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National Digital Policy for Sri Lanka

2020-2025

Ministry of Digital Infrastructure and Information Technology (MDIIT)

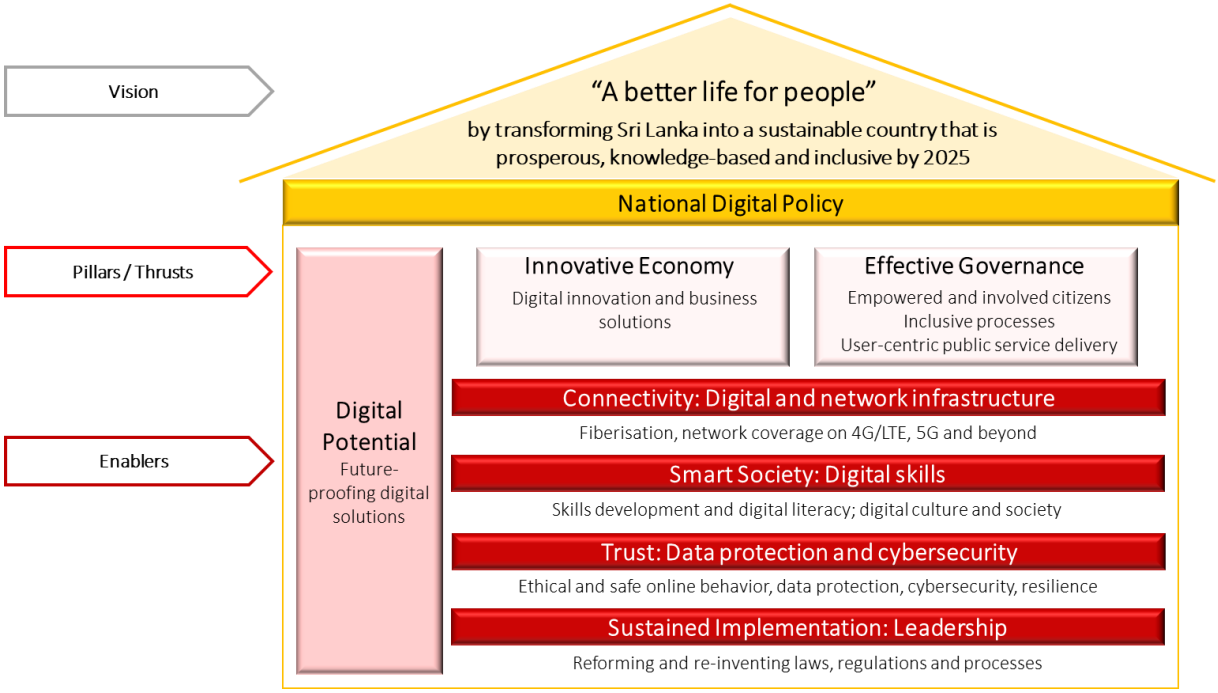
&

Information and Communication Technology Agency of Sri Lanka

07 October 2019

Executive Summary

The National Digital Policy outlines Sri Lanka's digital agenda for 2020 to 2025. The Policy provides the high-level principles and conceptual framework for Sri Lanka to achieve sustained economic development and growth, through the creation of an Innovative Economy and an Effective Governance, as depicted below.



Innovative Economy: Enterprises will embrace digital solutions to adapt, disrupt and remain competitive, creating a broad base of opportunities and driving sustainable economic growth across Sri Lanka. Digitisation and digitalisation in the private sector, by large companies, small and medium enterprises (SMEs) and start-ups, will be key to achieving Sri Lanka's digital vision. Digitally connecting these firms to global value chains and global production networks will be integral to Sri Lanka's success.

Effective Governance: Digital solutions will enable better communication between citizens and government agencies to uphold democratic values. Similarly, these solutions may be harnessed to improve the quality of government service delivery through integrated and efficient processes, to reduce bureaucracy, and improve accountability and transparency. A series of strategic national initiatives are to be established under this pillar to facilitate the enhancement of digital identification (digital ID), fintech, healthtech, educationtech, courts and law enforcement and other similar government-wide services.

Digital Potential: Sri Lanka will remain mindful that digital technology is constantly evolving and if it is to remain a leader in technology and innovation in the region, then efforts must be made to study, experiment with and prepare for the future. It will be important to future-proof all of the proposed actions and activities undertaken in relation to the National Digital Policy. This will be achieved through

partnerships between the private sector and academia and Government, experimenting with new technologies and taking strategic risks in deploying such technologies and adapting new and innovative approaches to ensure the country stays ahead.

The above three pillars will be supported by a series of enablers including: connectivity, smart society, trust, and sustained implementation.

Connectivity: The creation of robust digital network infrastructure will be critical to support the deployment of digital services and platforms. Ubiquitous high-speed broadband and next generation networks to support emergent technologies will be important in order to gain and maintain digital leadership in the region. Reforms are required to ensure accessible, reliable, secure, affordable and resilient mobile and internet services of the required quality.

Smart Society: Investing in people is critical in developing a knowledge-based economy. A digitally skilled workforce will drive innovation and productivity growth in businesses and in Government. Citizens, irrespective of gender, location, age and other factors should be adept at using technology comfortably and safely. Actions will be taken to develop specialised skills and improve employment opportunities through lifelong learning opportunities. Enhancement of skills to productively engage with digital technologies as citizens and consumers will also be supported. Further marginalisation and inequality brought about by the lack of digital access will be addressed adequately.

Trust: Online security and data protection to build trust in digital systems will be important considerations for any digital solution adopted by businesses or Government. As technologies connect everything and everyone, data security and the treatment of personal data (and personally sensitive data) become vital to ensure national security and sovereignty. Addressing these concerns transparently and with accountability will be critical. Rules adopted should provide some degree of freedom to enable the use of data for secondary purposes to encourage innovation. These frameworks should be sufficiently flexible to adjust to changes in the evolving technology ecosystem.

Sustained Implementation: Inclusive and forward-looking policies and actionable, timely measures are the ingredients for success. These will have to be based on collaboration and coordination between the Government (including all agencies and institutions at the local, provincial and central levels), service providers (network, internet, infrastructure and equipment), civil society groups and academia, and the wider business community (including digital entrepreneurs and start-ups). Existing legislation, regulations, processes and even organisational structures will need to be reformed to make best use of technological developments, and to reap the benefits of digitisation and digitalisation. International best practices will be adopted as appropriate.

A targeted Digital Policy will help to ensure that Sri Lanka stays on track to achieving its vision of being a knowledge-based, inclusive economy. Digital connectivity and technologies cut across all economic sectors

and will underpin the development and growth of tourism, high-value agriculture and manufacturing, health and finance among others. Providing users with connectivity, affordable internet-enabled devices, relevant digital applications and the right skills to manipulate these tools can drive productivity gains, improve competition, and facilitate the creation of new jobs, services and livelihoods, leading to broad-based social and economic development. Citizens can also use these tools to enrich the quality of governance and the quality of life for all. Sri Lanka stands to gain tremendously from embracing digital technologies and services.

The extant shortcomings stem from a lack of a unified vision for digital standards or benchmarks in the country, across industries, and between the private and public sectors and from uneven implementation of the policies that exist. Rectifying these will be imperative for a consistent and measured approach so all Sri Lankans benefit from digital connectivity and access. Policymakers and regulators will work to ensure that all Sri Lankans have access to high-quality, next generation technologies at affordable rates, and the freedoms to innovate and use them creatively.

Section 1 sets out the digital vision for 2025

Section 2 provides the background and reasons for adopting this Policy.

Section 3 details the Digital Policy Framework pillars and enablers.

Section 4 explains how the Digital Policy will contribute to achieving the vision for a digital Sri Lanka.

Section 5 highlights the principles to be adhered to in executing this Policy.

Section 6 lays out the specifics related to implementing this Policy.

Annex 1 has been included to provide guidance on how the corresponding Strategies and Roadmaps are to be drafted.

Annex 2 provides a list of measurable targets to be achieved.

Annex 3 provides the narrative context and the evidential base for the National Digital Policy.

Annex 4 includes the comparative analysis that was the basis of the document.

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1. Vision

"A better life for people by transforming Sri Lanka into a sustainable country that is prosperous, knowledge-based and inclusive by 2025"

By 2025, Sri Lanka will be a prosperous, knowledge-based, and sustainable economy, embracing digital technologies to facilitate a range of learning, work and lifestyle tools and opportunities for all citizens across all demographics across the country. In short, what this will mean is a better quality of life for the people of Sri Lanka.

Digitisation and digitalisation by large companies, small and medium enterprises (SMEs) and start-ups, will be key to achieving this digital vision: advanced digital solutions will facilitate the creation of a highly productive, competitive and inclusive-market economy, with a favourable investor environment. A world-class digital environment established to help Sri Lankan entities – large or small – to connect to global value chains and production networks and reap the benefits of the digital economy. Digital technology will not be an end in itself, but will act to catalyse the development and growth of all other strategic sectors, such as tourism, manufacturing, health, and finance.

Government-services will be connected, digital and delivered seamlessly across a range of service providers and modes, accessible to all – even in the most far-flung and remote parts of the country. State officials will be educated and empowered to make use of digital tools to serve citizens efficiently and effectively. Digital government will not be limited to public service delivery, but will also support a digital democracy where all citizens are empowered to participate in proposing, developing, and creating laws, regulations, policies and other aspects of governance.

Digitally savvy Sri Lankans are central to achieving this vision. Consumers will be smart and digitally-enabled to drive and support the digital economy. Citizens will demand efficient, convenient and high-quality services from the public sector. Technology-based education, digital skills development, and Science, Technology, Engineering, Arts, and Mathematics (STEAM) education conducive to creativity will be valued and prioritised.

Sri Lanka will be a free and open digital society. Privacy and security will be values embedded into (digital and analogue) solutions and culture, by design and default, whilst permitting efficient use of data and convenience of use. Digital infrastructure and network connectivity will be ubiquitous, affordable and accessible to all.

Cutting-edge networks and digital services along with empowered citizens, will make Sri Lanka a nation transformed.

2. Background

This policy has been drafted in line with the requirements of the Information and Communication Technology (ICT) Act 27 of 2003 as amended by Act 33 of 2008[1] and has been duly aligned with the Government of Sri Lanka's Vision 2025[2] and aspirations towards achieving the United Nation's Sustainable Development Goals (SDGs) by 2030.[3]

Part 1 of the ICT Act requires the formulation of a national policy on ICTs to guide the activities of the ICT Agency (ICTA) in conjunction with multiple actors in the private and state sector. With digital technologies impacting almost all aspects of the economy, government and society, the formulation of a national "digital" policy seems to be appropriate. This appears to be the dominant terminology in other countries as well.[4]

The SDGs are comprised of 17 goals and 169 targets, covering economic development, social inclusion and environmental sustainability. It is generally recognised that digital technologies and services will play a central role in achieving these cross-sectoral goals through the innovation and accelerated development opportunities that they generate. Many areas of national development, from economic strategy, to finance and banking, education, and food and water security include "digital" components. As a result, digital applications are needed across the wider realm of policy development.

The term "digital" has also been adopted in the more recent Vision 2025 strategy which aims to make Sri Lanka a rich country by 2025 by transforming the country into a knowledge-based, highly competitive, social-market economy.[5] In fact, the section on "technology and digitalisation" in the Vision 2025 framework emphasises the need to develop strategies that encourage the use of digital and other emergent technologies to become globally competitive and to drive the nation towards a digitally empowered economy.

In the past, the Government of Sri Lanka has embarked on e-Government policies such as the National ICT Policy and action plan prepared by the IT Ministry in 2011, a digital strategy known as "Smart Sri Lanka" in 2013, and the OneGovernment 2020. Both the 2011 and 2013 strategies were approved by the Cabinet of Ministers. OneGovernment 2020 was a unified eGovernment strategy that envisioned a "Fully Integrated, Citizen-friendly, Cost-effective and Converged Service Delivery to ALL by 2020 through a responsive and

[1] https://www.icta.lk/icta-assets/uploads/2016/03/Information_and_Communication_Technology_Act_No.27.pdf

[2] http://www.pmoffice.gov.lk/download/press/D00000000061_EN.pdf

[3] http://www.presidentsoffice.gov.lk/wp-content/uploads/2019/05/Final-v2.4-Typeset-MM-v12F-Cov3.pdf

[4] UK has a Digital Strategy launched in 2017, Singapore's Smart Nation makes reference to Digital Economy, Digital Government and Digital Readiness, Canada's is termed as Digital Canada 150, and Finland's is Digital Finland Framework, and so on.

[5] http://www.pmoffice.gov.lk/download/press/D00000000061_EN.pdf

networked government."[6] However, many of these programmes and action items in these three documents were left unimplemented, having little bearing on the development of the national digital agenda.

This overarching and comprehensive National Digital Policy will be the principal policy document outlining the vision and way forward to achieving Sri Lanka's national digital transformation plans for 2020 to 2025. In the absence of a similar overarching policy, various government agencies and private organisations have developed plans and roadmaps of their own without any coordination or consistency.[7]

To address this, the National Digital Policy will provide the high-level framework and adopt a modular structure such that these cross-sectoral or sectoral master plans, strategies and roadmaps, can be implemented in a consistent manner to meet the common objective of establishing Sri Lanka as a truly digital nation.[8] It is envisaged that the relevant ministries/agencies will have responsibility for designing and implementing their respective strategies and action plans, and that the development of these plans will be hinged on the principles and goals as set out in this National Digital Policy.

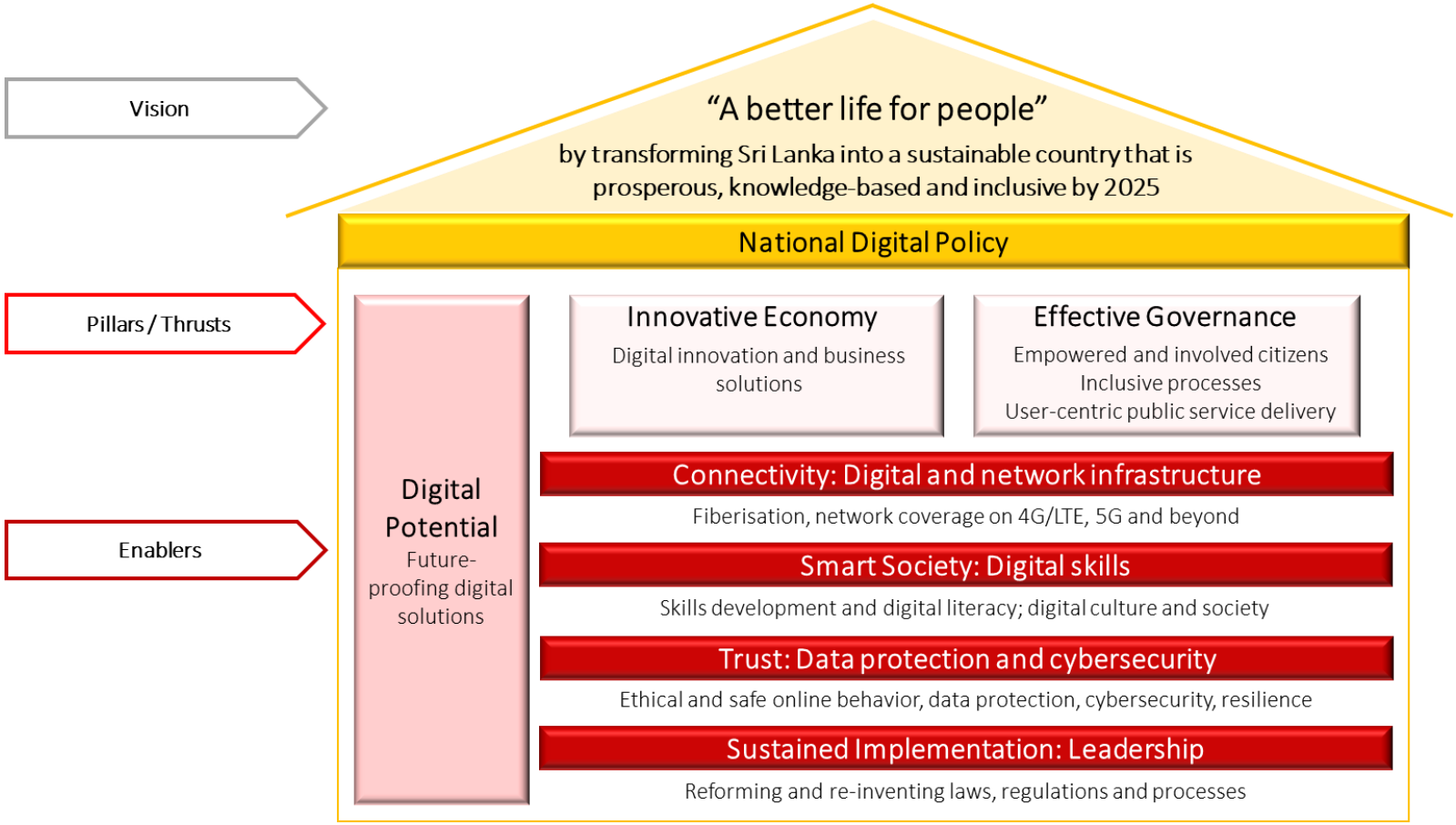
The Ministry responsible for the subject of Digital will be responsible for ensuring that this policy will be implemented in a timely manner. The ICT Agency (ICTA) will have operational responsibility to develop or accept relevant compatible strategies and implement and track action plans as required.

[6] https://www.gov.lk/elaws/wordpress/?p=6767

[7] E.g., IET Sri Lanka Network's *Roadmap for Internet of Things*; Consumer Affairs Authority's (in association with International Trade Council) Draft *Roadmap for E Commerce;* CodeGen's *Moving Sri Lanka Towards a Techno Economy*.

[8] Digital/smart nation policies in Singapore, United Kingdom (UK), South Korea, Finland, Netherlands and Canada have adopted a similar approach.

3. Pillars and enablers of the National Digital Policy



The policy sets out the key drivers and enablers essential for Sri Lanka's development as a digitally-empowered nation. The two main pillars identified under this policy relate to the wider economy and Governance. The critical enablers are connectivity and networks, digital skills and culture, trust and confidence, and governance and leadership. Digital Potential is a cross-cutting enabler focusing on future-proofing all digital solutions considered in each pillar and enabler. Annex 1 has been included to provide guidance on how the corresponding Strategies and Roadmaps that will complete the modular design are to be drafted.

3.1 Innovative Economy

Enterprises will embrace digital solutions to adapt, disrupt and remain competitive, creating a broad base of opportunities and driving sustainable economic growth across Sri Lanka. Digitisation and digitalisation by large companies, small and medium enterprises (SMEs) and start-ups, will be key to achieving Sri Lanka's digital vision. Digitally connecting these firms to global value chains and global production networks will be integral to Sri Lanka's success.

In the present global economic environment, digitalisation is ubiquitous. For effective participation in markets for agricultural products, it is necessary to carefully monitor and document soil conditions, the administration of pesticides, etc. and the adherence to various standards such as Sri Lanka or Euro Good Agricultural Practices (GAP). Digital applications within logistics chain are also essential, both for competitive purposes and for ensuring that quality standards are met. None of this can be done without extensive digitalisation. Similarly, digitalisation, including "internet of things" or connected things dependent on low-latency connectivity usually associated with 5G standards, is increasingly becoming a central feature of manufacturing and transport.

Under this pillar, the objectives should be to:

1. Create a conducive environment for innovation, experimentation, and entrepreneurship
2. Incentivise digital start-ups and entrepreneurial activities
3. Encourage the application of digital solutions and applications in business
4. Make it possible for local firms to participate in the global digital economy
5. Encourage foreign investment and develop Sri Lanka's export capabilities
6. Increase R&D in digital innovation
7. Drive digital skills development in line with economic/business needs

Some of the actions to operationalise these objectives are:

- Create an experiment nation
  - Build innovation test beds, incubators, accelerators and incentives for innovation (start-up funding, incentives, facilities)
  - Provide digital payment offerings, and establish online marketplaces and shared service platforms
  - R&D to experiment and operationalise the latest developments for business uses (e.g., export strategy for artificial intelligence or machine learning based products and services)
  - Collaborate among local, regional and international partners, consumers, government and academia to enhance digital business services
- Develop a digitally skilled workforce to support innovation and productivity growth in business
  - Strengthen the ICT Skills Council

- Encourage the free movement of labour to attract digitally skilled individuals, including the return of persons of Sri Lankan origin
- Implement awareness programmes for easy-to-use digital solutions
- Encourage micro-entrepreneurs to make use of digital platforms

- Transform the business environment
  - Improve the underlying business and regulatory/legal environment to make it easy for start-ups, SMEs to do business in Sri Lanka
  - Review labour, tax, investment and trade, Intellectual Property (IP), consumer protection and other laws and related regulations
  - Attract foreign direct investment and grow export base in digital services

Some of the strategies and action plans that already exist in relation to the Innovative Economy pillar and cover in detail a large number of the action plans and programmes required to build an innovative economy:

- Digital Economy Strategy (2018-2025); incomplete, but approved in principle by Cabinet
  - Develop the country into a leading digital economy in Asia, digitally plugged into international value chains, production networks and markets
  - Sector priorities: Manufacturing, Agriculture, Tourism, ICT sector
  - Enablers: Talent, Infrastructure, Regulation and Adoption
- National Export Strategy of Sri Lanka (2018-2022)
  - IT and ITES exports of USD 5 billion, 200,000 jobs and 1,000 new start-ups by 2022.
  - Upgrade Sri Lanka's ranking in the Doing Business classification, review investment incentive policies, integrate SMEs into the formal sector, and develop the logistics hub and services sectors, including tourism.
- Innovation and Entrepreneurship Strategy of Sri Lanka (2018-2022)
  - Support the export competitiveness of SMEs
  - Promote the growth of start-ups
- Internet of Things (IoT) Roadmap (2019-2024)
  - Create an IoT supportive industrial ecosystem, strengthen technopreneur capabilities in application development, and position Sri Lanka as a global supplier of IoT solutions and applications
- Enterprise Sri Lanka
  - Increase the number of entrepreneurs by 100,000 to achieve a trading economy based on exports
  - Create a village economy based entrepreneurial revolution to compete in the global economy

3.2 Effective Governance

Digital solutions will enable better communication between citizens and government agencies to uphold democratic values. Similarly, these solutions may be harnessed to improve the quality of government service delivery through integrated and efficient processes, to reduce bureaucracy, and improve efficiency, accountability and transparency. A series of strategic national initiatives are to be established under this pillar to facilitate the enhancement of digital identification, fintech, healthtech, and other government-wide services.

A National Data and Identity Interoperability Platform (NDIIP) is an essential precondition for the success of these strategic initiatives in that it will permit the various e-governmental systems to leverage internal synergies. A majority of systems are functioning independently at present and do not facilitate sharing of information, services and digital documents across organizational boundaries. A common, shared digital architecture and platform will enable various digital systems of the government to interoperate on the basis of a unique digital identifier for citizens and other users to prove their identity without compromising personal information, and for the government and businesses to authenticate in a safe and secure way. All government digital systems will be compatible with the digital architecture and platform.

Under this pillar, the objectives are:

8. Implement digital solutions to improve engagement, enable participation and empower citizens
9. Ensure service delivery is user-friendly, high-quality, efficient, transparent and integrated around the needs and abilities of citizens
10. Reduce turnaround time for government services, from request to provision
11. Establish strategic e-government initiatives/platforms, enabling the development of other relevant digital services
12. Drive internet service adoption and smartphone use through better connectivity and digital skills and awareness programmes

Some of the actions to operationalise these will be to:

- Establish strategic national e-Government initiatives
  - Digital identification and authentication (Digital ID): to provide users with a single digital identity to transact with the Government and private sector organisations securely and conveniently
  - Fintech (National Payment Platform): greater push for e-payments to enable citizens, businesses and Government agencies to make simple, safe and seamless digital payments, reducing the need to handle cash and cheques
  - Healthtech (Digital Health): Expansion of the open-source medical record software across all hospitals in Sri Lanka

- Transport (Digital Transport): Smart Urban Mobility project will leverage data and digital technologies, including artificial intelligence and autonomous vehicles, to further enhance the public transport commute. Digital signalling, smart ticketing, public transport data will also be part of this initiative
- Digitalisation of key government services including the Courts and the Police
- Lanka Government Network and Lanka Government Cloud (LGN/LGC) and Public WiFi: Secure and reliable infrastructure facilities to the government to host any type of application/ system and ensure government organizations, offices and buildings are connected with appropriate bandwidth to support the use of e-Government services by civil servants as well as visitors to these offices

- Promote e-Government services to all citizens
  - Simplify existing and new e-Government services
  - Provide mobile government services as easily as web-based e-Government services
  - Incentivize use of digital government solutions over physical ones
  - Enable single sign on, single window for all digital government services
- Establish e-Government standards
  - Government Digital Service Standards for consistency and to build trust across government services; for example, the standards should specify that the Government will make use of open source software to the extent possible/as required
  - Encourage re-use of government information in a secure manner; proactive disclosure of Government data to be encouraged, subject to the conditions and provisions of the Right to Information Act No. 12 of 2016 and the National Archives Act No. 48 of 1973 (as amended) and in compliance with commitments to the Open Government Partnership
  - Each agency should have an overview of what data it handles, what the data signify, what they can be used for, what processes they are part of, and who can use them
  - Common digital platforms to facilitate use by multiple actors, within and outside Government
  - Collaboration between regional and international partners, government, local enterprises and citizens for knowledge sharing
  - User-centric, design-led, data-driven and open approaches in procurement and contracting across Government
- Empowered citizens
  - Involve and encourage the public to provide feedback and participate in the proposal, development, and creation of laws, rules and other aspects of governance
- Enhance digital skills of public sector officers
  - Digital training for Government officers to perform in a digitalised work environment and support the Government's e-Government plans

To ensure these activities are coordinated and put into action, a Digital Government/Transformation Strategy will be drafted by the Ministry/Agency responsible for digital development.

These pillars will be enabled by a series of enablers including: access to trustworthy and resilient digital infrastructure, a smart and digitally literate society, the sustained implementation of laws and regulatory reforms, and through the study of emerging digital trends and developments.

3.3 Digital Potential

Sri Lanka will remain mindful that digital technology is constantly evolving and if it is to remain a leader in technology and innovation in the region, then efforts must be made to study, experiment with and prepare for the future. It will be important to future-proof all of the proposed actions and activities undertaken in relation to the National Digital Policy.

For instance, a key area that can be addressed here would be to prioritise big data analytics making use of existing resources and datasets to not only enhance Effective Governance-related public policy activities but also to drive relevant local solutions for commercialisation under an Innovative Economy. For example, the use of anonymised or pseudonymised public health data and Government medical records may be considered to aid research development of IOT and other health-based digital research and solutions, or the use of emission testing data that is collected for all cars annually can be analysed for various transport policy purposes). Such activities will require the development of the appropriate skills within and outside Government, the right connectivity and infrastructure to support the deployment of these tools and applications, in a trusted and secure ecosystem.

These kinds of initiatives can be achieved through partnerships between the private sector and academia/non-profits and Government (PPPPs), experimenting with new technologies and taking strategic risks in deploying such technologies and adapting new and innovative approaches to ensure the country stays ahead. The experience of the Sri Lanka Institute of Nano Technology (SLINTEC) may be built upon, particular attention being focused on joint efforts with private firms to commercialize inventions and to mechanisms to ensure continued funding of core functions.

Actions will be needed to:

13. Ensure open, innovative, and non-discriminatory internet and digital ecosystems
14. Increase Government and private sector expenditure on R&D in digital innovation

The Innovation and Entrepreneurship Strategy of Sri Lanka (2018-2022) has been drafted and one of the Strategic Objectives identified is to align the public R&D sector with private sector needs. The actions outlined in this document correspond with this Digital Policy pillar. The Strategy aims to increase gross

expenditures on R&D (GERD) from 0.16% to 0.8% of GDP by the end of 2022, and private sector R&D expenditures to more than 50% of total R&D expenditures by 2020.

3.4 Connectivity: Digital network infrastructure

The creation of robust digital network infrastructure will be critical to support the deployment of digital services and platforms. Ubiquitous high-speed broadband and next generation networks to support emergent technologies will be essential to maintain the country's digital leadership in the region. Reforms are required to ensure accessible, reliable, secure, affordable and resilient mobile and internet services.

Actions will be needed to:

15. Incentivise the development of advanced, future-ready technologies
16. Encourage sustainable telecommunication sector development, to ensure a vibrant and prosperous ecosystem
17. Make network infrastructure resilient and secure
18. Ensure affordable, accessible and high-quality connectivity for all
19. Encourage public-private-people-partnerships (PPPP) to drive connectivity aspirations

In line with this a Digital Connectivity Strategy[9] will be drafted by Ministry/Agency responsible for telecommunications. New legislation will be required to replace the obsolete 1991 Act.

3.5 Smart Society: Digital skills and culture

Investing in people will be a critical to develop a knowledge-based economy. A digitally skilled workforce will drive innovation and productivity growth in businesses and in Government. Sri Lankans should be adept at using technology comfortably and safely. Accordingly, actions will be taken to develop specialised skills and improve employment opportunities for all through lifelong learning programmes and empowerment initiatives focusing on addressable gaps, including rural dwellers and the aged. Further marginalisation and inequality brought about by the lack of digital access will be addressed adequately.

With Sri Lanka's rapidly aging population, elder care will become a priority. In other countries, digital devices and applications are being mobilized to address these concerns. Strategies will have to be developed in Sri Lanka too.

Actions are needed to:

20. Mainstream digital learning, emphasise STEAM at schools and universities – go beyond STEM education to inspire creativity and innovation
21. Foster digital literacy and lifelong learning skills development for elderly, disabled, women and marginalised groups

[9] It is understood that the Telecommunications Regulatory Commission of Sri Lanka (TRCSL) initiated work on a National Broadband Strategy, but it is unclear whether this Strategy has been finalised.

22. Build trust and inculcate a culture of ethical digital use
23. Educate citizens about their digital rights
24. Develop digital solutions to assist the aged
25. Encourage public-private-people-partnerships (PPPP) to drive Smart Society aspirations

A STEM Education Strategy 2018 has already been drafted by the Ministry of Education, to restructure/develop curriculum for each stage focusing on implementing STEM, create more opportunity for career paths, ensure continuous teacher professional development, and enhance students' interest towards STEM education.

A more comprehensive and overarching Digital Readiness Strategy will be drafted by Ministries/Agencies responsible for skills development and the elderly to cover the areas of lifelong learning, ageing population, digital needs, youth unemployment and digital skills, etc.

3.6 Trust: Data protection and cyber security

Online security and data protection to build trust in digital systems will be important considerations for any digital solution adopted by businesses or Government. As technologies connect everything and everyone, data security and the treatment of personal data (and personally sensitive data) become vital to ensure national security and sovereignty. Addressing these concerns transparently and with accountability will be critical. Rules adopted should provide some degree of freedom to enable the use of data for secondary purposes to encourage innovation. These frameworks should be sufficiently agile to adjust to changes in the evolving technology ecosystem.

Actions to:

26. Build trust and inculcate a culture of ethical digital use
27. Create laws, policies, and standards to create a regulatory environment to protect individuals and institutions online (such as the proposed Personal Data Protection Act and Cyber Security Act)
28. Educate citizens about their digital rights
29. Balance data protection and cyber security considerations against wider societal/national interests
30. Open up data sets to encourage innovative data uses between public, private sector and Government
31. Encourage public-private-people-partnerships to drive digital trust where appropriate

In line with this, an Information and Cyber security Strategy 2018 has already been drafted and is being implemented.

3.7 Sustained Implementation: Leadership

Inclusive and forward-looking policies and actionable, timely measures are the ingredients for success. These will have to be based on collaboration and coordination between the Government (including all agencies at local, provincial and central levels), service providers (network, internet, infrastructure and equipment), civil society groups and academia, and the wider business community (including

entrepreneurs and start-ups). Existing legislation, regulations, processes and even organisational structures will need to be reformed to make best use of technological developments, and to reap the benefits of digitisation and digitalisation. International good practices will be adopted as appropriate.

Actions are needed to:

32. Enhance policy and regulatory frameworks to reflect evolving digital technologies
33. Uphold all rights and freedoms as per the Constitution and other international treaties that Sri Lanka is committed to
34. Continuous improvements to processes, regulations and laws in order to remain relevant, effective, and ensure government agencies are accountable for actions taken and decisions made
35. Engage with public using Focus Group Discussions (FGDs), A/B testing, at a micro level (at the "capillaries" of society) to deepen democracy
36. Ensure an open, innovative, and non-discriminatory internet, internet governance and digital solutions

4. Objectives

The high-level vision is to provide a better life for people by transforming Sri Lanka into a sustainable country that is prosperous, knowledge-based and inclusive by 2025.

The National Digital Policy framework will seek to achieve this vision through the following responses detailed below:

Vision	Measured through	Digital Policy focus area*
Prosperous	Improvements to GDP per capita, and mean household income Improvements to ease of doing business	Innovative Economy pillar to support the creation of innovative businesses Smart Society enabler will emphasise the building of a digitally-skilled and digitally-ready workforce, Government and society Effective Governance pillar will address priority areas covered in the ease of doing business index, including ensuring a favourable and progressive regulatory environment
Knowledge-based	Increased Gross Expenditure on Research and Development (GERD) Creation of tech-specific/ICT related jobs Enhancing number of research and development outputs – patents, trademarks, improving the standards of academic institutions	Innovative Economy pillar will drive digital employment needs, utilising digitally-enabled telecommuting and remote working solutions, and rely on forward-looking approaches to solving business/economic problems Digital Potential enabler will drive innovation-driven research and development of digital solutions Smart Society will emphasise digital learning, creative thinking, focusing on STEAM education

Inclusive	Growing internet adoption Digital services for marginalised communities and vulnerable users (such as persons with disabilities)	Connectivity enabler to drive accessible, reliable, secure, affordable mobile and internet services for all citizens Smart Society enabler to create a more even playing field through access to digital learning, and high-quality content and services
Sustainable	Resilient, trusted digital infrastructure and applications (measured by number of significant cyber security breaches, network outages, etc.) Environmentally-friendly approaches to digital infrastructure roll-out (green ICTs, energy consumption targets)	Connectivity and Trust enablers to emphasise creation of robust and resilient digital technologies, networks and underlying infrastructure and cyber security and privacy solutions critical for widespread digital services adoption

All of these responses will depend on the sustained implementation of laws, regulations and processes relevant to each pillar or enabling area.

Annex 2 provides measurable targets, to monitor progress towards these objectives.

5. Principles

The following principles are to underpin all related strategies, blueprints, roadmaps and action plans developed in line with this Policy:

It is envisaged that any implementing agency will align their programmes to meet at least a minimum of three of the principles listed here. This is discussed in Section 7 in greater detail.

6. Strategies, roadmaps and action plans

6.1 Policy Formulation

The Ministry responsible for digital development, and the ICT Agency within this Ministry, will have overall responsibility for the National Digital Policy.

6.2 Policy Implementation

The National Digital Policy will be supported by the creation of a series of multi-year strategies or roadmaps for each pillar and critical enablers. In some cases, such strategies already exist and in others they need to be formulated. An indicative list is provided below:

Item	Strategy/Action plan	Status
1. Innovative Economy pillar	Digital Economy Strategy National Export Strategy Innovation and Entrepreneurship Strategy	Drafted Adopted Drafted
2. Effective Governance pillar	Digital Government/Transformation Strategy	WIP
3. Digital Potential cross-cutting pillar	IoT Roadmap Innovation and Entrepreneurship Strategy	Adopted Drafted
4. Connectivity enabler	Digital Connectivity Strategy/National Broadband Strategy	TBD
5. Smart Society enabler	Digital Readiness Strategy STEM Education Strategy	TBD Drafted
6. Trust enabler	Information and Cyber security Strategy Cyber Security Bill Personal Data Protection Bill	Adopted Drafted Drafted
7. Sustained implementation	E Government Strategy	WIP

These strategies will define the collective actors and actions that will play a critical role in enabling this success of the Sri Lanka as a digital nation. The strategies and related action plans will be working documents that are updated and revised, recognising and reflecting technological change and advancement over time.

Through the adoption of a modular structure, these master plans, strategies and roadmaps can be developed and implemented in a consistent manner to meet the common objective of establishing Sri Lanka as a truly digital nation as defined in this Policy.[10] It is envisaged that different Ministries and agencies will have responsibility for designing and implementing their respective strategies and action

[10] Digital/smart nation policies in Singapore, United Kingdom (UK), South Korea, Finland, Netherlands and Canada have adopted similar approaches.

plans, and that the development of these plans will be consistent with the principles and goals of this National Digital Policy.

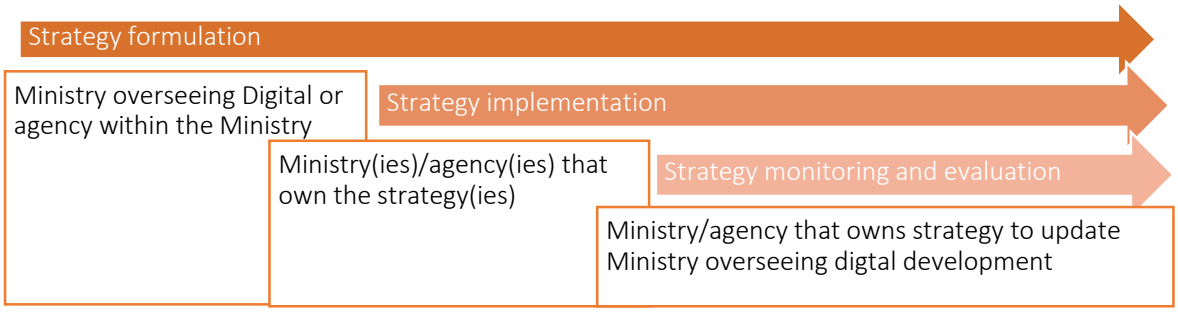
The respective owners and lead agencies for each of these strategies will identify and scope out the goals, programmes and initiatives that are to be achieved, that are in line with the vision, objectives, and principles identified in the National Digital Policy. Every strategy will be time-bound and will include measures or indicators for monitoring and evaluating success.

In order to guide the decision making process on what programmes and action plans are to be implemented under this Policy, the Ministry responsible for digital and the ICT Agency with overall responsibility for this Policy, will provide guidelines or be part of the decision making, to ensure that these meet at least three of the Principles listed in Section 5.

A multi-stakeholder, collaborative effort will be adopted to ensure that the strategies are comprehensive and represent all potential issues and concerns. Relevant stakeholders in the public (and private sector, where applicable) will be assigned to lead or drive various activities identified.

The respective owners of each strategy will be responsible for securing the necessary funding and budgets to run the programmes and initiatives identified.

Where appropriate, the remit, strategic direction, structures and operations of existing organisations, agencies and Ministries will be aligned in such a way so as to be in a stronger position to implement the strategy.



6.3 Policy Monitoring and Evaluation

Monitoring and evaluation responsibilities lie with the Lead Ministries/Agencies that own each Strategy.

The Ministry responsible for digital and the ICT Agency will receive updates from each of the lead agencies. An annual programme of activities will be submitted to the Ministry for high-level monitoring and evaluation purposes.

Annex 1: Examples of how strategies are to be formulated

Innovative Economy

Principles

Inclusive	Digital business solutions should not seek to marginalise one group of users at the cost of another group
Innovative	Ensuring digital businesses and traditional businesses going digital can adapt, disrupt and remain competitive
Efficient	Embracing digitisation and digitalisation in the private sector, for all players – whether they are large companies, SMEs or start-ups
Sustainable	Recognise that economically and environmentally-friendly digital technologies will be critical to the growth of the wider economy
Collaborative	Business and government need to work together to achieve growth and development objectives

Targets

- USD 5 billion in ICT export revenues by 2020
- Provide benefits to over 10,000 companies in the Digitally-enabled free trade zone by 2020
- 5% of farmers to use applications of the Centralised Agriculture Nerve Centre
- Optimisation of customs processing
    - 20-30% reduction in administrative costs related to customs processing
    - 30-40% reduction in time taken for customs clearance
- Digital awareness building
    - >20% of individuals and businesses in key industries engaged in social media campaigns
    - 20-30% of increase in take-up rate of digital solutions stemming from awareness programmes
- Mobile money
    - Minimum of 2 international payment operators in Sri Lanka
    - 15-30% increase average sales per customer from increased ability to up/cross-sell
    - 30-40% increase in visits to physical stores from customers that make payment through kiosk, mobile and web apps
- Platform offering price transparency, speed to delivery, and a better end-to-end experience
    - 20-30% cost savings from removing intermediaries in logistics
    - 20-30% reduction in backhaul efficiency
- Agriculture online marketplace
    - 20-30% increase in farmers directly sourcing inputs and selling to market
    - >90% conversion of transactions from traditional marketplaces to online marketplace
- Start-up funding and support

- 10x active start-ups in the tourism sector
- SME Go Digital programme
  - 10-15% SMEs impacted by the programme
- Pay as you go cloud solution
  - 2% of SMEs adopting local customised digital solutions
  - 5-10% reduction in manpower reliance from implementing digital solution

How?

- Create an experiment nation
  - Build innovation test beds, incubators, accelerators and incentives for innovation (start-up funding, incentives, facilities)
  - Provide digital payment offerings, and establish online marketplaces and shared service platforms
  - R&D to experiment and operationalise the latest developments for business uses (e.g., export strategy for artificial intelligence or machine learning based products and services)
  - Collaborate among local, regional and international partners, consumers, government and academia to enhance digital business services
- Develop a digitally skilled workforce to support innovation and productivity growth in business
  - Strengthen the ICT Skills Council
  - Encourage the free movement of labour to attract digitally skilled individuals
  - Implement awareness programmes for easy-to-use digital solutions
- Transform the business environment
  - Improve the underlying business and regulatory/legal environment to make it easy for start-ups, SMEs to do business in Sri Lanka
  - Review labour, tax, investment and trade, Intellectual Property (IP), consumer protection and other laws and related regulations
  - Attract foreign direct investment and grow export base in digital services

Effective Governance

Principles

Inclusive	e-Government solutions should not seek to marginalise one group of users at the cost of another group
Innovative	Secondary uses of public sector data should be accessible to third parties as appropriate
Efficient	Seamless and efficient processes, enabling better communication between citizens and government agencies, to reduce bureaucracy, and improve accountability and transparency. Government must be responsive and accessible through a variety of media
Sustainable	Recognise that economically and environmentally-friendly digital technologies will be critical to the growth of e-Government services Convenience fees to ensure the sustainability of the provision of e-Government services, as appropriate
Collaborative	Inter-government and private-public-people partnerships and collaboration must be promoted Services must be designed with the end-user in mind, so feedback is important

Targets

- 3,500 government organizations and buildings connected with appropriate bandwidth
- Satisfaction with the quality of public services – among citizens and businesses enterprises
- Less bureaucracy/steps and less time to action/approve
- Single sign-on for all government digital services
- 25% of all users of digital government services using Digital ID
- Digital Health records accessible across 75% of government hospitals
- Strategic digital training for up to 5,000 officers
- Top 70 ranking in the e-Government Development Index

How?

- Establish strategic national e-Government initiatives
  - Digital identification and authentication (Digital ID): to provide users with a single digital identity to transact with the Government and private sector organisations securely and conveniently
  - Fintech (National Payment Platform): greater push for e-payments to enable citizens, businesses and Government agencies to make simple, safe and seamless digital payments, reducing the need to handle cash and cheques
  - Healthtech (Digital Health): Expansion of the HHIMS (open-source medical record software) and variants across all hospitals in Sri Lanka

- Transport (Digital Transport): Smart Urban Mobility project will leverage data and digital technologies, including artificial intelligence and autonomous vehicles, to further enhance the public transport commute. Digital signalling, smart ticketing, public transport data will also be part of this initiative
- Digitization of key Government services including the Courts and the Police
- Lanka Government Network and Lanka Government Cloud (LGN/LGC) and Public WiFi: Secure and reliable infrastructure facilities to the government to host any type of application/ system and ensure government organizations, offices and buildings are connected with appropriate bandwidth to support the use of e-Government services by civil servants as well as visitors to these offices
- Digitization of key Government services including the Courts and the Police

- Promote e-Government services to all citizens
  - Simplify existing and new e-Government services
  - Provide mobile Government services as easily as web-based e-Government services
  - Incentivize use of digital government solutions over physical ones
  - Enable single sign on, single window for all digital government services
- Establish e-Governance standards
  - Government Digital Service Standards for consistency and to build trust across Government services; for example, the Standards should specify that the Government will make use of open source software to the extent possible/as required
  - Encourage re-use of Government information in a secure manner; proactive disclosure of Government data to be encouraged, subject to the conditions and provisions of the Right to Information Act No. 12 of 2016 and the National Archives Act No.48 of 1973 (as amended)
  - Each agency should have an overview of what data it handles, what the data signify, what they can be used for, what processes they are part of, and who can use them
  - Common digital platforms to facilitate use by multiple actors, within and outside Government
  - Collaboration between regional and international partners, government, local enterprises and citizens for knowledge sharing
  - User-centric, design-led, data-driven and open approaches in procurement and contracting across Government
- Empowered citizens
  - Involve and encourage the public to provide feedback and participate in the proposal, development, and creation of laws, rules and other aspects of governance
- Enhance digital skills of public sector officers
  - Digital training for Government officers to perform in a digitalised work environment and support the Government's e-Government plans

Digital Potential

Principles

Inclusive	Applications of emerging technologies must not seek to marginalise one group of users at the cost of another group
Innovative	Innovative uses of data coupled with big data, machine learning solutions must be encouraged Replication of existing solutions may not always work and will have to be deployed taking into consideration local realities/contexts
Efficient	Transparency and openness in advanced digital solutions to ensure efficiency and inclusivity
Sustainable	Long-term, environmentally-friendly and economically viable solutions
Collaborative	Advanced technology should be deployed for social good – where possible, driven by PPPP, underpinned by robust data governance policies and research-based evidence

Targets

- Increase of gross expenditures on R&D (GERD) to 0.8% of GDP by the end of 2022
- Incentivizing private sector R&D expenditures to reach more than 50% of total R&D expenditures by 2020

How?

- Securing a digital future
  - Encourage PPPPs to drive R&D in emerging digital technologies
  - Big data for public policy initiatives (Digital innovation for social good) and commercial applications and solutions
  - Regulatory sandboxes to allow for innovative digital applications and solutions
  - Incubators and test beds for digital innovations
  - Regional and international partnerships for learning and knowledge sharing
  - Partnerships may be formed with industry players to develop governance frameworks and guidelines on use of newly developed technologies
  - Existing data protection and cyber-security approaches will be revisited and amended periodically to keep abreast of the prevailing technological trends

- Regional ICT hub for skills and development through R&D in Artificial Intelligence, Internet of Things, machine learning and robotics, and developing a reputation for regional and internationally-recognised digital skills development and training

Connectivity: Digital and network infrastructure

Principles

Inclusive	Accessible, reliable, secure, affordable and resilient mobile and internet services Digital rights of all users must be upheld
Innovative	Future-ready, advanced technologies must be trialled and tested Spectrum resrouces to support the use of emergent technologies must be prioritised
Efficient	Ubiquitous high-speed broadband, and next generation networks to support emergent technologies
Sustainable	Robust and resilient digital technologies, networks and underlying infrastructure critical for widespread digital services adoption Profitability of the sector must be maintained
Collaborative	Private-public-people partnerships and collaboration must be promoted

Targets

- At least 70% internet users per 100 people
- >95% indoor and outdoor high-speed broadband, 4G LTE and 5G coverage
- At least 200MHz of IMT spectrum monetised and assigned efficiently
- Top 100 ranking in the ICT Development Index

How?

- Policy and legal reforms
  - Issue Telecommunications/Broadband Policy
  - Update Sri Lanka Telecommunications Act
  - Establish a converged independent regulatory agency (telecommunications and media)
- Establishing robust infrastructure networks
  - Foster innovation and investment to support the development of next generation networks
  - Strengthen international network and hub connectivity
  - Secure networks to minimize network outages due to cyber threats and/or natural disasters
  - Guarantee high-quality network services through contractual and licence obligations
- Ensure healthy competition within the telecommunications sector
  - Policy reforms such as unified licensing, technology neutrality, efficient spectrum allocation and assignment, enabling rights of way and backhaul access at reasonable rates, Minimal intervention on tariff regulation

Smart Society: Digital skills and culture

Principles

Inclusive	All citizens should have access to digital technologies, that support high quality content and services All of them should be adept at using technology comfortably and safely
Innovative	A digitally skilled workforce will drive innovation and productivity growth in businesses
Efficient	Specialised skills and improve employment opportunities for all Government employees need to be digitally competent to provide the digital government services
Sustainable	Lifelong-learning and continuous improvements in skills through re-skilling and upskilling efforts
Collaborative	Private-public-people partnerships and collaboration must be promoted

Targets

- Direct workforce in IT and ITES of 200,000 by 2020
- 20-25% increase in number of non-ICT graduates/ professionals trained in ICT skills
- 70-80% successful placement of programme graduates into ICT-related positions
- 10-20% increases in salaries for employees trained with ICT skills
- Increase XX% of funding for R&D on experimental development of advanced data-based technologies

How?

- Build digital capacity and skills
  - ➢ Digital competencies to be included in school and university curriculum; STEAM subjects as a priority
  - ➢ Adopt new digital teaching styles and methods to develop skills
  - ➢ Emphasise lifelong learning, reskilling and upskilling to ensure ageing population challenges are addressed adequately
- Strengthen the digital workforce
  - ➢ Align curriculum with the needs of the industries in the digital economy
  - ➢ Encourage taking up of digital/ICT professions
  - ➢ Increase female participation in digital, technology-based occupations
- Develop a digital cultural agenda
  - ➢ Preserve, enhance and promote Sri Lankan culture and identity online
  - ➢ Encourage local language content
- Regional ICT hub for skills and development
  - ➢ Incentivise R&D in Artificial Intelligence, Internet of Things, machine learning and robotics

- Develop reputation for regional and internationally-recognised digital skills development and training

Trust: Data Protection and Cybersecurity

Principles

Targets

- Top 70 ranking in Global Cybersecurity Index
- 20-30% increase in public perception/trust that organisations will use data responsibly
- Build digital resilience safeguarding critical infrastructure and services
- Inculcate ethical data use through an operational data governance framework

How?

- Ensuring data remains protected
  - Ensure sound data protection laws keeping pace with new data technologies, support the innovative use of data by business, and provide robust protection for people's privacy rights (such as the proposed Personal Data Protection Act and Cybersecurity Act)
  - Ethical use of data, data portability and service interoperability, cross-border sharing applied in the Sri Lankan context
  - Safeguard data while educating users on ownership and rights
  - Establish the Personal Data Protection Commission to drive reforms and ensure data protection standards are adhered to
- Develop cyber-security defenses
  - Strengthen preparedness and efforts to prevent cybercrime
  - Encourage and incentivize public-private cooperation on cyber-security

- Transparency and openness in mitigating, managing and responding to cyber-security threats and attacks

- Develop digital capacity and skills
  - Develop a cadre of data protection and cyber security specialists
  - Build awareness and empower users to respond to data protection and/or cyber security threats

Sustained Implementation: Leadership

Principles

Inclusive	Reforms should address needs of marginalised users but not at the cost of another group
Innovative	Forward-looking, progressive reforms that allow open and experimental digital solutions
Efficient	Existing legislation, regulations, processes and even organisational structures will need to be reformed to make best use of these technological developments, and to reap the benefits of digitalisation
Sustainable	Practical and feasible policy and legislative reforms
Collaborative	Reforms should adopt a collaborative and participative approach so all stakeholder interests are represented and considered. International best practices must be adopted

Targets

- Reform laws, policies and regulations
- Engage with public through consultations
- Processes within Government to be revised to be more efficient and user-friendly
- Government agencies to be more accountable for actions and decisions

How?

- Laws and reforms will adopt a technology neutral approach to foster innovation and reduce restrictions on growth and creation
- Digital tools and solutions to encourage a participative, collaborative and transparent reform process
- Align all new laws and reforms with the National Digital Policy
- Legal and regulatory developments in other jurisdictions will be mapped, monitored and evaluated to improve local standards

Strategies and Action Plans

- Digital Governance Strategy to be drafted by Ministry/Agency responsible for digital development

Annex 2: Macro Targets Measurable by Available Indicators

Objective	Indicator	Current status	Target for 2025
Prosperous	GDP per capita	US$ 4,102	US$5,000
	Mean household income per month	LKR 62,237 (2016)	LKR 100,000
	Ease of Doing Business Index (Rank)	100	Top 70
Knowledge-based	Gross Expenditure on Research & Development (GERD) as a % of GDP	0.11% (2015)	0.8%
	Number of patents granted	178	500
Inclusive	Internet users per 100 people	34% (2017)	70%
	ICT Adoption (Pillar 3) from Global Competitiveness Index (Rank)	109 (2018)	Top 90
	e-Government Development Index (Rank)	94 (2018)	Top 70
Sustainable	Environmental Performance Index (Rank)	70 (2018)	Top 60
	Global Cybersecurity Index (Rank)	84 (2018)	Top 70

Key

Digital/ICT specific indicator

General indicator

Annex 3: Toward a Digital Sri Lanka

This annex provides a narrative context and the evidential base for the National Digital Policy.

Sri Lanka is one of the wealthiest countries in South Asia, in terms of GDP per capita.[11] However, despite being the first to embrace 2G, 3G, 4G digital communications technologies before any other country in the region, Sri Lanka lags behind wealthier economies in wider Asia on internet adoption, and other indicators and composite indices related to digital development.

It is obvious that Sri Lanka is punching below its weight for an upper middle-income country with a mature information and communications telecommunications (ICT) sector. Malaysia and Thailand, on the other hand, have 80% and 53% of internet users per 100 people and perform much better on the indices which emphasise ICT access and use and related economic and social progress. All of the countries benchmarked perform better than Sri Lanka on the ICT Adoption Pillar 3 of the Global Competitiveness Index.

[11] Maldives has the highest GDP per capita in South Asia.

Table *1*: Comparative Indicators between Sri Lanka's regional and aspirational peers illustrates where Sri Lanka lies in comparison to its regional and aspirational peers.

Smartphone ownership is low among Sri Lankan mobile phone owners (in the 15-65 age group) at just 54% – others use basic phones with no internet capabilities (Figure 1).[12] A significant number of Sri Lankans remain unconnected, are yet to make use of digital services and partake in the digital economy in a way that adds value to and improves the quality of their daily lives. With limited skills and a lack of digital literacy, low awareness, and relatively unaffordable services, just 37% of Sri Lankans (between 15 and 65 years) make use of the internet (Figure 2).[13]

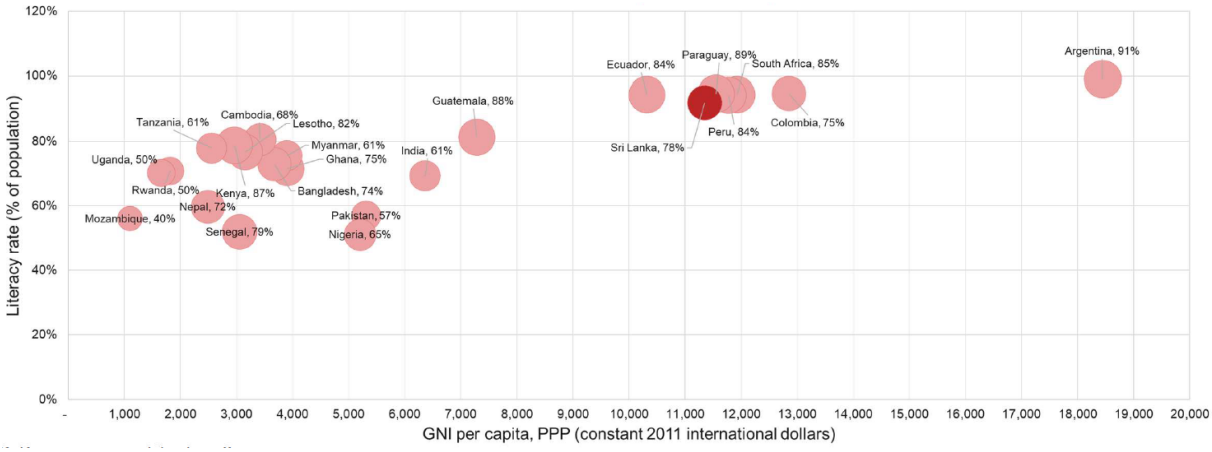
[12] AfterAccess data, for ages 15-65, 2019 (LIRNE*asia*). https://lirneasia.net/after-access
[13] Ibid. ITU reported an estimated 34.11% of individuals used the internet in 2017. https://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2018/Individuals_Internet_2000-2017_Dec2018.xls

Table 1: Comparative Indicators between Sri Lanka's regional and aspirational peers

	NP	KH	BD	GN	LK	TH	MY	ES	UK	FI	SG
GDP per capita (current US$, 2018)	1025.8	1512.1	1698.3	2202.3	**4102.5**	7273.6	11239.0	22927.7	42914.4	49960.2	64581.9
GNI per capita (current US$, 2018)	3090	4060	4560	4650	**13090**	18160	30600	35050	45660	48490	94500
Population (mn, 2017)	29.3	16.0	164.7	28.8	**21.4**	69.0	31.6	0.13	66.0	0.55	0.56
Mobile cellular subscriptions (per 100 people, 2017)	123	116	92	127	**135**	**176**	134	**145**	120	132	**147**
Internet users (per 100 people, 2017)	21	**34**	18	**38**	**34**	**53**	**80**	**88**	**95**	**88**	**84**
ICT Adoption (Pillar 3) from Global Competitiveness Index (2018)	**40.5 (101)**	**44.4 (92)**	**39.8 (102)**	**45.7 (88)**	**32.9 (109)**	**56.6 (64)**	**69.1 (32)**	**77.4 (14)**	**71.1 (28)**	**77.0 (16)**	**85.2 (4)**
e-Government Development Index (2018) – Score of 1 (Rank of 193)	0.475 (117)	0.375 (145)	0.486 (115)	0.539 (101)	**0.575 (94)**	**0.654 (73)**	**0.717 (48)**	**0.849 (16)**	**0.900 (4)**	**0.882 (6)**	**0.881 (7)**
ICT Development Index (2017) – Score of 10 (Rank of 176)	2.88 (140)	3.28 (128)	2.53 (147)	**4.05 (116)**	**3.91 (117)**	**5.67 (78)**	**6.38 (63)**	**8.14 (17)**	**8.65 (5)**	**7.88 (22)**	**8.05 (18)**
Human Development Index (2018) – Score of 10 (Rank of 189)	0.574 (149)	0.582 (146)	0.608 (136)	0.592 (140)	**0.77 (76)**	0.755 (83)	**0.802 (57)**	**0.871 (30)**	**0.922 (14)**	**0.920 (15)**	**0.932 (9)**
Doing Business Index (2019) – Score of 100 (Rank of 190)	59.63 (110)	54.8 (138)	41.97 (176)	59.22 (114)	**61.22 (100)**	**78.45 (27)**	**80.6 (15)**	**80.50 (16)**	**82.65 (9)**	**80.35 (17)**	**85.24 (2)**
Global Innovation Index (2018) – Score of 100 (Rank of 126)	24.17 (108)	26.69 (98)	23.06 (116)	24.52 (107)	**28.66 (88)**	**38.00 (44)**	**43.16 (35)**	**50.51 (24)**	**60.13 (4)**	**59.63 (7)**	**59.83 (5)**
Global Competitiveness Index (2018) – Score of 100 (Rank of 140)	50.8 (109)	50.2 (110)	52.1 (103)	51.3 (106)	**56.0 (85)**	**67.5 (38)**	**74.4 (25)**	**70.8 (32)**	**82.0 (8)**	**80.3 (11)**	**83.5 (2)**
Global Cybersecurity Index (2018) – Score of 1 (Rank of 175)	0.260 (109)	0.161 (131)	**0.525 (78)**	0.437 (89)	**0.466 (84)**	**0.796 (35)**	**0.893 (8)**	**0.905 (5)**	**0.931 (1)**	**0.856 (19)**	**0.898 (6)**

Sources: World Bank Data (2017); ITU Statistics (2017); UNPD Human Development Report (2018); World Bank Doing Business (2019); Global Innovation Index (2019); UN E-Government Survey (2018); World Economic Forum Global Competitiveness Index (2018); ITU's ICT Development Index (2017); Global Cybersecurity Index (2018)

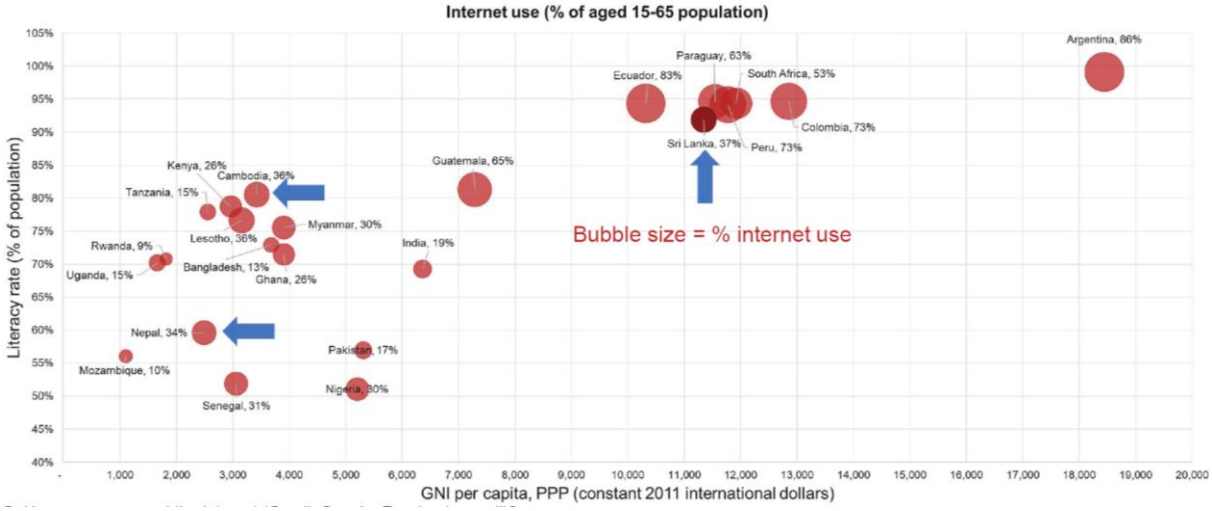
Figure 1: Mobile phone ownership (% of aged 15-65 population)



Notes: Bubble size: % of mobile phone ownership

Source: UNESCO Literacy rate; World Bank's GNI per capita, PPP (constant 2011 international $) (2017).

Figure 2: Internet use (% of aged 15-65 population)



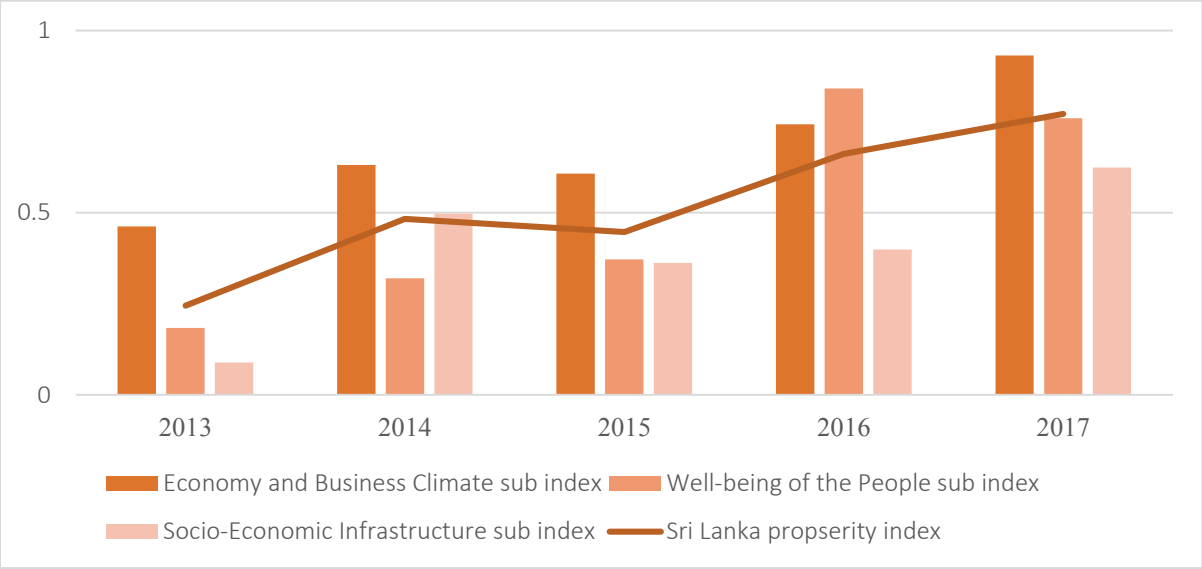
Notes: Bubble size: % of internet use

Source: UNESCO Literacy rate; World Bank's GNI per capita, PPP (constant 2011 international $) (2017).

6.1 Sustainable innovation in the economy

Sri Lanka has witnessed accelerated growth and economic development in recent years, following the end of the 30-year conflict in May 2009. Ongoing reconciliation and reconstruction efforts have enabled sustained development, and during the last 10 years of peace and stability, the Government has been able to initiate infrastructure development projects, build a vibrant services-based economy, attract foreign investment into the country and enhance standards of living. This is evident from the rising scores in the Central Bank's Sri Lanka Prosperity Index, which shows significant improvement in recent years, mainly in the economic and business climate and in the well-being of people sub-indices (Figure 3). Sri Lanka's GNI per capita is US$ 4,060 and as of July 2019 is now classified as an upper middle-income country according to the World Bank.[14]

Figure 3: Sri Lanka Prosperity Index, 2013-2017



Source: Sri Lanka Prosperity Index (2017)

Despite these development activities, a significant portion of the population lives just above the poverty line (45% live on less than US$5 a day[15]), with 4.1% of Sri Lankan households living below the poverty line (US$ 1.90 at purchasing power parity exchange rates) as reported in 2016.[16] Economic prosperity has not trickled down as the richest 20% of the population enjoy more than half the total household income of the country, while the poorest 20% enjoy just 5%.[17]

[14] http://blogs.worldbank.org/opendata/new-country-classifications-income-level-2019-2020?cid=SHR_WBLSiteShare_EN_EXT?cid=SHR_WBLSiteShare_EN_EXT
[15] http://www.worldbank.org/en/news/feature/2017/03/02/part1-understanding-poverty-sri-lanka
[16] http://www.statistics.gov.lk/poverty/Poverty%20Indicators_2016.pdf
[17] http://www.ips.lk/talkingeconomics/2018/12/27/a-balancing-act-can-sri-lanka-overcome-regional-income-inequalities/

Sri Lanka's economy has grown by around 5.8% annually in 2010-2017.[18] As of 2018, GDP composition by sector was such that services accounted for 62%, industries for 29% and agriculture, forestry and fishing for 9% of the GDP.[19]

In 2016, just 5% of Sri Lanka's exports of goods and services were from Information and Communication Technologies (ICTs),[20] quite low compared to countries like Malaysia and Thailand. For example, Malaysia accounted for 1.1% of the world's share of telecommunications exports, while Thailand accounted for 1.7% of the world's share of exports for the same in 2017.[21] Vietnam is another country that has repositioned itself as an emerging trade hub in ASEAN, by developing support industries and increasing production of goods and services in a number of areas including in ICTs.[22]

Sri Lanka's *National Export Strategy of 2018-2022* identifies the Information Technology-Business Process Management (IT-BPM) sector as a focus sector for innovation and export diversification. Over the past 10 years, the industry has expanded by 300% to reach US$1.2bn in export revenue, employing over 80,000 professionals and contributing 12% to Sri Lankan services exports.[23] Moving beyond just the basic provision of IT-enabled services, Sri Lanka should develop its capabilities to offer advanced software and hardware solutions in mixed reality, augmented reality, robotics, artificial intelligence and Internet of Things, if it is to keep up with the digitalised (business and lifestyle) environments of the future.

Building up Sri Lanka's knowledge-intensive economic activities will be critical to moving from its current position on the tail-end of the upper middle-income nation classification. The range is wide, between US$ 3,996 to US$ 12,375, and Sri Lanka will work towards growing GDP per capita to reach the upper-range of this classification by 2025. For this to happen, policymakers must be cognizant of the fact that the ICT sector cannot be looked at in isolation. Digital connectivity and technologies cut across all economic sectors and will underpin the development and growth of tourism, manufacturing, health and finance, to name a few, as recognised in the *Digital Economy Strategy*.[24]

The natural environment has significant implications on human, and the planet's, wellbeing. Sri Lanka is South Asia's top performer on the Environmental Performance Index.[25] The pursuit of economic growth and advancement must be sustainable – economically and environmentally; innovation will be an important factor to facilitate such sustainability.

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[18] https://www.worldbank.org/en/country/srilanka/overview
[19] https://www.cbsl.gov.lk/en/statistics/statistical-tables/real-sector/national-accounts
[20] http://www.srilankabusiness.com/pdf/nes/sri-lanka-nes-4-3-web.pdf
[21] https://comtrade.un.org/pb/downloads/2017/VolII2017.pdf
[22] In 2017, Vietnam had exported around US$71 billion net worth of high-tech products, attracting investors from Japan, Korea, Germany, Taiwan and Singapore. https://www.eurasiareview.com/14052019-aseans-new-economic-player-vietnam-ict-as-engine-of-rapid-growth-analysis/
[23] http://www.srilankabusiness.com/pdf/nes/sri-lanka-nes-4-3-web.pdf
[24] https://www.dgi.gov.lk/news/features/1795-sri-lanka-s-digital-economy-strategy
[25] https://epi.envirocenter.yale.edu/downloads/epi2018policymakerssummaryv01.pdf

While it may be a good thing to encourage the creation of a *"unicorn"* or two, Sri Lanka must not get fixated on this as the sole determinant of achieving digital economic excellence. Instead, focus should remain on the creation of a conducive digital business environment, enabling existing local businesses – whether large conglomerates or small and medium enterprises (SMEs) – to seamlessly connect to and integrate with global value chains and production networks in order to reach global marketplaces digitally. This will require efforts to develop the local SME sector (which comprises over 95% of the private sector) through technology adoption (only 9% of Sri Lankan enterprises had adopted technology of any kind in 2011[26]) and improvements in Research & Development efforts, as detailed in the *Innovation and Entrepreneurship Strategy of Sri Lanka 2018-2022*.

The Government's *Sustainable Sri Lanka 2030 Vision and Strategic Path* endeavours to create an "experiment nation," where new and innovative ideas can be tried and tested easily.[27] This will only be possible through a revamp of the existing business environment, through reforms to registration, taxation, employment and labour, bringing in investments and so on. At present, however, Sri Lanka fares poorly on World Bank's Doing Business Index scoring just 61.22 points out of 100 and ranked at 100th out of 190 countries. Malaysia and Thailand fare better, ranking in the top 30 (15 and 27 respectively) and perform well, compared to Sri Lanka, in the areas of registering property, enforcing contracts, resolving insolvency and getting electricity. Sri Lanka should also look at improving its performance on the innovation efficiency ratio, as measured by the Global Innovation Index – it ranks at 88th out of 126 countries (it performs poorly on most indices but worst on human capital and research and on institutional stability).

According to McKinsey's Digital Quotient analysis, Sri Lankan businesses – from large corporates to small and medium enterprises (SMEs) – exhibit strength in connectivity, digital marketing, investment in digital initiatives, and the ability to move quickly but fare poorly on appetite for risk, ability to integrate digital priorities into the overall business strategy, automation of internal and customer-facing processes, and adoption of a collaborative culture between the digital teams and business functions.[28] These are possibly due to the unpredictability of the business, economic and political environment.

Policy and regulatory roadblocks that hinder predictability and transparency in the business environment will be addressed; and the cost of doing business should be kept low to compete with other emerging economies in the region. Fostering innovation and creativity with a well-educated and highly-skilled workforce will ensure that the wider economy can flourish.

[26] https://www.enterprisesurveys.org/data/exploreeconomies/2011/sri-lanka#innovation-and-technology
[27] http://www.presidentsoffice.gov.lk/wp-content/uploads/2019/05/Final-v2.4-Typeset-MM-v12F-Cov3.pdf
[28] https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/unlocking-sri-lankas-digital-opportunity

6.2 Delivering efficient Government services

In the past four years, the Government of Sri Lanka has engaged in developing and launching a number of electronic-government services, including the eLocal Government (eLG) project, Lanka Government Network – LGN 2.0 and Electronic Medical Records in Sri Lankan Government Hospitals, among many others.[29] While some are yet to be launched and others are in operation with awareness and use on the rise, Sri Lanka is on the right track, but it still has miles to go to be recognised as a centre for e-Government/e-Governance excellence. In 2018, Sri Lanka scored just 0.5751 out of 1 and ranked 94th out of 193 countries on the e-Government Development Index, trailing behind its aspirational peers.

It is known that the delivery of public services is of poor quality in Sri Lanka and is in need of drastic improvement. This poses a constraint to economic and social productivity and growth as citizens and businesses expend significant amounts of time and effort to avail of public services. Sri Lanka fares poorly on the World Bank's Doing Business Index primarily due to the fact that all aspects of registering a business, dealing with permits, credit, taxes and investor protection rely on the efficiency of Government services. The Government should not just worry about citizen satisfaction with the quality of public services, but also worry about how bureaucratic processes impact businesses and entrepreneurs as this has ramifications on the wider development efforts in the country.

Government-led strategic initiatives such as the national digital identity, national payment platform and national health programmes need to be ramped up. Creating an authentication system with a unique digital identification (ID) to enable secure digital transactions, transparent disbursement of Government subsidies and other activities, will be key to developing Sri Lanka's digital potential. Projects have been identified but progress is slow – better coordination and implementation practices are needed.

Existing bureaucratic practices and procedures must be reconsidered if efficiency and transparency are to be realized in the provision of online e-government services. However, digitalisation does not just mean that services will be provided online, replacing paper-based systems that are currently in operation. Re-engineering remote service delivery, providing kiosks in Government offices, and other locations and giving citizens the options around digital systems will be just as important. Studies will be done on existing processes, procedures, agencies and stakeholder coordination and collaboration to determine how digital tools can be deployed to improve Government service provision at the front and back-end. Incorporating analytics to manage peak-load processing will facilitate greater efficiency and improve the quality of service delivery for citizens, through the implementation of dynamic pricing, quota-based queuing systems, appointments, and so on.

[29] https://www.icta.lk/current-projects/

There are multiple ways that the Government touches the lives of its citizens, entrepreneurs and business owners, and its own employees. Figure 4 showcases the number of benefits afforded to these stakeholders through the adoption of e-Government services. These are the reasons Government should pursue digitalisation efforts with rigour.

Figure 4: Benefits of e-Government services

Government to Citizen (G2C) services	Government to Business (G2B) services	Government to Employees (G2E) services	Government to Government (G2G) services
•Enhanced living standards of citizens •Convenient and speedy access to government services and information •Availability of multiple service channels •Improved reliability of public services •Less time spent for obtaining public services •High transparency in public finance and decision making •Less room for corruption	•Ability to carry out transactions with government institutions in a fast and friendly manner •Convenience in dealing with government •Enhanced opportunities to make investments and meet market demand for goods and services •Government contribution to develop the ICT sector	•Employees are able to transact business with the government in a transparent manner •Convenience due to automated payroll, attendance, transfers, pension payments etc. •Work is more streamlined and paper work is cut down •Work is more streamlined and paper work is cut down •Greater acceptance and recognition	•Higher efficiency and effectiveness •Better regulation of services delivered by government organizations •Higher level of transparency •Less room for corruption •Speedy communication facilities •Effective use of government information for better decision making

Source: Chandraguptha (2012).

Government service delivery is only one part of creating an efficient, intelligent Government. Harnessing digital technologies and tools to empower citizens so that they are able to partake in governance processes and engage and communicate with Government to uphold democracy and democratic values is just as important. UNESCAP refers to eight pillars of Good Governance that can and should be applied to any Government service, including: participation, consensus-oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive, and following the rule of law.[30] Such principles must be top-of-mind as Sri Lanka sets about its e-Government policies and adopts digital solutions.

Public-Private-People Partnerships (PPPPs) should be pursued where possible to reduce the dependence on Government-led initiatives that tend to get delayed due to bureaucratic issues. Clear and well-defined legal, regulatory and institutional framework to attract private players with the requisite capacities are necessary for such activities.

Collaboration between Government organizations is a must for the efficient provision of Government services. In many cases, services are inter-linked but require a citizen or a business person to navigate

[30] https://www.unescap.org/sites/default/files/good-governance.pdf

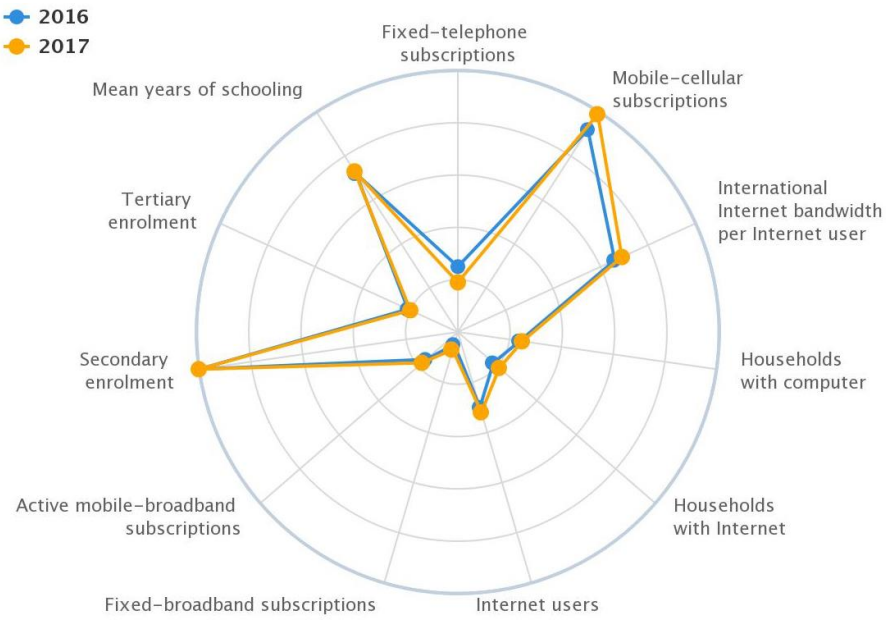
between multiple agencies. Accordingly, interoperability and sharing of data and documents have to be strengthened to support the digitalisation and digitisation efforts within Government.

Of course, the success of these programmes will hinge on citizen awareness about these initiatives, their access to affordable mobile internet services and high-quality connectivity, and the knowledge (digital literacy) to navigate such systems. Success will also depend on the development of ICT-savvy Government officers.

6.3 Digital connectivity and access

In terms of digital connectivity and development, Sri Lanka has managed to perform relatively well. Liberalisation of the telecommunications sector starting in 1995 transformed the mobile industry. Sri Lanka has consistently been the first to adopt and commercialise the latest digital technologies, such as 2G, 3G, 4G, before any other country in the South Asian region.[31] As of end 2018, 91% of the country is covered by 4G. In fact, mobile cellular subscriptions are on par with developed and high-income economies such as Malaysia, Singapore, South Korea, Finland, Estonia, and the United Kingdom.[32]

Figure 5: ICT Development Index Performance Overview: Sri Lanka



Source: IDI (2017).

However, internet use is still very low – just 37% of Sri Lankans (between 15 and 65 years) make use of the internet.[33] Smartphone ownership is also low among Sri Lankan mobile phone owners (in the 15-65 age

[31] https://www.gsmaintelligence.com/research/?file=131003-sri-lanka.pdf&download

[32] Mobile subs (/100 people, 2017) in Malaysia, Singapore, South Korea, Finland, Estonia and the United Kingdom are 134%, 147%, 125%, 132%, 145%, and 120% respectively.

[33] AfterAccess data, for ages between 15-65, 2019 (LIRNE*asia*). https://lirneasia.net/after-access. ITU reported an estimated 34.11% of individuals used the internet in 2017. https://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2018/Individuals_Internet_2000-2017_Dec2018.xls

group) at just 54% – others use basic phones with no internet capabilities. A significant number of Sri Lankans remain unconnected, are yet to make use of digital services and partake in the digital economy in a way that adds value to and improves the quality of their daily lives. But it is interesting that even with such poor levels of internet use, as many as 30% of those who do make use of the internet (between the ages of 15-65) have accessed government information on government websites; most other use is related to social media.[34]

Competition has driven prices down as service providers adopted a budget network telecoms model for service provision, and Sri Lanka has some of the lowest mobile tariffs on offer – not just in the region, but globally.[35] Despite this, further analysis on affordability by decile shows that although mobile data costs per GB meet the threshold for affordability at an aggregate level, this is not true when more granular data points are analysed: for around 60 per cent of the Sri Lankan population mobile internet remains out of reach (Figure 6).

Figure 6: Mobile broadband affordability by income decile

Income Decile Group	Mean monthly HH income per capita by decile USD, 2016	Mobile BB 1 GB, as a % of HH income p.c.
Decile 1 (poorest)	23.86	7.5 %
Decile 2	39.12	4.6%
Decile 3	50.16	3.6%
Decile 4	60.63	3.0%
Decile 5	71.81	2.5%
Decile 6	84.61	2.1%
Decile 7	101.55	1.8%
Decile 8	125.41	1.4 %
Decile 9	169.81	1.1%
Decile 10 (richest)	397.08	0.4%

Source: LIRNEasia analysis based on UN Broadband Commission. (2018) and LIRNEasia based ITU ICT Price Baskets, Department of Census & Statistics (2016)

Use may be impeded by unpredictability of taxes imposed on mobile telecom services. The current tax burden amounts to more than one-third of a consumer's bill (37.70%) for voice services, and 19.74% for mobile internet services. Although mobile tariffs are considered low in Sri Lanka, the imposition of high taxes impacts overall perceptions of service affordability.

[34] AfterAccess data, for ages between 15-65, 2019 (LIRNE*asia*). https://lirneasia.net/after-access

[35] Sri Lanka ranks at 20 out of 196 countries in ITU's Mobile-cellular sub-basket price comparison, with US$ 0.99 for a standard basket of mobile monthly usage for 30 outgoing calls per month (on-net/off-net to a fixed line and for peak and off-peak times) in predetermined ratios, plus 100 SMS messages. https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ICT_PRICES.01-2017-PDF-E.pdf

Much of the reforms need to come in the form of revised and updated regulation. The current telecommunications law that governs the sector is over 25 years old, with limited relevance to the current digitally-enabled, 4G LTE and soon to be 5G operating environment. Broadcast and telecommunications sector regulators are yet to converge, for better management of the overlapping issues that plague the industry. Most infrastructure roll-out and innovations have taken place due to the private sector's role in developing the sector.

6.4 Securing the right skills, building a smart society

Sri Lanka has one of the highest levels of literacy in the region (91.9% across the population, and 98.86% among 15-24-year olds in 2017). However, resource allocations and entrenched interests have made it difficult to improve quality as desired. The current system places little value in fostering creativity, critical thinking and experimentation. Most schools and universities lack the resources to facilitate innovative, technology-based education.

High-quality education focusing on attributes necessary to participate in a digitally connected business environment remains out of reach for many. Digital literacy, albeit poorly defined and measured by the Department of Census and Statistics as "computer literacy," was only 40.3% in 2018[36] and the gap between literacy and digital literacy is telling. It is obvious that existing curricula need to be reformed to deliver digital literacy and future skills development needs. If Sri Lanka is to pursue a goal of creating an innovative economy, then building up talent with the right skills, entrepreneurs and creative thinkers, to drive digital innovations will be critical. Science, Technology, Engineering, Arts, and Mathematics (STEAM) subjects at school and in tertiary education centres need to be emphasised and encouraged. The dearth of qualified and experienced Science and Mathematics teachers is also a challenge that has to be addressed, as detailed in the Ministry of Education's *STEM Education Strategy of 2018*[37], but it may fall short of developing the right creative and innovative mindset required in future.

With the transition from an agricultural to a services-based economy well underway, the importance of relevant and forward-looking education and skills development cannot be overstated. The 2017 Labour Force Survey showed that 22.4% of the labour force is engaged in unskilled labour or elementary occupations.[38] The potential automation of labour, particularly for repetitive, non-technical tasks in warehousing and manufacturing, customer services, data entry, retail checkout and so on, will pose a problem for those employed in these jobs. In general, the potential for labour automation is relatively high, according to the McKinsey Global Institute, with about 60% of all occupations having at least 30% of

[36] http://www.statistics.gov.lk/education/ComputerLiteracy/ComputerLiteracy-2018Q1-Q2-final.pdf. Definitions must be refined to reflect smartphone use and related behaviour.
[37] http://www.moe.gov.lk/english/images/subject_related/Science/2018/stem_strategy.pdf
[38] http://www.statistics.gov.lk/samplesurvey/LFS_Annual%20Report_2017.pdf

activities that can be technically automated, based on currently extant technologies.[39] Sri Lanka is no longer a low-wage economy. It is thus more vulnerable to the threats discussed above.

In response, it is imperative that forward-looking education policies focus on honing transversal skills such as critical and innovative thinking, inter-personal skills (presentation and communication, organizational skills, teamwork, etc.), intra-personal skills (self-discipline, enthusiasm, perseverance, self-motivation, etc.), global citizenship (tolerance, openness, respect for diversity, intercultural understanding, etc.), and media and information literacy such as the ability to locate and access information, as well as to analyse and evaluate media content.[40] These will include cognitive and reasoning skills that will potentially be slow to be automated and therefore will be important skills valued in future job requirements.

Furthermore, research has shown that the high-paying "white-collar" jobs that can be generated through digitalization across the economy are what are likely to satisfy the choosy 15-29 job seekers and to pull more women into the formal labour force.[41] Therefore building a competent workforce to participate in the digital economy will address the problems of unemployment through access to various new livelihoods and digital employment opportunities.

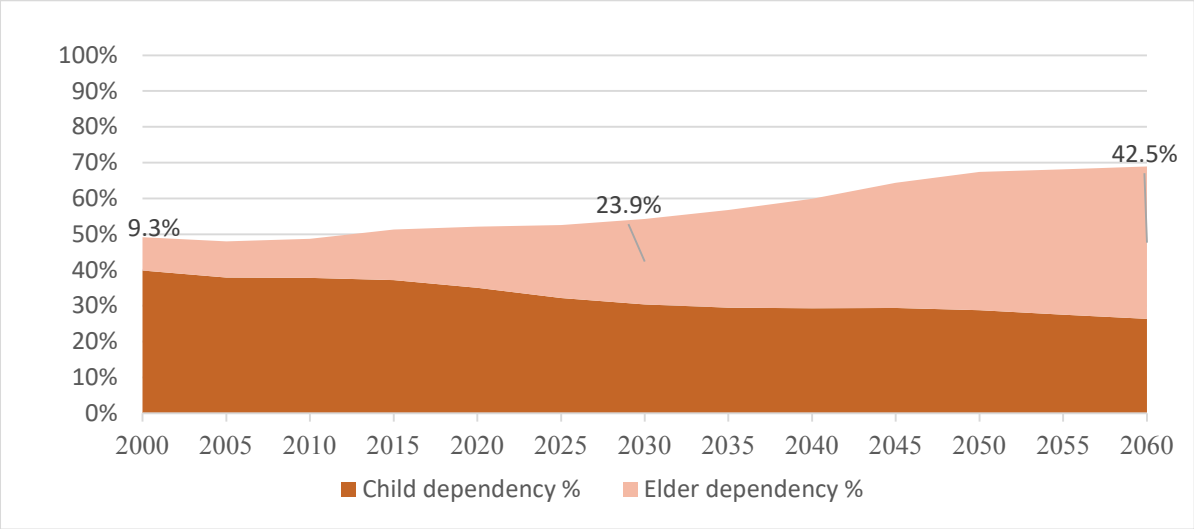
It must be noted that an aging population will be a major challenge for Sri Lanka. By 2030 the country will have a significantly large and growing elderly population (ratio of adults over 65 years of age to the working population aged 15-64 years) and a shrinking child population (**Error! Reference source not found.**); by 2022 the 60+ population will increase by 17%. Faced with the economic and social problems of an aging population, policymakers will need to ensure that this demographic's needs are addressed appropriately through technology. The availability (or lack thereof) of labour, productivity, increasing government costs reskilling/upskilling, on healthcare, support and caregiving, and other services will have implications on wider economic growth and social development in Sri Lanka.

[39] https://www.mckinsey.com/featured-insights/employment-and-growth/technology-jobs-and-the-future-of-work

[40] UNESCO Education Policy Brief (Vol.2): Skills for holistic human development (November 2014) http://www.unescobkk.org/fileadmin/user_upload/epr/PDF/Policy_Brief_Vol2-28_Nov.pdf

[41] Madurawala, S. (2017). Labour force participation by women and inclusive growth: An application of social opportunity function in Sri Lanka. *South Asia Economic Journal*, 18(2). 214-229; Senanayake, L.; Samarajiva, R.; Perampalam, S.; Galpaya, H. (2018). Online freelancing as interim solution to youth unemployment problem, with particular relevance to the Northern Province, in *Proceedings of the Jaffna Science Association*. http://lirneasia.net/wp-content/uploads/2018/04/Online-freelancing-NP_30-Jan-2018_V4.pdf

Figure 7: Combined child and elder dependency in Sri Lanka, 2000-2060



Source: UN World Population Prospects (2019).

As Sri Lanka readies itself for what is globally referred to as the *"fourth industrial revolution",* these issues of youth unemployment[42] and an aging population[43] will be challenges for the best laid plans. Digital technologies and services can be used to provide solutions to tackle these issues. Participating in the digital economy may potentially help address the problems of unemployment through access to various new livelihoods and digital employment opportunities. Digital tools, applications and services specifically designed and applicable for the aged will be vital.

To move beyond basic IT-BPM and IT-enabled services, research and development (R&D) that can advance capabilities beyond these needs have to be emphasised. Open research, labs and experimental centres need to be strengthened and funding will be critical. Initiatives run by the Sri Lanka Institute of Nanotechnology (SLINTEC) are exemplary but currently these institutions are starved of funds.[44] Across the board, investment in R&D in Sri Lanka is in fact minimal, with weak links between universities and the business community in general. In 2015, just 0.11% of GDP (US$ 83.8mn in total) was spent on R&D in Sri Lanka, much of it coming from the Government (59.6%).[45] Private investments in R&D are critical, especially with much of the advancements in digital coming out of these entities, but in 2015, only 34.4% of the funding came from the sector in support of identifying new and diverse businesses.

The potential for using advanced software and hardware solutions in mixed reality, augmented reality, robotics, artificial intelligence and Internet of Things, and other future-looking technologies should be

[42] 21.9% of Sri Lankans between the ages of 15-29 are unemployed as of Q4 2018. http://www.statistics.gov.lk/samplesurvey/LFS_Q4_Bulletin_WEB_2018_final.pdf

[43] Forecasts suggests that elder dependency rates will be as high as 23.9% in 2030, highest among countries in South Asia. https://population.un.org/wpp/Download/SpecialAggregates/Ecological/

[44] http://www.sundaytimes.lk/180701/business-times/lack-of-funding-for-rd-at-slintec-299825.html

[45] http://www.nsf.ac.lk/files/ILD/Handbook2015_2018-06-05_New.pdf. In comparison, Singapore, United Kingdom and Malaysia spend 2.20%, .70% and 1.30% respectively.

explored. China, South Korea, and Japan allocate over 60% of R&D spend on experimental development alone; Sri Lanka, on the other hand reports just 30.13% on the same. Sri Lanka will need to transition from emphasising applied research to experimental studies if it is to keep up.

A key outcome of a national digital policy for Sri Lanka should be to ensure that technology-based education, digital skills development, and STEAM education are valued and prioritised. The pursuit of "lifelong learning" will be inculcated throughout society, to ensure the young and old have the right opportunities for re-skilling and learning to ensure they remain relevant and productive in an increasingly digitalised world.

6.5 Other considerations

With 5G and other emerging technologies in the offing, it will be important for the Government to incentivise and encourage further investments in the sector. Since investments are based on perceptions of risk, the Government must reduce regulatory risks through predictable sector reforms, long-term roadmaps for spectrum allocation and licensing fees and other key factors. The Government should encourage competition to the extent possible, and take a light-touch approach to regulation in order to facilitate innovation and dynamism in the sector. Policies adopted should be technology neutral. Emphasis on building trust in the networks through resilient cyber-security and data protection frameworks.

Trust in digital solutions will be extremely important to drive digital adoption and to allow ICTs to be accepted as part of the wider economy and government. The risk of losing trust due to cyber threats and breaches of personal data are high and can drive users away from these services. Businesses including Governments must take all efforts to ensure that networks and personal data remain resilient and secure to build trust. There is a need to build features to enhance trust and security into existing systems and processes, especially as digital identification, national payment platform and other critical but strategic national digital programmes are implemented.

Along these lines of trust and resilience, Sri Lanka will have to emphasise the need to build and develop digital networks that are environmentally-friendly, to reduce vulnerability to natural disasters (droughts, floods, landslides and so on) and adapt to climate change. These have serious repercussions on the trajectory of Sri Lanka's growth and development and should be a key consideration of its digital development story. Where possible, digital technologies will be used to enhance Sri Lanka's readiness to face these environmental issues or disasters in a resilient manner. As stated in the Sustainable Sri Lanka 2030 Vision, "research and development for weather forecasting, developing early warning systems and enhancing social capacity to cope with disasters, is a fundamental need."[46]

[46] http://www.presidentsoffice.gov.lk/wp-content/uploads/2019/05/Final-v2.4-Typeset-MM-v12F-Cov3.pdf

Annex 4: Digital Policy Benchmarks

Indicators

	Asia						Commonwealth			Nordic/Scandinavia		
	Sri Lanka	Bangladesh	India	Malaysia	S Korea	Singapore	UK	Australia	Canada	Estonia	Finland	Norway
GDP per capita (2018)	4,102	1,698	2,016	11,239	31,363	64,582	42,491	57,305	46,125	22,928	49,960	81,807
Population (mn)	21.4	164.7	1,339.2	31.3	51.5	5.6	66.0	24.6	36.7	1.3	5.5	5.3
Mobile subs (/100 people, 2017)	135	92	87	134	125	147	120	113	87	145	132	108
Internet users (/100 people, 2017)	34	18	34	80	95	84	95	87	93	88	87	97
Global Competitiveness Index (2018)– Score of 100 (Rank of 140)	56.0 (85)	52.1 (103)	62.0 (56)	74.4 25)	78.8 (15)	83.5 (2)	82.0 (8)	78.9 (14)	79.9 (12)	70.8 (32)	80.3 (11)	78.2 (16)
ICT pillar of Global Competitiveness Index (2018)– Score of 100 (Rank of 140)	32.9 (109)	39.8 (102)	28.0 (117)	69.1 (32)	91.3 (1)	85.2 (4)	71.1 (28)	73.5 (22)	68.6 (34)	77.4 (14)	77.0 (16)	81.6 (10)
ICT Development Index (2017) – Score of 10 (Rank of 176)	3.9 (117)	2.5 (147)	(3.0) 134	6.4 (63)	8.9 (2)	8.1 (18)	8.7 (5)	8.2 (14)	7.8 (29)	8.1 (17)	7.9 (22)	8.5 (8)

Policy coverage/scope

	Asia					Commonwealth			Nordic/Scandinavia		
	Sri Lanka	Bangladesh	Malaysia	S Korea	Singapore	UK	Australia	Canada	Estonia	Finland	Norway
Digital Economy	√	√ Industrial sector	√ (National Industry 4.0 Policy, National e-commerce Roadmap)	√ (Growth Engine Tech, Industrial Infra & Ecosystem)	√	√ (Digital sectors, Wider economy)	X	√ (Marketplace, Business)	√	√ (Digital innovation)	√ (Innovation & productivity)
Digital Government	√	√ e-Governance	X	X	√	√ (Digital Govt)	√	√ (Citizens – govt services + skills)	√ (Smarter governance, e-Estonia)	√ (Digital transformation)	√ (Efficient digitisation of public sector)
Digital Society	√	√ Human resources	X	√ (Future Social Changes)	√	√ (Skills & inclusion)	X		√ (Skills and knowledge)		√ (Value creation & inclusion)
Other?	• Digital Potential	• Connectivity	-	-	-	• Connectivity • Cyberspace • Data	-	• International collaboration	• ICT infra • Info security • Cyber security	• Megatrends & SDGs	• Data protection and information security
Enablers/ preconditions identified	• Connectivity • Trust • Sustained Implementation		-	-	• System Foundations: Cybersecurity/ Privacy/ Infrastructure • People & culture • Securing our future • External collaboration	-	-	-	• Expectation is that talent, infra, security, govt services will drive competitiveness in the economy	-	-

Ownership/Lead agencies

	Asia						Commonwealth			Nordic/Scandinavia		
	Sri Lanka	**Bangladesh**	**India**	**Malaysia**	**S Korea**	**Singapore**	**UK**	**Australia**	**Canada**	**Estonia**	**Finland**	**Norway**
General	**Ministry responsible for digital infrastructure and IT**	Programme and decision making driven by the ICT Advisor (son of PM)	Monitoring Committee on Digital India	National eCommerce Council		Smart Nation and Digital Government Group within PMO	Department of Digital, Culture, Media & Sport	Digital Transformation Agency	Innovation, Science and Economic Development Canada	Ministry of Economic Affairs and Communications	Finnish Research and Innovation Council	- Agency for Public Management and eGovernment (Difi) - Norwegian Association of Local and Regional Authorities
Planning	Relevant Agencies/ Ministries in conjunction with ICTA				Presidential Committee on Fourth Industrial Revolution	Smart Nation and Digital Government Office						
Implementation	Relevant Agencies/ Ministries	A2i – for govt projects		Malaysia Innovation Policy Council (MIPC): MDEC/KKMM MaGIC/ Cradle / MAVCAP and other agencies/ Ministries	Ministry of Science and ICT	Government Technology Agency IMDA and other agencies/ Ministries	Agencies/ Ministries as per mandate					