

# Regional good practices

Accelerating innovation,  
entrepreneurship and  
digital transformation  
in the Asia-Pacific region



**Regional good practices:  
Accelerating innovation,  
entrepreneurship and  
digital transformation in  
the Asia-Pacific region**



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# Foreword



COVID-19 has showcased how staying connected is the new normal. The pandemic has highlighted the indispensable role of digital technologies for communicating, learning, working, doing business, and interacting with the society and economy. However, there are still barriers to connectivity, including affordability concerns.

Therefore, digital innovations are necessary to overcome these hurdles. The Asia-Pacific region is widely seen as a dynamic hub in this aspect. However, this understanding masks the divide between those countries that are top performers globally, and those whose digital innovation ecosystems are relatively nascent.

This timely report utilizes the ITU ICT-centric innovation ecosystems approach to highlight good practices that can be adopted throughout the region to close the digital innovation divide. I am confident that the resources and insights shared here will inspire Member States to advance their efforts to create thriving digital innovation ecosystems throughout Asia and the Pacific. I look forward to working closely with all stakeholders as we continue down this digital transformation journey together.

A handwritten signature in black ink, consisting of a large, stylized 'D' followed by a series of loops and a final flourish.

Doreen Bogdan-Martin  
Director, ITU Telecommunication Development Bureau

# Executive summary

Despite investments in ICT ecosystems, many countries are struggling to close the digital divide and become innovation-driven economies. On top of this, the gap is growing, as digital ecosystem stakeholders are unable to adapt to fast changing technologies.

The intertwined role of entrepreneurship, innovation and technology is fuelling a paradigm that requires new thinking and insights. It is imperative to understand this paradigm at the global and regional levels, and to have the capacity to act at the national level. The Asia-Pacific region has both high-ranking performers and some of the poorest performers in global indices of innovation, entrepreneurship, and technology, and the digital innovation divide is growing for many countries.

ICT-centric innovation ecosystems can play a critical role in digital transformation, fostering economic inclusion, positive externalities and sustainable growth for communities, cities and countries. Many ecosystem practices need renewal, as entrepreneurs, entrepreneurial support organizations, academics, public and private sector stakeholders, and financiers, struggle to provide the necessary ingredients to fuel a positive digital transformation.

Although the region faces challenges of low access to ICTs, overburdening regulations, and a lack of adequate ICT infrastructure, the good practice already in place can be used to accelerate digital transformation and serve as a basis for better policies in countries where gaps have been identified. By replicating and amplifying good practice, and sharing regional and global knowledge, expertise and experience, countries in the region can strengthen their digital innovation ecosystems and become global leaders.

This report is divided into five sections:

The Introduction summarizes the key findings and objectives. This section also provides an overview of the role of innovation in sustainable economic and social development, background information about ITU work on digital innovation, the key challenges to innovation in the Asia-Pacific region and steps that Member States can take to turn their countries into thriving digital innovation ecosystems.

Section 2 sets the stage for a comparative analysis among countries using existing indices and provides insights on the status of the enabling environment for entrepreneurship, innovation and technology ecosystems (the engines of growth), and digital transformation enablers, at the regional level.

Section 3 highlights good practices from the Asia-Pacific region. It provides a snapshot of 14 case studies that demonstrate one, two or all three of the building blocks of ICT-centric innovation: innovation dynamics, innovation capacity, and ICT innovation in key sectors.

Appendix A explains the report methodology. It also defines the language used in the report to help readers understand the research and analysis process. Understanding the research methodology is key to deciphering the relative rankings of countries' innovation capacity. This appendix also explains the key building blocks needed to accelerate transformation.

Appendix B provides full case studies of practices identified in the report. Each practice demonstrates how a barrier has been successfully addressed and its potential to become a working good practice in any ecosystem.

# Table of contents

Acknowledgements .....	iii
Foreword .....	iv
Executive summary .....	v
List of tables and figures.....	viii
<b>1 Introduction .....</b>	<b>1</b>
<b>2 ICT-centric innovation: Asia-Pacific region .....</b>	<b>3</b>
2.1 Engines of growth .....	3
2.2 ICT-centric innovation performance .....	6
2.3 ICT-centric innovation policy and strategy .....	7
2.4 Enablers of digital transformation.....	12
<b>3 Good practices accelerating digital transformation .....</b>	<b>22</b>
3.1 Block71 (Singapore) .....	22
3.2 Cyberport (Hong Kong (China)).....	22
3.3 Information and Communication Technology Agency (Sri Lanka).....	23
3.4 MaGIC (Malaysia) .....	23
3.5 Monetary Authority of Singapore (Singapore).....	24
3.6 National Innovation Agency (Thailand).....	24
3.7 National Institute of Post, Telecommunications and ICT (Cambodia) .....	25
3.8 Phandeeyar (Myanmar) .....	26
3.9 QBO Innovation Hub (Philippines) .....	26
3.10 Startup Bangladesh (Bangladesh) .....	26
3.11 Startup India (India).....	27
3.12 Thimpu TechPark (Bhutan).....	27
3.13 True Digital Park (Thailand) .....	28
3.14 VSV Capital Accelerator (Viet Nam).....	29
<b>Appendix A: Methodology .....</b>	<b>30</b>
A.1 Research goals and methods .....	30
A.2 Monitoring ICT-centric ecosystems .....	30
A.3 Monitoring the enablers of digital transformation .....	32
A.4 Monitoring the ecosystem maturity map .....	33



A.5	Monitoring good practices .....	35
<b>Appendix B: Full case study samples .....</b>		<b>39</b>
B.1	Block71 (Indonesia) .....	39
B.2	Cyberport (Hong Kong, China) .....	41
B.3	Information and Communications Telecommunications Agency (Sri Lanka) .....	45
B.4	MaGIC (Malaysia) .....	49
B.5	Monetary Authority of Singapore (Singapore) .....	52
B.6	National Innovation Agency (Thailand) .....	56
B.7	National Institute of Post, Telecommunications and ICT (Cambodia) .....	59
B.8	Phandeeyar (Myanmar) .....	62
B.9	QBO Innovation Lab (Philippines) .....	64
B.10	Startup Bangladesh (Bangladesh) .....	67
B.11	Startup India (India) .....	70
B.12	Thimpu TechPark (Bhutan) .....	72
B.13	True Digital Park (Thailand) .....	75
B.14	VSV Capital Accelerator (Viet Nam) .....	78

## List of tables and figures

### Tables

Table 1: Key engine of growth indicators .....	4
Table 2: ICT-centric innovation performance in the Asia-Pacific region .....	6
Table 3: ICT-centric innovation ecosystem strategies and policies in the Asia-Pacific region .....	8

### Figures

Figure A1: The three engines of growth .....	31
Figure A2: The entrepreneurial lifecycle .....	33
Figure A3: Colour-coded ecosystem maturity map .....	34
Figure A4: The good practice canvas .....	36

## 1 Introduction

This report provides an overview of the innovation capacity of the Asia-Pacific region through ICT-centric innovation activity and offers an insight to how good practice can strengthen Member State capacity to integrate ICT innovation into development agendas.

Although the Asia-Pacific region has a strong tradition of innovation, there is room for improvement, for example, some countries have healthy innovative ecosystems that perform well in some elements of the ecosystem but need further support in others to develop a thriving digital innovation ecosystem.

This report uses international indices to monitor the current state of innovation ecosystem performance, aspects of growth, gaps, and discrepancies. The information from these major indices has been analysed to create an ICT-centric innovation performance monitor that provides a comparative assessment of the innovation ecosystems both within and among countries in the region and a threshold for action by decision-makers.

There are many good practices in the region. Each practice presented in this report has been assessed according to three engines of growth (innovation, entrepreneurship, and technology) and the current state of the seven enablers of digital transformation. In addition, the ecosystem maturity map helps to assess stakeholder levels of engagement, for example where the first stage of the journey for entrepreneurs is entrepreneurial interest, and for the public sector it is having a vision and developing a strategy. These monitoring tools enable stakeholders to visualize the maturity of the ICT-centric innovation ecosystem and identify practices to keep, those that must be improved, and those to be replaced.

Many of the traditional national innovation agencies responsible for guiding innovation dynamics can benefit from expanding their mandate to include building innovation capacity and integration of ICT innovation into key sectors.

The importance and relevance of isolating, replicating, and scaling up good practice – as well as knowing which bad practice to replace – to create a thriving and mature ICT-centric ecosystem is made clear throughout this report. However, understanding digital innovation, and learning the importance of good practice, is only the first step in the innovation journey.

Vibrant ecosystems require stakeholders to organically leverage existing resources and continuously update their policies and programmes to remain competitive. Building an innovation culture at the country level is a journey, in which ecosystems develop in stages, and in which every stakeholder has actions they must take and roles they must play.

The ITU 2017 digital innovation framework, updated in the 2020 version of *Bridging the Digital Innovation Divide: A toolkit for developing sustainable ICT-centric ecosystem projects*<sup>1</sup>, offers the tools for good practice. In addition, Member States can request technical assistance to develop a national profile (see South Africa [ICT-centric innovation ecosystem snapshot](#)<sup>2</sup>) and at the country level, interested stakeholders can develop a holistic country review (see [Moldova ICT-centric Innovation Ecosystem](#)<sup>3</sup>), or a digital innovation profile (see [Montenegro: ICT Centric](#)

<sup>1</sup> The report is available at [https://www.itu.int/dms\\_pub/itu-d/opb/inno/D-INNO-TOOLKIT.2-2020-PDF-E.pdf](https://www.itu.int/dms_pub/itu-d/opb/inno/D-INNO-TOOLKIT.2-2020-PDF-E.pdf)

<sup>2</sup> <https://www.itu.int/en/ITU-D/Innovation/Documents/Publications/Brochure%E2%80%9393DIP%20South%20Africa.pdf>

<sup>3</sup> <https://www.oecd-ilibrary.org/docserver/pub-810fd87d-en.pdf?expires=1588179691&id=id&accname=ocid54015561&checksum=F57F3808A2FB7FC11B5CC250C9E229F2>

[Innovation Ecosystem Snapshot](#)<sup>4</sup>). Stakeholders can also engage in capacity-building courses, such as the Ecosystems 101 series, where they receive training and certification on the ITU innovation framework.

Although this report is a starting point for regional stakeholders to understand the dynamics of ICT-centric innovation, it should be noted that the information provided herein is not only susceptible to the fast-moving pace of change that is inherent to the subject of innovation practice, but also that current data are highly dependent on desktop research and surveys on good practice, where response rates may prove insufficient to capture all relevant data for the region. For technical assistance from ITU in developing a thriving ICT-centric innovation ecosystem in your country, please contact: [innovation@itu.int](mailto:innovation@itu.int).

## Background

In the digital age, technology use and innovation are ubiquitous. However, countries and regions with limited capabilities struggle and require support to be competitive in the global market. Entrepreneurs who find opportunities worth exploring must undertake a journey to turn these opportunities into businesses and deliver products and services to the market. A successful journey results in entrepreneurs delivering problem-solving innovations to their communities and in regional or global markets. But this success depends on many enabling building blocks: talent, infrastructure, capital, market, culture, policies and an overarching vision and strategy alignment that provides the key ingredients of robust and vibrant digital innovation ecosystems.

In many regions, innovators are still struggling. The ingredients needed to facilitate this journey are often missing. Without the required support, they are unable to compete on a regional scale, let alone globally, contributing to a growing digital divide both within and among countries.

To close this gap, it is necessary to provide stakeholders such as policy-makers, private sector executives and entrepreneurs with evidence-based guidance relevant to their regions, enabling them to design innovation policies and programmes for their organizations and countries.

Digital innovation is essential for a country to stay competitive in the global market. The ITU-D digital innovation ecosystems thematic priority identifies and amplifies relevant good practices to build country capabilities to become thriving members of the emerging knowledge economy.

## Objectives

ITU Member State priorities make it important to provide evidence-based guidance on measuring innovation capacity for each region. This report provides insights and good practices that can be modified and replicated by innovation champions in local communities to help mainstream vibrant digital innovation ecosystems that are conducive to a national digital transformation.

This report builds on work carried out for the 2018 Europe region, *Accelerating digital transformation good practices for developing, driving and accelerating ICT-centric innovation ecosystems in Europe*<sup>5</sup>, which focused on good practices that can be examined, replicated and adapted to other local contexts to develop thriving digital innovation ecosystems.

<sup>4</sup> [https://www.itu.int/dms\\_pub/itu-d/opb/inno/D-INNO-PROFILE.MONTENEGRO-2020-PDF-E.pdf](https://www.itu.int/dms_pub/itu-d/opb/inno/D-INNO-PROFILE.MONTENEGRO-2020-PDF-E.pdf)

<sup>5</sup> <https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2018/WSIS/Accelerating%20Digital%20Transformation.pdf>

Based on previous reports and enhancements to the ITU digital innovation framework, this report for the Asia-Pacific region is part of a series that focuses on good practices from each ITU region. Sharing and implementing good practice is crucial to improving the performance and productivity of entrepreneurship-driven innovation.

This report offers an overview of the opportunities inherent in accelerating digital transformation in the Asia-Pacific region. It provides an understanding of the critical enablers and linkages needed to foster ICT-centric innovation and examines good practices that can serve as a basis for strengthening digital innovation ecosystems in the region. It also promotes regional and international cooperation and partnerships in building ICT-centric innovation ecosystems.

## Mandate

With innovation increasingly prioritized by policy-makers, and in addition to the outcomes of the 2017 World Telecommunication Development Conference and the 2018 ITU Plenipotentiary Conference, the Telecommunication Development Bureau (BDT) has embraced innovation as one of the priorities of the ITU Development Sector (ITU-D).

At the ITU 2018 Plenipotentiary Conference (PP-18) in Dubai, ITU membership established the Connect 2030 Agenda for Global Telecommunication/ICT Development, a shared global vision for the sustainable development of the telecommunication/ICT sector. Through this agenda, technological advances contribute to accelerating the achievement of the Sustainable Development Goals (SDGs) by 2030. *Goal 4*, in particular, is to “Enable innovation in telecommunications/ICT in support of the digital transformation of society”<sup>6</sup>. Target 4.1 aims for all countries to have policies and strategies that foster digital innovation by 2023.

## 2 ICT-centric innovation: Asia-Pacific region

The Asia-Pacific region has 38 current Member States: Afghanistan, Australia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Fiji, India, Indonesia, Iran, Japan, Kiribati, Lao P.D.R., Malaysia, Maldives, Marshall Islands, Micronesia, Mongolia, Myanmar, Nauru, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Timor Leste, Tonga, Tuvalu, Vanuatu, and Viet Nam.

### 2.1 Engines of growth

Without coordinated and comprehensive intervention, countries are at risk of further widening the digital innovation divide. The current state of innovation ecosystems illuminates opportunities to develop and synchronize the three engines of growth: the technology ecosystem, the entrepreneurial ecosystem, and the innovation ecosystem. International indices help to measure aspects of growth:

- the [ICT Development Index \(IDI\)](#), published by ITU<sup>7</sup>; This was last published in 2017 and is somewhat dated.

<sup>6</sup> <https://www.itu.int/en/mediacentre/backgrounders/Pages/connect-2030-agenda.aspx>

<sup>7</sup> <https://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis/methodology.aspx>

- the [Global Innovation Index \(GII\)](#)<sup>8</sup> published annually by Cornell and the World Intellectual Property Organization (WIPO);
- the [Global Competitiveness Index \(GCI\)](#)<sup>9</sup> published annually by the World Economic Forum (WEF);
- the [Global Entrepreneurship Index \(GEI\)](#)<sup>10</sup> published annually by the Global Entrepreneurship Development Institute.

While each index is useful for measuring individual engines of growth and aspects of the engines of growth in an ICT-centric innovation ecosystem, ITU has extrapolated this data to assess the digital innovation ecosystems in the Asia-Pacific region. This information is presented in the Table 1.

**Table 1: Key engine of growth indicators**

Country	ITU IDI Ranking (2017), out of 176 countries ranked	Global Innovation Index (2020), out of 131 countries ranked	Global Entrepreneurship Index Ranking (2018), out of 137 countries ranked	2019 Global Competitive- ness Index Ranking (2019), out of 141 countries ranked
Australia	14	23	5	16
Bangladesh	147	116	134	105
Brunei Darussalam	53	71	53	56
Cambodia	128	110	113	106
China	80	14	43	28
Hong Kong (China)	6	11	13	3
India	134	48	68	68
Indonesia	111	85	94	50
Iran	81	67	72	99
Japan	10	16	28	6
Lao P.D.R.	139	113	112	113
Malaysia	63	33	58	27
Mongolia	91	58	-	102
Myanmar	135	129	127	-
Nepal	140	95	-	108
New Zealand	13	26	-	19
Pakistan	148	107	120	110
Philippines	101	50	84	64
Republic of Korea	2	10	24	13

<sup>8</sup> <https://www.globalinnovationindex.org/Home>

<sup>9</sup> [http://www3.weforum.org/docs/WEF\\_TheGlobalCompetitivenessReport2019.pdf](http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf)

<sup>10</sup> <https://thegedi.org/global-entrepreneurship-and-development-index/>

**Table 1: Key engine of growth indicators (continued)**

Country	ITU IDI Ranking (2017), out of 176 countries ranked	Global Innovation Index (2020), out of 131 countries ranked	Global Entrepreneurship Index Ranking (2018), out of 137 countries ranked	2019 Global Competitive- ness Index Ranking (2019), out of 141 countries ranked
Singapore	18	8	27	1
Sri Lanka	117	101	90	84
Thailand	78	44	71	40
Viet Nam	108	4	87	67

Source: Adapted from ICT Development Index (IDI), Global Innovation Index, Global Competitiveness Index, Global Entrepreneurship Index.

**Note: Only countries with three of the four indicators are included.**

Index rankings are calculated as follows:

- Strong performance: Those who ranked in a particular indicator to be in top quartile (top 25 per cent).
- Insufficient performance: Those who ranked between 26 per cent and 75 per cent.
- Poor performance: Those who are in the bottom 25 per cent.

This methodology is explained in detail in Section A3 of the Appendix A.

In absolute numbers:

- **ICT Development Index (IDI):** Countries that rank between 1 and 44 have a strong performance; from 45 to 132 indicate insufficient performance; and from 133 to 176 indicate poor performance.
- **Global Innovation Index (GII):** Countries that rank between 1 and 33 have a strong performance; from 34 to 98 indicate insufficient performance; and from 99 to 131 indicate poor performance.
- **Global Competitiveness Index (GCI):** Countries that rank between 1 and 35 have a strong performance; from 36 to 105 indicate insufficient performance; and from 106 to 141 indicate poor performance.
- **Global Entrepreneurship Index (GEI):** Countries that rank between 1 and 34 have a strong performance; from 35 to 102 indicate insufficient performance; and from 103 to 137 indicate poor performance.

These indices are also used as a proxy for the engines of growth. The entrepreneurial ecosystem is represented by the Global Entrepreneurship Index, the technology ecosystem is represented by the ITU IDI and the innovation ecosystem is represented by the Global Innovation Index. While composite indices were used for the purposes of calculating this proxy, country rankings are based upon what the respective authoring organizations have determined from an indicator and weightage standpoint. As the OECD Handbook on Constructing Composite Indicators notes: "Composite indicators are much like mathematical or computational models. As such, their construction owes more to the craftsmanship of the modeller than to universally accepted scientific rules for encoding."<sup>11</sup>

The respective detailed methodologies for these indices can be found at the following links:

- [IDI Methodology](#)

<sup>11</sup> <https://www.oecd.org/sdd/42495745.pdf>

- [GII Methodology, under Appendix I, III, IV, and V](#)
- [GCI Methodology, under Annex A](#)
- [GEI Methodology](#)

Using the data presented above and the colour-coding scheme, the performance monitor for the three engines of growth is presented in Table 2.

## 2.2 ICT-centric innovation performance

The information in Table 2 demonstrates the performance of the three engines of growth in countries in the Asia-Pacific region:

- Green indicates strong performance and presence of good practices. The threshold was set for a country in the top quartile (top 25 per cent) based on the overall index ranking.
- Yellow indicates insufficient performance but presence of some good practices. The threshold was set as a country within the middle quartiles of the ranking (between 26 and 75 per cent).
- Red indicates poor performance with no or very few good practices. The threshold was set as a country falling within the bottom quartile (bottom 25 per cent).

The table is evenly distributed with green, yellow and red indicators, showing the presence of good practice, where some countries are on the verge of digital transformation, and where others continue to struggle with insufficient enablers.

**Table 2: ICT-centric innovation performance in the Asia-Pacific region**

Country	Income Level (Global Innovation Index 2019)	Technology ecosystem performance (ITU IDI 2017)	Innovation ecosystem performance (Global Innovation Index 2020)	Entrepreneurial ecosystem performance (Global Entrepreneurship Index 2018)
Australia	High income	Green		
Bangladesh	Lower-middle income	Red		
Brunei	High income	Yellow		
Cambodia	Lower-middle income	Yellow	Red	
China	Upper-middle income	Yellow	Green	Yellow
Hong Kong (China)	High income	Green		
India	Lower-middle income	Red	Yellow	
Indonesia	Lower-middle income	Yellow		
Iran	Upper-middle income	Yellow		

Table 2: ICT-centric innovation performance in the Asia-Pacific region  
(continued)

Country	Income Level (Global Innovation Index 2019)	Technology ecosystem performance (ITU IDI 2017)	Innovation ecosystem performance (Global Innovation Index 2020)	Entrepreneurial ecosystem performance (Global Entrepreneurship Index 2018)
Japan	High income	Green		
Lao P.D.R.	Lower-middle income	Red		
Malaysia	Upper-middle income	Yellow	Green	Yellow
Mongolia	Lower-middle income	Yellow		-
Myanmar	Lower-middle income	Red		
Nepal	Low income	Red	Yellow	-
New Zealand	High income	Green		-
Pakistan	Lower-middle income	Red		
Philippines	Lower-middle income	Yellow		
Republic of Korea	High income	Green		
Singapore	High income	Green		
Sri Lanka	Upper-middle income	Yellow	Red	Yellow
Thailand	Upper-middle income	Yellow		
Viet Nam	Lower-middle income	Yellow		

Note: The following countries were not ranked in any of the four referenced indices: Democratic People's Republic of Korea, Marshall Islands, Micronesia, Nauru, Papua New Guinea, and Tuvalu.

### 2.3 ICT-centric innovation policy and strategy

Having separate policies on innovation, entrepreneurship and technology, while a start, is not enough to enable a digital innovation ecosystem. To enable the digital transformation of economies and ensure global competitiveness, countries require policies that simultaneously impact all three ecosystems. The existence of policies does not reflect the complete picture of an



ICT-centric innovation ecosystem. Often different ministries have some component of policies. It is best to have the policies to be driven by the highest office and through a harmonized whole-of-government approach. However, it is necessary to assess the implementation and comprehensiveness of existing engine of growth-related policies, as well as how they complement one another to understand the degree to which a country has prioritized ICT-centric innovation and how effectively it can enable the ICT-centric innovation ecosystem.

To be successful, policies need to specifically target ICT-centric innovation. For example, an entrepreneurship policy may enable start-ups and small and medium-sized enterprises (SMEs) in specific sectors but overlook technology entrepreneurship; while a technology policy may focus solely on state-led development of technology and fail to consider the role of start-ups in driving innovation.

Table 3 indicates existing ICT-centric ecosystem policies in entrepreneurship, technology, and innovation.

**Table 3: ICT-centric innovation ecosystem strategies and policies in the Asia-Pacific region**

Country	Policy	Policy Type (engine of growth)		
		Entrepreneurial	Technology	Innovation
Australia	Intellectual Property Laws Amendment Act (2012) <sup>1</sup>			x
	Electronic Transactions Act (1999) <sup>2</sup>			x
	Telecommunications Act (1997) <sup>3</sup>			x
Bangladesh	National ICT Policy of Bangladesh (2015) <sup>4</sup>	x	x	x
	The ICT Law of Bangladesh (2006)			x
Bhutan	The Bhutan Telecommunications and Broadband Policy 2014 <sup>5</sup>		x	
	Information Communication and Media Act (ICM Act 2018) <sup>6</sup>			x
Brunei Darussalam	Digital Economy Masterplan 2025 <sup>7</sup>	x	x	x
	Digital Government Strategy 2015-2020 <sup>8</sup>		x	x
	Law on Computer Abuse (2000) <sup>9</sup>			x
Cambodia	Law on Cyber Crime Bill 2020			x
	Law on Electronic Commerce (E-commerce Law) 2019 <sup>10</sup>	x		x
	National ICT Policy 2015 <sup>11</sup>	x	x	x
China	Cybersecurity Law (2017) <sup>12</sup>			x
	E-Commerce Law (2018) <sup>13</sup>	x		x

**Table 3: ICT-centric innovation ecosystem strategies and policies in the Asia-Pacific region (continued)**

Country	Policy	Policy Type (engine of growth)		
		Entrepreneurial	Technology	Innovation
Hong Kong (China)	Payment Systems and Stored Value Facilities Ordinance (Cap 584) <sup>14</sup>			x
	Personal Data (Privacy) Ordinance (Cap 486) <sup>15</sup>			x
India	Data Protection Law Bill 2019 <sup>16</sup>			x
	National Digital Communications Policy (NDCP) 2018 <sup>17</sup>	x	x	x
	Startup India Action Plan 2016 <sup>18</sup>	x	x	x
	Information Technology Act (2000) <sup>19</sup>			x
Indonesia	Making Indonesia 4.0 <sup>20</sup>	x	x	x
	National E-Commerce Road Map 2017-2019 <sup>21</sup>	x	x	x
	Law on E-Commerce (2019) <sup>22</sup>	x		x
Japan	i-Japan Strategy 2015 <sup>23</sup>	x	x	x
	E-Signature Law (2001) <sup>24</sup>			x
Republic of Korea	<a href="#">Smart Cities Act (2020)</a> <sup>25</sup>		x	x
	Personal Information Protection Act (2011) <sup>26</sup>			x
Lao P.D.R.	<a href="#">National ICT Policy (2015-2025)</a> <sup>27</sup>	x	x	x
	E-Transaction Law (2013) <sup>28</sup>			x
Malaysia	<a href="#">Malaysia 5.0</a>	x	x	x
	<a href="#">Digital Economy Masterplan (2020)</a> <sup>29</sup>	x	x	x
	Jendela- National Digital Infrastructure Plan (2020) <sup>30</sup>		x	x
	Malaysia Tech Entrepreneur Program Visa (2020) <sup>31</sup>	x		x
Mongolia	Law on Digital Signature (2011) <sup>32</sup>			x
	Law on Telecommunications (Revised 2001) <sup>33</sup>			x
Myanmar	<a href="#">Myanmar Digital Economy Roadmap 2018-25</a> <sup>34</sup>	x	x	x
	Telecommunications Law (2013) <sup>35</sup>			x
	Electronic Transaction Law (2004) <sup>36</sup>			x

**Table 3: ICT-centric innovation ecosystem strategies and policies in the Asia-Pacific region (continued)**

Country	Policy	Policy Type (engine of growth)		
		Entrepreneurial	Technology	Innovation
Nepal	Digital Nepal Framework (2018) <sup>37</sup>	x	x	x
	Electronic Transaction Act (2008) <sup>38</sup>			x
New Zealand	Digital Inclusion Blueprint (2019) <sup>39</sup>			x
	Electronic Transactions Act (2002) <sup>40</sup>			x
	Telecommunications Act (2001) <sup>41</sup>			x
Pakistan	Digital Pakistan Policy (2018) <sup>42</sup>	x	x	x
Philippines	<a href="#">Digital Economy Taxation Act of 2020 (Bill)</a> <sup>43</sup>			x
	Telecommuting Act (2018) <sup>44</sup>			x
	National Broadband Plan (2017) <sup>45</sup>		x	x
	Free Internet Access in Public Places Act (2017) <sup>46</sup>			x
	Cyber Crime Prevention Act (2012)			x
	E-Commerce Act (2000) <sup>47</sup>	x		x
Singapore	tech.pass - Visa for foreign entrepreneurs (2020) <sup>48</sup>	x		
	Payment Services Act (2019) <sup>49</sup>			x
	Digital Economy Framework for Action (2018) <sup>50</sup>	x	x	x
Sri Lanka	Sri Lanka National Digital Strategy (2019) <sup>51</sup>	x	x	x
	Electronic Transactions Act (2006) <sup>52</sup>			x
	ICT Act (2003) <sup>53</sup>			x
Thailand	Thailand 4.0 <sup>59</sup>	x	x	x
	SMART Visa (2018) <sup>60</sup>	x		x
	Payment Systems Act (2017) <sup>61</sup>			x
Viet Nam	<a href="#">ICT 2020 Vision Policy</a>	x	x	x
	<a href="#">Law on Cybersecurity (2018)</a> <sup>62</sup>			x
	Law on Telecommunications (2009) <sup>63</sup>			x
	Law on E-Transactions (2005) <sup>64</sup>	x		x

<sup>1</sup> <https://www.legislation.gov.au/Details/C2012A00035>

<sup>2</sup> <https://www.legislation.gov.au/Details/C2011C00445>

Regional good practices: Accelerating innovation, entrepreneurship  
and digital transformation in the Asia-Pacific region

- <sup>3</sup> <https://www.legislation.gov.au/Details/C2019C00104>
- <sup>4</sup> [https://ptd.portal.gov.bd/sites/default/files/files/ptd.portal.gov.bd/news/c306da52\\_2828\\_4773\\_b3d5\\_74ec933e3f5e/NTP-2015\\_Draft\\_English.pdf](https://ptd.portal.gov.bd/sites/default/files/files/ptd.portal.gov.bd/news/c306da52_2828_4773_b3d5_74ec933e3f5e/NTP-2015_Draft_English.pdf)
- <sup>5</sup> [https://www.moic.gov.bt/wp-content/uploads/2016/05/bhutan\\_telecommunications\\_and\\_broadband\\_policy\\_pdf\\_16764.pdf](https://www.moic.gov.bt/wp-content/uploads/2016/05/bhutan_telecommunications_and_broadband_policy_pdf_16764.pdf)
- <sup>6</sup> <https://www.dit.gov.bt/sites/default/files/attachments/ICM%20Act%202018.pdf>
- <sup>7</sup> <https://drive.google.com/file/d/1T0vDjZtlpbRhvDqYtq7jozQ9V8bTEMK/view>
- <sup>8</sup> <http://www.digitalstrategy.gov.bn/Themed/index.aspx>
- <sup>9</sup> [https://data.laos.opendevlopmentmekong.net/library\\_record/brunei-darussalam-s-e-government-strategy-in-overcoming-cyber-threats](https://data.laos.opendevlopmentmekong.net/library_record/brunei-darussalam-s-e-government-strategy-in-overcoming-cyber-threats)
- <sup>10</sup> <http://www.perfecttranslationservices.com/en/news/law-on-e-commerce>
- <sup>11</sup> <https://www.unapcict.org/sites/default/files/2019-01/Cambodia-ICTpolicy-English.pdf>
- <sup>12</sup> <https://www.newamerica.org/cybersecurity-initiative/digichina/blog/translation-cybersecurity-law-peoples-republic-china/>
- <sup>13</sup> <https://www.loc.gov/law/foreign-news/article/china-e-commerce-law-passed/>
- <sup>14</sup> [https://www.elegislation.gov.hk/hk/cap584?xid=ID\\_1438403487000\\_001](https://www.elegislation.gov.hk/hk/cap584?xid=ID_1438403487000_001)
- <sup>15</sup> <https://www.elegislation.gov.hk/hk/cap486?p0=1>
- <sup>16</sup> [http://164.100.47.4/BillsTexts/LSBillTexts/Asintroduced/373\\_2019\\_LS\\_Eng.pdf](http://164.100.47.4/BillsTexts/LSBillTexts/Asintroduced/373_2019_LS_Eng.pdf)
- <sup>17</sup> <https://dot.gov.in/sites/default/files/EnglishPolicy-NDCP.pdf>
- <sup>18</sup> [https://www.startupindia.gov.in/content/sih/en/about\\_us/action-plan.html#:~:text=In%20order%20to%20meet%20the%20spreading%20of%20the%20Startup%20movement](https://www.startupindia.gov.in/content/sih/en/about_us/action-plan.html#:~:text=In%20order%20to%20meet%20the%20spreading%20of%20the%20Startup%20movement)
- <sup>19</sup> <https://www.indiacode.nic.in/bitstream/123456789/1999/3/A2000-21.pdf>
- <sup>20</sup> <https://www.kemenperin.go.id/download/18384>
- <sup>21</sup> <https://www.amcham.or.id/images/Roadmap.pdf>
- <sup>22</sup> <https://www.kemendag.go.id/id/newsroom/press-release/pp-nomor-80-tahun-2019-pemerintah-lahirkan-peraturan-pemerintah-tentang-perdagangan-melalui-sistem-elektronik-1#:~:text=Kementerian%20Perdagangan%20Republik%20Indonesia%20%7C%20PP> [link in Indonesian]
- <sup>23</sup> [https://japan.kantei.go.jp/policy/it/i-JapanStrategy2015\\_full.pdf](https://japan.kantei.go.jp/policy/it/i-JapanStrategy2015_full.pdf)
- <sup>24</sup> <http://www.cas.go.jp/jp/seisaku/hourei/data/aescb.pdf>
- <sup>25</sup> [https://www.law.go.kr/%EB%B2%95%EB%A0%B9/%EC%8A%A4%EB%A7%88%ED%8A%B8%EB%8F%84%EC%8B%9C%EC%A1%B0%EC%84%B1%EB%B0%8F%EC%82%B0%EC%97%85%EC%A7%84%ED%9D%A5%EB%93%B1%EC%97%90%EA%B4%80%ED%95%9C%EB%B2%95%EB%A5%A0/\(16631,20191126\)](https://www.law.go.kr/%EB%B2%95%EB%A0%B9/%EC%8A%A4%EB%A7%88%ED%8A%B8%EB%8F%84%EC%8B%9C%EC%A1%B0%EC%84%B1%EB%B0%8F%EC%82%B0%EC%97%85%EC%A7%84%ED%9D%A5%EB%93%B1%EC%97%90%EA%B4%80%ED%95%9C%EB%B2%95%EB%A5%A0/(16631,20191126))
- <sup>26</sup> <http://koreanlii.or.kr/w/images/0/0e/KoreanDPAct2011.pdf>
- <sup>27</sup> [https://www.researchgate.net/publication/341368761\\_ASEAN\\_ICT\\_developments\\_Current\\_state\\_challenges\\_and\\_what\\_they\\_mean\\_for\\_SMEs](https://www.researchgate.net/publication/341368761_ASEAN_ICT_developments_Current_state_challenges_and_what_they_mean_for_SMEs)
- <sup>28</sup> <http://laopremier.com/e-transactions-law/>
- <sup>29</sup> <https://www.malaymail.com/news/malaysia/2020/08/13/minister-govt-aims-to-launch-digital-economy-masterplan-in-oct-2020/1893664>
- <sup>30</sup> <https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/NDIL-Report.pdf>
- <sup>31</sup> <https://mdec.my/digital-economy-initiatives/for-the-industry/entrepreneurs/mtep/>
- <sup>32</sup> <https://docplayer.net/13398705-Law-of-mongolia-on-electronic-signature.html>
- <sup>33</sup> <http://www.informatica-juridica.com/ley/the-law-of-mongolia-on-telecommunications-october-18-2001/>
- <sup>34</sup> <https://myanmar.gov.mm/documents/20143/9096339/2019-02-07+DED+RoadMap+for+Websites.pdf/>
- <sup>35</sup> [https://www.burmalibrary.org/docs23/2013-10-08-Telecommunications\\_Law-en.pdf](https://www.burmalibrary.org/docs23/2013-10-08-Telecommunications_Law-en.pdf)
- <sup>36</sup> <https://www.myanmartradeportal.gov.mm/en/legal/216>
- <sup>37</sup> <https://mokit.gov.np/application/resources/admin/uploads/source/EConsultation/Final%20Book.pdf>
- <sup>38</sup> <http://www.lawcommission.gov.np/en/archives/category/documents/prevaling-law/statutes-acts/the-electronic-transactions-act-2063-2008>
- <sup>39</sup> <https://www.digital.govt.nz/assets/Documents/113Digital-Inclusion-BlueprintTe-Mahere-mo-te-Whakaurunga-Matihiko.pdf>
- <sup>40</sup> <http://www.legislation.govt.nz/act/public/2002/0035/latest/DLM154185.html>
- <sup>41</sup> <http://www.legislation.govt.nz/act/public/2001/0103/latest/DLM124961.html>
- <sup>42</sup> [http://moib.gov.pk/Downloads/Policy/DIGITAL\\_PAKISTAN\\_POLICY\(22-05-2018\).pdf](http://moib.gov.pk/Downloads/Policy/DIGITAL_PAKISTAN_POLICY(22-05-2018).pdf)
- <sup>43</sup> <https://globaltaxnews.ey.com/news/2020-5885-philippines-proposes-law-for-taxation-of-the-digital-economy>
- <sup>44</sup> [https://lawphil.net/statutes/repacts/ra2018/ra\\_11165\\_2018.html](https://lawphil.net/statutes/repacts/ra2018/ra_11165_2018.html)
- <sup>45</sup> <http://anyflip.com/mfseg/ssfb/basic>
- <sup>46</sup> <https://www.officialgazette.gov.ph/downloads/2017/08aug/20170802-RA-10929-RRD.pdf>
- <sup>47</sup> <https://www.officialgazette.gov.ph/2000/06/14/republic-act-no-8792-s-2000/>
- <sup>48</sup> <https://www.edb.gov.sg/en/how-we-help/incentives-and-schemes/tech-pass.html>
- <sup>49</sup> <https://sso.agc.gov.sg/Acts-Supp/2-2019/Published/20190220?DocDate=20190220>
- <sup>50</sup> <https://www.imda.gov.sg/-/media/Imda/Files/SG-Digital/SGD-Framework-For-Action.pdf>
- <sup>51</sup> <http://www.mdiit.gov.lk/index.php/en/component/jdownloads/send/6-legislation/76-national-digital-policy>
- <sup>52</sup> <https://www.casrilanka.com/casl/images/stories/EDBA/electronic%20transactions%20act%20no.%2019%20of%202006.pdf>
- <sup>53</sup> <https://www.srilankalaw.lk/YearWisePdf/2003/INFORMATION AND COMMUNICATION TECHNOLOGY ACT, No 27 OF 2003.pdf>
- <sup>54</sup> <https://english.ey.gov.tw/News3/9E5540D592A5FECDD/9ff42f66-d4bb-45ae-bc69-bb6c973386ad>
- <sup>55</sup> <https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=A0030295>
- <sup>56</sup> <https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=G0380237>
- <sup>57</sup> <https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=I0050021>
- <sup>58</sup> <https://english.ey.gov.tw/iip/B0C195AE54832FAD>

<sup>59</sup> <https://thaiembdc.org/thailand-4-0-2/>

<sup>60</sup> <https://smart-visa.boi.go.th/smart/>

<sup>61</sup> [https://www.bot.or.th/English/PaymentSystems/PSA\\_Oversight/Pages/default.aspx](https://www.bot.or.th/English/PaymentSystems/PSA_Oversight/Pages/default.aspx)

<sup>62</sup> <https://www.cyberdb.co/vietnam-new-cyber-security-law/>

<sup>63</sup> [https://www.tilleke.com/sites/default/files/informed\\_counsel\\_vol1\\_no1\\_p6.pdf](https://www.tilleke.com/sites/default/files/informed_counsel_vol1_no1_p6.pdf)

<sup>64</sup> <https://vanbanphapluat.co/law-no-51-2005-gh11-of-november-29-2005-on-e-transactions>

Table 3 is a small sample of national strategies, policies and frameworks enacted or proposed by governments throughout the Asia-Pacific region to advance the digital transformation.

Often governments enact digital economy laws without an overall national strategy for guidance and it is often the case that laws governing the digital economy are merely amendments to existing business laws. Consequently, policies meant to enable the ICT-centric ecosystem across the technology ecosystem, the entrepreneurial ecosystem, and the innovation ecosystem (all three engines of growth) could be strengthened for complementarity and holistic development. Table 3 indicates that countries in the Asia-Pacific region with a national strategy are much more likely to have policies impacting all three engines of growth.

## 2.4 Enablers of digital transformation

This section provides an overview of the current state of the seven enablers of digital transformation: vision and strategy, infrastructure and programmes, talent and champions, capital and resources, markets and networks, culture and communities, and regulation and policy.

Each enabler is crucial for successful innovation activities and the combined efficiency of the enablers reflects the overall efficiency of the ecosystem. For countries interested in this deeper level of insight, qualitative interviews can be conducted to reflect a colour-coded table of the enablers, similar to those used in Table 3.

### 2.4.1 Vision and strategy

A large number of countries have articulated and codified a clear vision for digital transformation, and several have commenced implementing strong strategies to achieve ambitious objectives. According to the 2020 Global Innovation Index, the Asia-Pacific region is represented well in the category of top ten innovation countries by income levels. They include Singapore and the Republic of Korea (high income), China, Malaysia, and Thailand (upper-middle income), India, Viet Nam, Philippines, Mongolia, and Indonesia (lower-middle income), and Nepal (low income).

The Asia-Pacific region features seven of the top 33 (top 25 percentile) innovation economies in the world. Singapore (8<sup>th</sup>) and Republic of Korea (10<sup>th</sup>) are in the top 10. The remaining top 33 innovation economies in the region include Hong Kong (China)(11<sup>th</sup>), China (14<sup>th</sup>), Japan 16<sup>th</sup>), Australia (23<sup>rd</sup>), and Malaysia (33<sup>rd</sup>). These rankings demonstrate that Asia and the Pacific not only has several countries that offer strong case studies of digital transformation on a global level but also have strong good practices to emulate across each income level at the regional level. The following represents a small sample of digital transformation visions articulated throughout the region.

- **Sri Lanka National Digital Strategy.** In 2019, the Ministry of Digital Infrastructure and Information Technology (MDIIT) released the draft [National Digital Policy for Sri Lanka](#) (the Draft Policy)<sup>12</sup>. This 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. Various government agencies and private sector organizations will be expected to develop plans and roadmaps of their own but consistent with the overarching National Digital Policy. To facilitate this the National Digital Policy will provide a high-level framework and adopt a modular structure such that these public and private sector roadmaps and strategies can be aligned when implemented. Data protection and online security are two important priorities set forth and the balance of data protection with cybersecurity will be a primary focus. Open data sets to encourage innovation will be another focus. The Draft Policy also presented ambitious targets. These include attaining a top 70 position in the Global Cybersecurity Index and increasing public trust 20-30 per cent by more responsible use of data. Establishment of a Personal Data Protection Commission and the enactment of the Personal Data Protection Act and Cybersecurity Act have also been included in the Draft Policy. The ICTA will be charged with operational responsibility for policy implementation.
- **Thailand 4.0** is a [collection of policies aimed at transforming Thailand](#) into an innovative, value-based industrial model with a vision to elevate Thailand into a high-income country<sup>13</sup>. To accomplish this, the economy is to be entirely digitized and led by digitalized organizations. The current economy is heavily reliant on manufacturing designed elsewhere that impedes advancement to a higher income level. The intention of Thailand 4.0 Policy is to foster creativity, research and development of advanced technologies within Thailand to break this reliance. Pursuant to Thailand 4.0, ten industries have been targeted for accelerated development during the next 20 years. Five of these industries currently exist. They are automotive, intelligent electronics, agriculture and biotechnology, food processing, and high wealth and medical tourism. The five new advanced industries targeted for development include software, robotics, aviation and logistics, comprehensive healthcare, and biofuel and biochemical industries. In addition to targeted industries, additional policies can be categorized into two categories, digital infrastructure and skill formation.
- The [Start-up India Initiative](#) was launched in August 2015 to build a strong ecosystem of innovation and entrepreneurship in the country that would drive sustainable economic growth and create employment opportunities<sup>14</sup>. At the beginning of 2016, the [Action Plan](#) for Start-up India was unveiled<sup>15</sup>. The Action Plan includes 19 action items that can be organized into three categories: simplification and handholding, funding support and incentives, and industry-academia partnership and incubation.<sup>16</sup> The government body designated to perform the central coordinating role in implementation is The Department for Promotion of Industry and Internal Trade (DPIIT).
- **Making Indonesia 4.0** is an [integrated roadmap](#) for Indonesia's strategy to enter the fourth generation of industry revolution<sup>17</sup>. The roadmap is based on an acknowledgment that for Indonesia to remain competitive, it needs to fully utilize ICT in the industrial sector. This not

<sup>12</sup> <https://www.icta.lk/policy-framework/>

<sup>13</sup> <https://thaiembdc.org/thailand-4-0-2/>

<sup>14</sup> <https://dipp.gov.in/startup-india/startup-india-initiative#:~:text=The%20Startup%20India%20initiative%20was%20generate%20large%20scale%20employment%20opportunities.>

<sup>15</sup> [https://www.startupindia.gov.in/content/dam/invest-india/Templates/public/Action\\_Plan.pdf](https://www.startupindia.gov.in/content/dam/invest-india/Templates/public/Action_Plan.pdf)

<sup>16</sup> Its activities include Start-up India Hub, Start-up India Portal and Mobile App, Legal Support and Fast-tracking Patent Examination at Lower Costs, Relaxed Norms of Public Procurement for Start-ups, Faster Exit for Start-ups, Funding Support through Fund of Funds, Credit Guarantee Fund for Start-ups, Tax Exemption on Capital Gains, Tax Exemption to Startups for three years, Tax Exemption on Investments above Fair Market Value, Organizing Start-up Fests for Showcasing Innovation and Providing a Collaboration Platform, Launch of Atal Innovation Mission (AIM) with Self-Employment and Talent Utilization (SETU) Program, Harnessing Private Sector Expertise for Incubator Setup, Building Innovation Centres at National Institutes, Setting up of seven New Research Parks, Promoting Start-ups in the Biotechnology Sector, Innovation Focused Programs for Students and Annual Incubator Grand Challenge.

<sup>17</sup> <https://www.hannovermesse.de/en/news/news-articles/making-indonesia-4-0>

only includes the production process but across the entire industry value chain promising the creation of new business models and digital innovation. The development of five key technologies – Internet of Things, artificial intelligence, human-machine interface, robotic and sensor technology, and 3D printing – is prioritized to support the development of Industry 4.0. Numerous strategies are to be aligned with the roadmap that will require collaborative actions among multiple stakeholders in both the public and private sectors. The roadmap consists of the following 10 national priority strategies: reforming the flow of materials; industrial zone redesign; improvement of human resources; empowerment of micro, small and medium enterprises; incentives implementation on technology investment, formation of innovation ecosystems; attracting foreign direct investment; harmonization of policy and regulations; building the national digital infrastructure; and accommodating sustainability standard. Successful implementation is intended to enable Indonesia to attain a net export rate of 10 per cent, double the labour productivity rate over labour costs, and allocate 2 per cent of GDP to R&D and technology innovation fields (seven times higher than current allocation).

- The **Myanmar Digital Economy Roadmap 2018-25**, published in 2019, [aims to improve Myanmar's low regional rankings on four indicators of digital readiness](#): ICT development, e-government development, network readiness and cybersecurity<sup>18</sup>. This is to be accomplished by accelerating the use of digital technology in government, trade and investment as well as developing digital skills and encouraging innovation. The roadmap consists of 4 pillars, a 6-plus-1 strategy, 9 priority sectors, 14 goals, 32 short-term action plans, and 6 longer-term plans. Digital advancement is expected in education, healthcare; agriculture/fisheries and livestock; tourism and hospitality; manufacturing; SMEs; financial services, technology and start-up ecosystems, digital trade and transportation/logistics. Longer-term plans include policies to support e-commerce, online payments, tax incentives and cybersecurity. The following are just 5 of the 14 roadmap goals to be achieved by 2025: mobile subscriptions to hit 55 per cent of the population; Internet usage to increase to 50 per cent; digital transformation across business sectors to increase by 30 per cent; increase SME use of digital technologies by 50 per cent; and raise digital financial service transactions to 30 per cent. A Digital Economy Development Committee will oversee the implementation of the roadmap.
- **Malaysia 5.0** is a [new vision](#)<sup>19</sup> called for by the chair of the [Malaysia Digital Economy Corporation \(MDEC\)](#)<sup>20</sup> for Malaysia to compete in a world of disruptive technology and serve as a springboard into the ASEAN region. For Malaysia to transform into a high-wage, knowledge-based economy envisioned in the Shared Prosperity Vision (SPV) 2030, innovation must be encouraged, the workforce must be re-tooled, and investment incentivized. Malaysia 5.0 embraces the concept of Society 5.0, where authority is decentralized and divisions de-emphasized, where the needs of a human-centred society converge through technology, and a designated hub interconnects companies in Malaysia to the rest of the world, with strong regulatory and strategic oversight and direction from MDEC. Numerous ongoing and newly announced programmes will be aligned with this designated hub. Malaysia 5.0 can contribute to a more sustainable and circular economy.

This selection of ICT, technology, and entrepreneurship strategies demonstrates commitment to a thriving, ICT-centric ecosystem in the Asia-Pacific region. It is noteworthy that the underlying basis for the above visions and strategies are quite varied. Some are based on accomplishing specific digital transformation objectives, a few prioritize specific industries, and others have a more philosophical basis centred around fundamentally transforming society with emerging technologies. The manner of implementation is varied as well, ranging from a collaborative approach pursuant to a broad framework and overarching objectives, to a more centralized approach driven by a designated lead agency.

<sup>18</sup> <https://www.dedc.gov.mm/>

<sup>19</sup> <https://mdec.my/wp-content/uploads/Reinvent-MDEC-Media-Announcement-16Nov-Final.pdf>

<sup>20</sup> <https://mdec.my/>



The next question concerns the effectiveness of Asia-Pacific region countries in implementing digital transformation strategies. One answer is to examine the ratio of innovation inputs to innovation outputs. It can be inferred that for those countries where the innovation output ranking is less than the innovation input ranking by 20 points or more, they can be considered efficient in implementing their digital strategies. The opposite is true for countries where the innovation outputs are 20 or more points higher than the innovation inputs.

According to the 2020 Global Innovation Index, and utilizing this innovation input-output ratio methodology, there were seven countries in the region that have reached effective digital strategy implementation: Iran (+40), Lao P.D.R. (+32), Pakistan (+30), Philippines (+29), Sri Lanka (+24), Viet Nam (+24), and China (+20).

While these strategies show that actors from the public sector have a clear vision, further examination is needed, through stakeholder consultation and workshops, to assess the level at which stakeholder groups are aligned with national strategy. Countries throughout the region may want to examine the implementation efforts of those seven countries identified as having favourable innovation input-to-output ratios, particularly if they share the same income level.

## 2.4.2 Infrastructure and programmes

A key enabler for digital transformation is the hard and soft digital infrastructure that permits end-to-end information and communication systems to operate. Two sub-pillars within the 2020 Global Innovation Index serve as proxies to assess hard and soft infrastructure. The ICT infrastructure sub-pillar measures ICT access, ICT use, government online services, and e-participation. It offers an excellent means to assess hard infrastructure. The business sophistication innovation linkages sub-pillar measures university/industry research collaboration, state of cluster development, gross expenditures R&D (GERD), joint venture-strategic alliances, and patent families. These measurements help assess the soft infrastructure.

According to the 2020 Global Innovation Index, there were six countries placed in the Asia-Pacific region top 20 when measuring the ICTs sub-pillar. They include Republic of Korea (2<sup>nd</sup>), Singapore (7<sup>th</sup>), New Zealand (8<sup>th</sup>), Japan (10<sup>th</sup>), Australia (14<sup>th</sup>) and Hong Kong (China) (17<sup>th</sup>). However, the majority of the remaining 17 countries in the ranking received low scores (average ranking of 83) suggesting a large gap in hard infrastructure capabilities in some countries in the Asia-Pacific region. In assessing soft infrastructure the innovation linkage rankings were led by the same six countries that topped the ICT rankings: Republic of Korea (16<sup>th</sup>), Japan (17<sup>th</sup>), Singapore (18<sup>th</sup>), Australia (20<sup>th</sup>), Hong Kong (China) (25<sup>th</sup>), and New Zealand (29<sup>th</sup>). However, the gap is much less pronounced because none of these countries were in the top 15.

There are several countries that deserve special mention:

- The Republic of Korea led the region in both hard infrastructure (2<sup>nd</sup> in ICT sub-pillar) and soft infrastructure (16<sup>th</sup> in innovation linkages sub-pillar), scored highly in several soft infrastructure indicators and has retained the number one spot globally in e-participation and patents by origin. It also enjoys top three world rankings in gross expenditures on R&D, PCT patents, and researcher financed by business. The Republic of Korea performed well in state of cluster development, hosting three of the top 100 clusters in the world including Seoul (3<sup>rd</sup>), Daejeon (22<sup>nd</sup>), and Busan (75<sup>th</sup>).
- Singapore ranked highly in both hard and soft infrastructure indices. Under ICTs it took 2<sup>nd</sup> place in government online service, 6<sup>th</sup> ICT access, and 13<sup>th</sup> in e-participation. It scored well in three innovation linkages and was ranked 6<sup>th</sup> in university/industry research



collaboration, 9<sup>th</sup> state of cluster development, and 11<sup>th</sup> in joint venture-strategic alliance deals.

- Japan ranked highly in both soft and hard infrastructure indices. It was top of the global ranking in patent families, 5<sup>th</sup> in e-participation, 9<sup>th</sup> in government online service, and 11<sup>th</sup> in both ICT access and state of cluster development.
- Malaysia ranked highly in several of the soft infrastructure indicators of the 2020 Global Innovation Index. Malaysia scored a rank of 7<sup>th</sup> in state of cluster development, and 14<sup>th</sup> in university and industry research collaboration.
- Hong Kong (China) has made notable advances in the soft infrastructure indicators as it edges closer to a top 10 overall Global Innovation Index (GII) ranking, and it ranked 4<sup>th</sup> in state of cluster development, and 10<sup>th</sup> in joint venture-strategic alliance deals.
- Australia has two top 10 rankings under ICTs, 5<sup>th</sup> in e-participation, and 7<sup>th</sup> in government online service.
- New Zealand excelled in all four ICT categories, ranking 5<sup>th</sup> in e-participation, 9<sup>th</sup> in government online service, 12<sup>th</sup> in ICT access and 13<sup>th</sup> in ICT use.

The 2019 Global Competitiveness Index collates the findings of the GI placing the East Asia and Pacific (raw score of 70.3) a close second to Europe and North America (a raw score of 70.4) in ICT adoption, with three top six global rankings in ICT Adoption: Republic of Korea (1<sup>st</sup>), Hong Kong (China) (3<sup>rd</sup>), Singapore (5<sup>th</sup>), and Japan (6<sup>th</sup>).

Despite an impressive showing in both soft and hard infrastructure rankings by a few countries, the gap in hard infrastructure between the top few countries and other countries in the region is pronounced. As advanced technologies, which rely heavily on strong hard infrastructure such as IoT (Internet of things) and AI (artificial intelligence), become more prevalent and critical to the competitiveness of individual countries, this hard infrastructure divide could further widen the divide in digital transformation implementation.

Without a solid base of hard infrastructure, it will become difficult for many countries in the region to fully leverage the strength of their soft infrastructure capabilities and supply the numerous technology clusters throughout the region with local talent. For those countries with capable soft infrastructure and lack of hard infrastructure, a brain drain remains a real challenge. Further examination at the country level could reveal a large divide in hard infrastructure between urban and rural areas. Without basic access to ICT and electricity, addressing digital literacy and inclusion is daunting.

### 2.4.3 Talent and champions

The previous sections examined the efforts being made by many Asia-Pacific region countries to advance digital transformation priorities and build infrastructure. However, the question concerning the ability of countries in the region to produce the talent and champions (necessary to convert innovation inputs into outputs) needs to be answered. The tertiary education ranking of the 2020 Global Innovation Index offers a glimpse into this enabler.

According to the 2020 Global Innovation Index, the Asia-Pacific region had five countries in the top 10, and 8 in the top 25 countries in the world for tertiary education, led by the top-ranked Singapore, and including Australia, Iran, Malaysia, Hong Kong (China), New Zealand, Republic of Korea, and Brunei Darussalam. However, although some countries scored much lower in the rankings (including Lao P.D.R., Cambodia, Sri Lanka, Bangladesh, Nepal, and Pakistan), 15 of the 38 countries in the region did not qualify to be ranked in the 2020 Global Innovation Index.

The following countries recorded high scores in one or several of the tertiary education sub-pillars:

- Singapore's 1<sup>st</sup> place in the global ranking in the tertiary education category is the pride of the region. They achieved the top position due to consistently high scoring sub-indices: thirteenth in tertiary enrolment, 7<sup>th</sup> in tertiary inbound mobility and 8<sup>th</sup> in science and engineering graduates.
- Australia's overall 5<sup>th</sup> place for tertiary education was achieved by ranking 2<sup>nd</sup> in tertiary enrolment and 5<sup>th</sup> in tertiary inbound mobility.
- Iran's overall tertiary education ranking of 7<sup>th</sup> was achieved due to ranking 3<sup>rd</sup> in science and engineering graduates.
- Malaysia also excelled in tertiary education (8<sup>th</sup>) and produced a ranking of 4<sup>th</sup> in science and engineering graduates.
- Hong Kong (China) overall tertiary education ranking (9<sup>th</sup>) was anchored by their top 25 scores in tertiary enrolment (22<sup>nd</sup>) and tertiary inbound mobility (15<sup>th</sup>).
- New Zealand's 11<sup>th</sup> overall tertiary education score can be attributed to high scores in tertiary enrolment (15<sup>th</sup>) and tertiary inbound mobility (6<sup>th</sup>).
- The Republic of Korea attained its 16<sup>th</sup> overall tertiary education ranking by scoring high in tertiary enrolment (3<sup>rd</sup>) and science and engineering graduates (18<sup>th</sup>). It should be noted that the Republic of Korea ranks 31<sup>st</sup> in women employed with advanced degrees.
- Brunei Darussalam's high score in science and engineering graduates (5<sup>th</sup>) helped Brunei Darussalam achieve a top 25 overall ranking in tertiary education.

Three countries ranked particularly well in science and engineering graduates: Myanmar (10<sup>th</sup>), India (12<sup>th</sup>) and the Philippines (22<sup>nd</sup>).

According to the 2019 Global Competitiveness Index, Asia and the Pacific countries ranked second (raw score of 67.3) only to Europe and North America (raw score of 74.6) in the skills category, which includes both hard and soft skills. The region placed eight countries among the top 30 global performers: New Zealand (10<sup>th</sup>), Australia (13<sup>th</sup>), Singapore (19<sup>th</sup>), Hong Kong (China)(20<sup>th</sup>), Taiwan (23<sup>rd</sup>), Republic of Korea (27<sup>th</sup>), Japan (28<sup>th</sup>) and Malaysia (30<sup>th</sup>). However, there were 9 countries below the rank of 90. A similar story is shown for digital skills. The region placed 8 countries in the global top 30 once again. Japan did not make the top 30 in this list, but the Philippines attained 22<sup>nd</sup> place. In digital skills, the region posted two top 10 scores: Singapore (5<sup>th</sup>) and Malaysia (10<sup>th</sup>).

The Asia-Pacific region compares favourably with other regions for tertiary education and skills (hard and soft). Many countries in the region have placed a high priority in improving education systems as a path to improve income levels. Countries with younger demographics score well in the digital skills indices. Indeed, it is frequent that lower-income countries with younger demographics perform much better in digital skills than in hard or soft skills. However, there exists a huge gap in this digital transformation enabler between the top and bottom tier of countries. Drastically improving the secondary and university education system to particularly improve hard skills takes time, and expecting short-term results is unreasonable. Until such needed reforms or commitment of necessary resources can be allocated to this enabler the countries that face this challenge increasingly become less competitive. A possible solution is for the leading countries mentioned above to pursue programmes welcoming incoming students into their existing educational systems or establishing satellite university programmes in those countries of need. The best way to accelerate the development of innovative talent is through exposure to experienced entrepreneurs and opportunities to work in real start-ups. Fortunately, the availability of high-quality and comparatively low-cost talent serve as a

magnet for entrepreneurs to re-locate to the Asia-Pacific region. The countries of the region could take advantage of this by facilitating foreign entrepreneur visas, work permits and other requirements, which will be examined in more detail in the policy and regulation section. Thailand (SMART Visa), Singapore (tech.pass) and Malaysia (MTEP Visa) are cases in-point.

#### 2.4.4 Capital and resources

Risk capital is the lifeblood of digital transformation and the innovation on which it is built. In many pillars, activities often rely on local markets, infrastructure and resources. In this pillar, innovators may benefit from a greater availability of resources at the regional level. Much institutional venture capital operates on a regional basis, particularly at the Series A and later fund-raising stages.<sup>21</sup> The most active institutional venture capital such as 500 Start-ups, Golden Gate Ventures, East Ventures and Gobi Partners have a regional portfolio of start-ups. The Asia-Pacific region also possesses two recognized leading venture capital centres (Singapore and Hong Kong (China)) that serve as a magnet for start-ups that might be trying to escape any local funding gaps they face.

The 2019 Global Competitiveness Index and 2020 Global Innovation Index offer a glimpse of how Asia and the Pacific compares with other regions in terms of capital and resources available for innovation. The two most relevant indices in the GCI are venture capital availability and financing for SMEs. The Asia-Pacific region had six countries in the top 18 of the global rankings: Singapore, Hong Kong (China), Malaysia, China, Japan, and New Zealand. Comparable results can be found in the ranking of indices in the 2020 Global Innovation Index.

In the GII overall investment ranking, Hong Kong (China) and Singapore take first and second respectively with Malaysia taking the number 25 spot. The results of these investment environment indices for the Asia-Pacific region, although they show some outstanding performers, reflect the overall gap in this enabler, with too many countries occupying the bottom quartile of the ranking, and eight countries failing to attain a top 100 ranking out of the 131 countries measured by the GII. Singapore and Hong Kong (China) once again led the region with global rankings of first and fourth, respectively, for the GII venture capital deals/bn public-private partnership (PPP) GDP indices.

Despite the availability of venture capital, the overall investment environment in many countries requires much improvement, leading to many start-ups registering a second entity in regional venture capital centres outside their home country, such as Singapore and Hong Kong (China), to improve their ability to raise investment funds.

In addition to investment funding, entrepreneurs need a variety of non-financial resources. These include office space, networking opportunities, mentorship, professional services, access to lab facilities and strategic partnerships.

For much of the Asia-Pacific region, the issue is not a lack of investors, it is the lack of early-stage investment-grade start-ups. Government agencies and non-governmental organizations (NGOs) continue to play an important role in providing pre-seed funding that is too early (too risky) for angel and institutional venture capital. This role will continue to exist regardless of the maturity of the local start-up ecosystems. In countries with newly emerging start-up ecosystems, matching seed funding programmes would encourage local aspiring angel investors to overcome their

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<sup>21</sup> Series A financing usually comes from venture capital or private equity firms.

hesitation and commit by sharing some of their risk. Corporations and public agencies (not taking an equity position) would be ideal sources for this seed fund matching. Once there is a sufficient number of angels, corporate venture capital arms, and seed-stage institutional venture capital, any government funding beyond pre-seed stage should embrace competition with the private sector.

### 2.4.5 Markets and networks

The markets and networks enabler is another key to digital transformation. Acceleration of digital transformation relies heavily on the opportunities for innovators to both scale and collaborate with other stakeholders. The strength of the domestic market and networks is essential for scalability and collaboration.

There are two indices that will help assess this enabler. The first metric is the interaction and diversity index, a sub-pillar of innovation capability of the 2019 Global Competitiveness Index. Components of this sub-pillar include diversity of workforce, state of cluster development, international co-inventions and multi-stakeholder collaboration. The second metric is the innovation linkages, a sub-pillar of business sophistication of the 2020 Global Innovation Index. Components of this sub-pillar include university/industry research and collaboration, state of cluster development, gross expenditure on R&D (GERD) as a per cent of GDP, joint venture-strategic alliance deals, and patent families filed in two or more offices.

According to these indices the Asia-Pacific region placed 7 countries in the top 25 global ranking for interaction and diversity, including the number one spot. These countries were Singapore (1<sup>st</sup>), Hong Kong (China) (19<sup>th</sup>), Republic of Korea (21<sup>st</sup>), New Zealand (22<sup>nd</sup>), Australia (23<sup>rd</sup>) and Malaysia (24<sup>th</sup>). Asia-Pacific region countries struggling in this area include Iran, Nepal, Bangladesh, Mongolia, and Cambodia.

Overall performance and the gap in performance among Asia-Pacific region countries were low in the innovation linkages rankings, where no countries were ranked in the top 15, and there were only five countries in the top 25: Republic of Korea (16<sup>th</sup>), Japan (17<sup>th</sup>), Singapore (18<sup>th</sup>), Australia (20<sup>th</sup>) and Hong Kong (China)(25<sup>th</sup>). Asia-Pacific region countries struggling in global rankings included Myanmar, Mongolia, and Iran.

The top 100 clusters indices in the 2020 Global Innovation Index also helps assess the strength of markets and networks in Asia and the Pacific by comparing the region with other regions. It is in this ranking that the Asia-Pacific region performs exceptionally well. Nearly a third (32) of the Top 100 clusters in the world are located in the Asia-Pacific region, including the top four (Tokyo-Yokohama, Shenzhen-Hong Kong-Guangzhou, Seoul, and Beijing). China leads the region with 17 clusters followed by Japan, Republic of Korea, and India. In the infrastructure and programmes section, the five global leaders in cluster development were Hong Kong (China), Malaysia, Singapore, Japan, and Republic of Korea.

### 2.4.6 Culture and communities

Digital transformation is not only a product of quantitative innovative inputs related to allocation of tangible and intangible resources. A pervasive culture of entrepreneurship with an associated dynamic entrepreneurial community of mutual support represents the most qualitative enabler of digital transformation that must be assessed and supported. The first step is to create a sense of community in which every stakeholder perceives themselves as a contributing member of the

ecosystem and have a sense of shared community with other members. This is a prerequisite to collaboration and the formation of networks.

To assess the culture and communities enabler, two metrics will be examined. The entrepreneurial culture metric is the sub-pillar of business dynamism in the 2019 Global Competitiveness Index. This sub-pillar includes attitudes towards entrepreneurial risk, willingness to delegate authority, growth of innovative companies and companies embracing disruptive ideas. The Asia-Pacific region occupied 7 of the top 25 GCI rankings: Malaysia (4<sup>th</sup>), Hong Kong (China) (6<sup>th</sup>), New Zealand (11<sup>th</sup>), Singapore (16<sup>th</sup>), Philippines (18<sup>th</sup>), Australia (23<sup>rd</sup>), and Indonesia (25<sup>th</sup>). However, entrepreneurial culture is weak in some countries for that sub-pillar, including Iran, Bangladesh, Mongolia, and Nepal.

The second metric is from the 2018 Global Entrepreneurship Index overall ranking of countries. Six countries in the Asia-Pacific region achieve a top 30 global ranking: Australia (5<sup>th</sup>), Hong Kong (China) (13<sup>th</sup>), Republic of Korea (24<sup>th</sup>), Singapore (27<sup>th</sup>) and Japan (28<sup>th</sup>). Some of the poorest performers in the region include Bangladesh, Myanmar, Pakistan, Cambodia, and Lao P.D.R.

Although there are several countries in the region that have developed vibrant entrepreneurial communities there remains much work to be done in this area for most countries in the region. More entrepreneurial awareness programmes, university entrepreneurship programmes, promotion of start-up success stories, organization of business plan competitions, more community-based online and offline forums and increased participation in regional and global start-up initiatives and activities are examples of how a strong community can be developed.

#### 2.4.7 Policy and regulation

The government is a crucial stakeholder in enabling digital transformation. Enacting policies and creating a conducive regulatory environment will promote and support entrepreneurship and allow risk-taking and facilitate stakeholder collaboration that are crucial in establishing a favourable environment for innovation. This environment will ensure that innovative inputs translate into innovative outputs.

Establishing regional standards in digital economy policy areas will be of mutual benefit for all countries in the Asia-Pacific region, in addition to enabling policies and regulations such as regulatory sandboxes, smart visas to attract foreign IT talent, digital economy policies related to e-commerce, personal data protection, cybersecurity, IoT bandwidth allocation, blockchain, online payments, digital taxation, virtual banking licences, registration of venture capital funds and regulatory guillotine projects.

The 2019 Global Competitiveness Index and 2020 Global Innovation Index offer two metrics each that help measure the effects of policies and regulations on digital transformation. The GCI provides burden of government regulation, and legal framework adaptability to digital business models. The relevant GII provides regulatory environment, and ease of starting a business.

The GCI burden of government regulation is a challenging metric for countries in the region. Although the region placed three countries in the top five (Singapore 1<sup>st</sup>, Hong Kong (China) 2<sup>nd</sup>, and Malaysia 5<sup>th</sup>), nearly half of the countries in the Asia-Pacific region were ranked between 79<sup>th</sup> and 133<sup>rd</sup>.

The regulatory environment rankings of the 2020 Global Innovation Index reflect a similar challenge. Although the region holds the top three positions in the global rankings (Hong Kong

(China) 1<sup>st</sup>, Singapore 2<sup>nd</sup>, and New Zealand 3<sup>rd</sup>), of the remaining 20 ranked countries in the region, 13 ranked between the 98<sup>th</sup> and 130<sup>th</sup> position.

In the GCI legal framework adaptability to digital business models metric, 8 of the 23 countries in the region were ranked in the top 30, led by Singapore 3<sup>rd</sup> and Malaysia 5<sup>th</sup>. The six lowest ranked countries in the region were placed between the 93<sup>rd</sup> and 117<sup>th</sup> position. In the GII, ease of starting a new business metric, three countries were in the top five, and five in the top 15, led by New Zealand (1<sup>st</sup>), Singapore (4<sup>th</sup>) and Hong Kong (China) (5<sup>th</sup>). Unfortunately, their success does not reflect the region as a whole where eight countries rank between the 101<sup>st</sup> and 131<sup>st</sup> position.

Only a few countries in the region performed well in the four reviewed indices and these serve as a source of good policy practices. Looking across the results of all four indices, it is apparent that in many instances countries in the region are forward looking when enacting policies and regulations in support of digital transformation. However, legacy policies and regulations are affecting the general business environment in which innovative ventures are still required to operate and comply. Thailand, for example, was the first country to enact crowdfunding legislation but the lack of legal procedures regarding escrow accounts needed for crowdfunding platforms to accept pledged money from investors resulted in long delays.

Legislation being enacted throughout the region to advance digital transformation includes fintech, e-commerce, data protection, cybersecurity, online payments and digital taxation laws. When these laws are aligned with a national strategy, they are more likely to be effective.

The regulatory environment continues to be unfavourable for start-ups throughout much of the region, whereas government pro-activity in enacting enabling digital economy policies often has a positive impact.

Policy makers must recognize that innovative ventures need new regulatory regimes. Cash starved pre-revenue start-ups that operate in verticals requiring regulatory oversight often do not have the resources to assume a time-consuming and/or costly regulatory burden and, for example, might need the issuance of virtual banking licences, regulatory sand boxes and the creation of new regulatory regimes to accommodate entrepreneurial ventures.

There are four recommended actions to streamline or eliminate complex and unnecessary policies and regulations as well as instil discipline and flexibility in future policy making:

- 1 consolidate policies (for example digital economy) that are drafted and implemented using a common framework;
- 2 avoid inefficient competition for resources and power between government agencies by delineating clear areas of responsibility and authority among them;
- 3 create institutions and forums through which government agencies can increasingly and more regularly engage with all stakeholders in the local entrepreneurial, innovative and technological ecosystems;
- 4 implement a regulatory guillotine project in which a full audit of all regulations across all fields is conducted to eliminate any antiquated, unnecessary, or non-enforceable laws. During the project, additional laws may be identified for revision.



### 3 Good practices accelerating digital transformation

This section highlights good practices that fuel digital transformation in the region. It provides a brief snapshot of each case study that reflects one or more of the ICT-centric innovation building blocks: innovation dynamics, innovation capacity, and ICT innovation.

#### 3.1 Block71 (Singapore)

Block71 is a collaboration between NUS Enterprise in Singapore and Salim Group in Jakarta to establish a global network of business hubs to help start-ups penetrate different economies. At the same time, start-ups can leverage the co-working space and incubation services such as mentoring, networking sessions, hot-desking facilities, as well as overseas support or start-up funding to kick-start their expansion plans. Block71 Jakarta serves as a gateway for foreign start-ups to enter the Indonesia market and creates a network for start-ups in Indonesia to expand regionally. This practice impacts two of the building blocks of innovation:

- **Innovation dynamics:** Block71 contributes to innovation dynamics by serving as the local nexus for the global Block 71 network and operates the NUS Start-up Runway Incubation Program that provides mentorship, funding, test-bedding expertise and market access. Hosting a large number of regular speaker series and networking events such as “Meet the VCs,” Kopi Chats and pitching events are additional contributions to the dynamics of the local innovative ecosystem.
- **Innovation capacity:** Block71 Jakarta is also actively engaged in building innovation capacities. Local entrepreneurs are offered a vast selection of start-up related instruction in the Innovation Factory (IF) Academy of Block71 Jakarta. A very popular “Ask the Expert” speaker series hosted at Block71 Jakarta is also very well attended.

#### 3.2 Cyberport (Hong Kong (China))

Cyberport is managed by Hong Kong Cyberport Management Company Limited, which is wholly owned by the Hong Kong SAR Government. It is an innovative digital community with over 1 500 start-ups and technology companies. With a team of committed professionals providing value-added services, state-of-the-art facilities and smart workspaces to support the digital community, Cyberport is now the flagship for the Hong Kong (China) digital technology industry. This practice impacts all three of the building blocks of innovation:

- **Innovation dynamics:** There are a variety of programmes through which Cyberport guides innovation dynamics. The Cyberport Incubation Program and Cyberport Accelerator Support Program provide invaluable support to entrepreneurial ventures throughout their lifecycles. The Cyberport Macro Fund consists of a series of five funding programmes that provide financial support for qualified start-ups from pre-seed to growth stage. Start-of-the-art Smart Spaces found throughout the Cyberport campus benefit both resident and visiting entrepreneurs. Two additional Cyberport programmes guide innovation dynamics beyond the Cyberport campus: Cyberport Collaboration Service and the Overseas/Mainland Market Development Scheme (MDSS) assist in business advisement, forging partnerships with industry leaders and accessing foreign and Chinese mainland markets.
- **Innovation capacity:** Cyberport has several programmes that focus on innovation capacity building. Currently three youth internship programmes are offered including Cyberport Tech Internship Program, Cyberport X AIESEC Global Tech Talent Scheme and Fintech Career Accelerator Scheme. For university students the Cyberport University Partnership programme offers an overseas Entrepreneurship Bootcamp and an opportunity to be mentored by industry elites. Attracting foreign and mainland tech R&D talent to Hong

Kong (China) is another way Cyberport contributes to building innovation capacity through its Technology Talent Admission Scheme.

- **ICT innovation in key sectors:** Cyberport has established itself as the key force in leading Hong Kong (China) fintech development. Cyberport houses nearly 400 fintech start-ups utilizing a wide variety of advanced technologies including blockchain, AI, big data, wealth management and transaction engineering. In addition to the 47 000 sq. ft. of co-working space dedicated and customized for fintechs, Cyberport offers an extensive suite of support services designed particularly for fintechs. The direct entrepreneurial support for fintechs is combined with extensive outreach and collaboration with financial institutions, regulators and leading banks to establish Cyberport as an Asian fintech hub. Cyberport has also assumed a leading position in the rapidly emerging new Esports industry with its Esports Industry Facilitation Scheme. Through this programme Cyberport provides both financial and non-financial support to e-sports industry events, talent cultivation and collaboration.

### 3.3 Information and Communication Technology Agency (Sri Lanka)

The Information and Communication Technology Agency of Sri Lanka (ICTA) implements and makes recommendations on government policy for ICT based development in Sri Lanka. ICTA formulates national level initiatives to develop and empower all sectors through digital transformation. The overall vision of ICTA is to make Sri Lanka a digitally inclusive country and to transform Sri Lanka into a creative knowledge-based society.

ICTA works to improve technological capacity in terms of ICT infrastructure and human resources. It is also active in developing regulations around the use of technology. ICTA impacts all three building blocks of innovation:

- **Innovation dynamics:** ICTA has made significant contributions to the Sri Lanka national digital policy. Outlining Sri Lanka's digital agenda through 2025, the policy provides the framework for Sri Lanka to achieve sustained digital economic development and growth, through the creation of a digital government and a digital economy. The ICTA also contributes to innovation dynamics through its direct support of local entrepreneurs. The Spirallation Tech Startup Support Program provides seed funding, training, networking sessions and both local and international business promotion opportunities. The Start-up Sri Lanka Initiative (#StartupSL) is the largest online platform for start-ups to connect with other entrepreneurs, freelancers, investors, mentors and other start-up support organizations.
- **Innovation capacity:** ICTA contributes to innovative capacity building primarily through two of its programmes: ImaginELF is a series of entrepreneurship bootcamps targeting undergraduates, and the Sri Lanka Government Chief Innovation Officers (CIO) Program that aims to develop a cadre of administrative-technological hybrid public servants who will lead the effort to transform government into a responsive, citizen-friendly, cost-effective and fully networked organization.
- **ICT innovation in key sectors:** The ICTA contributes to digital government by guiding innovation dynamics, building public sector innovation capacity, and integrating ICTs in the government sector, most notably by connecting 850 government organizations with cost-effective, reliable and secure ICT infrastructure facilities.

### 3.4 MaGIC (Malaysia)

As an agency under the Ministry of Science, Technology and Innovation (MOSTI), MaGIC facilitates, navigates and enables the ecosystem with the mission of strengthening Malaysia's position as an emerging innovation nation. Since its inception in 2014, MaGIC Malaysia has provided its community of start-ups, investors and ecosystem players with capacity building



programmes, market and funding opportunities and regulatory assistance, impacting more than 100 000 aspiring and seasoned entrepreneurs. This practice impacts two of the building blocks of innovation:

- **Innovation dynamics:** Through their community-driven co-working space (MaGIC Cyberjaya Campus) and a diverse range of programmes supporting both local and newly arriving foreign entrepreneurs. There are three such entrepreneurship programmes worthy of mention in the context of enhancing innovation dynamics. Idea Lab is a partnership initiative that is focused on fostering a creative entrepreneurial and problem-solving culture. It supports hackathons and other start-up events such as Start-up Weekend. MaGic Virtual Bootcamps conduct outcome-driven workshops to help small teams go from ideas to a product-market fit. For start-ups that do have a product ready for commercial launch, another programme (Grill or Chill) provides an opportunity for them to acquire valuable feedback from experts. A second set of MaGic programmes contributes to innovation dynamics beyond the confines of the MaGic campus. The Virtual Global Accelerator Program (GAP) is an online accelerator programme offered to any start-up (local and foreign) who want to expand their business in ASEAN. The centrepiece of the programme is to foster a stronger ASEAN start-up community. MaGic Global Market-Fit Program (GMP) and MyStartup Hub are two additional programmes with a regional focus.
- **Innovation capacity:** There are three MaGic capacity-building programmes of note. Social Entrepreneurs - Transformation, Innovation & Acceleration (Setia) is a partnership with Standard Chartered Bank Malaysia Berhad offering a month-long capacity-building initiative for social entrepreneurs. Pemangkin Usahawan Sosial Hebat (PUSH) is another programme aimed at social entrepreneurs consisting of skills development training.

### 3.5 Monetary Authority of Singapore (Singapore)

The Monetary Authority of Singapore (MAS) is Singapore's central bank and integrated financial regulator. MAS also works with the financial industry to promote Singapore as a dynamic international financial centre. It facilitates the development of infrastructure, adoption of technology and upgrading of skills in the financial industry. This practice impacts two of the building blocks of innovation:

- **Innovation dynamics:** From 2015, MAS has taken a proactive stance in creating a favourable regulatory environment for start-ups, particularly fintechs. During this time, Singapore has become an international magnet for fintech start-ups by launching an effective regulatory sandbox and creating banking licences tailored for fin tech start-ups and financial support. In 2016, Singapore launched a regulatory sandbox permitting fintechs to test their products in a live environment but within a framework where the integrity of the financial markets can be preserved. The sandbox establishes a conduit and strengthens engagement among fintech start-ups, larger financial institutions and MAS. This allows MAS to update and clarify regulations pertaining to fin tech innovations. In 2019 MAS launched Sandbox Express to provide a faster option for fin tech start-ups to commence experimentation within pre-determined boundaries. From 2015 to 2020 MAS has also allocated more than USD 165 million to support fintech initiatives.
- **ICT innovation in key sectors:** By offering new digital banking licence classifications, MAS has played a key role in integrating ICT innovations into the banking sector.

### 3.6 National Innovation Agency (Thailand)

The National Innovation Agency mission is to support and develop the innovation system in Thailand. It functions as the key engine driving national innovation by co-creation, networking, fostering, and partnering different organizations from fields such as academic, technology, industry, finance and investment. It focuses on knowledge management to achieve innovation,

which uses innovation as the principal tool in improving quality of life and building a competitive economy. The NIA has adopted three strategic platforms: upgrading innovation capability, innovation culture promotion, and building up innovation systems. This practice impacts all three building blocks of innovation:

- **Innovation dynamics:** The primary focus of the NIA is to formulate a national innovation policy and enable effective management of innovation in all economic sectors. NIA is also charged with establishing Thailand as an “innovation leading country.” To accomplish this the NIA has devised an innovation diplomacy strategy that includes agreements with other countries including the Israeli Innovation Authority, Fukuoka City and Berlin. To fulfil its mandate to develop local start-ups the NIA has collaborated with the private sector to establish a Global Hub in the two cities of Bangkok and Chiang Mai. District C is the global hub in the Bangkok True Digital Park. Chiang Mai & Co is the NIA global hub in Chiang Mai in partnership with local software developer (ARISTO Group). These global hubs serve as a one-stop service for start-ups. District C provides legal, venture capital, and business consulting services to entrepreneurs, and cover a broad range of topics including company registration, smart visa application, board of investment (BOI) approval, legal consultation, general business consulting and preparation of investor pitch decks. Chiang Mai & Co performs similar functions to District C. in addition they provide a co-working space in the heart of historic Chiang Mai and collaborate with local universities to foster collaboration, networking and partnerships in support of entrepreneurs. Start-up Thailand is the national start-up promotion platform charged with supporting start-up growth and start-up ecosystem development in Thailand. Through partnerships with private sector organizations Start-up Thailand has been active in developing incubator programmes and publishes a monthly magazine covering local start-up community developments.
- **Innovation capacity:** NIA organizes over 50 seminars and conferences per year on various innovation-related topics, offers the training course “Innovation Management Course for Executives (IMEs)” and works with several universities to provide graduate programmes in innovation management. Furthermore, NIA recognizes and promotes achievements in innovation through initiatives such as the National Innovation Awards, Top Ten Innovative Business, and Thailand Top Innovative Companies.
- **ICT innovation in key sectors:** NIA initiated strategic innovation development in two new-wave industries: bioplastics and organic agriculture business. National Development Plans have been approved by the Thailand Government for both industries. NIA also concentrates on several business categories falling under three core areas: bio-business, eco-industry, and design and solutions.

### 3.7 National Institute of Post, Telecommunications and ICT (Cambodia)

The NIPTICT is a public research and training institution established in 2013 by the Ministry of Posts and Telecommunications of Cambodia (MPTC) to develop highly qualified and committed professionals in the field of posts, telecommunications and ICTs who will play a leading role in the development of Cambodia and its integration into the ASEAN economic community. NIPTICT is pursuing four objectives: develop highly qualified and dedicated ICT professionals, foster entrepreneurship, conduct advanced research in the ICT fields, and facilitate collaboration among all the stakeholders in the innovative ecosystem.

This practice impacts **innovation capacity**: NIPTICT offers three degree programmes (e-commerce, computer science, and telecommunications and marketing) to accomplish the first two objectives. To accomplish the last two objectives NIPTICT has established three centres: Innovation Centre, ICT Tech Centre and Professional Training Centre.

### 3.8 Phandeeyar (Myanmar)

The Phandeeyar (“creation place”) innovation lab is spearheading the use of technology to accelerate change and development in Myanmar. Phandeeyar invests in local technology start-ups, trains new entrepreneurs, and builds the pool of tech talent. Phandeeyar also helps civic and social entrepreneurs, CSOs and independent media use technology to increase their impact and runs a co-working space in the heart of downtown Yangon.

This practice impacts **innovation dynamics**: The Phandeeyar co-working space provides a comfortable and productive environment for start-ups, freelancers, digital nomads and start-up support organizations. Phandeeyar has successfully launched the first tech start-up accelerator in Myanmar (Yangon Chapter of Founder Institute), a globally recognized ‘makerspace’ for hardware hackers (ranking 6<sup>th</sup> out of 154 countries by FIRST Global Challenge), and an intensive six-month accelerator programme (#accelerateMM). For civic and social entrepreneurs mentoring and seed funding is offered through Phandeeyar Labs. Phandeeyar has also been involved in key initiatives to guide innovation dynamics, such as the OpenDevelopmentMyanmar.net, an interactive open data portal providing access to information about Myanmar. In addition, Phandeeyar has joined forces with three other organizations to launch and conduct the Myanmar Digital Rights Forum, to bring together technology, government, civil society and the media to address the rights of Myanmar’s Internet users.

### 3.9 QBO Innovation Hub (Philippines)

QBO Innovation Lab was formed in 2016 out of a public and private sector partnership to establish a unifying vision for start-ups and a belief that unleashing the potential of an entrepreneurship-driven economy is a path to nation building, sustainable development, and inclusive growth in the Philippines. The role of the QBO Innovation Lab is to help start-ups succeed, develop a vibrant ecosystem, and advance technology and innovation.

This practice impacts **innovation dynamics**: QBO Innovation Hub operates a co-working space that serves as a nexus for the start-up community. It is here that regular workshops, VIP mentorship and networking events are offered and hosted. The flagship InQbation: the Takeoff programme, supported by United States Embassy, consists of a series of start-up launch workshops, lectures, and other learning sessions and provides incentives, benefits and tools to the best-performing start-ups.

### 3.10 Startup Bangladesh (Bangladesh)

The Government of Bangladesh founded Startup Bangladesh for its young generation of entrepreneurs to accelerate the pace of innovation and lead the economy to a self-sustained path to growth. The vision is to create a national entrepreneurship platform to enable Bangladesh to innovate faster, create new opportunities, develop technical skills, and help realize the vision of Digital Bangladesh. It created an accelerator and accompanying entrepreneurial ecosystem with a favourable business and regulatory environment for innovators and stakeholders that promotes Bangladesh as a hub of entrepreneurship.

This practice impacts two of the building blocks of innovation:

- **Innovation dynamics:** Startup Bangladesh maintains a co-working space for tech entrepreneurs as well as a state-of-the-art lab facility for start-ups. Startup Bangladesh also launched the iDEA (Innovation Design and Entrepreneurship Academy) Accelerator to support innovation in the education, agriculture, health, financial services, e-commerce, e-governance, environment, infrastructure and transport sectors. Financial support for early-stage start-ups is also made available through the Bangabandhu Innovation Grant (BIG) and the Startup Bangladesh venture capital company for later-stage start-ups. Startup Bangladesh is actively reaching out to both local and international stakeholders to secure resources for collaborative initiatives such as Startup Circle.
- **Innovation capacity:** iDEA provides a variety of courses designed to train entrepreneurs working in different industries. The academy provides long term and short-term courses at various levels scheduled on a regular basis.

### 3.11 Startup India (India)

Launched in 2016 by the Government of India, Startup India has rolled out several programmes with the objective of supporting entrepreneurs, building a robust start-up ecosystem and transforming India into a country of job creators. In addition, this initiative aims to discard restrictive government policies, such as License Raj, Land Permissions, Foreign Investment Proposals, and Environmental Clearances. The programmes and activities of Startup India fall into three categories: simplification and handholding, funding and incentives, and incubation and industry-academia partnerships.

This practice impacts **innovation capacity**: Startup India offers a variety of programmes to facilitate compliance, provide legal support, fast-tracking patent applications and an easier exit process for failed start-ups. Startup India has launched two funding programmes: the I-Made Program offers funding to mobile app start-ups; the MUDRA Bank Scheme (Pradhan Mantri Mudra Yojana) provides micro-financing and low-interest loans to entrepreneurs from low socioeconomic backgrounds. The flagship programme for Startup India is the Startup India Hub, a one-stop platform for all stakeholders in the start-up ecosystem to exchange knowledge and forge partnerships.

### 3.12 Thimpu TechPark (Bhutan)

Thimphu TechPark (TTP) is the flagship IT development vehicle in Bhutan. The objectives of the project are to increase productive employment in Bhutan through promotion of enterprise development in the information technology (IT) and information technology enabled services (ITES) sector, enhanced IT skills, and improved access to finance. Since its inception in 2012, the TTP focus has been on two core services: attracting and facilitating FDI companies to take up space in the building; managing Bhutan Innovation and Technology Centre (BITC), which contains Bhutan's first incubation centre and a Tier-2 data centre. The Bhutan Innovation and Technology Centre marks an important step forward in the private sector development efforts of the Bhutan government. It serves as a hub for entrepreneurship, innovation and enterprise creation in Bhutan; a vital ingredient in future economic growth and job creation in the country. This practice impacts two of the building blocks of innovation:

- **Innovation dynamics:** The Bhutan Innovation and Technology Centre (BITC) is the flagship programme of Thimpu TechPark (TTP) and consists of three components: a business incubator, a shared technology centre, and a data centre. The business incubator provides rental space, business services and access to financing for incubator ventures. The shared

technology centre offers comprehensive business facilities, various instructional courses, and networking events. The centre is creating an e-incubation service to provide valuable business advisory to entrepreneurs located in the more remote areas of Bhutan. The Tier-2 data centre provides data storage and management services to the Bhutan government, TTP occupants and third-party commercial users.

- **Innovation capacity:** The BITC also runs an overseas expert programme that gives overseas experts the opportunity to share their knowledge and experience through mentoring and coaching of Bhutan entrepreneurs for up to six months.

### 3.13 True Digital Park (Thailand)

Occupants of the True Digital Park (TDP) include entrepreneurs, investors, corporations, government agencies and a variety of start-up support organizations. TDP comprises of a vast multi-floored co-working space, state-of-the-art exhibition, auditorium, meeting and conference room space, corporate labs, academies, makerspaces, experience centres, business centres and government agency offices. It has become Thailand's top start-up destination. With the assistance of its partner tenants TDP offers an array of resources and facilities to start-ups in Thailand and contributes to innovation dynamics and innovation capacity building blocks.

- **Innovation dynamics:** TDP has become the centre of the start-up community in Thailand. Many of the tenants contribute to guiding innovation dynamics as well, such as, True IDC a certified partner of AWS Services with access to experts, training programmes and hands-on experience in Thailand, and the True Digital Park - ACE Singapore Centre that facilitates two-way market access for Singapore and start-ups in Thailand. The centre also provides a platform to drive regional innovation hub initiatives where start-ups and enterprises from both countries can come together to co-innovate through initiatives such as in-market connections, open innovation platforms and corporate innovation challenges. The National Innovation Agency (NIA) of Thailand is also an important TDP tenant. NIA District C provides a one-stop service for start-ups based in Thailand to manage the required government engagement, including registration, smart visa application for foreigners as well as business, legal and venture capital consultative services.
- **Innovation capacity:** Many tenants at TDP engage in capacity building activities. Academy Bangkok (Google Space) is a training venue for participants of the Google Ignite programme, a two-month digital marketing training course that prepares university students for future careers in companies in Thailand. The Academy will also be the training facility for other Google-run training programmes in areas such as developer skills and cloud computing. The Academy will be able to accommodate cohorts of up to 150 people at a time. Voxy is the world's leading blended English learning solution using artificial intelligence to provide a personalized learning experience. As a TDP tenant, they provide self-study lessons based on real-world content from global media partners and they combine these with high-quality live instruction for career-specific English learning and soft-skills development. Another large corporate tenant is UOB. At the TDP centre, they serve as a one-stop hub that provides training and consulting services to SMEs and start-ups looking to transform.

### 3.14 VSV Capital Accelerator (Viet Nam)

VSV Capital is a leading start-up accelerator programme based in Hanoi. This government initiative (formally known as Vietnam Silicon Valley Accelerator) brings together experienced entrepreneurs, investors and corporate executives to support start-ups and venture investors in Viet Nam. This practice impacts two building blocks of innovation:

- **Innovation dynamics:** VSV advances innovation dynamics through entrepreneurship and investor programmes. A VSV bootcamp accelerator programme provides co-working space, mentorship from leading experts, seed funding and workshops. STARTUP 101 is a tailored VSV entrepreneurship programme to develop individual business models. The VSC Angel programme explains start-up ecosystems, the role of entrepreneurs, and the fund-raising process to new angel investors. The VSC Investor Club was launched to improve the rate of business proposals/investment offers to early-stage investors (deal flow).
- **Innovation capacity:** To build a solid foundation when giving support and investment to the start-up ecosystem, the VSC Investor Bootcamp provides the knowledge, skills and networks to investors, accelerators/incubators, universities, and government authorities. The VSV Investor Bootcamp programme shares its experiences and best practice, and offers a combination of lectures and group discussions, research and consultative endeavours. Through an accelerator transfer programme, VSC also offers advice to organizations that want to build their own start-up ecosystem, such as guidelines on how to invest in Viet Nam start-ups, run a business accelerator, or create a co-working space.

## Appendix A: Methodology

This section sets out the project research methodology and goals of the report, and describes the engines of growth, the enablers of digital transformation, the ecosystem maturity map, good practice, data collection and analysis methods used.

### A.1 Research goals and methods

This report was compiled using desktop research and surveys. ITU collected evidence on the overall digital innovation ecosystem in the region using government, intergovernmental and non-governmental agency resources, peer-reviewed academic articles, and the media. Surveys were sent to collect additional information where possible, for example, on details of good practice.

The aim of this report is to provide a comparative ranking of the ICT-centric innovation ecosystems and identify good practice that can be used to build sustainable digital innovation ecosystems. It aims to describe the state of ICT-centric innovation ecosystems and innovation capacity in the Asia-Pacific region based on the three engines of growth (technology ecosystem, entrepreneurial ecosystem and innovation ecosystem). This framework was first introduced in the ITU report, *Bridging the digital innovation divide: A toolkit for strengthening ICT-centric ecosystems*<sup>22</sup>. Such a framework enables countries to understand the challenges and opportunities of a digital innovation ecosystem. Based on best practice, it focuses on how to create ICT start-ups, nurture talent, and develop specific guidelines and recommendations, initiatives, programmes and projects to help create new jobs and new growth.

### A.2 Monitoring ICT-centric ecosystems

#### A.2.1 The three engines of growth

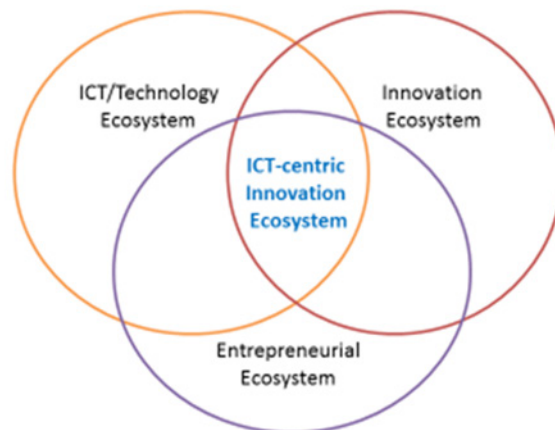
The three engines of growth are key to a country's digital transformation journey: the national innovation ecosystem, the entrepreneurial ecosystem, and the technology ecosystem.

- **National innovation ecosystem:** The national innovation ecosystem, which includes research institutions, academia and public sector entities such as national innovation agencies and public sector financial institutions, plays an invaluable role in the national innovation journey, particularly in kick-starting innovation.
- **Entrepreneurial ecosystem:** This includes the entrepreneurs, their support systems and the organizations that initially nurture the formation of enterprises through the "valley of death" and subsequently nurture their growth as SMEs. Often, tech start-ups that have the potential to become high-growth firms end up as SMEs because of the lack of a market or appropriate business models. These support networks enable them to achieve their full potential.
- **Technology ecosystem:** The technology ecosystem includes high-growth technology companies and the ecosystems that support them. These include high-tech companies, their original equipment manufacturers, system integrators, firms in ICT sectors and business-to-business (B2B) technology platforms that support SMEs. These companies and their ecosystems are integrated into local or global value chains. This ecosystem development is critical to a country's ability to leverage technological innovation and to create high-growth industries and jobs.

<sup>22</sup> [https://www.itu.int/en/ITU-D/Innovation/Documents/Publications/Policy\\_Toolkit-Innovation\\_D012A0000D13301PDFE.pdf](https://www.itu.int/en/ITU-D/Innovation/Documents/Publications/Policy_Toolkit-Innovation_D012A0000D13301PDFE.pdf)



Figure A1: The three engines of growth



Source: ITU

A country's ICT-centric ecosystem is where the three engines of growth intersect. In an immature ecosystem, the three engines of growth lack synergy, ecosystem stakeholders operate in silos and do not align initiatives toward a common vision. By contrast, in a mature ecosystem, members of the three engines of growth understand their roles and perform them individually while working together to create policies and initiatives that enable a thriving digital innovation environment. Understanding and assessing the ecosystem makes it possible to identify the enablers needed to achieve the national vision. Enablers include elements such as programmes, policies and initiatives that foster digital transformation.

## A.2.2 Data collection and analysis

With this understanding, data collected from global indices served as a proxy for the three engines of growth. The indices are published by reputable academic institutions, international organizations and non-profit organizations<sup>23</sup>.

- The Global Innovation Index measures country efforts and success in innovation.
- The ICT Development Index (IDI) measures ICT infrastructure and access, level of ICT use in society, and the impact of efficient and effective use of ICTs.
- The Global Competitiveness Index is published in the WEF Global Competitiveness Report. This index measures 12 pillars: institutions; infrastructure; ICT adoption; macroeconomic stability; health; skills; product market; labour market; financial system; market size; business dynamism, and innovation capability.
- The Global Entrepreneurship Index measures 14 entrepreneurship-enabling pillars: opportunity perception; start-up skills; risk acceptance; networking; cultural support; entrepreneurship by choice (rather than necessity); technology absorption; human capital; competition; product innovation; process innovation; high growth; internationalization, and risk capital.

ITU analysed and colour-coded the information from these major indices to create the ICT-centric innovation performance monitor. The monitor provides a comparative assessment of the ecosystem performance according to the three engines of growth both within and between

<sup>23</sup> [ICT Development Index \(IDI\)](#) published by ITU; the [Global Innovation Index](#) published by Cornell and the World Intellectual Property Organization (WIPO); the [Global Competitiveness Index](#) published by the World Economic Forum (WEF) and the [Global Entrepreneurship Index](#) published by the Global Entrepreneurship Development Institute.



countries in the region. In this way, the monitor can be used to reflect a threshold for action by decision-makers.

## A.3 Monitoring the enablers of digital transformation

### A.3.1 The seven enablers of digital transformation

The ITU toolkit, *Bridging the digital innovation divide: A toolkit for strengthening ICT-centric ecosystems*, introduces an ecosystem canvas to help stakeholders to understand the environment that innovators and entrepreneurs face when undertaking the journey to bring their ideas to market. The ecosystem canvas has seven pillars, each of which is a crucial component of an ICT-centric innovation ecosystem.

The pillars are:

- **Vision and strategy:** This pillar focuses on how the ecosystem is currently performing, what vision the stakeholders have, how the vision will perform, and what needs to be done to take the ecosystem from its current state to its ideal future state.
- **Infrastructure and programmes:** This pillar includes both hard infrastructure (such as connectivity, roads, electricity and public transportation) and soft infrastructure (such as knowledge-sharing mechanisms such as tech hubs, training resources and research institutions). Programmes can take advantage of this infrastructure to support the ecosystem.
- **Talent and champions:** Talent is the ecosystem human capital, who should possess hard skills such as engineering and programming, as well as soft skills such as management, communications and administration. A champion plays a leadership role in the ecosystem by initiating change, building cornerstone institutions and encouraging the contributions of new actors.
- **Capital and resources:** Start-ups cannot succeed without capital and resources. In the early stages, they need risk capital (such as from angel investors). As they mature, VC and private equity funds help them grow. The majority of this funding should come from private investors. To complement the work of financing start-ups directly, support networks and other ecosystem-building programmes need resources to operate successfully.
- **Markets and networks:** Start-ups need markets to serve. It is important for innovators and entrepreneurs to understand the depth of market needs, in addition to local, regional, and international access. Governments are often a significant purchaser of products and services, and a source of contracts for up-and-coming enterprises. Transparent public procurement processes are useful for start-ups. Networks and clusters are also needed in ecosystems to ensure that innovators have access to the resources and connections they need.
- **Culture and communities:** An innovative, entrepreneurial culture has key values such as risk-taking, an appreciation for failure, and a willingness to iterate and learn. These values create a blueprint for behaviour across ecosystem stakeholder groups, exhibited by communities of innovators and champions through events and activities.
- **Regulation and policy:** Supportive policies and regulations can provide fertile ground for the efforts of entrepreneurs and innovators, while poorly developed policies can stifle innovation. There are a number of areas of policy and regulation that are critical to the

success of the innovation ecosystem, including taxation, trade policy, intellectual property law, financial regulation and business regulation.

Within a country, these pillars provide the necessary ingredients to nurture digital entrepreneurship and innovation, looking at a more granular level when the three engines of growth come together.

### A.3.2 Data collection and analysis

For this report, desktop research was conducted using this framework to examine what is happening in an ecosystem and identify problems and possible solutions. The framework identifies country performance in each of the seven pillars, contributing to understanding of individual performance and performance relative to the region.

A complementary quantitative and qualitative approach can also be used to obtain the information needed for this framework. However, due to the complexity of collecting this data for all countries, this report is limited to desktop research.

Any country interested in a comprehensive analysis of its ecosystem should request technical assistance from ITU to develop a profile of its digital innovation ecosystem.

## A.4 Monitoring the ecosystem maturity map

Once there is an understanding of global and regional performance indicators, and an understanding of the enablers and indicators of digital transformation, it is crucial to understand the entrepreneurial lifecycle and how innovation can move from ideas to creating small and medium businesses, high-growth firms and, ultimately, world-class exports.

### A.4.1 The framework

Harvard economist Clay Christiansen, while studying the theory of disruptive innovation by companies, realized that the traditional ways by which companies deliver products and services can be ineffective in creating competitive solutions and lasting companies<sup>24</sup>. If a product or service does not answer a customer need or desire, it is unlikely to sell, no matter how innovative it is.

The entrepreneurial lifecycle shown below describes what must be done to create growth and economic inclusion.

Figure A2: The entrepreneurial lifecycle



Source: ITU

<sup>24</sup> <https://hbr.org/2005/12/marketing-malpractice-the-cause-and-the-cure>

What is required does not change from country to country, or from community to community. However, the approach can change based on the context (such as opportunities) and stakeholder actions. For example, in Silicon Valley, financiers have a strong appetite for high growth and collaboration, which means that they will support innovators much longer through the valley of death until they can figure out a strong global business model that creates high-growth firms<sup>25</sup>. In locations with fewer resources and less collaboration, stakeholder actions may end up creating barely sustainable innovations that never grow. Without access to the right resources and collaboration, innovators will lack appropriate talent to create strong businesses or the enabling policies that nurture them or access to value chains from established companies.

The ecosystem maturity map (also known as the stakeholder interface canvas),<sup>26</sup> adapted from the valley of death curve, helps map the roles and actions of stakeholders at each stage of the start-up lifecycle. Once the map is completed, it offers some guidance on how relevant a practice may be to a country or community. Failure to focus ecosystem interventions on the right practice element can waste valuable ICT investment and offer no relief to the competitiveness of a country's ICT ecosystem.

The ITU colour-coding system uses the following parameters for the map in Figure A3:

- Green indicates strong performance and presence of good practices. The threshold was set for a country in the top quartile (the top 25 per cent) based on the overall index ranking.
- Yellow indicates insufficient performance but presence of some good practices. The threshold was set as a country within the middle quartiles of the ranking (between 26 and 75 per cent).
- Red indicates poor performance with no or very few good practices. The threshold was set as a country falling within the bottom quartile (the bottom 25 per cent).

Figure A3: Colour-coded ecosystem maturity map

Entrepreneurship Phase	Pre-Idea	Ideation	Startup	The "Valley of Death"	SME
Entrepreneurs	Entrepreneurial Interest	Engage with problems	Develop Business Models	Build Collaboration	Expand
Finance	Research Funding	Seed Funding	Angel Investment	Venture Capital	Business Finance & Loans
Entrepreneurial Support	Entrepreneurial Events	Hackathons & Competitions	Co-working & Support	Incubators & Accelerators	Business Association
Private Sector	Success Stories	Research Programs	Lab programs	B2B & Support Services	Skill Training Programs
Academia	Entrepreneur Community	Basic Research	Spin Offs	Soft skill trainings	Human capital
Public Sector	Vision & Strategy	IP & R&D Support	Tax Support	Public Procurement	Trade Policy

Source: ITU

In the ICT-centric ecosystem example in Figure A3, most stakeholders are not sufficiently performing the necessary roles to enable a thriving ecosystem. While the entrepreneurial support networks are performing quite well (green and yellow), entrepreneurs, academia and the public sector must significantly improve their work in each stage of the entrepreneurial lifecycle (red and yellow). The private sector and the finance sector have some practices that

<sup>25</sup> Blitz-scaling book, Reid Hoffman, founder, LinkedIn

<sup>26</sup> For more information about this canvas, download the Ecosystem Maturity Map <https://www.itu.int/en/ITU-D/Innovation/Documents/Ecosystem%20Maturity%20Tool.pdf>

are working but need improvement to create a competitive ecosystem with world-class firms and high-growth exports.

## A.4.2 Data collection and analysis

Due to time constraints, the ICT-centric innovation policy monitor introduced in Section 2 has only been applied to the country level due to the extensive level of engagement with stakeholders required to determine the maturity level of an ecosystem.

For detailed, country-level information, Member States are invited to contact ITU to develop a Digital Innovation Profile for their country.

## A.5 Monitoring good practices

### A.5.1 Why use good practices?

Good practice yields a successful, evidence-based impact and results, and can be scaled up and replicated:

- to develop flagship projects,
- to comparatively assess the strengths and weaknesses of a practice, and
- to undertake evidence-based policy or programme development.

Good practices enable actors to effortlessly add value to their ecosystem initiatives. However, a good practice should not be replicated “as is”, because every ecosystem and every project is different.

ITU has developed a framework for understanding the blueprint of any practice illustrated in Figure A4. Practices examined through the good practice canvas can be replicated in other ecosystem projects, to add value and increase chances of success.

## A.5.2 Good practice canvas

Figure A4: The good practice canvas



Source: ITU

This tool, composed of seven core pillars, helps the user to extract the blueprint of working practices including key function breakdowns of these practices, along with their corresponding key performance indicators and success stories. The result is a blueprint that will enable stakeholders to choose the specific building blocks of a good practice that they would like to adopt, replicate and share. The good practice canvas pillars are:

- **Practice:** A short description of a practice, the country or city where it is used, a tagline for a practice (if any) and an elevator pitch, or one- to three-sentence description.
- **Type:** This pillar refers to the building blocks of ICT-centric innovation: guiding innovation dynamics, building innovation capacity, and integrating ICT innovation in key sectors.
- **Goals:** This pillar refers to specific objectives, target stakeholders and the desired outcome of the practice for the ecosystem.
- **Key activities:** This pillar refers to events, related initiatives, processes and other activities that offer insights into the operating processes of your practices.
- **Governance:** This pillar asks for relevant information about organizational structure (flat or hierarchical), management (leadership structure and long-term driver or vision) and institutional frameworks (such as NGO, government agency, etc.), and the competencies (skills and functional roles) required to carry out the practice.
- **Resources:** This pillar refers to critical elements such as financial and non-financial resources, human capital, equipment, and processes. Additionally, an understanding of key partnerships for the practice is also helpful as many non-financial resources are derived from partnerships. Furthermore, knowing the funding sources for a specific practice is useful when replicating it, as it can help identify suitable stakeholder groups that can provide the required resource.
- **Achievements:** This pillar evaluates how easily the practice can be copied to a different context, its scalability, or the scope in achieving its goals and evidence of impact on the ecosystem, or its effectiveness in achieving its goals and results. This includes outcomes based on key performance indicators (KPIs) set by the practice.

### A.5.3 Types of good practice

Good practice can be grouped into three key types, which generally reflect how they impact the ecosystem: guiding innovation dynamics, building innovation capacity, and integrating ICT innovation into key sectors. To have a competitive ecosystem, it is necessary to have a combination of all three types.

#### **Guiding innovation dynamics: Is innovation on the map? How supportive of innovation is the general environment?**

Guiding innovation dynamics refers to practices that enable digital innovation to exist. They support the general innovation environment.

Innovators need a suitable business environment, enabling policies and key programmes to develop appropriate technology solutions. Existing policies and incentives mostly promote entrepreneurship for non-digital innovators, and practices will need to be updated when new policies are developed to close the gaps.

A dynamic innovation environment requires coherent regulatory and organizational settings which guide, facilitate and promote innovation culture, mindset, projects and programmes. Countries need a clear roadmap, vision and strategy, and key initiatives.

Each stakeholder in the ecosystem must be able to benefit from their country's environment and work together rather than in silos. Entrepreneurs, for example, must have the means and knowledge to create appropriate solutions for their communities.

Good practices that guide innovation dynamics balance stakeholder collaboration and market forces in a way that will drive innovation, public-private partnerships, and access to international markets. For example, policies such as reducing the cost of investment, and fiscal and financial policies can attract international start-ups, while start-up visas can attract talent. Start-up policies for growth could include tax incentives and funding incentives.

Often, practices have a regulatory basis to guide innovation dynamics, but they may not be effective, inclusive or operational. The practices may be missing mechanisms for execution, competing, instead of creating, synergies through collaboration. Traditional innovation agencies are an example of this type of practices because they mostly operate in the innovation ecosystem – one of the engines of growth. Newer organizations are needed to tackle the problems of coordination, trust and cooperation that currently confront lagging ecosystems. These agencies need to work across the three engines of growth to nurture cross-stakeholder collaboration in countries.

#### **Building innovation capacity: Are innovators equipped with the right tools, skills, know-how and resources to succeed?**

The second type of good practice is building innovation capacity. This type of practice enables a sufficiently well-developed infrastructure and talent pool with access to resources in the ecosystem to solve problems in their community. They equip innovators with the right tools, skills, spaces and resources to succeed.

There is a need to provide adequate, skills and knowledge as well as programmes that encourage success. In globalized digital economies, access to skills and know-how has been democratized with many open online courses from reputable organizations, for example. Yet

many communities struggle to access knowledge and resources. Lack of access to decent skills, development initiatives and content, as well as the absence of spaces and programmes that enable innovators, inhibit the innovation capacity of entrepreneurs, especially in developing countries.

Innovation hubs, technology parks, laboratory programmes and other similar arrangements involving multiple stakeholders have sprung up around the world during past few years to address the growing needs of ecosystems. Whether formal or informal, innovation infrastructures – which are essential for building an ecosystem's innovation capacity– are usually clustered around higher-learning institutions. When domestic capacity is insufficient, access to regional or global networks and resources becomes necessary.

Lastly, innovators need a continuum of funds to bootstrap and develop their ideas. Without these resources, much of the journey through the ecosystem is a struggle. Collaborative models with academic institutions, and among entrepreneurial support institutions and private sector companies are essential in developing such capacity to ensure that talent is well equipped.

#### **Integrating ICT innovation into key sectors: Is ICT innovation integrated across key sectors?**

Good practices help **integrate ICT innovation into key sectors** so that start-ups and SMEs can realize their full potential and scale up beyond their niche, enabling transformation across other industries.

Ecosystems must focus on national development priorities and make linkages to other ecosystems. Without focus and linkages, innovators will struggle with entry and scale-up to unlock opportunities. One place where they can find quick alignment is in the public sector. This is particularly important for start-ups, who can take advantage of government demand. This helps innovators with product testing, validation, establishing credibility and growing, while helping government to digitalize services.

Innovative entrepreneurial ICT ventures realize their full potential when they can tap into other industries beyond ICT. This is where the potential for digital transformation is greatest. Here, collaboration with the private sector plays a vital role. By partnering with start-ups, corporations benefit from new ideas, circumvent corporate red tape to test new innovations, rapidly create prototypes and benefit from the flexibility of entrepreneurial culture. At the same time, start-ups benefit from this partnership by accessing resources and infrastructure.

Another example is a cluster development initiative in which the ICT sector can drive innovation in non-ICT sectors. Cluster focus in a sector can help SMEs and large businesses digitally transform their value chains by enhancing their ability to create and deliver value in the marketplace. Here, the linkages between ecosystems and global networks of collaboration are important.

#### **A.5.4 Data collection and analysis**

Good practices were identified through pre-existing knowledge, desk research and networks. Data on each practice were collected through desk research, interviews with the practice owners and/or surveys; and analysed according to the pillars of the canvas. The pillars of each practice are presented in the case studies in Appendix B.

## Appendix B: Full case study samples

This section provides two full case studies from the good practices in the Asia-Pacific region by providing, where available, an overview of the practice, including its goals and target stakeholders, the governance structure, partners and resources, and known achievements. This section also provides a summary on the impact on the entrepreneurial lifecycle, which is derived from the stages outlined in the ecosystem maturity map.

To access all case studies in their entirety, please contact the ITU at [innovation@itu.int](mailto:innovation@itu.int).

### B.1 Block71 (Indonesia)

#### Overview

Block71 is a collaboration between NUS Enterprise in Singapore and Salim Group in Jakarta to build on the success of BLOCK71 in Singapore and establish a global network of business hubs to help start-ups penetrate into different economies. BLOCK71 is an ecosystem builder and global connector to function as a catalyst and aggregate start-up communities, providing opportunities for growth and access to new markets. At the same time, start-ups can leverage on the co-working space and incubation services such as mentoring, networking sessions, hot-desking facilities, as well as overseas grant support or start-up funding to kick-start their expansion plans. Block71 Jakarta serves as a gateway for foreign start-ups to enter the Indonesia market and creates a global network for Indonesia start-ups to expand regionally as well. Indonesia-based entrepreneurs, companies and investors too can find out more about Singapore and other markets through programmes, events and activities held here.

#### Type

This practice impacts two building blocks of innovation: innovation dynamics and innovation capacity.

#### Goal(s)

The mission of Block71 Jakarta is to build an entrepreneurial ecosystem centred around the very successful Singapore Block71 model. The goal is to create corridors through which Singapore innovators can explore market opportunities abroad. In turn, foreign companies including start-ups would know more about Singapore and expand their businesses to southeast Asia. BLOCK71 Jakarta will serve as a launchpad for Singapore and other foreign entrepreneurs and innovators to build ties with the Indonesia start-up community and marketplace. Block71 Jakarta will be part of an emerging network of partners to build a Global Innovation Alliance that will serve as a springboard for Indonesia start-ups to expand into new markets as well.

#### Target stakeholders

The primary target stakeholders are aspiring entrepreneurs, entrepreneurs, investors and corporations both foreign and domestic.



## Governance

The BLOCK71 Jakarta team consists of only five employees. They include an Innovation Factory Director, Hub Manager of Innovation Factory, Facilities & Community Manager at Innovation Factory, Community Manager at BLOCK71 Jakarta Innovation Factory and an intern at BLOCK71 Jakarta.

## Resources and partners

BLOCK71 is a partnership between National University of Singapore (NUS) and the Salim Group. Both partners have made undisclosed investments into BLOCK71 Jakarta. The partnership leverages the research capabilities and technologies of the university, and the investment and business acumen of the Salim Group to support entrepreneurial journeys in Jakarta and other locations in Indonesia such as Bandung and Yogyakarta. The Salim Group network and experience will facilitate the entry of start-ups and innovations to the local market and benefit the local community.

BLOCK71 Jakarta is an early example of what is hoped to be achieved with a network of partners to build a Global Innovation Alliance. BLOCK71 Jakarta is part of a global connector network, linking up BLOCK71 in Singapore and San Francisco in the United States, as well as a centre in Suzhou, China.

## Activities and events

- Block71 Jakarta is a 1 500sqm incubation facility located in Kuningan. Block71 contributes to innovation dynamics by serving as the local nexus for the global Block 71 network.
- BLOCK71 Jakarta operates the NUS Start-up Runway Incubation Program that provides mentorship, funding, test-bedding expertise and market access.
- BLOCK71 Jakarta hosts many regular speaker series and networking events such as “Meet the VCs,” Kopi Chats and pitching events.
- BLOCK71 Jakarta is also actively engaged in building innovation capacities. Local entrepreneurs are offered a vast selection of start-up related instruction in the Innovation Factory (IF) Academy. A very popular “Ask the Expert” speaker series hosted at Block71 Jakarta is also very well attended.

## Achievements

- Some 20 start-ups are based at the facility, half of which are from Singapore.
- Pioneering companies include Carro (a next-generation vehicle dealership and auto-financier); Viddsee (an online video platform); Circles.Life (a digital telecommunications operator); HelloBill (a mobile, point-of-sales start-up); pslove company (created heat therapy patches) and 8villages (rural community empowerment portal).

### ***Impact on the entrepreneurial lifecycle***

Block71 Jakarta has instilled good practices in entrepreneurial interest, engaging with problems (ideation), developing business models, building collaboration, SME expansion, seed funding, angel investment, venture capital, business and finance loans, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, business association, B2B and support services, skills training programmes, entrepreneurial community and soft skills training.

## **B.2 Cyberport (Hong Kong, China)**

Cyberport is an innovative digital community with over 1 500 start-ups and technology companies<sup>27</sup>. With a vision to be the hub for digital technology thereby creating a new economic driver for Hong Kong (China), Cyberport is committed to nurturing a vibrant tech ecosystem by cultivating talent; promoting entrepreneurship among youth; supporting start-ups on their growth journey; fostering industry development by promoting collaboration with local and international partners; and integrating new and traditional economies by accelerating digital adoption in the public and private sectors.

Cyberport is focused on facilitating the growth of major technology trends such as fintech, smart living, digital entertainment/e-sports and cybersecurity, as well as the emerging technologies of artificial intelligence (AI), big data and blockchain, to foster the transformation of Hong Kong (China) into a smart city. With a team of committed professionals providing all-rounded, value-added services, state-of-the-art facilities and smart workspaces to support its digital community, Cyberport is now the flagship for Hong Kong (China) digital technology industry.

### **Type**

This practice impacts all three building blocks of innovation: innovation dynamics, innovation capacity, and ICT innovation in key sectors.

### **Goal(s)**

The Cyberport goal is to establish itself as a global leading innovation and digital technology hub. To accomplish this, Cyberport is pursuing the following three strategic pillars, each advancing development in a specific focus area to support entrepreneurship in general and local start-ups in particular:

- Cyberport Youth aims to inspire and foster the next generation in innovation and digital technology.
- Cyberport Entrepreneurs nurtures the entrepreneurial spirit through the provision of resources and support.
- Cyberport Partners helps local start-ups leverage on cross-border and global business opportunities through strategic partnerships and global network.

<sup>27</sup> <https://www.cyberport.hk/en>

## Target stakeholders

Cyberport primary stakeholders are entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

## Governance

Cyberport is managed by Hong Kong Cyberport Management Company Limited, which is wholly owned by the Hong Kong SAR Government. Cyberport has a very well-defined corporate governance structure. The Board of Directors consist of 13 members in addition to the Chair. The board is organized into the following six committees: Finance and Administration, Construction and Facilities, Audit, Entrepreneurship, Macro Fund Investment, and Remuneration and People. There are seven members of the executive management team. They include the Chief Executive Officer, Chief Operations Officer, Chief Financial Officer, Chief Corporate Development Officer, Project Director, Chief Public Mission Officer and Chief Investment Officer.

## Resources and partners

Although Cyberport is wholly owned by the Hong Kong SAR Government it funds its operations through a self-sustaining model, generating income from commercial customers to support its public mission customers. Commercial customers include office, retail and co-working space tenants, hotel clients, event/programme participants and users of MICE venues and facilities. To fund their various programmes, schemes and initiatives Cyberport leverages a vast network of partnerships. Such networks include the Cyberport Enterprises Network, Cyberport Technology Networks, government, industry associations, Cyberport Academy and Cyberport Investors Network.

## Activities and events

From the vast expanse of the Cyberport campus and beyond, Cyberport conducts numerous activities and events that are designed to advance its three strategic pillars and provide particular support to two industries: fintech and e-sports.

To support young aspiring entrepreneurs in fulfilment of its first strategic pillar, Cyberport operates three internship programmes and a university partnership:

- The three internship programmes include Cyberport Digital Tech Internship Program, Cyberport x AIESEC Global Tech Talent Scheme and Fintech Career Accelerator Scheme.
- To inspire and provide valuable insights into the global market Cyberport has launched the Cyberport University Partnership Program (CUPP). This financial technology (fintech)-focused entrepreneurship programme offers students who are nominated by CUPP university partners of Cyberport a unique chance to participate in an Entrepreneurship Boot Camp overseas and receive mentorship from industry elites.
- For entrepreneurs Cyberport not only provides state-of-the-art facilities to fulfil its second strategic pillar through a comprehensive Cyberport Incubation Program, Cyberport Accelerator Support Program, Overseas/Mainland Market Development Support Scheme (MDSS) and Cyberport Macro Fund (CMF) to ensure entrepreneurs receive all the support and resources they need to succeed.

Additional activities include the Cyberport Incubation Program, which supports entrepreneurs and start-ups with resources that aim to accelerate their growth. In addition to a range of

business and professional services, incubatees get up to HKD 500 000 support over a 24-month period. Incubatees can participate in the programme on-site at Cyberport, or off-site at their own premises.

The Cyberport Accelerator Support Program prepares Cyberport incubatees and alumni for international markets and investors, providing up to HKD 300 000 financial assistance to each successful applicant.

The Overseas/Mainland Market Development Support Scheme (MDSS) provides a financial subsidy for graduates of Cyberport Incubation Program (CIP) and Cyberport Creative Micro Fund (CCMF) to develop Mainland and Overseas market.

The Cyberport Macro Fund provides seed to Series A stage funding to Cyberport digital entrepreneurs to assist them to accelerate; and promote the development of the venture capital ecosystem for digital entrepreneurs in Hong Kong (China).

Cyberport has numerous programmes designed for partners to fulfil its third strategic pillar as well. Two programmes to note is the Technology Talent Admission Scheme and the Cyberport Collaboration Service.

The Technology Talent Admission Scheme provides a fast-track arrangement for eligible technology companies/institutes to admit overseas and Mainland technology talent to undertake R&D work for them. Tenants and incubatees of the Hong Kong Science and Technology Parks Corporation (HKSTPC) and Hong Kong Cyberport Management Company Limited (Cyberport) that are engaged in the areas of biotechnology, artificial intelligence, cybersecurity, robotics, data analytics, financial technologies, material science, 5G communications, digital entertainment, green technology, integrated circuit design, Internet-of-Things and microelectronics are eligible to make applications.

The Cyberport Collaboration Service was designed to collaborate with partners throughout the region to foster networking, identify opportunities and support. Activities include partnership with industry players to foster exchange and collaboration, identify business opportunities in Mainland China and overseas markets as well as provide professional advice and soft-landing support.

Cyberport also offers activities focused on supporting entrepreneurs and other stakeholders in two specific industries. The industries are fintech and e-sports.

Cyberport has become a fintech powerhouse, housing over 380 fintech companies that are engaged in such diverse areas as blockchain, cybersecurity, AI, big data, wealth management and transaction engineering. The critical mass gathered testifies to Cyberport leadership and makes it the industry focal point - investors come to look for highflyers, banks and financial institutions to seek collaboration and adoption, business and the public to learn about innovative solutions, and overseas governments to launch bilateral partnerships. To further enhance the fintech ecosystem and drive deal flow, Cyberport offers full-range entrepreneurial support and value-added services for both local and overseas fintech companies to springboard them to success. In addition to providing over 47 000 sq. ft. of co-working space tailored for fintech companies, Cyberport actively engages worldwide regulators, industry leaders, financial institutions, accelerators and academia to enhance the entrepreneurial environment for fintech. Together with the many fintech events held, Cyberport is the epicentre of Hong Kong (China) fintech happenings, and the fintech hub of Asia.

Cyberport has become an epicentre for e-sports as well. The Esports Industry Facilitation Scheme aims to facilitate the e-sports industry practitioners to join hands in flourishing the emerging e-sports industry by offering financial support on organizing a great variety of industry activities, including e-sports competitions and events, training activities and educational programmes, as well as outbound business exchanges and development activities. Cyberport will provide financial assistance and also in-kind support in three areas of industry activities- Competition and events, talent cultivation and training, exchange and development outside of Hong Kong (China).

## Achievements

Cyberport has amassed a long list of achievements that can be organized into five broad categories:

### Cyberport community

- 387 Fintech Companies (largest fintech community in Hong Kong (China))
- 1500+ Community Members
- 592 Smart-Space companies
- Talent Cultivation
- 358 digital technology interns in 2019–20
- 227 Cyberport Creative Micro Fund grantees and Cyberport incubation programme incubatees in 2019/20
- 303 Cyberport University Partnership Program accumulated participants

### Industry development

- 148 incubatees expanded to global markets to date
- 97 accumulated number of local and overseas market development activities supported by Overseas/Mainland Market Development Support Scheme
- 152 technology events, and 15345 participants in 2019–20

### Start-ups

- HKD 13 052 million accumulated fundraised
- 710 worldwide accolades earned to date
- 12 accumulated Cyberport Macro Fund approved projects and total investment HKD 91.68 million as of March 2020

### Braving the pandemic

In face of the 2020 COVID-19 pandemic, Cyberport and its community of start-ups have developed and built various digital technology solutions to help frontline medical workers, enterprises, the government, parents, and the public at large to address the challenges presented by the epidemic. More than 60 innovation solutions with social impact were created at Cyberport.

Cyberport and its start-ups have won numerous awards and accolades. The following are just a sample of these recognitions:

- 2020 Hong Kong Management Association Quality Award

- 2020 IFTA FinTech Achievement Awards – 16 Cyberport fintech companies received 17 awards
- 2020 Forbes 30 Under 30 Asia – 7 Cyberport start-ups received the awards
- 2020 ET Net FinTech Awards 2019 – 19 Cyberport start-ups won 20 awards
- 2019 Deloitte Hong Kong Tech Fast Program – 13 Cyberport start-ups received awards
- 2019 Hong Kong ICT Awards – 16 Cyberport start-ups won 19 awards
- 2019 “Hong Kong Green Organization” recognition
- 2019 Director of The Year Awards and recognition for excellence in Board Diversity

#### ***Impact on the entrepreneurial lifecycle***

The Hong Kong Cyberport has instilled good practices in entrepreneurial interest, building collaboration, SME expansion, seed funding, venture capital, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, success stories, lab programmes, skills training programmes, entrepreneurial community, soft skills training, human capital, and vision and strategy.

### **B.3 Information and Communications Telecommunications Agency (Sri Lanka)**

The Information and Communication Technology Agency of Sri Lanka (ICTA) is the apex body in implementing the Government ICT policy and making recommendations for policies required for ICT based development in Sri Lanka aligning with the national development agenda. As part of the above agenda, ICTA formulates and drives national level initiatives towards developing and empowering all sectors through the intervention of digital technologies. It was established to develop the economy of Sri Lanka through ICT. To this end, it works to improve both the technological capacity of the country, such as building infrastructure, and the readiness of its people, through education and human resources. It is also active in developing regulations around the use of technology and disseminating information worldwide about Sri Lanka ICT.

#### **Type**

This practice impacts all three building blocks of innovation: innovation dynamics, innovation capacity and ICT innovation in key sectors.

#### **Goal(s)**

The overall vision of ICTA is to make Sri Lanka a digitally inclusive country and to transform Sri Lanka into a creative knowledge-based society.

#### *Target stakeholders*

The target stakeholders for ICTA include entrepreneurs, tech freelancers, government organizations, digital economy policy-makers and ICT civil servants.

## Governance

ICTA is a wholly owned institution of the government of Sri Lanka. In terms of the Information and Communication [Technology Act No. 27 of 2003](#)<sup>28</sup>, (ICT Act) as amended by [Act No. 33 of 2008](#), ICTA has been mandated to take all necessary measures to implement the Policy and Action Plan in relation to ICT. ICTA is required to assist the Cabinet of Ministers in the formulation of the National Policy on ICT. The ICTA started with the implementation of the e-Sri Lanka Development Project (funded by the World bank) to develop the economy, reduce poverty and improve the quality of life of the people of Sri Lanka. The ICTA team carries on this task staffed by experienced and dedicated professionals organized into the following seven departments: Transformation, Technology, Policy, Programs, Procurement, Legal and Shared Services (administration).

## Resources and partners

Although ICTA is a fully owned entity of the Sri Lanka government the ICTA have several partners that contribute both financial and non-financial resources. The partners include the Asia Development Alliance, United States Agency for International Development, Canadian International Development Agency, Swedish International Development Cooperation Agency, UN Development Program and World Bank.

The recent partnership between ICTA and UNDP consummated with a four-year MOU is a perfect example of how ICTA forges partnerships with like-minded organizations to leverage additional resources. ICTA and UNDP will collaborate on the design and implementation of a comprehensive National Digital Strategy under the 'Vistas of Prosperity' national policy framework, with a specific focus on digital transformation of the public sector including re-engineering processes to ensure an effective uptake of digital mechanisms. Bridging the Digital Divide initiatives will also be a part of the collaboration. The partnership will also leverage the capacity of other partners such as Citra Lab, GoSL and UNDP joint initiatives and existing public sector initiatives such as the NextGenGov Fellowship Programme.

## Activities and events

ICTA conducts a series of activities in support of entrepreneurs, the local start-up ecosystem and government agencies aligned with their Digital Government focus. The following programmes highlight their activities:

- The ICTA premier start-up support programme is "Spiralation." This programme includes, but not limited to, seed funding, training, networking sessions, business promotion opportunities locally and internationally, etc. The aim of Spiralation is to promote, encourage and support technology related start-ups and innovation within Sri Lanka.
- ImaginELF is an ICTA programme targeting aspiring entrepreneurs. It consists of a series of entrepreneurship boot camps specifically targeting the undergraduates with disrupted minds.
- Startup Sri Lanka Initiative (#StartupSL) is the largest online platform in Sri Lanka connecting entrepreneurs with freelancers and other ecosystem stakeholders such as investors, mentors and incubators.

<sup>28</sup> <http://www.mediareform.lk/listing/information-and-communication-technology-act-no-27/>



ICTA has the following two primary programmes to support its Digital Government initiatives and facilitate the effectiveness and efficiency of local governments:

- The Sri Lanka Government Chief Innovation Officers (CIO) Program is designed to develop a cadre of administrative-technological hybrid staff who can provide the leadership required to successfully integrate technology with governance.
- The Lanka Government Network (LGN) connects more than 850 government organizations in the country. Lanka Government Cloud (LGC) has been implemented to provide cost effective, reliable and secure infrastructure facilities.

The ICTA also is active in entrepreneurial awareness and workforce development activities. Such programmes include:

- Sri Lanka Go Digital is a Digital Transformation and Technology Adoption Program enlightens and empowers entrepreneurs with a wealth of knowledge on the importance of embracing digital technologies to uplift their businesses. The "Sri Lanka Go Digital" programme also helps equip entrepreneurs with much needed knowledge on how to apply digital technologies into their work approach. A unique feature of the Sri Lanka Go Digital programme is the inclusion of captivating training sessions, where participants received hands-on guidance on how to adopt business tools associated with Facebook and Google which accelerates the user experience for technology adoption. The programme also acts as a platform for regional development through digitization and links regional businesses with global organizations by enabling local IT companies to reach global standards whilst remaining on par with the latest trends of technology. Another aspect to this programme is the concept of multi stakeholder engagement which helps generate continuity and sustainability in business ventures. Programmes connect with regional business chambers, business stakeholder forums/associations representing construction, hospitality, ICT and automobile sectors, District Secretariats, and NGOs.
- IT BPO Career Guidance and Entrepreneurship Program Is a project initiated to create awareness on the employment opportunities available in the IT Business process outsourcing (BPO) sector, to give guidance in equipping oneself to qualify for a career in the IT BPO sector and to create awareness on the entrepreneurship opportunities available in the field of Technology. By conducting career fairs and seminars, this ongoing project mainly focuses on school students to undergraduates and the general public. This strategy will also be utilized to fund the various mechanisms for delivering the content developed together by ICTA and other organizations including Industry Associations. The IT BPM Career Guidance Program also initiates and supports the creation of material, seminars, workshops and other activities to create awareness among students, parents and teachers on job and entrepreneurship opportunities available in the information technology and business process management (IT-BPM) sector.
- National IT-BPM Workforce Survey is an annual longitudinal study of the nature of the IT-BPM workforce of Sri Lanka to support a series of ICT Development initiatives by the ICTA for the implementation of digital infrastructure solutions and other projects across multiple sectors. This survey aims to gain a clear understanding of the extent and the composition of IT and business process management (BPM) workforce in Sri Lanka and to weigh that against the extent of the supply of skilled personnel. The survey will benefit the universities and institutes to further their offerings, students to choose a rewarding career with future employment prospects, investors to decide on vital investment plans, policy makers to propose new policies and planning and maintaining the human resources.
- Educate to Innovate programme was Initiated to create a better employ-ready workforce by preparing teachers to integrate a new pedagogical approach in STEAM education. This new interdisciplinary and applied approach integrates instruction of science, technology, engineering and the arts into a cohesive learning paradigm based on real-world applications. The programme focuses on four key areas that massively impacts the paradigm shift of the education system in Sri Lanka namely, STEAM Education, Coding for School Kids, Maker Spaces and Entrepreneurial Thinking. Using this approach in schools



is rather important to spark interest in pursuing a STEAM career for students which will lead them to solve the challenges in the future knowledge-based economy with scientific and technological solutions.

For Sri Lanka entrepreneurs and technology SMEs the ICTA has two programmes to support them beyond Sri Lanka. The two programmes are:

- LEAP (Learn Engage Aim Prosper) Sri Lanka is an Export Readiness Program for regional technology SMEs. LEAP was conceptualized in 2019 to drive export growth through innovation and entrepreneurship, addressing regional level technology companies to assist them to grow locally while scaling them up to explore and reach global markets. It is an ICTA industry support initiative, supported by the Ministry of industrial export and investment promotion, Exports Development Board (EDB) and other industry stakeholders. LEAP is a community consisting of 40 IT-SMEs from around the country actively engaged in developing their businesses and growing their networks in order to achieve success. LEAP Sri Lanka is a platform helping to bridge the link between national and regional trade strategies/initiatives that would ultimately feed-in towards a prosperous nation via a Digital Economy. The LEAP Program includes critical evaluation of the business and business plan conceptualization. Capacity-building workshops and focused trainings, personalized business coaching and connecting with market access development initiatives to explore and expand into global markets.
- Investment & Export Promotion Initiative focuses on promoting Sri Lanka as a destination to source technology and skill. The ICTA engages in overseas business/country promotion activities with the intention of promote Sri Lanka as a viable destination to setup an offshore operation, attracting ICT investments to the country and exploring overseas business promotion opportunities for local companies. The objectives of the programme include creating visibility for the Sri Lanka IT BPM industry brand - "Island of Ingenuity," provide opportunities for local IT and BPM companies to exhibit and take part in local and international exhibitions and conferences and provide networking opportunities for local IT and BPM companies with potential local and international clients to forge partnerships.

Perhaps the most critical activity the ICTA performs is not a programme it is their predominant role in both formulation and the execution of a National Digital Policy, which 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 digital economic development and growth. The ICTA has played a key role in the formulation and governance of several major digital economy legislative acts including the Electronics Transactions Act and Data Protection Act. The ICTA has been designated the National Certification Authority (NCA) responsible for the governing of digital signatures and authentication.

## Achievements

Through the end of 2019 Sri Lanka Go Digital has enlightened and empowered 520 entrepreneurs on how to undertake digital transformation

From 2003 to 2013 the ICTA partnered with the World Bank to implement the e-Sri Lanka Development Project. In 2014 the World Bank undertook a thorough review of e-Sri Lanka overall performance and concluded that the ICTA played an essential role in achieving the following key results:

- Modernization of government services, developed several electronic services for citizens and business, and improving internal efficiency of the government.
- Provision of affordable access to information infrastructure and services.
- Technical assistance to build capacity for ICT leadership.

- Improved policies and laws required for ICT diffusion.
- Increased ICT literacy in every part of the country.
- Promoting IT and BPO exports and mobilizing resources and innovation in ICT applications to meet priority social needs.

The assessment also concluded that the project significantly contributed to social development, particularly digital inclusion of the poorest regions of the country.

Sri Lanka's Networked Readiness Index ranking has significantly improved due to the e- Sri Lanka initiative, jumping 41 places to first place.

#### ***Impact on the entrepreneurial lifecycle***

The ICTA has instilled good practices in entrepreneurial interest, building collaboration, SME expansion, seed funding, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, skills training programmes, human capital, and vision and strategy.

## **B.4 MaGIC (Malaysia)**

### **Overview**

MaGIC (Malaysia global innovation and creativity centre) discovers and empowers technology start-ups and social innovators through creativity, innovation and technology adoption, and develops a vibrant and sustainable entrepreneurship ecosystem in Malaysia. Since its inception in 2014, MaGIC has provided its community of start-ups, investors and ecosystem players with capacity building programmes, market and funding opportunities and regulatory assistance.

### **Type**

This practice impacts the following two building blocks of innovation: innovation dynamics and innovation capacity.

### **Goal(s)**

MaGIC facilitates, navigates and enables the ecosystem with the mission of strengthening Malaysia's position as an emerging innovation nation. Their mission includes:

- Nurturing and navigating local start-ups and social enterprises into successful and sustainable businesses.
- Cultivating a creative, innovative and entrepreneurial culture.
- Enabling a thriving and sustainable entrepreneurial landscape.
- Catalysing globalisation opportunities through acceleration and market access.

### **Target stakeholders**

MaGIC Malaysia primary stakeholders are aspiring entrepreneurs, tech entrepreneurs, social entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

## Governance

MaGIC Malaysia is a public agency under the Ministry of Science, Technology and Innovation (MOSTI). It is governed by a six-member Board of Directors consisting of members from the public sector, local corporate community and an entrepreneur. Executives that manage the day-to-day operations of MaGIC and answer to the Board include a CEO, Senior VP of Finance and Corporate Services, Senior VP of Technology and Innovation, VP of People and Capability Development, VP of Strategy and VP of CEO Office.

## Resources and partners

As an agency of the Ministry of Science, Technology and Innovation, MaGIC Malaysia is supported by a public budget. It also generates revenues derived from the operations of its various venues, events and activities.

MaGIC Malaysia also draws resources from partners to conduct various collaborative efforts. A few of the following are examples:

- MaGIC Malaysia partners with Standard Chartered Bank Malaysia Berhad to conduct the Social Entrepreneurs - Transformation, Innovation and Acceleration (SEtia), a 4-week long capacity-building initiative to amplify the capacities of local social entrepreneurs in partnership with.
- MaGIC Malaysia has jointly developed the unique learning content of their Digital Business Academy (DBA) with several leading academic institutions including Tech Nation UK and University College London and Cambridge Judge Business School. Entrepreneurial contributors also include Founder Centric and Tech Nation's late-stage Future Fifty programme.
- Partnership with Lazada for the Buy For Impact virtual marketplace showcasing products by Malaysian social enterprises.
- MaGIC Malaysia partners with Startup Campus Global and the Embassy of Hungary in Malaysia to send 9 Malaysian start-ups on a virtual visit to Europe through the MaGIC Global Market-Fit Programme (GMP).
- Startup Benefit Partners include Serv, Xero, Mahzan Sulaiman, Simplified Business System, iPay88, MacroKiosk, HubSpot for Startups, enginemailer, PR Newswire, Amazon Web Services, Digital Ocean, SlingApp, ShopLine, Cockroach Startup Program, tee Intellectual Property, Prime Commerce, netcore smartech, WeWork, Shopify, FastJobs, MotionsCloud, RunCloud, Netizen Testing, SecondCRM, Usability Hub, Stripe, Aplikasi, Fandom, GA Alliance, Centrio, Bawatana Co. and OVHcloud.

## Activities and events

The following are MaGIC activities events that help guide innovation dynamics and build innovation capacity:

- The MaGIC Cyberjaya Campus Co-Working Space is designed to be a collaborative workspace for the start-up community serving as a community-driven hangout where entrepreneurs could gather to create, share, and discuss ideas with peers, mentors, partners, and allies.
- Idea Lab is a partnership initiative supporting hackathon/makerthon and Startup Weekend around Malaysia that aims to educate and encourage people on creative entrepreneurial mindset and problem-solving culture through entrepreneurship.
- MaGIC Virtual Bootcamps are intense outcome-driven workshops for teams of two to build, test, refine their ideas to be launched and find product-market fit.

## Regional good practices: Accelerating innovation, entrepreneurship and digital transformation in the Asia-Pacific region

- Grill or Chill (GoC) is a platform for start-ups to showcase their products and get valuable feedback from experts in the start-up ecosystem. Each GoC ends with a networking session where you can mingle and connect with other entrepreneurs in a cosy environment.
- Virtual Global Accelerator Program (GAP) Is an online programme to accelerate local and international start-ups from all over the world, with an interest to expand their business in the ASEAN region, to be investment-ready in 3 months. GAP online also aims to build a strong ASEAN start-up community by cultivating ASEAN relationships.
- MaGIC Global Market-Fit Programme (GMP) provides a platform for high growth innovative start-ups to explore cultures, understand ways of business and gain international market access in countries beyond ASEAN. This programme aims to provide assistance for start-ups to accelerate their growth with new product/market fit solution strategies in expanding to other countries.
- MyStartup Hub is a soft-landing programme for global innovative start-ups from all over the world to establish a business hub in Malaysia. MyStartup Hub provides assistance in company incorporation, local talent acquisition, and market access through collaborations with Malaysia ministries and agencies.
- Social Entrepreneurs - Transformation, Innovation and Acceleration (SEtia) is a four-week long capacity-building initiative to amplify the capacities of local social entrepreneurs in partnership with Standard Chartered Bank Malaysia Berhad.
- Pemangkin Usahawan Sosial Hebat (PUSH) is a scale-up programme with an ambition to grow Social Enterprises (SEs) and increase their social impact through a personalised capacity building and skills development training.
- The MaGIC Buy for Impact is a partnership with Lazada to provide a virtual marketplace showcasing goods created by impact driven businesses - social enterprises. It represents MaGIC contribution to the Buy For Impact Movement whose mission is to achieve a future for Malaysia where every business is a force of good (inclusive, meaningful, and positive for society).
- Digital Business Academy (DBA) provides unique learning content developed jointly with Tech Nation UK and UK's leading academic institutions as well as a large number of highly successful scale-up entrepreneurs in the UK namely, Academic contributors: University College London, Cambridge Judge Business School, Entrepreneurial contributors: Founder Centric and leading UK entrepreneurs from Tech Nation's late-stage Future Fifty programme.
- MaGIC have programmes to connect corporations with local innovators. The MaGIC Activate is an Open Innovation platform initiative that aims to foster collaboration between corporate innovators and start-ups/entrepreneurs and to encourage more private sector involvement in Entrepreneurship Development, in line with the aspiration of DKN2030. The Social Procurement Program matches corporations with social enterprises based on corporate and programme needs.

### Achievements

Impacted more than 100 000 aspiring and seasoned entrepreneurs with an overall value creation of MYR 1.9 billion.

The MaGIC Global Accelerator programme has earned numerous regional and international accolades for its prolific success, which includes 112 start-ups accelerated (from 3 079 applicants) with total investments raised of USD 3.2 million and revenues of USD 3.5 million. The programme rewards and recognitions include:

- Top 20 Active Accelerators 2015 (Asia-Pacific).
- Top 20 Global Accelerators 2016.
- Asian Rice Bowl Award - Best Accelerator Programme 2017.
- Global Startup Award (GSA) - Global Futureshaper Award 2017/2018.

COVID-19 has not disrupted many of their programmes. For example, MaGIC Global Market-Fit Programme recently sent nine Malaysian start-ups and scaleups in a virtual visit to Hungary, Germany and the United Kingdom where they met with key private and public sector stakeholders, learnt about the unique characteristics of their target markets and gained feedback on their idea and product-market-fit by pitching in front of local investors.

#### ***Impact on the entrepreneurial lifecycle***

MAGIC Malaysia has instilled good practices in entrepreneurial interest, engaging with problems, developing business models, building collaboration, SME expansion, seed funding, angel investment, venture capital, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, business associations, success stories, lab programmes, entrepreneurial community, soft skills training, and vision and strategy.

## **B.5 Monetary Authority of Singapore (Singapore)**

The Monetary Authority of Singapore (MAS) is Singapore's central bank and integrated financial regulator. MAS also works with the financial industry to promote Singapore as a dynamic international financial centre. Additionally, it facilitates the development of infrastructure, adoption of technology, and upgrading of skills in the financial industry. From 2015, MAS has taken a proactive stance in creating a favourable regulatory environment for fintech start-ups and other start-ups utilizing online payment methods. During this time, Singapore has become an international magnet for fin tech start-ups. They have accomplished this in three ways: launching an effective regulatory sandbox, creating banking licences tailored for fintech start-ups, and financial support.

### **Type**

This practice impacts the following two building blocks of innovation: innovation dynamics and ICT innovation in key sectors.

### **Goal(s)**

Creating a favourable regulatory environment for fintech start-ups, encouraging and promoting innovation in the financial industry.

### **Target stakeholders**

MAS primary stakeholders are entrepreneurs, financial institutions, investors and international organizations focused on innovation and financial regulation.

### **Governance**

The Monetary Authority of Singapore (MAS) has operational autonomy. Under the MAS Act, the Board of Directors of MAS is appointed by the President. The Chairman of the Board is appointed by the President on the recommendation of the Cabinet. The Board of Directors is responsible for the policy and general administration of the affairs and business of MAS and

informs the government of the regulatory, supervisory and monetary policies of the MAS. The Board is ultimately accountable to the Parliament of Singapore through the Minister-in-charge of MAS. Currently there are 10 members of the Board and the following four Board Committees- Monetary and Investment Policy, Audit, Risk, and Staff Committees.

There is a Managing Director and Managing Director's Office that reports directly to the Board of Directors. The Managing Director oversees the daily operations of MAS which consists of four divisions- Economic Policy, Markets and Development, Financial Supervision and Corporate Development. The FinTech and Innovation Department of the Markets and Development Division is primarily responsible for policies and initiatives related to fintech. A Chief FinTech Officer heads this Department which consists of Offices for FinTech Infrastructure, FinTech Ecosystem, Payment Development and Data, AI Development and a Specialist Leader (Distributed Ledger Technology).

### Resources and partners

As Singapore's central bank the Monetary Authority of Singapore (MAS) draws and contributes to the state budget.

To date, MAS has signed 34 fintech Co-operation Agreements (CAs) with international counterparts to foster closer cooperation on fintech and to promote innovation in financial services in their respective markets.

Global Financial Innovation Network (GFIN) was formally launched in January 2019 by an international group of financial regulators and related organizations, including MAS, to support financial innovation in the interest of consumers. GFIN seeks to provide a more efficient way for innovative firms to interact with regulators, helping them navigate between countries as they look to scale new ideas. This includes a pilot for firms wishing to test innovative products, services or business models across more than one jurisdiction.

ASEAN Financial Innovation Network (AFIN) is jointly established by MAS, the International Finance Corporation (IFC) of the World Bank Group and the ASEAN Bankers Association (ABA) with the objective of driving financial innovation and inclusion in the ASEAN region and beyond.

APIX is a collaboration between MAS, the ASEAN Bankers Association (ABA) and the International Finance Corporation (IFC). APIX is the world's first cross-border, open-architecture platform to support financial innovation and inclusion.

The Monetary Authority of Singapore (MAS) and the United Nations Capital Development Fund (UNCDF) have formed a strategic partnership under the ongoing UNCDF Shaping Inclusive Finance Transformations (SHIFT) programme to facilitate the development and access to digital financial services in the ASEAN region. To accelerate financial access and usage, MAS and UNCDF SHIFT explore opportunities to work on digitization of low-tier financial institutions (financial cooperatives/micro finance institutions/banks) in ASEAN, particularly in extending last-mile distribution to the base of the pyramid in these markets. This collaboration gives UNCDF and MAS the means to rapidly digitize the operations of these financial service providers, enabling them to better aid financial access and usage to serve the marginalized population, including women in these countries.

The Monetary Authority of Singapore (MAS) have signed a partnership agreement with the United Nations Development Programme (UNDP) Global Centre for Technology, Innovation

and Sustainable Development to help small and medium-sized enterprises (SMEs) leverage technology to better access global value chains. The partnership will provide SMEs with innovative financial and digital tools to help them better leverage data and more effectively access financing solutions. It will also create new opportunities for SMEs, including fintechs, to expand to developing countries within the UNDP global network of 170 offices. This partnership will start by bringing together three successful programmes from UNDP and MAS, namely Cultiv@te, Business sans Borders and API Exchange.

Business sans Borders (BSB) is a joint initiative by MAS and Infocomm Media Development Authority to provide an open and global digital infrastructure for seamless trade discovery and digital business services connectivity.

The Monetary Authority of Singapore (MAS) and the Bank for International Settlements (BIS) jointly launched the BIS Innovation Hub Centre in Singapore.

The Monetary Authority of Singapore (MAS), Deloitte and S&P Global Market Intelligence have collaborated to develop a prototype for an industry-wide fintech research platform to help investors and financial institutions connect with fintech start-ups that they can invest in or partner.

### Activities and events

The FinTech Regulatory Sandbox was launched in 2016 to facilitate live experiments of innovative financial services and business models within specified boundaries meant to preserve the integrity of the financial markets. It establishes a conduit and strengthens the engagement channels between firms (both regulated and unregulated) and MAS on innovative ideas as well as regulatory clarifications relating to them.

In 2019, MAS launched Sandbox Express to provide a faster option for fin tech start-ups to commence experimentation within pre-determined boundaries. Sandbox Express is created to complement the current sandbox approach. The aim is to enable firms that intend to conduct certain activities regulated by MAS to quickly commence experimenting with their innovations within pre-determined boundaries, without having to go through the existing sandbox application. Instead, an application can be made under Sandbox Express.

By offering new digital banking licence classifications MAS has played a key role in integrating ICT innovations into the banking sector and placing its commitment to liberalizing the fintech industry in full display. In December 2020, MAS announced the issuance of four digital banking licences. The licences were issued in two categories- Digital Full Banking Licences (DFB) and Digital Wholesale Bank Licences (DWB). The successful applicants for the DFBs include a consortium comprising Grab Holding Inc. and Singapore Telecommunications Ltd. As well as an entity wholly-owned by Sea Ltd. The two DWBs were issued to a consortium comprising Greenland Financial Holdings Group Co. Ltd, Linklogis Hong Kong Ltd, and Beijing Co-operative Equity Investment Fund Management Co. Ltd. And an entity wholly-owned by Ant Group Co., Ltd.

In November 2016, MAS released 12 Application Programming Interfaces (APIs) to the public to allow developers to build applications that can automate the integration of official financial datasets into their platforms. Examples include applications that can compute currency exchange rates to help companies file tax returns, applications that can automatically pull up credit card statistics of the whole population, or software that can display the number of listed



companies. This is just part of the Singapore government drive to support financial innovation and increased awareness for the local fintech space.

API Exchange (APIX) is an MAS-supported cross-border, open innovation API platform which acts as a curated global marketplace for financial institutions and fintechs.

The Monetary Authority of Singapore launched a fintech innovation village called LATTICE80 in 2016 as the largest fintech hub in the world. By the end of the first year LATTICE80 was hosting more than 100 fintech start-ups. It garnered global traction hosting nearly 30 ministers and more than 100 international delegations. Today LATTICE80 is a community of more than 11 000 fintech start-ups and 200 ,000 professionals. Collaborating and helping one another through partnerships continues to be their mission.

The Financial Sector Technology and Innovation Scheme by MAS provides support for the creation of a vibrant ecosystem for innovation. The scheme consists of seven tracks. The Innovation Centre Track offers grant funding to attract financial institutions to set up innovation centres of excellence or labs in Singapore to test-bed innovative ideas and roll out market solutions. The Institution-level Projects Track offers grants to encourage Singapore-based financial institutions to catalyse innovative ideas and market solutions to advance the competitiveness of the financial institution and the sector. Another grant scheme is the Industry-Wide Projects Track to build industry-wide technological/utility infrastructure and/or improve efficiency and boost productivity in the financial services sector. The MAS Financial Sector Technology and Innovation (FSTI) Proof of Concept (POC) scheme provides funding support for experimentation, development and dissemination of nascent innovative technologies in the financial services sector. For Financial institutions and fintechs with less than 200 employees there is the Digital Acceleration Grant. There are two other grant programmes to enhance Cybersecurity Capability and development in the AI and Data Analytics field pertaining to fintech.

From 2015 to 2020 MAS has also allocated more than USD 165 million to support fintech initiatives. An additional SGD 250 million was committed for 2021.

Organized in collaboration with PwC Singapore, the MAS FinTech Awards seek to recognise ground-breaking solutions that enable the financial sector to respond better to two key global challenges: (i) the new operating environment precipitated by COVID-19, and (ii) sustainability and climate change. MAS received 326 submissions this year – a 33 per cent increase from 2019 – from applicants across 55 countries. This marks the highest number of submissions received since the FinTech Awards began in 2016.

The BIS Innovation Hub (jointly launched with Bank of International Settlements) will foster innovation and greater collaboration amongst the central banking community globally. It will enhance the understanding of financial technology, and aid development of innovative solutions to benefit and enhance the financial system. The Hub Centre in Singapore will initially focus on two projects. The first project is to establish a framework for public digital infrastructures on identity, consent and data sharing. The second project is to create a digital platform connecting regulators and supervisors with digital and technology solution providers.



## Achievements

- Singapore is ranked fourth in the world as a fintech hub<sup>29</sup>.
- Since 2015 the number of fintech firms has rapidly climbed from only 50 to more than 1 000.
- Over 40 Innovation Labs.
- In 2019 fintech-related deals accumulated over a billion SGD, including a SGD 90 million Series C funding round for FinAccel, a fintech start-up.
- 19 per cent Y-o-Y increase in fintech investments for H1 2020.

### ***Impact on the entrepreneurial lifecycle***

Monetary Authority of Singapore (MAS) has instilled good practices in entrepreneurial interest, engaging with problems, developing business models, building collaboration, SME expansion, venture capital, entrepreneurial events, business associations, and vision and strategy.

## B.6 National Innovation Agency (Thailand)

The National Innovation Agency (NIA) plays the leading role in the development of Thailand's innovation ecosystem by coordinating, networking, fostering, and partnering different organizations from various fields such as academia, technology, industry, finance and investment. Its main focus is on utilizing knowledge management to achieve innovation. NIA functions as the key engine driving national innovation by co-creation, networking, fostering, and partnering different organizations from various fields such as academic, technology, industry, finance and investment. Its main focus is on utilizing knowledge management to achieve innovation, particularly to foster "innovation on cluster platform" which uses innovation as the principal tool in improving quality of life and driving towards an increasing competitive economy. The NIA has adopted three strategic platforms on which to build on. They include upgrading innovation capability, innovation culture promotion and building up innovation systems.

### Type

This practice impacts the following three building blocks of innovation: innovation dynamics, innovation capacity and ICT innovation in key sectors.

### Goal(s)

The NIA mission is to support and develop Thailand's innovation system. NIA is charged with establishing Thailand as an "innovation leading country." The primary focus of the NIA is formulating a National Innovation Policy and enabling effective management of innovation in all economic sectors. To accomplish this the NIA adopts three strategic platforms as follows:

- Upgrading Innovation Capability
- Innovation Culture Promotion
- Building up Innovation Systems

<sup>29</sup> By to Startup Genome's Global FinTech Ecosystem Report: <https://startupgenome.com/blog/global-fintech-ecosystem-report-2020>

The National Innovation Agency has set a lofty goal for Thailand to rank in the top 30 of the Global Innovation Index by 2030.

### Target stakeholders

NIA primary stakeholders are aspiring entrepreneurs, entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

### Governance

The National Innovation Agency (NIA) was established by the Ministry of Science and Technology on October 1, 2003. From inception to 1 September 2009, NIA operated as an autonomous agency, under the supervision and policy guidance of the National Innovation Board, but outside the normal framework of the civil service and state enterprise. From 2 September 2009, NIA was restructured and became a Public Organization, while remaining under the umbrella of the Ministry of Science and Technology.

The NIA is governed by a nine-member board, which includes the Executive Director of the NIA. The Executive management team consists of an Executive Director, Deputy Executive Director, Chief Strategy Officer, Director of Entrepreneur and Enterprise/Director of Startup Thailand and a Business Development Manager.

### Resources and partners

As a Public Organization NIA is funded from the state budget. However, NIA also receives or shares additional resources through its extensive list of partnerships. The NIA works closely with international partners from both the private and public sectors to enhance knowledge exchange, provide start-ups with a global stage and organize programmes. International partners include:

QUT Creative Enterprise Australia, Universiteit Gent (Belgium), KU Leuven (Belgium), NIPTICT (Cambodia), Accio (Catalonia), Corfo (Chile), Pontificia Universidad Católica (Chile), Tusholdings (China), Business Finland, enpact (Germany), German Accelerator, Israel Innovation Authority, Startup Fukuoka City (Japan), Knowledge Capital (Japan), Nedo (Japan), Baiterek (Kazakhstan), Qaztech Ventures (Kazakhstan), ahti (Netherlands), StartLife (Netherlands), Startup Poland, Startup Portugal, Lotte Accelerator (Republic of Korea), ASEAN Business Center (Republic of Korea), KOSME (Republic of Korea), Gongwan Center for Creative Economy and Innovation (Republic of Korea) and NATEC (Viet Nam).

Thailand's National Innovation Agency (NIA) and Israel's AGW Group (AGW) jointly launched SPARK, a global acceleration programme aimed at start-ups in Thailand.

### Activities and events

To fulfill its mandate to develop local start-ups the NIA has collaborated with the private sector to establish a Global Hub in the two cities of Bangkok and Chiang Mai. District C is the global hub in Bangkok's True Digital Park. Chiang Mai & Co is the NIA's Global Hub in Chiang Mai in partnership with local software developer ARISTO Group. These Global Hubs serve as a one-stop service for start-ups. District C provides a consulting service to entrepreneurs three domains-legal, VC and business. They cover a broad range of topics including company registration

(both Thais and foreigners), Smart Visa application, Board of investment (BOI) Approval, legal consultation with lawyers from prominent law firms such as Baker & Mckenzie, general business consulting and preparation of investor pitch decks. Chiang Mai & Co performs similar functions to District C. in addition they provide a co-working space in the heart of historic Chiang Mai and collaborate with local universities to foster collaboration, networking and partnerships in support of entrepreneurs.

Start-up Thailand is the national start-up promotion platform charged with supporting start-up growth and start-up ecosystem development in Thailand. Through partnerships with private sector organizations Start-up Thailand has been active in developing incubator programmes for start-ups. The local start-up community is also kept abreast of community developments through a monthly magazine published by Startup Thailand.

SPARK Accelerator launched jointly with AGW Group of Israel is aimed at enhancing the global competitiveness of start-ups. SPARK consists of an intensive eight-week long bootcamp in which start-ups will gain access to AGW's network of Israeli mentors in the following expertise: Cyber Security, Big Data and Analytics, Internet of Things (IoT), fintech, as well as Startup Legal and Intellectual Property (IP). Outstanding start-ups emerging from this programme will also have a chance to travel to Israel for fundraising opportunities and further exposure through cross-pollination with companies such as Google and Barclays. Post-SPARK, AGW will continue to engage and monitor the start-up growth by providing further mentorships up to two hours per month for two years.

NIA initiated strategic innovation development in two new wave industries. They include the Bioplastics Industry and the Organic Agriculture Business. National Development Plans have been approved by the Government of Thailand for both industries. Simultaneously, NIA also concentrates on several business categories falling under three core areas which include Bio-Business, Eco-Industry and Design & Solutions. These activities represent the NIA's contribution of integrating ICT innovation into key sectors.

The NIA has devised an Innovation Diplomacy strategy that includes several recent MOU signings with counterpart organizations in other countries including the Israeli Innovation Authority, Fukuoka City and Berlin.

To build innovation capacity the NIA organizes over 50 seminars and conferences per year on various innovation-related topics, offers the training course "Innovation Management Course for Executives (IMEs)" and works with several universities to provide graduate programmes in innovation management. Furthermore, NIA recognizes and promotes achievements in innovation through initiatives such as the National Innovation Awards, Top Ten Innovative Business and Thailand Top Innovative Companies.

Startup Thailand Connect is meant to build-up a network of start-ups and accelerate the capability of start-ups for global expansion through the following four projects:

- Business Brotherhood: Development of 10 private research and development centres for supporting new innovative business for the purpose of establishment of collaboration between university and large corporate in developing start-ups in their specific fields
- Startups in Residence: Recruitment of organization/agency that has expertise and ready to mentor start-up including co-working space for holding networking events for start-ups, community and local agencies

## Achievements

Government policies and measures for start-ups during the last few years bear fruits. The 2019 Global Innovation Index ranked Thailand in 34<sup>th</sup> place overall, with a score of 36.63, and 4<sup>th</sup> among the 34 countries in the upper-middle-income economy group and it reported that the level of innovation and creative economy exceeded GDP and ranked Thailand first for the category of creative product exporter.

The World Intellectual Property Organization (WIPO) ranked Thailand 6<sup>th</sup> out of 17 countries in Asia in its Global Innovation Index 2018. "Thailand makes enormous progress this year, moving up seven positions and reaching the 44<sup>th</sup> place overall. It gains between 3 and 15 spots in all pillars except for Infrastructure, where it loses one, and Knowledge and technology outputs, stable at the 40<sup>th</sup> position," the WIPO report said. According to WIPO Thailand has outperformed in innovation relative to its stage of development. It listed Thailand among a group of 20 economies it labelled as innovation achievers.

### ***Impact on the entrepreneurial lifecycle***

National Innovation Agency of Thailand has instilled good practices in entrepreneurial interest, engaging with problems, developing business models, building collaboration, seed funding, angel investment, venture capital, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, business associations, lab programmes, B2B and support services, skills training programmes, entrepreneurial community, soft skills training, human capital, and vision and strategy.

## **B.7 National Institute of Post, Telecommunications and ICT (Cambodia)**

The National Institute of Posts, Telecoms and Information Communication Technology (NIPTICT) is a public research and training institution established in 2013 by the Ministry of Posts and Telecommunications of Cambodia (MPTC). Its mission is to develop highly qualified and committed professionals in the field of posts, telecommunications and ICT who will play a leading role in the development of Cambodia and its integration into the ASEAN Economic Community.

### **Type**

This practice impacts all three of the following building blocks of innovation: innovation capacity, innovation dynamics and ICT innovation in key sectors.

### **Goal(s)**

The mission of NIPTICT is provision of quality Higher Education and Professional Training, research and advancement of knowledge and innovation and entrepreneurship for better academic and society services.

To fulfil its mission NIPTICT is pursuing four objectives: (1) Develop highly qualified and dedicated ICT professionals, (2) foster entrepreneurship, (3) conduct advanced research in the ICT fields and (4) facilitate collaboration among all the stakeholders in the innovative ecosystem.

## Target stakeholders

NIPTICT primary stakeholders are aspiring entrepreneurs, entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

## Governance

In 2014, the Royal Government of Cambodia established the National Institute of Posts, Telecommunications, and Information Communication Technology (NIPTICT) under the supervision of the Ministry of Posts and Telecommunications (MPTC) to address ICT research and training.

The Executive Team at NIPTICT includes a President and 4 vice presidents. They preside over five departments including the Department of Post, Department of Telecommunications, Department of ICT, Centre of Research & Development and Secretariat. The Departments of Post, Telecommunications and ICT are primarily responsible for the Degree programmes at NIPTICT. All three departments have an Office of Administration, Office of Training & Associates Degree, Office of Bachelor and Masters Degree and an Office of Research. The Department of ICT also has an Office of E-Learning and an Office of ICT Services. The Center of Research & Development has an Office of Administration, R&D Office, Office of Laboratory & Pilot Projects and an Office of Outreach & Industry Linkage. It is tasked with fulfilling the NIPTICT third goal of conducting advanced ICT research. The Secretariat performs a primarily support and outreach role with an Office of Administration, Office of Academic Affairs, Office of Foundation Year, Office of PR & International Cooperation, Office of Planning & Auditing and Office of Technical Services.

## Resources and partners

NIPTICT is funded by the Ministry of Posts and Telecommunications of Cambodia (MPTC). As an education and research institution they also receive funding from industry, development partners through scholarships to our students, research projects and consulting services.

The NIPTICT Innovation Center is funded from the government's Capacity Building and Research & Development Fund (R&D Fund), which comes from the 1 per cent payment on gross revenue from Cambodia's telecommunication operators. It is intended to promote human resource development, research and innovation development of ICT in Cambodia, as well as encourage the creation of new ICT businesses.

NIPTICT have several partners contributing resources for the Basic Digital Skill Training programme. They include UN-ESCAP, ERA, NIDIR and JICA.

In support of the Digital Innovation Centre, NIPTICT receives resource contributions from Smart, Huawei, Microsoft, Sabay, G Gear, AE&C, La French Tech, Seedstars, Mekong Strategic Partners, Global Entrepreneurship Network, Cambodia Development Resource Institute and Confluences Incubator.

The ICT Tech Centre of NIPTICT received financial support from state-owned research firm, Viettel.

Additional international partners include ASEAN IVO, NICT, INP Toulouse, CDAC, CAICT, MICA, SICT, CISCO Networking Academy, National Information Society Agency, National Innovation Agency Thailand and Digital Economy Promotion Agency of Thailand.

University partners include Sripatum University, FPT University, Soongsil University and Konyang University.

Co-funding with French Embassy on Scholarship Program for 10 Masters and PhD scholarships to France (2018-2020).

### Activities and events

The NIPTICT activities and events are focused on building innovation capacity in Cambodia. These activities range from digital training and instruction, Research, ICT awards and events and innovation centres. These are some of the activities and events conducted and organized at NIPTICT:

- NIPTICT offers three bachelor degree programmes in E-Commerce, Computer Science and Telecoms and Marketing.
- NIPTICT is also the leading digital research institution in Cambodia. The current research thematics conducted include Natural Language Processing, Network Infrastructure and Security, Computer Vision and Data Science. There are 20 researchers working on five research projects.
- NIPTICT has established three centres: Innovation centre, ICT Tech Centre and Professional Training Centre.
- Innovation Centre. The four-story 7 500 m<sup>2</sup> Innovation Centre includes a research lab, start-up and co-working space, and facilities for public and private agencies with an ICT focus to collaborate and network, with the overall aim being to provide a space for students, experts and public officials to research, discuss and develop creative and innovative ideas and solutions for Cambodia.
- ICT Tech Centre. The four-storey 3 800m<sup>2</sup> centre is the first digital technology research and development centre in Cambodia. The technology centre will be used to promote research and transform the achievements that come from R&D, data science, Internet of Things (IoT), cloud computing, Internet security. Commercially viable digital technology in fields including GovTech, EduTech, AgriTech, FinTech and HealthTech.
- Professional Training Centre
- Launched the SMEs Go Digital Initiative to help accelerate digital technology adoption for the international ICT volunteer programme trains and disburses nearly 200 ICT volunteers to the rural provinces of Cambodia.

To promote and award entrepreneurship, NIPTICT organizes and hosts several annual national awards and events. They include the Digital Cambodia conference, the Cambodia ICT Awards and Women in Tech Awards.

### Achievements

- 520 Students in bachelor degree programmes.
- 3 559 participants from 25 ministries and 24 provinces in the Basic Digital Skills Training programme.
- 178 trained ICT Volunteers disbursed to 30 communes serving 6 533 attendees.
- Publication of five international research papers.
- Launch of the first training programme in telecommunications and e-commerce in Cambodia.

- The only institution in Cambodia to provide digital skill training to government official both at national and sub-national level
- Launch of the first Digital Innovation Centre in Cambodia.

### ***Impact on the entrepreneurial lifecycle***

The National Institute of Post, Telecommunications and ICT (NIPTICT) has instilled good practices in entrepreneurial interest, engaging with problems, building collaboration, research funding, entrepreneurial events, co-working and support, research programmes, lab programmes, skills training programmes, entrepreneurial community, basic research, soft skills training, human capital, and IP and RD support.

## **B.8 Phandeeyar (Myanmar)**

Phandeeyar (“creation place”) is an innovation lab that is spearheading the use of technology to accelerate change and development in Myanmar. Phandeeyar invests in local technology start-ups, trains new entrepreneurs and builds the pool of tech talent. Phandeeyar also helps civic and social entrepreneurs, CSOs and independent media use technology to increase their impact and runs a co-working space out of its 10,000 square foot space located in the heart of downtown Yangon. Phandeeyar was born out of Code for Change Myanmar, a series of hackathons in 2014 that highlighted the potential of Myanmar’s connectivity revolution.

### **Type**

This practice impacts the following building block of innovation: innovation dynamics.

### **Goal(s)**

The main goal of Phandeeyar is to develop Myanmar’s technology and digital economy. To do so Phandeeyar intends to spearhead the use of technology to accelerate change and sustainable development in Myanmar.

### **Target stakeholders**

Phandeeyar primary stakeholders are aspiring entrepreneurs, entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

### **Governance**

Phandeeyar is governed by a 5-member board, including the Phandeeyar founder and chairman.

The management team consists of a CEO, Makerspace Community Manager, Technology Community Manager, Finance Manager, Administration and Operations Manager, Entrepreneurship Manager, Accelerator Manager, Operations Director, Business Development Manager, People Lead Manager and Grants Manager.

## Resources and partners

Core funding for Phandeeyar is provided by Open Society Foundations, Luminate and the Schmidt Family Foundation.

Strategic corporate partners and international organizations that contribute resources to the various Phandeeyar programmes and activities include Telenor, Wave Money, Facebook Start, AWS Activate, JobNet, Microsoft BizSpark, Today Ogilvy Myanmar, PriceWaterhouseCoopers and Edulink Australia.

Phandeeyar's Digital Rights Forum partners include Myanmar ICT for Development Organization (MIDO), Engage Media and Myanmar Center for Responsible Business (MCRB) with support from the Embassy of Sweden.

## Activities and events

The Phandeeyar co-making space conveniently located at the heart of Yangon is expertly designed to provide a comfortable and productive environment for all of its members that include start-ups, freelancers, digital nomads and start-up support organizations. It is here where many of the Phandeeyar first-of-its-kind or globally recognized programmes are based.

Phandeeyar hosts and organizes a number of entrepreneurial support programmes that cater to a variety of entrepreneurs including software, hardware and social impact. These programmes, as follows, include two accelerators, a social impact incubator and a makerspace for hardware innovators.

In 2016 Phandeeyar launched the first-ever tech start-up accelerator in Myanmar, the Yangon Chapter of Founder Institute. Phandeeyar would also launch its own Phandeeyar Accelerator (#accelerateMM), an intensive six-month programme.

For civic and social entrepreneurs mentoring and seed funding is offered through Phandeeyar Labs. In addition to programmes for entrepreneurs, Phandeeyar has been involved in a few key initiatives to further guide innovation dynamics engaged with other stakeholders.

Operated by Phandeeyar the OpenDevelopmentMyanmar.net is an interactive open data portal providing access to any information about Myanmar.

Phandeeyar has joined forces with three other organizations to launch and conduct the Myanmar Digital Rights Forum, to bring together tech, government, civil society and the media to address the rights of Myanmar's Internet users.

## Achievements

- In 2015, Phandeeyar 100+ events attracted thousands of attendees. Events included a start-up competition and three hackathons.
- In 2016, Phandeeyar launched Myanmar's first-ever tech start-up accelerator, the Yangon chapter of Founder Institute, Silicon Valley, the most successful entrepreneur development programme.
- In 2017, Phandeeyar hosted 251 events with more than 4 000 attendees. Events included Digital Rights Forum, StartUp Challenge and Accelerator Program.
- Phandeeyar Makers Space ranked 6th in FIRST Global Challenge out of 154 countries.



- As of September 2019, Phandeeyar has invested in 19 Myanmar start-ups. Two-thirds of these start-ups are successful and awaiting follow-up funding from external investors.

### ***Impact on the entrepreneurial lifecycle***

Phandeeyar has instilled good practices in entrepreneurial interest, engaging with problems, developing business models, building collaboration, seed funding, venture capital, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, B2B and support services, skills training programmes, entrepreneurial community, soft skills training, and vision and strategy.

## **B.9 QBO Innovation Lab (Philippines)**

QBO Innovation Lab was formed in 2016 out of a public and private sector partnership to establish a unifying vision for Philippines start-ups and a belief that unleashing the potential of an entrepreneurship-driven economy is a path to nation building, sustainable development, and inclusive growth. It is a modern space for Philippines start-ups and other players in our ecosystem to come together and flourish. Since inception QBO's stated role is to help Philippines start-ups succeed, develop a vibrant ecosystem and advance tech and innovation.

### **Type**

This practice impacts the following building block of innovation: innovation dynamics.

### **Goal(s)**

The mission is to create a globally competitive start-up ecosystem in the Philippines through the dynamic collaboration of local entrepreneurs, talents, mentors, investors, and other stakeholders

QBO has three objectives: (1) provide start-ups with access to capital, resources, information, and expertise; (2) develop the entrepreneurial talent pool; and (3) create successful start-ups through customized programmes that accelerate growth.

### **Target stakeholders**

QBO primary stakeholders are aspiring entrepreneurs, entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

### **Governance**

QBO Innovation Hub is the country's first public-private initiative created through a partnership between IdeaSpace, J.P. Morgan, Department of Science and Technology, and the Department of Trade and Industry.

QBO is governed by a five-member Board of Trustees and advised by a three-member Advisory Board.

The QBO Innovation Hub team consists of about 20 employees led by a President, a Director and a Head of Operations. The staff is organized into the four following departments- Startup Community, Ecosystem Development, Communications and Administrative.

### Resources and partners

Main source of financial sponsorship are grants and projects. Other nominal revenue sources include success fees for investment referrals, and space rentals.

Founding Partners include Idea Space, J.P. Morgan, Department of Trade and Industry Philippines and the Philippine Council for Industry, Energy and Emerging Technology Research and Development of the Department of Science and Technology.

An important source of funding for QBO is grants. Here are just a few notable examples in 2020:

- The Department of Science and Technology (DOST) awarded a P33 million grant to QBO Innovation Hub at the QBO fourth anniversary celebrations in recognition of their accomplishments.
- QBO was also awarded three more grants—from the Investing In Women, supported by the Australian government for a female empowerment project; from the U.S. Embassy for a holistic programme to support early-stage start-ups; and from the Youth Business International (YBI) for an urgent support package to help start-up founders with COVID-19 related solutions and pivots get back on their feet.
- In addition to financial support, their partners contribute to access to services for their start-ups (e.g. legal, accounting, design, tech services), executive/senior membership, investment, networks and other resources. QBO service provider partners include P&A Grant Thornton, Disini & Disini Law Office, PriceWaterhouseCoopers and LiquidMinds.

Some noteworthy partnerships include:

- Partnership with JP Morgan to organize the INQBATION Startup Showcase that aims to put a spotlight on 15 scalable start-ups and help them connect with potential investors and partners.
- The United States Embassy supports their flagship InQbation: the Takeoff program
- Partnership with Draper House to provide Philippines start-ups access to the vast global Draper Venture Network of 23 global funds, accelerators, incubators, angels, VCs, PEs, niche investment firms, alternative debt firms, consulting firms and corporate investment arms.
- QBO Innovation Hub forged a partnership with Investing in Women (IW), an initiative of the Australian Government, for their program—Influencing Gender Norms.

### Activities and events

QBO Innovation Hub operates a co-working space that serves as a nexus for the Philippines start-up community. It is here that regular workshops, VIP mentorship and networking events are offered and hosted.

Their flagship programme is InQbation: the Takeoff. This United States Embassy supported programme is participated by 12 teams with disruptive ideas enabled by technology. The programme consists of a series of workshops, lectures, and other learning sessions conducted by Philippines and United States of America experts that will provide the knowledge that they need to launch their start-ups. To incentivize the founders to apply their learnings and pursue

their ventures, the programme will also provide incentives, benefits and tools to the best-performing start-ups.

QBO is also part of the DOST technology business incubator network and has been selected to lead the DOST TBI 4.0 project that aims to elevate and upgrade a network of a dozen university-based incubators from all around the country. The TBI 4.0 Program provides capacity building activities including training, workshops, and study missions to improve their ability to provide high-quality services to start-ups through standardization of frameworks and benchmarking against global best practices.

QBO Innovation Hub, through a partnership with Australia Government initiative Investing in Women (IW), promotes workplace gender equality and access to growth capital for women-owned and women-led enterprises in South East Asia. For this exciting campaign, QBO plans to build on its existing Startup Pinay programme, which has been creating and supporting a community of female-led and female-empowered start-ups. By tapping into this network, the campaign will profile strong female start-up founders in the country and highlight strategies that will address the challenges women founders face.

QBO is an active event organizer and host. Two such large scale events include the Tectonic Summit in 2018 and the first Philippine Startup Week in 2019.

QBO launched the QBO App to serve as a virtual hub for start-up companies and businesses so that they will be able to connect to a wider range of entrepreneurs, investors, partners, and other potential resource contacts. The QBO app boasts three major functions. First is the QCONNECT feature that provides access to QBO network and connect with other users. The QLLABORATE feature enables a more active community in terms of start-up-related events across the country. Lastly, the QNTRIBUTE feature will serve as an avenue for users to become more active by sharing news, endorsing their products and posting photos, links, and other media related to start-up community.

As the Philippines' leading public-private initiative for start-ups, QBO works with an extensive network of organizations to advance innovation and entrepreneurship in the Philippines. Included in these efforts are several of the following QBO ecosystem development programmes.

To facilitate corporate start-up engagement, QBO administers several activities and programmes including Corporate BASIQS, Corporate Acceleration/Incubation Program, Hackathons, Innovation Challenges, and Corporate QLITANs.

Through their Investor Newsletter, Investor Matching, Investment Report, and Portfolio Management Programs QBO keeps all stakeholders up to date on the local start-up ecosystem and create opportunities to engage with high-potential start-ups.

QBO contributes to the research and publishing of numerous industry reports including the PwC PH Startup Survey 2017, 2020, COVID-19 edition; Startup Genome, Startup Blink, Foxmont Venture Capital Report and several other roadmaps, laws and policies. Most significantly QBO contributed to the drafting of the Innovative Startup Act.

The Soft Landing Program of QBO provides assistance and support to foreign start-ups establishing themselves in the Philippines.

QBO provides incubator development advice for stakeholders interested in launching their own incubator programme to further expand the local start-up ecosystem.

## Achievements

- QBO has raised over PHP 167 million in funding assistance for tech start-ups.
- Incubated numerous successful Filipino start-ups including Kumu (a Filipino-centric live streaming social app), Payo (a gateway that simplifies cash on delivery transactions), Senti (a customer-centric AI solutions start-up that has been actively supporting the Department of Health in the COVID-19 fight), Cropital (crowdfunding platform connecting anyone to finance local farmers) and Mad Travel, a social tourism platform that supports marginalized communities in the Philippines.
- Forged over 205 partners and collaborators to assist start-ups across all stages and sectors in the different parts of their venture journey.
- Conducted 600+ Programs including some larger scale events such as Philippine Startup Week, Tectonic Summit, International PH Delegations to Websummit, She Loves Tech and Techstars. There has been over 80 000 participants in their programmes which has had nationwide coverage in more than 30 Philippine cities.
- QBO currently supports a total of 9 400 members and 450 start-ups in the QMMUNITY.
- QBO has been the recipient of several awards such as the Philippine Rice Bowl Startup Award for Best Accelerator Program in 2017 and 2019, the Silver Anvil Award in 2018, the IN\_PACT Asia Accelerator of the Year Award in 2019, DOST Startup Ecosystem Builder Award (2020), Technode Ecosystem Award Finalist (2020) and the UN Women WEPs APAC Regional Winner Youth Leadership, Community Engagement and Industry Award 1st Runner Up (2020).

### ***Impact on the entrepreneurial lifecycle***

QBO Innovation Hub has instilled good practices in entrepreneurial interest, engaging with problems, business models, building collaboration, SME expansion, seed funding, angel investment, venture capital, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, business associations, B2B & support services, skills training programmes, entrepreneurial community and soft skills training.

## B.10 Startup Bangladesh (Bangladesh)

The Government of Bangladesh founded Startup Bangladesh for its young generation of entrepreneurs to accelerate the pace of innovation and lead the economy to a self-sustained path to growth. The vision is to create a national entrepreneurship platform to enable Bangladesh to innovate faster, create new opportunities, develop technical skills, and help realize the vision of Digital Bangladesh. The Startup Bangladesh initiative includes a vibrant co-working space and numerous programmes and activities that help guide innovation dynamics and build innovation capacities, including an accelerator, state-of-the-art lab facility, iDEA (Innovation Design and Entrepreneurship Academy), Startup Circle, the Bangabandhu Innovation Grant (BIG) and numerous other ad hoc programmes and activities often in collaboration with partners.

### Type

This practice impacts the following two building blocks of innovation: innovation dynamics and innovation capacity.

## Goal(s)

Startup Bangladesh aims to pursue the following goals:

- To develop an innovation-centred economy and sustain the remarkable growth of economy of Bangladesh.
- Create a national entrepreneurship platform and supporting ecosystem.
- Support technology-based innovation.
- Provide training and develop technical skills.
- Promote groups that are underrepresented in the tech sector.
- Connect non-resident Bangladesh citizens with the local ecosystems.
- Create new employment opportunity.
- Attract foreign investment and expertise.

## Target stakeholders

Startup Bangladesh primary stakeholders are aspiring entrepreneurs, entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

## Governance

The leadership consists of a board and several committees. There are five members on the leadership board, a 17-member Expert Team, 16 members of a Selection Committee, a 10-member Performance Monitoring Committee and an Advisory Board consisting of 16 members.

Startup Bangladesh has a staff of 26. They include government officials, consultants, desk officers and supporting staff.

## Resources and Partners

Startup Bangladesh is a government initiative operates on a government budget. However, Startup Bangladesh also receives considerable resources from both private and public sector partners who are pleased to collaborate with Startup Bangladesh on their numerous programmes and activities. Such programmes that enjoy partnership contributions include arrangement of mentoring sessions, arrangement of training programmes, networking/funding/matchmaking opportunities, customer development for start-ups and the organization and conduct of national programmes such as Digital World, Student 2 Startup, ideaTHON and National Hackathon on Frontier Technologies.

Startup Bangladesh has created Startup Circle to support start-ups and create a sustainable and healthy start-up ecosystem in Bangladesh. This programme involves the collaboration with more than 30 national and international partners, most notably the UNDP and Berkeley-University of California.

## Activities and events

The programmes and activities that Startup Bangladesh organizes, conducts and hosts is quite comprehensive. The following represent a sample:

- Startup Bangladesh - iDEA has a great co-working space for start-ups. 51 desks have been furnished for the start-ups. Startups can also use the meetings rooms and other facilities created by the project.
- Through iDEA (Innovation Design and Entrepreneurship Academy) create an accelerator and its accompanying ecosystem. Offer mentoring, funding, co-working spaces, marketing, and legal support to selected start-up entrepreneurs to help realize their visions. Create Industry/Academia/Government partnerships to stimulate innovation, sustain transformational efforts. Promote Bangladesh as a global hub for novel start-ups and create the appropriate regulatory framework to support bold dreams. Through iDEA Accelerator, the government will nurture innovative ideas in the areas of Education, Agriculture, Health, Financial Services, eCommerce, eGovernance, Environment, Transport, and Infrastructure. Evaluate concepts based on potential impact, execution strategy, and public benefit.
- Startup Bangladesh - iDEA has created a state-of-the-art lab facility for start-ups to test their products or services and get expert opinion.
- The iDEA academy provides different courses to train up entrepreneurs working in different industries. The academy provides long term and short-term courses in different levels considering entrepreneur needs. Workshops and training programmes are also arranged regularly.
- As the central hub of the start-up ecosystem of Bangladesh, Startup Bangladesh - iDEA collaborates with national and international stakeholders who are working with start-ups. Startup Circle is created to foster the collaboration among the member organization. Match making sessions between start-ups and investors are arranged regularly.
- Startup Bangladesh - iDEA provides Bangabandhu Innovation Grant (BIG) to start-ups. Pre-seed or idea stage start-ups can apply for the BIG which is up to 10 Lakhs BDT. Seed and growth-stage start-ups can apply for investment which will be funded from Startup Bangladesh venture capital company. For seed-stage, the investment can be up to 1 Crore BDT and for growth-stage start-ups, it can be up to 5 Crore BDT.
- iDEA Basics 101: A week-long course for aspiring entrepreneurs to instruct them on the basics of innovation and entrepreneurship.
- Student 2 Startup: A nationwide start-up competition for students that covers more than 100 universities in two chapters. The programme has resulted in increased entrepreneurial awareness and has led to the funding of 20 start-ups an additional 40 start-ups selected for grooming.
- Food for Nation is a platform that connects farmers and consumers. This programme integrates the services of local start-ups and is supported by relevant government agencies. It has had a substantial positive impact during the COVID-19 crisis.
- National Hackathon on Frontier Technologies is a competition to solve national problems. Ten national issues are selected and solved by university students with the help of Tech Mahindra | India.
- ideaTHON involves the selection of five Bangladesh start-ups with global potential to be sent to the Republic of Korea to receive training to become a global investment-grade start-up.

## Achievements

- iDEA Project
- The Asian-Oceania Computing Industry Organization (ASOCIO) Award in the category of ICT Education

- Runner-up in the Public-Private Partnership (PPP) category of the 2020 WITSA Global ICT Excellence Awards.

### Startups

- Shopup. Became a growth stage start-up. Raised funding from international VCs.
- Truck Lagbe. Became a growth stage start-up. Raised funding from international VCs.
- AlterYouth. Received Dubai Expo 2020 innovation grant.
- More than 100 start-ups funded.
- More than 20 start-ups already qualify for seed round investments.

#### ***Impact on the entrepreneurial lifecycle***

Startup Bangladesh has instilled good practices in entrepreneurial interest, engaging with problems, developing business models, building collaboration, seed funding, angel investment, venture capital, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, business.

## B.11 Startup India (India)

Startup India is a flagship initiative of the Government of India, intended to catalyse start-up culture and build a strong and inclusive ecosystem for innovation and entrepreneurship in India. Launched in 2016, the Startup India Initiative has rolled out several programmes with the objective of supporting entrepreneurs, building a robust start-up ecosystem and transforming India into a country of job creators instead of job seekers. These programmes are managed by a dedicated Startup India Team, which reports to the Department for Industrial Policy and Promotion (DPIIT). An additional area relating to this initiative is to discard restrictive States Government policies within this domain, such as License Raj, Land Permissions, Foreign Investment Proposals, and Environmental Clearances. The programmes and activities of Startup India falls into three categories: Simplification and handholding, funding and incentives and Incubation, and Industry-Academia Partnerships.

### Type

This practice impacts one building block of innovation: innovation capacity.

### Goal(s)

The stated goals of Startup India are:

- Simplification and Handholding - Easier compliance, easier exit process for failed start-ups, legal support, fast tracking of patent applications and a website to reduce information asymmetry.
- Funding and Incentives - Exemptions on Income Tax and Capital Gains Tax for eligible start-ups; a fund of funds to infuse more capital into the start-up ecosystem and a credit guarantee scheme.
- Incubation and Industry-Academia Partnerships - Creation of numerous incubators and innovation labs, events, competitions and grants.

## Target stakeholders

Startup India primary stakeholders are aspiring entrepreneurs, entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

## Governance

The Department for Promotion of Industry and Internal Trade (DPIIT) is mandated to coordinate implementation of Startup India initiative with other Government Departments.

## Resources and partners

Startup India is a publically funded initiative with a budget under the Department for Promotion of Industry and Internal Trade (DPIIT). Other government departments provide resources as well to implement the programmes and activities of the initiative as directed by the DPIIT.

Apart from DPIIT, the initiatives under Startup India are driven primarily by five Government Departments. The other Departments include the Department of Science and Technology (DST), Department of Bio-Technology (DBT), Ministry of Human Resource Development (MHRD), Ministry of Labour and Employment and Ministry of Corporate Affairs (MCA).

- Startup India is partnering with Atal Innovation Mission (AIM) to establish 257 Tinkering Labs in schools throughout India.
- MOU has been signed with Startup Portugal to leverage their respective start-up ecosystems, devise joint programmes and explore academic collaborations.
- Startup India does partner with private sector partners to collaborate on programmes and activities. The following represent a few examples:
- Startup India partners with the TCS Foundation Initiative to launch and operate Digital Impact Square (DISQ), an open source platform for greater citizen engagement.
- Startup India partners with German Indian Startup Exchange Program and SAP to conduct Indo-German Startup Week.

## Activities and events

The flagship programme for Startup India is the Startup India Hub, a one-stop platform for all stakeholders in the Indian start-up ecosystem to interact amongst each other, exchange knowledge and forge partnerships.

Startup India has launched two funding programmes. The I-Made Program offers funding to Indian mobile app start-ups. The MUDRA Bank Scheme (Pradhan Mantri Mudra Yojana) provides micro-financing and low-interest loans to entrepreneurs from low socioeconomic backgrounds.

Startup India also partners with other ecosystem stakeholders to conduct numerous other programmes. A small sample of these include:

- The Aviral Plastic Waste Innovation Challenge is an innovative businesses competition to support and showcase innovative solutions in the field of plastic waste management. The objective is to solve existing problems in the two cities of Rishikesh and Haridwar through sustainable technology and business innovations.
- Indo-German Startup Week (powered by SAP) - The German Indian Startup Week is initiated by the German Indian Startup Exchange Program and is powered by SAP between 7th and 11th December. This one-week summit brings together start-up



eco-systems of Germany and India to create impact for entrepreneurs looking for support to internationalize into the respective other markets.

- Digital Impact Square (DISQ), A TCS Foundation Initiative, is an online platform and a physical location at Nashik, Maharashtra. It is an open social innovation platform designed to enhance the lives of citizens. The platform encourages innovation using digital technologies, to address the needs of citizens through their voice and that of the local administration, government, and industry.

To simplify operations for start-ups Startup India offers a variety of programmes to facilitate compliance, provide legal support, fast-tracking patent applications and an easier process for failed start-ups to exit.

### Achievements

- 27,000+ inquiries have been handled by Startup India Hub
- 170+ start-ups have been mentored for incubation and funding support
- Startup India Portal completed which now gives access to start-up recognition, incubator recognition, advertising space for start-ups, learning and development module and one-stop solution for inquiries related to the Startup India Initiative. Nearly half-million users on portal and nearly 41,000 DPIIT Recognized start-ups.
- Successful enactment of the following regulatory relief for start-ups and early-stage investors include:
  - fast-track and lower-cost IP filings for start-ups;
  - relaxed norms for public procurement by start-ups;
  - faster exit provisions for start-ups;
  - tax Exemptions on income and capital gains associated with start-ups;
  - tax exemption made on investments into start-ups;
  - numerous restrictions on foreign angel investments in Indian start-ups have been lifted or reduced.
- Approval for the establishment of 257 Tinkering Labs.
- Nine Technical Business Incubators have been approved.
- Ten start-up centres have been funded.
- Setting up of seven new research parks.

#### ***Impact on the entrepreneurial lifecycle***

Startup India has instilled good practices in entrepreneurial interest, building collaboration, seed funding, angel investment, venture capital, business and finance loans, entrepreneurial events, business associations, B2B and support services, skills training programmes, entrepreneurial community, soft skills training, human capital, vision and strategy, public procurement, and IP and R&D support.

## B.12 Thimpu TechPark (Bhutan)

Thimphu TechPark (TTP) is the flagship IT development vehicle in Bhutan. The objectives of the project are to increase productive employment through promotion of enterprise development in the IT/ITES sector, enhanced IT skills and improved access to finance. Since its inception in

2012, the TTP focus has been on two core services: attracting and facilitating FDI companies to lease commercial space within the 58 000 sq ft building, and managing Bhutan Innovation and Technology Centre (BITC) which contains Bhutan's first incubation centre and a Tier-2 data centre. The BITC marks an important step forward in the private sector development efforts of the Royal Government of Bhutan. It serves as a hub for entrepreneurship, innovation and enterprise creation in Bhutan; a vital ingredient in future economic growth and job creation in the country.

## Type

This practice impacts the following two building blocks of innovation: innovation dynamics and innovation capacity.

## Goal(s)

The vision of Thimphu TechPark is to be a vibrant IT Park and a centre of excellence for information technology services. There are multiple missions for Thimphu TechPark. They include:

- To provide world class services in information technology.
- To attract reputed IT/ITES companies from both within Bhutan and around the world to work in a stimulating environment which provides opportunities for technology-based collaboration, learning and innovation.
- To promote research, innovation, and development in technologies.
- To maximize the efficient utilization of resources and increase return on investment for all stakeholders.

The goals of Thimphu TechPark are to increase productive employment in Bhutan through promotion of enterprise development in the IT/ITES sector, enhanced IT skills, and improved access to finance.

## Target stakeholders

Thimphu TechPark primary stakeholders are aspiring entrepreneurs, entrepreneurs, corporations, government agencies and international organizations focused on innovation and entrepreneurship.

## Governance

Thimphu TechPark Pvt. Ltd (TTPL) owns and operates Thimphu TechPark, which was incorporated under the Companies Act of the Kingdom of Bhutan 2000 on 24 August 2009 to undertake the IT Park Project as a developer, and the Shareholders Agreement was signed on 29 August 2009 with Druk Holdings and Investments (DHI) holding 26 per cent and Assetz Property Group of Singapore (APG) holding 74 per cent of TTPL. DHI assumed full ownership of TTPL in October 2014. Druk Holdings and Investments is the commercial arm of the Royal Government of Bhutan.

TTPL functions under the guidance of its shareholder and the Board of Directors. The Chief Executive Officer is the overall in charge of the management and is directly responsible for the daily functioning of the company. He is accountable to the eight-member Board for any support/guidance and important decisions.

Thimphu TechPark Board includes the CEO of Thimphu TechPark and Chaired by the founding CEO of Druk Holding and Investments (DHI). There are three Board Committees including the Audit Committee, Tender Committee and HR Committee.

The management team at Thimphu TechPark is led by a CEO and includes a Director of IT Services, Manager of Personnel and Administration, Manager of Finance and Accounts, Head of Project Division and Head of Application and Support Services.

### Resources and partners

The IT Park Project is executed on a public private partnership (PPP) model and under this model the government has provided the land on lease and ancillary facilities such as the road access, water supply, optical fibre connection, power line connection etc. with the World Bank project-tied assistance, to the private developer.

A significant revenue source for TTP is leasing commercial space to FDI companies and utilizing the data centre services of the Tier II data centre. Indeed, the TTP has been operating as a profitable company since 2015. However, going forward, and in line with the DHI Roadmap 2019 – 2030, the company is taking steps to evolve as an IT services provider catering to companies within DHI Group as well as other clients.

A key public sector partner of TTP is the Ministry of Information and Communications that ensures government contributions to the PPP is met, including the continual delivery of vital infrastructure resources. The Ministry has also been supportive by attracting new tenants to the TTP. Other partners include Druk Holding and Investments, DHI Owned Companies, the tenant companies, the Department of IT and Telecom and the Royal Government of Bhutan.

### Activities and events

The BITC is the flagship programme of Thimphu TechPark and consists of three components: a business incubator, a shared technology centre, and a data centre.

The Business Incubator: provides rental space, business services and access to financing for incubatee firms at a financially sustainable cost. As a mixed-use incubator, there is no sectoral requirement for incubated firms however each applicant will be submitted to rigorous evaluation by an expert selection committee.

The Shared Technology Centre offers comprehensive facilities to all businesses and entrepreneurs in Bhutan including meeting and conference rooms, various courses, networking events and product launches. The Shared Technology Centre will also soon offer an e-Incubation service, which will provide business advisory and information services online for the use of small business owners and entrepreneurs located in remote areas.

The data centre provides data storage and management services for government, for occupants of Thimphu TechPark and for third party commercial users. It is designed and built to Tier II data centre specifications as classified by Uptime Institute.

In February 2020, the Centre of Excellence for Software Engineering was launched, in line with the DHI Roadmap 2030, to transform TTP into an IT services company. The centre has been tasked with two projects: the Bhutan Integrated Taxation System and the Health Information

System. The two systems are expected to revolutionize the automation of taxation system and healthcare system in Bhutan.

In support of the local start-up ecosystem TTP has championed various events such as the annual Business Idea Competition of Bhutan, Bhutan Code Challenge (hackathon) and Startup Weekend.

The BITC also runs an Overseas Expert Program (OEP), which gives overseas experts the opportunity to work based in the BITC for a 3 to 6-month period to share their knowledge and experience through mentoring and coaching of Bhutan entrepreneurs.

The BITC also serves as a Special Economic Zone to facilitate foreign direct investment.

## Achievements

Thimphu TechPark is the first IT park, promoted by the Department of Information Technology and Telecom, Ministry of Information and Communications. More than 250 people are currently employed at the park and it has employed over 600 people since 2016.

Other benefits of the IT Park for Bhutan are the increase in the overall Internet backbone speed, reduction of Internet leased line costs and improved reliability of connectivity owing to the demand for better service from the international tenants at the IT Park.

### ***Impact on the entrepreneurial lifecycle***

Thimphu TechPark has instilled good practices in entrepreneurial interest, engaging with problems, building collaboration, SME expansion, entrepreneurial events, co-working and support, incubators and accelerators, B2B and support services, skills training programmes, entrepreneurial community and trade policy.

## B.13 True Digital Park (Thailand)

True Digital Park (TDP) is a large start-up campus, representing all stakeholders in the Thailand start-up ecosystem under one roof. Tenants and occupants include entrepreneurs, investors, corporations, government agencies and a variety of start-up support organizations. The 200 000 sqm TDP comprises of a vast multi-floored co-working space, state-of-the-art exhibition, auditorium, meeting and conference room space, corporate labs, academies, maker spaces, experience centres, business centres and government agency offices. It has become Thailand's top start-up destination and perhaps Southeast Asia as well. TDPK is home to over 272 tech corporates, digital-focused government entities, and start-up companies. With the assistance of its partner tenants TDP offers the greatest array of resources and facilities to start-ups in Thailand and contributes significantly to guiding innovation dynamics and building innovation capacity.

### Type

This practice impacts the following two building blocks of innovation: innovation dynamics and innovation capacity.

## Goal(s)

The mission of TDP is to be an interconnected ecosystem for start-ups and tech entrepreneurs. The goal is to become the most complete and open start-up ecosystem powering Thailand to become a global hub for digital innovation.

## Target stakeholders

True Digital Park primary stakeholders are aspiring entrepreneurs, entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

## Governance

True Digital Park (TDPK) is managed by a team of 40 staff and is a subsidiary under True Corporation Public Limited Company. The management structure of TDPK consists of five units below the President and the General Manager including (i) Commercial and Community (with two sub-teams), (ii) Marketing and Communication, (iii) Operation and Hospitality, (iv) Technology and Infrastructure, and (v) Internal Control.

There are eight members of the Management Leadership team consisting of the President, the General Manager, and the Heads of each unit, which are Head of Workspace Innovation (Commercial), Head of Event Organization and Special Projects (Commercial), Head of Marketing and Communication, Head of Operation and Hospitality, Head of Technology and Infrastructure, and Head of Internal Control.

## Resources and partners

TDPK is actively engaged with 193 partners, 27 of which being VC firms that actively invest in start-ups. With this extended ecosystem, TDPK has maintain and build new engagements through activities. True Digital Park derives a large proportion of its revenues from rental and event income. The following partners represent tenants, event co-organizers/sponsors and programme organizers at True Digital Park ensuring sufficient resources are available to support the True Digital Park extensive schedule of activities and events:

- Corporates: Ascend, Epson, Google, Huawei, Line, UOB, 7-Eleven, CP All, True IDC x AWS, Bosch, Microsoft, UOB, Ricoh, Cisco, HIK Vision and Mitsubishi.
- Investors: Beacon, Fuchsia, Gobi Partners, Golden Gate, Kaizen, Monk's Hill, Singha Ventures, res, Taurus, Vynn, PTT, 500, Openspace Ventures, Addventures SCG.

Government Agencies: ACE, DEPA, NIA, Thailand Board of Investment and British Embassy.

True Digital Park have consummated a few of the following notable partnerships:

- Partnership with Google for the world's second and Asia's first "Academy Bangkok- A Google Space."
- Partnership with Mu Space to run research lab for satellite and space technology.
- Partnership with UOB for Asia's first ever "UOB SME Business Center."

## Activities and events

The TDP co-working space is the largest in Thailand and no venue currently hosts more start-up events and conferences than TDP. It has shortly become the physical centre of the Thailand start-up community and where stakeholder collaboration is best consummated and witnessed. The innovation space is a state-of-the-art facet of our campus. It is a public area where you can find a breakthrough of R&D technology, co-working space, academies, maker space, experience centres, business centres, and government agency centres in the heart of the ecosystem. The following are just a few examples of the tenants in the Innovation Space:

True IDC is the first and most trusted certified partner of AWS Services in Thailand. They perform three services at their TDP centre including access to experts to effectively help plan and strategize cloud solutions using True IDC and AWS platform, Certified Training Program offerings and hands-on experience with Amazon's latest technological offerings and smart solutions.

The True Digital Park – ACE Singapore Centre housed in True Digital Park facilitates two-way market access for Singapore and Thailand start-ups. The centre also provides a platform to drive regional innovation hub initiatives where start-ups and enterprises from both countries can come together to co-innovate through initiatives such as in-market connections, open innovation platforms and corporate innovation challenges.

The National Innovation Agency (NIA) of Thailand is also an important TDP tenant. NIA District C provides a one-stop service for Thailand-based start-ups to manage their required government engagement including registration, Smart Visa application for foreigners as well as business, legal and VC consultative services.

Academy Bangkok (Google Space) is a training venue for participants of the Google Ignite programme, a two-month digital marketing training course that prepares university students for future careers in Thailand companies. The Academy will also be the training facility for other Google-run training programmes in areas such as developer skills and cloud computing. The Academy will be able to accommodate cohorts of up to 150 people at a time.

Voxy is the world's leading blended English learning solution using AI to provide a personalized learning experience. As a TDP tenant they provide self-study lessons based on real-world content from global media partners and they combine these with high-quality live instruction for career-specific English learning and soft-skills development.

Another large corporate tenant is UOB. At their TDP centre they serve as a one-stop hub that provides training and consulting services to SMEs and start-ups looking to transform.

TDPK has been a very event and activity host with over 333 events hosted since the start of 2020, generating 201,446 visitors.

## Achievements

- True Digital Park (TDPK) is a 2020 winner at the ORIGIN Innovation Awards under Best Community Builder category by Tech Node Global.
- True Digital Park (TDPK) awarded the Digital Organisation of the Year at the Prime Minister's Digital Awards 2019.
- TDPK was also selected as one of the three finalists for the Workspace Design category of the TIDA (Thailand Interior Designers' Association Awards).

### ***Impact on the entrepreneurial lifecycle***

True Digital Park has instilled good practices in entrepreneurial interest, engaging with problems, building collaboration, SME expansion, entrepreneurial events, hackathons and competitions, co-working and support, incubators and accelerators, business associations, lab programmes, B2B and support services, skills training programmes, entrepreneurial community and soft skills training.

## **B.14 VSV Capital Accelerator (Viet Nam)**

VSV Capital Accelerator (VSV) is a leading start-up accelerator programme in Viet Nam based in Hanoi. VSV is the first initiative (formally known as Vietnam Silicon Valley Accelerator) from the Viet Nam Government to target and support start-ups and venture investors in Viet Nam.

### **Type**

This practice impacts the following two building blocks of innovation: innovation dynamics and innovation capacity.

### **Goal(s)**

The mission is to nurture talented Viet Nam technology entrepreneurs and bring their names to the world stage with the aim to create a vibrant ecosystem that includes investors, business accelerators, incubators and start-ups in Viet Nam.

### **Target stakeholders**

VSV primary stakeholders are aspiring entrepreneurs, entrepreneurs, investors, corporations, universities, government agencies and international organizations focused on innovation and entrepreneurship.

### **Governance**

The management at VSV consists of a team of highly experienced innovation management experts who are deeply connected to the start-up ecosystem. The team consists of the founder of VSV, a Managing Director, two Venture Partners, CFO, Director of Research, Chief Accountant, Investment Manager and Accelerator Program Manager.

### **Resources and partners**

VSV receives much support via programme and event sponsorships to support their various programmes and activities. Their diverse public and private sector partner pool include:

- Strategic Partners: Microsoft, Lotte, Viet Nam International Bank, Ho Chi Minh City Department of Science and Technology and Foreign Trade University.
- Supporting Partners: Ministry of Science and Technology, The Ministry of Finance and Ministry of Planning and Investment.

- Corporation Partners: CMC Corporation, BMVN International LLC, Fast Forward Advisors, Global Accelerator Network, Baker McKenzie, Lotte Accelerator, BK Holdings, Grant Thornton, iAngel Network, Minh Tran Garden, Holistics and FTV Innovation and Incubation Space.

### Activities and events

VSV organizes and conducts several of the following entrepreneurship, investor and accelerator training programmes:

- Their Bootcamp Accelerator Program is 12 weeks in duration and provides co-working space, mentorship from leading experts, seed funding and workshops.
- Another VSV programme is STARTUP 101, a more personalized entrepreneurship programme especially tailored to help participants develop their business model.
- The VSV Angel Camp programme is specifically designed for three audiences. It is for new angel investors who want to learn about start-up investing, look for potential start-up or find an opportunity to co-invest in a start-up. Entrepreneurs who are actively seeking investment, learn more about the perspectives of investors or just expand their network. The programme is of value to policy-makers who want a better understanding of the Viet Nam start-up ecosystem.

To offer deal flow to early-stage investors VSV launched its VSV Investor Club. The process is as follows:

- VSV carries out a 'Startup Call' which will give access to more than 300 early-stage start-ups in Viet Nam.
- From this pool, there is a screening process and shortlist 30 start-ups that have what it takes to success.
- Investors are invited to attend an 'investor interview' with the 30 selected start-ups to pick 10-20 teams.

The VSV Investor Bootcamp provides investors, accelerators/incubators, universities and governments authorities the knowledge, skills and networks to gain steady foundation when giving support and investment to start-ups or install accelerator and/or ecosystems for their organizations. VSV Investor Bootcamp programme shares its experiences and lessons from nearly five years of operation of the VSV project. The curriculum of VSV Investor Bootcamp is a combination of lectures and group discussions to ensure that programme knowledge is clearly understood.

VSV also contributes with research and consultative endeavours. Through the Accelerator Transfer Program, VSV offers organizations, which want to build their own start-up ecosystem, consultation on investing in Viet Nam start-ups, how to run an accelerator, co-working space or other possible start-up support. A research team of VSV composes several reports for Viet Nam Government agencies used as a guideline for organizations that want to become a business accelerator.

### Achievements

- 75+ investments.
- 73 training programmes.
- Successful start-up alumni include Lozi (leading C2C Platform), Ship60 (leading e-logistics), Base Enterprise (leading SaaS Enterprise Platform) and True Juice (first daily door delivery juice service in Viet Nam).



***Impact on the entrepreneurial lifecycle***

Vietnam Silicon Valley has instilled good practices in entrepreneurial interesting, engaging with problems, developing business models, building collaboration, seed funding, angel investment, venture capital, entrepreneurial events, co-working and support, incubators and accelerators, success stories, skills training programmes, entrepreneurial community, and vision and strategy.

**Office of the Director**  
**International Telecommunication Union (ITU)**  
**Telecommunication Development Bureau (BDT)**  
Place des Nations  
CH-1211 Geneva 20  
Switzerland

Email: [bdtdirector@itu.int](mailto:bdtdirector@itu.int)  
Tel.: +41 22 730 5035/5435  
Fax: +41 22 730 5484

#### Digital Networks and Society (DNS)

Email: [bdt-dns@itu.int](mailto:bdt-dns@itu.int)  
Tel.: +41 22 730 5421  
Fax: +41 22 730 5484

#### Digital Knowledge Hub Department (DKH)

Email: [bdt-dkh@itu.int](mailto:bdt-dkh@itu.int)  
Tel.: +41 22 730 5900  
Fax: +41 22 730 5484

**Office of Deputy Director and Regional Presence**  
**Field Operations Coordination Department (DDR)**  
Place des Nations  
CH-1211 Geneva 20  
Switzerland

Email: [bdtdeputydir@itu.int](mailto:bdtdeputydir@itu.int)  
Tel.: +41 22 730 5131  
Fax: +41 22 730 5484

#### Partnerships for Digital Development Department (PDD)

Email: [bdt-pdd@itu.int](mailto:bdt-pdd@itu.int)  
Tel.: +41 22 730 5447  
Fax: +41 22 730 5484

## Africa

### Ethiopia

**International Telecommunication Union (ITU) Regional Office**  
Gambia Road  
Leghar Ethio Telecom Bldg, 3<sup>rd</sup> floor  
P.O. Box 60 005  
Addis Ababa  
Ethiopia

Email: [itu-ro-africa@itu.int](mailto:itu-ro-africa@itu.int)  
Tel.: +251 11 551 4977  
Tel.: +251 11 551 4855  
Tel.: +251 11 551 8328  
Fax: +251 11 551 7299

### Cameroon

**Union internationale des télécommunications (UIT)**  
**Bureau de zone**  
Immeuble CAMPOST, 3<sup>e</sup> étage  
Boulevard du 20 mai  
Boîte postale 11017  
Yaoundé  
Cameroon

Email: [itu-yaounde@itu.int](mailto:itu-yaounde@itu.int)  
Tel.: +237 22 22 9292  
Tel.: +237 22 22 9291  
Fax: +237 22 22 9297

### Senegal

**Union internationale des télécommunications (UIT)**  
**Bureau de zone**  
8, Route des Almadies  
Immeuble Rokhaya, 3<sup>e</sup> étage  
Boîte postale 29471  
Dakar - Yoff  
Senegal

Email: [itu-dakar@itu.int](mailto:itu-dakar@itu.int)  
Tel.: +221 33 859 7010  
Tel.: +221 33 859 7021  
Fax: +221 33 868 6386

### Zimbabwe

**International Telecommunication Union (ITU) Area Office**  
TelOne Centre for Learning  
Corner Samora Machel and  
Hampton Road  
P.O. Box BE 792  
Belvedere Harare  
Zimbabwe

Email: [itu-harare@itu.int](mailto:itu-harare@itu.int)  
Tel.: +263 4 77 5939  
Tel.: +263 4 77 5941  
Fax: +263 4 77 1257

## Americas

### Brazil

**União Internacional de Telecomunicações (UIT)**  
**Escritório Regional**  
SAUS Quadra 6 Ed. Luis Eduardo  
Magalhães,  
Bloco "E", 10<sup>o</sup> andar, Ala Sul  
(Anatel)  
CEP 70070-940 Brasília - DF  
Brazil

Email: [itubrasilia@itu.int](mailto:itubrasilia@itu.int)  
Tel.: +55 61 2312 2730-1  
Tel.: +55 61 2312 2733-5  
Fax: +55 61 2312 2738

### Barbados

**International Telecommunication Union (ITU) Area Office**  
United Nations House  
Marine Gardens  
Hastings, Christ Church  
P.O. Box 1047  
Bridgetown  
Barbados

Email: [itubridgetown@itu.int](mailto:itubridgetown@itu.int)  
Tel.: +1 246 431 0343  
Fax: +1 246 437 7403

### Chile

**Unión Internacional de Telecomunicaciones (UIT)**  
**Oficina de Representación de Área**  
Merced 753, Piso 4  
Santiago de Chile  
Chile

Email: [itusantiago@itu.int](mailto:itusantiago@itu.int)  
Tel.: +56 2 632 6134/6147  
Fax: +56 2 632 6154

### Honduras

**Unión Internacional de Telecomunicaciones (UIT)**  
**Oficina de Representación de Área**  
Colonia Altos de Miramontes  
Calle principal, Edificio No. 1583  
Frente a Santos y Cía  
Apartado Postal 976  
Tegucigalpa  
Honduras

Email: [itutegucigalpa@itu.int](mailto:itutegucigalpa@itu.int)  
Tel.: +504 2235 5470  
Fax: +504 2235 5471

## Arab States

### Egypt

**International Telecommunication Union (ITU) Regional Office**  
Smart Village, Building B 147,  
3<sup>rd</sup> floor  
Km 28 Cairo  
Alexandria Desert Road  
Giza Governorate  
Cairo  
Egypt

Email: [itu-ro-arabstates@itu.int](mailto:itu-ro-arabstates@itu.int)  
Tel.: +202 3537 1777  
Fax: +202 3537 1888

## Asia-Pacific

### Thailand

**International Telecommunication Union (ITU) Regional Office**  
Thailand Post Training Center  
5<sup>th</sup> floor  
111 Chaengwattana Road  
Laksi  
Bangkok 10210  
Thailand

*Mailing address:*  
P.O. Box 178, Laksi Post Office  
Laksi, Bangkok 10210, Thailand

Email: [ituasiapacificregion@itu.int](mailto:ituasiapacificregion@itu.int)  
Tel.: +66 2 575 0055  
Fax: +66 2 575 3507

### Indonesia

**International Telecommunication Union (ITU) Area Office**  
Sapta Pesona Building  
13<sup>th</sup> floor  
Jl. Merdan Merdeka Barat No. 17  
Jakarta 10110  
Indonesia

*Mailing address:*  
c/o UNDP – P.O. Box 2338  
Jakarta 10110, Indonesia

Email: [ituasiapacificregion@itu.int](mailto:ituasiapacificregion@itu.int)  
Tel.: +62 21 381 3572  
Tel.: +62 21 380 2322/2324  
Fax: +62 21 389 5521

## CIS

### Russian Federation

**International Telecommunication Union (ITU) Regional Office**  
4, Building 1  
Sergiy Radonezhsky Str.  
Moscow 105120  
Russian Federation

Email: [itumoscow@itu.int](mailto:itumoscow@itu.int)  
Tel.: +7 495 926 6070

## Europe

### Switzerland

**International Telecommunication Union (ITU) Office for Europe**  
Place des Nations  
CH-1211 Geneva 20  
Switzerland

Email: [euregion@itu.int](mailto:euregion@itu.int)  
Tel.: +41 22 730 5467  
Fax: +41 22 730 5484

International Telecommunication Union  
Telecommunication Development Bureau  
Place des Nations  
CH-1211 Geneva 20  
Switzerland

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