use across government and beyond. These might include defining minimum encryption standards for specific types of data. Singapore's policies for example, define personal and sensitive data and include guidelines for categorizing and managing such data. They also outline approaches for collecting, retaining, and storing data to protect it against security threats (Smart Nation and Digital Government Office , n.d.). The Maldives should specify how different types of data—such as personal, sensitive, transactional, and open data—are defined, classified, and handled. Standards should also establish rules for data quality, storage, retention, and access, and provide guidance on where data can be hosted, with appropriate security classifications, in line with existing laws—including but not limited to the Right to Information Act and forthcoming data protection legislation.

Figure II Malaysia's MyGovEA framework



Source: MyGovernment, Malaysia (Government of Malaysia, n.d.-b)

Effective data classification can help lessen the burden on government data infrastructure, creating a pathway to migrate less sensitive data to a commercial cloud, as seen in Singapore. Singapore's Digital Government Blueprint sets a target to migrate 70% of less sensitive (Smart Nation and Digital Government Office , n.d.) government systems to commercial cloud platforms by 2023, aiming to leverage best-in-class commercial solutions. The Maldives could enhance the capacity of the existing NCIT data centre and consolidate other government-operated data centres under a unified facility for more sensitive data. Estonia offers a useful example, with a centralised government cloud and overseas data embassies (e-Estonia, n.d.)—secure backups hosted beyond national borders, protected by blockchain to ensure data sovereignty and resilience.

Open data standards should be included as part of this framework to promote transparency, public access, and reuse. A clear distinction should be made between data suitable for open access and data that must be safeguarded due to privacy or national security considerations.

These standards should be developed by a dedicated standard-setting body, distinct from the agencies responsible for digital service implementation and operation (see Recommendation 2.2).

Recommendation 6.4: Develop and enact policy to enable government data sharing (including open data)

Siloed governance with limited data sharing often hampers coordinated policymaking, integrated service delivery, and innovation. Complementing efforts to improve architecture, technology, and data standards (recommendations 6.1, 6.2 and 6.3) steps should be taken to develop and enact legislation or policy to enable data sharing—both within government and with the public (open data). These might include establishing and defining deidentification and data obfuscation strategies and standards. For intragovernmental data sharing, countries use a range of instruments—from legislation and policies to ad hoc memoranda of understanding (MoUs). Notably, some countries, such as Australia, have enacted laws like the Data Availability and Transparency Act of 2022 (Commonwealth of Australia, 2022) which authorizes the sharing of public sector data with other government agencies, states, or universities under specific conditions. Effective open data governance also requires clear rules, mandates, and support systems to enable consistent and safe data sharing by government. To support implementation, agencies must be equipped with both the authority and capacity to publish data, aligned with national data classification and handling standards (see Recommendation 6.3).

Key Issue 7: Lack of competent IT professionals in the government sector

Competent IT professionals are essential to design and implement government digitalization efforts. The absence of skilled IT professionals' results in poorly executed projects, outdated infrastructure, and a lack of innovation.

Recommendation 7.1: Conduct periodic skills gap assessments within government organizations to meet digitalization targets

Periodic skill gap assessments for government employees will ensure they are equipped to meet digitalization targets. This would involve properly defining competencies and skills, assessing the current workforce's skills, and identifying future skill requirements before conducting the gap analysis (Entomo, 2023).

The "National IT-BPM Workforce Survey" by Sri Lanka is a key project designed to gain a comprehensive understanding of workforce needs in the Information Technology (IT) and Business Process Management (BPM) sectors. This initiative was motivated by the need for up-to-date data about the workforce and aims to identify the specific skills and competencies required by the industry (Sri Lanka Association of Software and Service Companies, n.d.).

The UK government has developed a Government Digital and Data Profession Capability Framework, which allows professionals to identify the skills required and measure their current skill levels (Government of the United Kingdom, n.d.).

Recommendation 7.2: Conduct capacity-building programmes to address skills gaps among IT professionals and revise the pay scale to attract and retain skilled talent

Following the gap analysis, capacity-building programmes should be implemented to address skill gaps and ensure continuous professional development for IT professionals. In Sri Lanka, the Sri Lanka Association for Software and Service Companies (SLASSCOM) trains IT professionals through the 'Technology Forum' initiative, with workshops, webinars, and conferences to upskill professionals.

Additionally, offering a competitive pay scale for IT professionals within the government sector is key to attracting and retaining skilled talent. This would incentivise these professionals to remain in the government sector rather than shifting to higher-paying private sector jobs. The KII with NCIT revealed that efforts are underway to revise pay scales to attract skilled professionals.

Key Issue 8: Limited digital skills across civil servants

Limited digital skills among civil servants in the Maldives pose a significant barrier to driving the country towards digital transformation. These skills gaps lead to inefficiencies, delays in adopting e-governance initiatives, and security risks.

Recommendation 8: Develop online training modules on key areas such as data protection, cybersecurity, and responsible AI use for the broader government workforce, to be regularly updated and completed at periodic intervals

Civil service training programmes increasingly include topics on end-user security, safe internet practices, digital hygiene, and the responsible use of generative AI in countries like the United States. Such training is not yet compulsory in the Maldives (General Services Administration, n.d.). These modules could be delivered through online platforms to enable wider reach and scalability and gradually made mandatory for civil servants. Regularly updating pedagogical approaches is necessary when these courses are launched to incorporate emerging best practices. New priority areas for mass learning-such as responsible AI-should be identified and integrated over time.

The Civil Service College Singapore (CSC) conducted webinars on "Transforming Government for the Digital Age," with speakers from the Smart Nation, Digital Government Office and GovTech. The webinars introduced new AI-related programmes to educate public officials on using AI tools (Civil Service College, 2024).

Key Issue 9: Digital literacy among the public is neither defined nor measured.

Maldives currently lacks an official definition or method to measure digital literacy, but anecdotal evidence suggests low digital literacy levels in the country (World Bank, 2023).

Recommendation 9.1: Define and measure digital competencies to perform day-to-day tasks online according to international standards

A framework defining digital literacy at the school level is present but is unavailable at the population level. "Using technology and the media" is a key competency in the national school curriculum, with a framework to guide teachers into incorporating digital tools into learning at different stages from preschool to grade 12 (Shaheema et al., 2015). There is no understanding or formal evaluation of (1) how effectively the framework translates into acquiring the necessary digital skills for problem-solving and task completion and (2) how well teachers implement this framework.

For measuring digital literacy in schools,
The Ministry of Education conducts the National Assessment of Learning Outcomes (NALO) in Dhivehi, Mathematics, and English (Ministry of Education, 2022). A similar assessment is not available for evaluating students' digital-related competencies. Introducing a NALO-style assessment to measure students' ability to use digital tools and technologies, based on the framework outlined in "Turning the Key Competencies into Reality", could provide insights into digital literacy levels in schools and highlight areas for further consideration.

To measure population-level digital literacy,
Establishing a set of basic digital competencies for a National Skills Framework would provide more clarity in measuring digital literacy for stakeholders to understand gaps in digital skills. Several countries have implemented structured approaches to defining and measuring digital competencies, offering valuable models for the Maldives to consider. Table 8 summarises various strategies implemented by Sri Lanka, Singapore, the UK, and India.

Recommendation 9.2: Provide and expand access to affordable digital tools and training programmes designed to improve basic digital literacy in line with the assessment

Once digital literacy is defined and measured, there will be a better indication of the types of interventions needed for specific demographics. Providing accessible and practical digital literacy training in line with such findings can help design targeted interventions to improve digital literacy at a population level.

An example is Singapore, where the current framework measures digital literacy rates across the defined competencies and serves as a foundation for providing educational resources. Singaporeans can develop these skills through an online portal or by accessing in-person learning resources at designated physical locations (Infocomm Media Development Authority, 2024).

Governments worldwide have launched targeted initiatives, as outlined in Table 9, to bridge the literacy gap so that marginalised groups like those from low-income households, seniors, and persons with disabilities are not left behind. The Maldives can learn from these global best practices to develop programmes that enhance digital access and skills for all by establishing community-based digital hubs offering multi-format, multilingual learning through online and in-person modes. Including modules such as using technology for finance applications relevant to daily life can boost participation through learners seeing immediate value in learning digital skills. Independent validation can further build credibility and provide further incentives for participation.

Key Issue 10: Female participation in ICT education and the ICT workforce is low

Girls and young women face barriers at various stages of the education and employment pipeline in the tech sector, often due to deeply rooted stereotypes and limited access to resources.

Recommendation 10.1: Make changes to the curriculum, establish clubs targeting girls, and connect girls and young women with role models that inspire them to pursue studies in the ICT field.

The Maldives can adopt a suitable model with interactive learning experiences and campaigns that address societal stereotypes to foster girls' interest in pursuing ICT and STEM education and make them aware of the opportunities in the sector. Maldives can strengthen existing platforms like Women in Tech that already do such work, such as teaching girls how to code (Dhiraagu, 2024).

Table 8. Definition and measurement of population-level digital literacy in four selected countries

Country	Definition of/ framework for defining digital literacy	Measurement method	Key competencies
United Kingdom	Essential Digital Skills Framework	The Department of Education sets out the framework which informed the Lloyds Bank Consumer Digital Index, which has conducted the survey and published results	Digital foundational skills, communicating, handling information and content, transacting, problem-solving, being safe and legal online
India	Digital skills are categorised into basic, intermediate, and advanced levels	Measured in the "Multiple Indicators Survey"	Being able to send an email with attached files, using copy & paste tools to duplicate or move information within a document, copy or move a file or folder
Sri Lanka	Digital skills are assessed based on whether respondents have used an internet-connected device in the past six months to search, evaluate, store in a retrievable manner, or share information. For each activity, it asks if they considered safety (their own or others) and if they followed ethical norms	Attached as a module for periodic Labor Force Surveys, a computer literacy survey	N/A
Singapore	Digital Skills for Life (DSL) framework	Covered in IMDA's annual survey on Infocom usage in households	Set up and use smart devices, explore information online, communicate online, transact online, be safe, smart and kind online

Sources: Government of the United Kingdom (2019); Lloyds Bank (2024); Fernandez & Puri (n.d.); Government of India et a (2023); Department of Census and Statistics (2022); ICT Agency of Sri Lanka & Department of Census and Statistics (2024 Infocomm Media Development Authority (2023)

Estonia offers a case study to encourage more women and girls to pursue STEM careers by recognising that gendered perceptions of STEM start early. To counter this, Estonia integrates programming and robotics into kindergarten and early school curricula, ensuring that both boys and girls gain hands-on experience with technology from the start. Many schools introduce basic coding and programming in first grade, fostering curiosity and confidence in tech-related subjects before societal biases take root (Mäeots, 2019). Beyond early education, e-Estonia also focuses on representation and mentorship. The Ministry of Economic Affairs and Communications launched the ICT is Everywhere campaign in 2018, featuring motivational speakers from the tech industry who visit schools to share their experiences and encourage girls to consider careers in ICT (Nõmmik, 2018). This helps inoculate girls against stereotypes about participating in the sector (Boston & Cimpian, 2018).

Another initiative, Unicorn Squad, explicitly targets girls aged 8-14, providing them with structured training in programming, robotics, and technology through hands-on assignments (HK Unicorn Squad, 2025). These interventions create interest in the subject and an environment where girls can engage with ICT studies in an exciting and supportive way, nurturing their interest in STEM instead of discouragement.

However, a one-size-fits-all solution is absent. Strategies that work in one country may not be effective in another, as seen with the CC4G (Computer

Table 9. Initiatives to address digital literacy in select countries

Country	Programme	Target group	Key features	Key learnings
Singapore	Seniors Go Digital	Seniors, Persons with Disabilities (PwDs)	- Provides resources to acquire affordable mobile plans - Nearly 50 SG Digital community hubs for in-person assistance - Online portal with learning materials in multiple formats (articles, videos, guides)	- Establish community-based digital hubs - Provide multi-format digital learning materials (video/audio-based content, text articles, interactive guides)
Australia	Be Connected	Seniors, General Public	- Free online courses covering a range of digital topics and skills from "all about your iPhone" to "how to use Google maps" to "how to avoid email scams" to "all about myGov". - Filtered learning by device, topic, experience level, and content type (videos, podcasts, articles) - Tool to find in-person computer classes nearby	- Use a comprehensive and central online learning platform with relatable topics and categorised content for different devices, skill levels, and learning preferences - Provide multiple learning modalities (online and in-person)
India	PMGDISHA (Pradhan Mantri Gramin Digital Saksharta Abhiyan)		- 20-hour structured digital literacy training with five core modules - Content available in 22 languages - Delivered both online and offline - Training includes digital payments (UPI, mobile banking, Aadhaar-enabled payments) - Third-party assessment and certification of course takers	- Deliver digital literacy training in Dhivehi - Include financial technology modules (e-wallets, mobile banking, online transactions) - Establish independent validation, which may build credibility and motivate learners to participate.

Sources: Infocomm Media Development Authority (n.d.); Be Connected – Every Australian online (n.d.); Ministry of Electronics & IT (2024)

Clubs for Girls) clubs, a highly successful programme in the UK but with limited success when piloted in Australia (Miliszewska & Moore, 2010). When drawing from successful models and programmes from other countries, Maldives should tweak such programmes to suit the target demographics in local contexts and pilot them before broader adoption.

Recommendation 10.2: Support female ICT graduates' access to job opportunities in the sector through improving access to information, networking opportunities, training, providing flexible work arrangements, recognising companies that enable women to thrive in the sector, and investing in women-owned businesses

Encouraging women to pursue ICT education is only one step; the other is to remove barriers that hinder their entry and advancement in the workforce.

Programmes that connect women with mentors, networking opportunities, and reskilling programmes may succeed in varying degrees. In Estonia, organizations such as Women in Tech and Tech Sisters provide resources for women seeking opportunities to enter or re-enter the workforce (Nõmmik, 2019). They provide networking, mentorship, and reskilling opportunities. Telia Estonia, a reskilling programme run by Women in Tech, helps women develop technical and soft skills while offering networking opportunities with industry professionals (Smart Work Academy, 2024), helping to provide women with tangible pathways into the tech sector. In India, NASSCOM's Women Wizards Rule Tech (W2RT) programme targets improving the number of women in leadership roles in the tech industry (NASSCOM, 2018). The programme provides training and mentorship tailored towards retaining women in the workforce and enhancing their ability to "rise through the corporate ladder" (NASSCOM, 2018).

Beyond this, creating more opportunities for women-owned businesses to participate in public procurement can help narrow gender gaps in entrepreneurship in the industry. A study by the International Trade Centre (ITC) found that women entrepreneurs face several barriers to winning public tenders, including a lack of awareness about bidding opportunities, complex application procedures, and stringent financial and qualification requirements. To address these challenges, the ITC has developed a handbook offering tools to assess the current landscape, design and implement a roadmap to enhance women's participation in public procurement, and monitor progress (International Trade Centre, 2020).

Recognition and awards are tools to incentivise women's participation in the ICT sector and encourage companies to prioritise gender inclusion. For example, 'Women in Tech Excellence' awards celebrate individual achievements of women in the field (Women in Tech Excellence Awards, 2025), while 'Women in Tech Employer' awards recognise companies that provide enabling environments for women in the industry (Women in Tech Employer Awards, 2025). Categories include best employer for benefits and well-being, parental support, training opportunities, mentorship programmes, and inclusive workplace networks. Organizations that offer innovative solutions to improve diversity and provide effective training programmes are awarded.

Evidence from studies on increasing female labour force participation suggests that addressing the care burden through interventions such as mobile crèches and flexible work arrangements can boost women's employment, including in the ICT sector (Halim et al., n.d.).

The Maldives' tech ecosystem and public sector can create structured pathways to support women in ICT by building on these insights and learning from similar initiatives and models. This includes connecting female ICT graduates with potential employers, offering mentorship and networking opportunities, and ensuring the necessary support systems are in place for them to thrive. Additionally, efforts can be made to incentivise companies to hire more women and create space for women-owned businesses to flourish within the sector.

Key issue 11: Low digitalization among MSMEs

While large, internationally connected resorts have achieved significant digital transformation (Twimbit, 2023) within the Maldives' tourism-driven economy, the extent of digitization across other sectors remains unclear. This is particularly true for traditionally non-digital industries (e.g., the financial sector) that now embrace digitalization globally.

Recommendation 11.1: Regularly assess the level of digitalization of MSMEs and startups, keep pace with ongoing technological advancements, and identify areas that need support.

A firm-level assessment of digitalization amongst MSMEs and startups is necessary to understand barriers businesses face in specific contexts/localities when adopting new technology. A regular evaluation along the pace of technological advancement will (1) provide an understanding of how businesses respond and adapt to evolving technology and (2) help identify specific areas where businesses require support to adopt and effectively leverage digital tools.

This involves analysing pain points such as lack of digital skills, internet connection-related issues, affordability of hardware and software, cybersecurity concerns, and regulatory hurdles that may slow down digital adoption. For instance, small guesthouses and restaurants may struggle with implementing digital payment systems, online booking platforms, or successful online marketing strategies. Similarly, MSMEs in other non-digital sectors may require awareness-building sessions, technical assistance or training programmes to transition into digital operations. Understanding sector/location-specific challenges in this stage will help streamline services available in the next stage to provide training and resources to support businesses.

Recommendation 11.2: Provide targeted, needs-based programmes to help businesses identify digital solutions, connect with solution providers, secure funding, and equip employees with the necessary skills to implement and use these technologies effectively.

As a next step, tailored training programmes should be designed to address specific gaps identified through the assessments conducted in recommendations in 12.1. Rather than implementing broad and costly programmes for a large audience, understanding the needs of business segments and providing targeted support may be a more efficient and practical approach.

Table 10 lists the approaches followed by selected countries to support MSME digitalization

Key issue 12: ICT sector is unorganized, lacks a niche, has limited scalability and has a limited supply of job ready new entrants to work in the sector.

The Maldives' ICT sector is small, with some dependence on government contracts. While some firms have scaled successfully and support for MSMEs and startups is increasing, founders face challenges in commercialising products and scaling their ventures.

Recommendation 12.1: Set up an industry body to increase collective power

To build a resilient tech ecosystem, the Maldives could establish a dedicated industry body modelled on successful examples like NASSCOM (India), PIKOM (Malaysia), and SGTech (Singapore). These bodies typically facilitate two-way communication between the private sector and government (Onugha, 2018) and enhance collaboration between ecosystem segments, including larger ICT companies, startups, academia and global tech players. They can also advocate for policy reforms by providing coordinated input on relevant policies and laws like the data protection law and the national AI policy. Industry bodies also collaborate with their counterparts in other countries, such as Nepal's NAS-IT, collaborating with SLASSCOM, to set up and increase their capacity (NAS-IT, 2024).

Table 11 outlines several industry bodies in the region. These industry associations in the area serve different roles. SLASSCOM (Sri Lanka) and NASSCOM (India) are outward facing, primarily focusing on positioning their countries as global IT outsourcing hubs and driving tech exports. In contrast, PIKOM (Malaysia) is more inward-looking, concentrating on industry networking, research, and policy advocacy to strengthen the domestic tech sector. The Maldives can learn from such models and tailor its industry body to focus on the local industry's needs. The industry body can represent the private sector in the committee outlined in recommendation 2.2.

Recommendation 12.2: Identify a country-specific niche for the ICT sector

The Maldivian ICT sector has no formal size estimates and remains relatively small, with limited scope to scale digital products and services in the domestic market. As a result, businesses should expand internationally to achieve economies of scale. Given the borderless nature of digital products, the ICT sector is uniquely positioned to tap into global markets. However, it is helpful to determine the areas where the Maldives has expertise and market potential to build Maldives' ICT ecosystem. One such area could be tourism-related digital solutions. It could explore rights-protecting products if its AI governance mechanisms are advanced. A Porter's Competitive Strategies model (Fredriksson et al., 2013) (see figure III) can guide understanding of the current positioning of Maldives' ICT firms and envision the industry's future placement.

Recommendation 12.3: Build world-class Maldivian companies by tweaking public procurement rules.

Implement procurement frameworks that encourage local firm participation that enables the domestic IT industry in the Maldives to collaborate with and learn from larger, internationally competitive firms, helping the sector acquire the knowledge and technology needed to advance toward more sophisticated ICT products and services.

A way to facilitate this collaboration has been tried by Sri Lanka's Information and Communication Technology Agency (ICTA). They allocated preferential marks to local firms within the limits set by World Bank regulations and encouraged partnerships between international and local companies. This facilitated knowledge transfer and technological learning, allowing the industry to grow and scale. ICTA also established clear interoperability standards and modular architectures, enabling small and medium-sized enterprises (SMEs) with specialised expertise to participate in government IT projects. However, not all

Table 10. Selected programmes that support MSME digitalization

Country	Programme	Types of support
Singapore	SMEs Go Digital	Industry digital plans – A step-by-step guide to identify suitable digital solutions and training programmes Digital solutions – Chief Technology Office-as-a-service, Gen AI navigator, E-commerce platforms, sustainability solutions Programmes - Productivity Solutions grant
Malaysia Germany	eUsahawan Go-Digital	Digital entrepreneurship courses and skills for business growth Grants to support new or existing digitalization strategies, improving IT security or data protection, participation in the "data economy", developing online marketing strategies and other digital market development
Denmark	SME: Digital	Grants for private consulting to assess the potential of digitalization in their company, identify the right solution providers, and receive assistance during implementation

Sources: SMEs Go Digital (n.d.); Digital Entrepreneurship (n.d.); Go Digital - Identitätsverstärker (n.d.); SME: Digital (n.d)

ICTA's strategies were successful; a directive requiring a minimum of 50% local value addition for software procured from foreign suppliers faced challenges (Fredriksson et al., 2013).

Similarly, Senegal introduced legislative measures to support local firms, such as breaking down large tenders into smaller contracts, allocating preferential marks for local presence, waiving guarantee requirements for tenders under $100,000 or for intellectual services, and mandating online publication of tenders with feedback to rejected candidates. Despite these efforts, complicated legislation, stringent prerequisites for bidding, and unclear technical specifications posed challenges for local firms to take advantage of the procurement laws that aimed to improve local participation in government bids (Fredriksson et al., 2013).

Additionally, smaller firms in developing countries may struggle to "understand and navigate through complex and opaque procurement procedures" (Fredriksson et al., 2013). Capacitating MSMEs with the knowledge and skills to bid for government tenders can help bridge this gap. Some of the countries mentioned above have already acted on this. Sri Lanka's ICTA conducted training on this for local bidders along with World Bank tender guidelines to reduce the number of non-compliant bids submitted (Fredriksson et al., 2013).

Evaluating the experiences of countries like Sri Lanka and Senegal in this respect can help Maldives develop procurement policies that promote local firm participation in government bids and encourage their collaboration with international experts.

Recommendation 12.4: Curriculum design and job placements for graduates to enhance industry-relevant skills.

Expand public-private collaborations by aligning curriculum design with the requirements of the ICT industry and providing opportunities for the private sector to contribute to workforce development. This will develop industry-relevant digital skills in students, addressing the current skill gaps faced by the ICT industry.

The UK's approach focuses on industry engagement in education through ICT sector placements and career awareness initiatives such as maintaining a national careers service website incentivising employers to provide employee training and standardised digital skills qualifications. The UK has introduced new Digital Functional Skills Qualifications (FSQs) to set clear skill benchmarks for employers, expanded Skills Bootcamps in software development, digital marketing, and data analytics, and reformed apprenticeships to be more flexible and employer-friendly (Government of the United Kingdom, 2022).

Table 11. Three industry bodies from the region

	SLASSCOM (Sri Lanka)	NASSCOM (India)	PIKOM (Malaysia)
Mission/Vision	Achieve US$ 5 billion in revenue, create a 200,000-strong highly skilled workforce and nurture 1000 startups	Establish India's tech ecosystem as the world's trusted innovation partner	To position PIKOM as a driving force behind the nation's digital economy while empowering members to thrive in the dynamic (ICT sector) environment
Organization	Industry-led (National Chamber)	Not-for-profit industry association	Industry-led (non-profit organization)
Primary Focus sectors	IT/BPM sector	IT/ITeS exports -Reskill and upskill India's workforce to create future-ready talent	ICT industry advocacy, digital transformation, SME support
Objectives	-Market and demand generation -Capacity and skills development	- Maximise industry growth and impact through deep member engagement - Drive policy advocacy to build a nurturing environment for success	- Improve the business climate in the interests of all of its member companies and promote industry growth in line with national aspirations - Upskilling with PIKOM Academy
Key focus areas/initiatives	-GT&I to enhance trade and investment -Talent + to develop capacity in industry -Help drive ESG practices across SLASSCOM membership	- Policy Advocacy - Skilling - Emerging tech (AI, IoT) - Diversity & Inclusion initiatives - Tech summits	- Future Digital initiative for policy research and digital and tech industry advocacy - Government Affairs Committee (GAC) that focuses on policy advocacy -MyIT magazine with tech industry news - Annual digital economy and job market report
Membership	~200+ members (IT firms, startups)	~3000+ members (global IT giants, startups, SMEs)	~1,000+ members (ICT companies, SMEs)

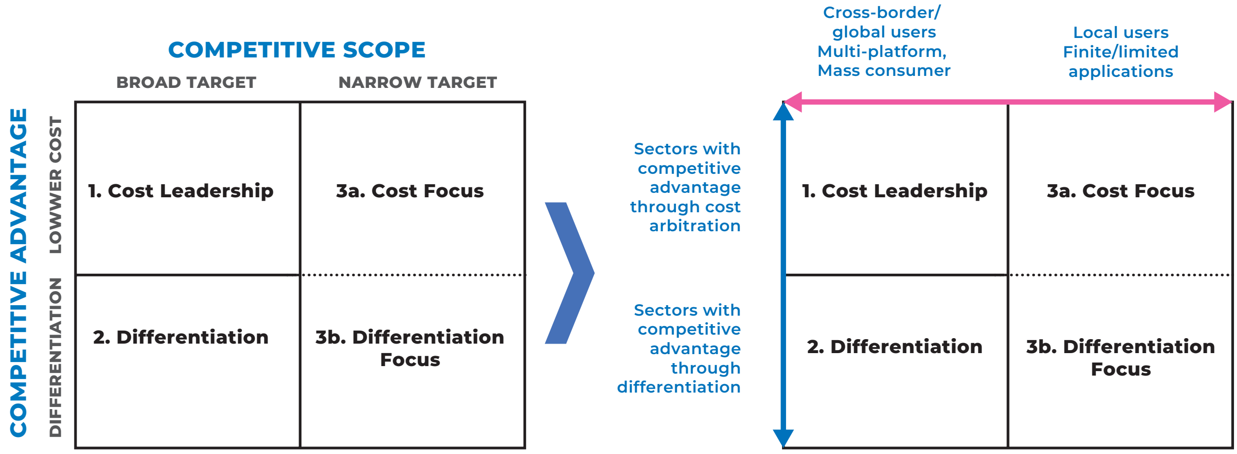
Sources: SLASSCOM (n.d.); NASSCOM (n.d.); PIKOM (n.d.)

Malaysia also focuses on this in their digital strategy, highlighting the need to keep up with the evolving nature of jobs in the sector along with technological advancement. Malaysia's strategy focuses on shifting vocational and tertiary education from job-specific skills to broader competencies and adaptability (Prime Minister's Department, 2021). The Maldives can learn from the strategies of the two countries outlined by

1) strengthening industry participation in building better career pipelines through more structured connections between job seekers and the sector through job placements, internships, apprenticeships,

2) encouraging businesses to invest in employee training through tax incentives or partnerships with education providers like Coursera and Udemy and
3) building industry-academic partnerships to co-design curricula that meet evolving industry needs.

Figure III Porter's general competitive strategies



Source: World Bank (2018)

Further, the development of standardised digital skills certifications, like in the case of the UK, can reassure businesses that graduates meet their expectations regarding functional digital skills in the workplace.

Recommendation 12.5: Support startups by offering training and mentorship from successful founders, including those from successful startups outside of the Maldives.

The Maldives has a growing innovation ecosystem with startup incubators, co-working spaces, events, and hackathons. Still, the key informant interviews (KIIs) from our landscape analysis indicate that many startups struggle to sustain themselves and commercialise their products. Even when founders develop strong ideas and secure initial funding, a lack of mentorship often hinders their long-term success due to the absence of networks and non-technical skills and knowledge required to run startups, such as pitching products, operations, and marketing.

Launching a mentorship network can address this issue, where early-stage startup founders are matched with seasoned founders (in the Maldives and internationally) who have successfully scaled their business ventures and are willing to participate in the programme. Mentors can offer tailored guidance to early-stage founders, from pitching products to investors, running day-to-day operations, sales and marketing, and legal compliance to help new founders navigate challenges when beginning to scale their startups.

Key Issue 13: Lack of protection for the intellectual property of Maldivians internationally and lack of access to published works for PWDs.

Maldivian intellectual output remains vulnerable to unauthorised use internationally. Safeguards against exploitation abroad are essential to promote creativity and innovation. PWDs also face limited opportunities to engage with global knowledge and culture.

Recommendation 13: Become signatories to international IP conventions and agreements and implement them in the country, including the Marrakesh Treaty, to facilitate access to published works for PWDs.

Becoming a party and implementing international IP conventions would ensure that the rights of innovators and creators are recognised and upheld globally. Paris Convention of 1883 would protect industrial property across borders, covering patents, trademarks, industrial designs, geographical indications, and more (World Intellectual Property Organization, n.d.-a). The Berne convention would guarantee international protection to literary and artistic works created in Maldives (World Intellectual Property Organization, n.d.-a). Madrid Agreement or Protocol would provide a streamlined and cost-effective process for registering and managing trademarks across multiple countries through a single application (World Intellectual Property Organization, n.d.).

The Maldives should ratify the Marrakesh Treaty to facilitate better access to published works for individuals who are blind, visually impaired, or print-disabled to promote inclusion. Joining this treaty would enable the country to support inclusive access to knowledge and resources for all citizens, ensuring equitable access to published works (World Intellectual Property Organization, n.d.-b).

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