

Final Review

# ASEAN ICT MASTERPLAN 2020



FINAL REVIEW

# ASEAN ICT MASTERPLAN

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# 2020

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ASEAN toward a digitally-enabled economy  
that is secure, sustainable, and transformative,  
and to enable an innovative, inclusive and integrated  
ASEAN community.



THE ASSOCIATION OF SOUTHEAST ASIAN NATIONS

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## ***Appreciation of Dialogue Partners***

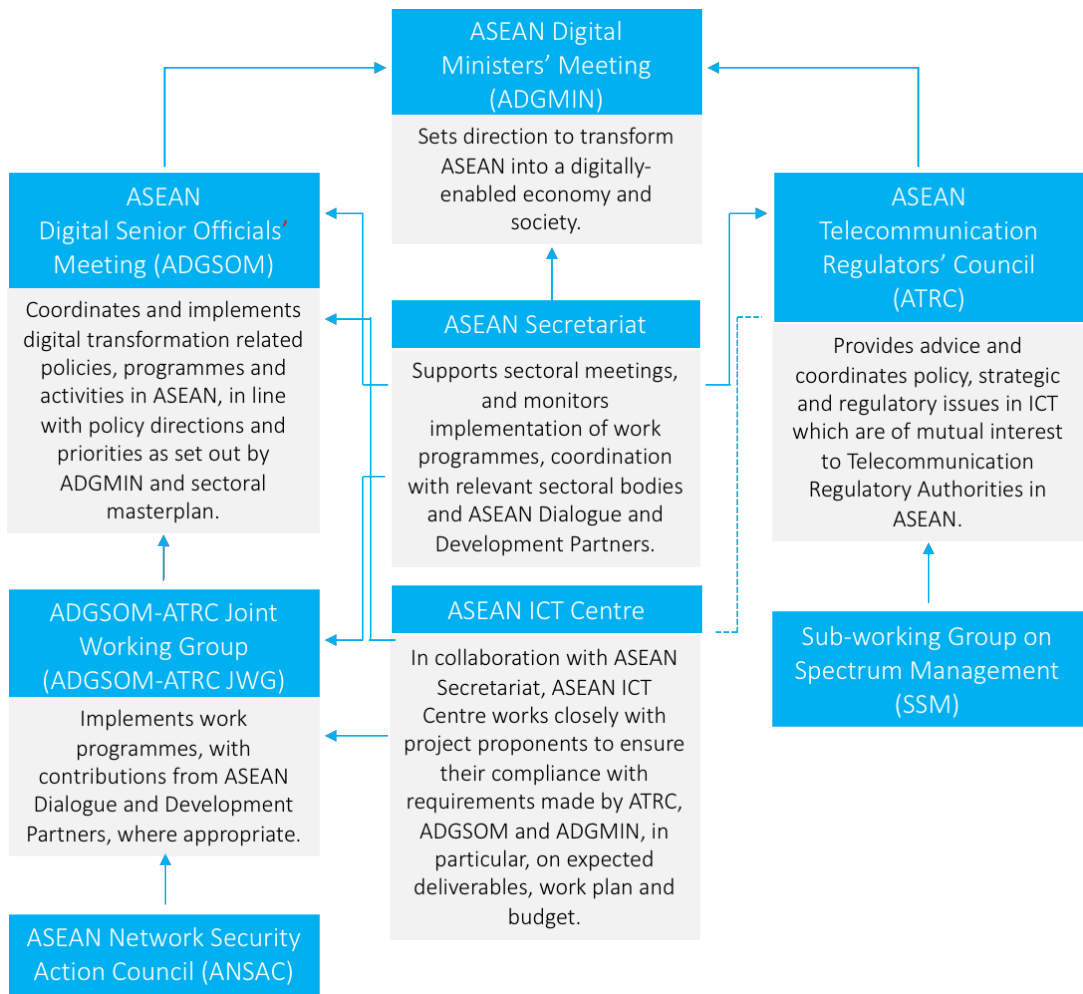
*ASEAN acknowledges and appreciates the significant contributions made by ASEAN Dialogue Partners and other stakeholders, who have participated and assisted in the implementation of the Masterplan.*

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**Figure 1 Map of ASEAN Member States**



**Figure 2 ASEAN Digital Sectoral Meetings Structure**



# EXECUTIVE SUMMARY

The ASEAN ICT Masterplan 2020 (AIM 2020) articulated ASEAN's ICT development plans for the period from 2016 to 2020. It was structured on a hierarchy of five key outcomes and eight strategic thrusts that sought to propel ASEAN towards a digitally-enabled economy that is secure, sustainable, and transformative, while also enabling an innovative, inclusive and integrated ASEAN Community.

AIM 2020 articulated a program of activities that was appropriately very broad given the ubiquitous, and yet still expanding, role of ICT in all of the economic sectors that drive growth and development. AIM 2020 integrates well with other major ASEAN strategy and development statements including the Master Plan on ASEAN Connectivity 2025 (MPAC 2025) and ASEAN Economic Community (AEC) Blueprint 2025. Also, the AIM 2020 was implemented in a timely manner where ICT is one of the main social and economic-driven key factors in ASEAN.

The essence of AIM 2020 was to set a roadmap and develop new knowledge, formulate new policy and regulatory outcomes, and undertake activities designed to facilitate ICT development in the region. ICT is an ongoing, changing field and hence development is enormous. Development tasks include encompassing spectrum management and harmonisation, developing standards on privacy and data security, dealing with complex regulatory issues given the competition between traditional telecommunications operators and new digital platforms, raising digital literacy and access, and developing a highly skilled ICT workforce while addressing the challenge of the digital divide.

A total of 28 action points were identified under 16 key initiatives and these are identified in detail below. This Final Review of the AIM 2020 took place in the midst of the COVID-19 pandemic which prevented face-to-face consultations with ASEAN Member States (AMS) and other stakeholders. Consultations with AMS via an online survey were undertaken and detailed results are provided throughout this Review.

The survey results in relation to these project items were somewhat mixed due to variation in responses across the 28 action points. Survey respondents indicated that, for some project items, work had been successfully completed and was of high value but, in other cases, little work had been done and the outcomes did not seem to have been regarded as useful.

A significant number of the projects resulted in published frameworks, outcomes and generated a series of meetings and discussions between ASEAN regulators and policymakers that resulted in significant agreement being reached between AMS. Some of the significant success stories include a number of ASEAN Frameworks approved by ADGMIN (which was previously known as TELMIN).

## ASEAN Frameworks Approved by ADGMIN (previously TELMIN) during AIM2020

- ASEAN Framework on Digital Data Governance, which seeks to enhance business certainty for digital adoption and innovation, as well as to build good data protection standards for cross-border data flow;
- ASEAN Framework on International Mobile Roaming, which aims to promote transparent and affordable international mobile roaming services in ASEAN, with a view to further enhance regional integration, and benefit consumers in the region;
- ASEAN Guidelines for Strengthening Resilience and Repair of Submarine Cables, which seek to provide guidance to relevant parties and facilitate the process for applying for the necessary permits from the various ASEAN Member States, with a view to expediting repairs of submarine cables by minimising permit requirements and cost, and benefitting businesses and consumers in the region;
- ASEAN Framework on Personal Data Protection, which aims to strengthen the protection of personal data in ASEAN and to facilitate cooperation among ASEAN Member States, with a view to contribute to the promotion and growth of regional and global trade and the flow of information;
- ASEAN Cybersecurity Cooperation Strategy, which calls for the creation of a safe and secure cyberspace in ASEAN by strengthening cybersecurity cooperation in cybersecurity incident response, Computer Emergency Response Team (CERT) policy and coordination, and cybersecurity capacity building; and
- ASEAN Framework for the Next Generation Universal Service Obligation (USO 2.0) which sets out recommended approaches for policymakers to align USO policies and programmes that focus on both the supply-side connectivity and demand-sides solutions.

These outcomes demonstrate useful and substantive results from the AIM 2020 action points and create a basis for moving into the next phase of ASEAN ICT development with the ASEAN Digital Masterplan 2025 (ADM 2025).

Going forward, yields of positive outcome from the projects need to be reinforced and those projects which did not generate meaningful outcomes need to be addressed. This could be achieved by:

- Prioritising the more important initiatives and being selective in pursuing the corresponding projects to ensure their end-to-end completion, rather than engaging in a large number of projects with indeterminate outcomes;
- Incorporating into ADM 2025 explicit, simple and clearer statements on governance and responsibility for project delivery, and emphasising a more incisive process on progress updates and providing resources where necessary, to ensure deliverables are completed on time;
- Considering the issue of the digital divide and ways to bridge the divide so that no one is left behind, as well as taking into consideration digital literacy and continuous learning coupled with human resource development, as required by the evolving environment;
- Addressing economic issues, in particular as part of the post COVID-19 recovery. Better utilising a set of digital indices to measure the impact and outcomes of ICT in the economy; and
- Continuing to cooperate and involve relevant stakeholders.

It would likely be useful to provide explicit linkages between Masterplan projects and outcomes in terms of measurable data. There are significant and detailed datasets available from ASEAN itself and organisations such as the International Telecommunication Union (ITU), the World Bank and a number of other publicly accessible data resources.

The COVID-19 pandemic raises the stakes in all areas of ICT deployment and usage. Commerce, work and learning have all become more dependent on ICT systems and telecommunications networks and there are higher expectations of the government and

policy makers to lead the way in the digital economy. Regulators and telecommunications operators around the globe have responded with unprecedented speed to the challenges presented by the COVID-19 pandemic. Businesses adapt and ride the waves of digital transformation to survive. As a result, many companies and organisations are more aware of the need for digital transformation.

Not only is telecommunications/ICT indispensable to facilitate to the greatest extent possible normal economic and social functioning, but it is also critical for the global community's response to the virus itself. ICT-enabled contact tracing, digitally enabled collaboration, electronic commerce and coordination of medical responses and resourcing, and the global effort to find therapies and vaccines have all been accelerated with the use of ICT. More importantly, digital transformation has changed the playing field for SMEs and MSMEs, locally, regionally and globally.

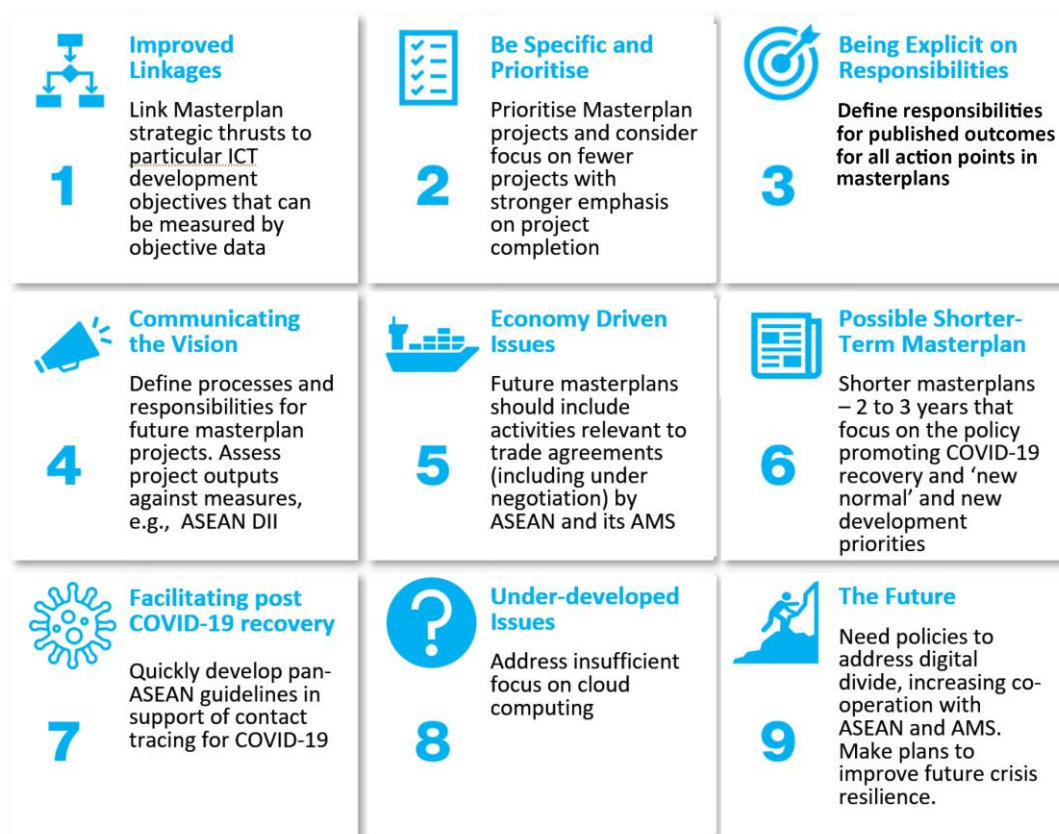
The COVID-19 pandemic and the remarkable success of technology companies, especially the technology platforms, suggest ICT is of even greater significance moving into the 2020s than the most optimistic forecasts from 2016. Therefore, it is appropriate to be even more ambitious in formulating regional digital strategy going forward.

The Final Review of the AIM 2020 offers the following recommendations:

1. **Improved linkages:** Consider, where possible, linking masterplan strategic thrusts to particular ICT development objectives that can be measured by quantifiable data. It is recognised that this will not apply to all Masterplan objectives equally. Having an ASEAN Digital Index allows the assessment of measurable outcomes.
2. **Be more focused and prioritise:** It may be useful to define a smaller number of action points if insufficient resources are available to fully execute a large number of items – as was the case for the AIM 2020. It may be preferable to complete a smaller number of action items and ensure that published outputs are associated with all of them. This point is essentially about defining prioritisation. The more that Masterplan outcomes are published, the more likely it will be that they can be effectively shared with business, government and citizens which increases the likelihood of receiving useful external feedback.
3. **Define explicit responsibilities for producing published outputs:** Consider defining responsibilities for developing published outcomes for all action points in future ASEAN masterplans. These responsibilities should be allocated at the time responsibility for action items are allocated.
4. **Communicating the vision:** ASEAN should consider publishing more information about overall and specific project governance and responsibility details. Further, ASEAN should promote more activities to raise awareness of its work in this area (including stakeholder engagements etc.) and the outcomes it generates. Having an ASEAN Digital Index allows ASEAN to assess the effectiveness of ICT in the economy as well as making it easier to measure the effect of ICT/digital adoption in the broader economy. It is recommended that efforts are undertaken to communicate Masterplan outcomes to key ICT businesses and to industry representative and consumer representative organisations with particular interest in ICT issues and development. Furthermore, effort should be made to obtain feedback from stakeholders on their perceptions about what Masterplan activities are the most valuable and beneficial.
5. **Economy driven issues:** Future masterplans should include activities which are needed to address those aspects which form part of significant trade agreements, commitments or similar undertakings (including those under negotiation) by ASEAN (such as the Regional Comprehensive Economic Partnership (RCEP)). It is critical to continue to address issues to support ASEAN SMEs and MSMEs. More specifically, there is a broader need to address the digital divide and the going need for digital transformation across all sectors including agriculture, manufacturing and services.
6. **Possible shorter-term Masterplan:** the current ASEAN agreed approach is to prepare, similar to AIM 2020, an ADM 2025. However, given the significant impact of COVID-19 – globally, in Asia and also the ASEAN-bloc – consideration should be made for a masterplan of a shorter duration (e.g. 2 to 3 years). This shorter document could be focused on the ICT/digital measures which could aid in the recovery from COVID-19 and the establishment of the 'new normal'.

7. **Facilitating post COVID-19 recovery:** As part of the ASEAN recovery and adjusting to the ‘new normal’, ADM 2025 may consider including initiatives related to the recovery of the digital economy amidst a pandemic. An example of such an Initiative could be the development of ASEAN guidelines in support of contact tracing for COVID-19.
8. **Under-developed action points:** As highlighted in Section 3.2, one of the key conclusions on Strategic Thrust 4 was that respondents indicated that little or no work had been done in relation to range of cloud issues as part of the initiatives under AIM 2020. This is unfortunate given that cloud computing is an essential component of a number of key new technologies and innovations including Artificial Intelligence (AI), Big Data and machine learning. It is critical that ADM 2025 reprioritises activity in this area with a range of concrete initiatives/action items.
9. **The future:** Going forward in ADM 2025 there should be a greater appreciation of and policy approaches to address the digital divide, increase ICT/digital awareness and co-operation among stakeholders – programs which are consistent with other ASEAN initiatives. While beyond the scope of the AIM2020, there is a need for ASEAN to review policies and encourage investment in next-generation technologies including 5G, AI etc. There is also a need to improve resilience for any future pandemic or regional major crisis, with focus on SMEs and MSMEs as they are main players and employers of the region.

**Figure 3** AIM 2020 Final Review recommendations summary



# AIM 2020 INTRODUCTION

**ICT**



# 1 AIM 2020 INTRODUCTION

## 1.1 Description of AIM 2020

AIM 2020 was approved by the 15<sup>th</sup> ASEAN Telecommunications and Information Technology Ministers' Meeting (TELMIN) in November 2015 in Da Nang, Viet Nam. AIM 2020 recognised the central role that ICT takes in the economic and social development of all nations and sought to progress initiatives and monitor progress towards a more capable and productive ASEAN region based on an advanced ICT industry.

The AIM 2020 was the second ICT Masterplan following the AIM 2015 which identified six strategic thrusts, covering thematic areas similar to those addressed in the 2010 plan.

The vision statement for the AIM 2020 was: *“propelling ASEAN towards a digitally-enabled economy that is secure, sustainable, and transformative; and to enable an innovative, inclusive and integrated ASEAN Community.”*

The **AIM 2020 Vision** sought to achieve the following:

- Digitally-enabled: Programmes for continual education and upgrading to equip ASEAN citizens with the latest infrastructure, technology, digital skill sets, information, applications and services.
- Secure: A safe and trusted ICT environment in ASEAN, providing reassurance in the online environment by building trust in online transactions via a robust infrastructure.
- Sustainable: Responsible and environmentally-friendly use of ICT.
- Transformative: A progressive environment for the disruptive use of technology for ASEAN's social and economic benefits.
- Innovative: A supportive entrepreneurial environment that encourages innovative and novel uses of ICT.
- Inclusive and Integrated: Empowered and connected citizens and stakeholders.

The AIM 2020 was structured according to 'outcomes' and 'strategic thrusts'. It contains:

- 5 key outcomes
- 8 strategic thrusts
- 16 key initiatives
- 28 action points

The **outcomes** were:

1. An Accessible, Inclusive and Affordable Digital Economy
2. Deployment of Next-Generation ICT as Enablers of Growth
3. Sustainable Development through Smart City Technologies
4. Multiple ICT Opportunities across a Single Regional Market
5. Secure Digital Marketplaces, Safe Online Communities

The **strategic thrusts** were:

1. Economic Integration and Transformation
2. People Integration and Empowerment through ICT
3. Innovation
4. ICT Infrastructure Development
5. Human Capital Development
6. ICT in the Single Market
7. New Media and Content
8. Information Security and Assurance.

The 16 **key initiatives** are numbered according to the strategic thrusts that they were under, for example, Initiative 1.2 was the second initiative under ‘strategic thrust’

1. Initiative 1.1 Accelerate the Development and Growth of ASEAN’s ICT Industry and Services: Strategically support the growth of priority areas of ASEAN’s digital economy
2. Initiative 1.2 Increase the Use of Sustainable ICT in Public and Private Sectors: Encourage the use of sustainable ICT by the public and private sectors
3. Initiative 2.1 Strengthen Digital Inclusion in ASEAN: Implement programmes which will enable more ASEAN citizens to use ICT
4. Initiative 3.1 Promotion of New Technology and Policy Approaches: Equip ASEAN to promote the use of and benefits from new and emerging technologies
5. Initiative 3.2 Promote Collaboration and Innovation Between Public and Private Sectors: Develop closer ties with the private sector to leverage synergies
6. Initiative 4.1 Fostering Broadband Access and Connectivity: Ensuring an ASEAN connectivity backbone is in place
7. Initiative 4.2 Develop Disaster Management and Response Frameworks: Increase resilience of ASEAN ICT communication networks
8. Initiative 4.3 Support Cloud Computing Development: Develop ASEAN’s cloud computing environment
9. Initiative 5.1 Building ICT Capacity and Capabilities, Particularly for Vulnerable Groups: Equipping all ASEAN citizens to be digitally-literate with basic ICT skillsets
10. Initiative 5.2 Develop Common ICT Workforce Skills: Create standards through which the ASEAN workforce is ICT-literate and competitive
11. Initiative 6.1 Create a Conducive Environment for Businesses: Support the development of the AEC in ICT products and services
12. Initiative 6.2 Promote an Open Market for ICT Enterprises/ Products: Proactively support the on-going liberalisation of the ASEAN market for ICT products and services
13. Initiative 7.1 Promote the Development of Media and Content Markets: Support and promote the sustainable development of an ASEAN content market
14. Initiative 7.2 Nurture ASEAN Digital Society: Build an ASEAN online community
15. Initiative 8.1 Strengthen Information Security in ASEAN: Create a trusted ASEAN digital economy
16. Initiative 8.2 Strengthen Information Security Preparedness in ASEAN: Improve cyber emergency responses and collaboration.

Based on these 16 key initiatives, 28 **action points** were defined. These include examples such as:

- Study and identify enabling policies and best practices that will accelerate the development of e-commerce and digital service delivery in ASEAN
- Commission a study to identify the opportunities and challenges of OTT services
- Develop recommendations for increasing broadband connectivity and improving affordability, taking into consideration past AIM 2015 initiatives.

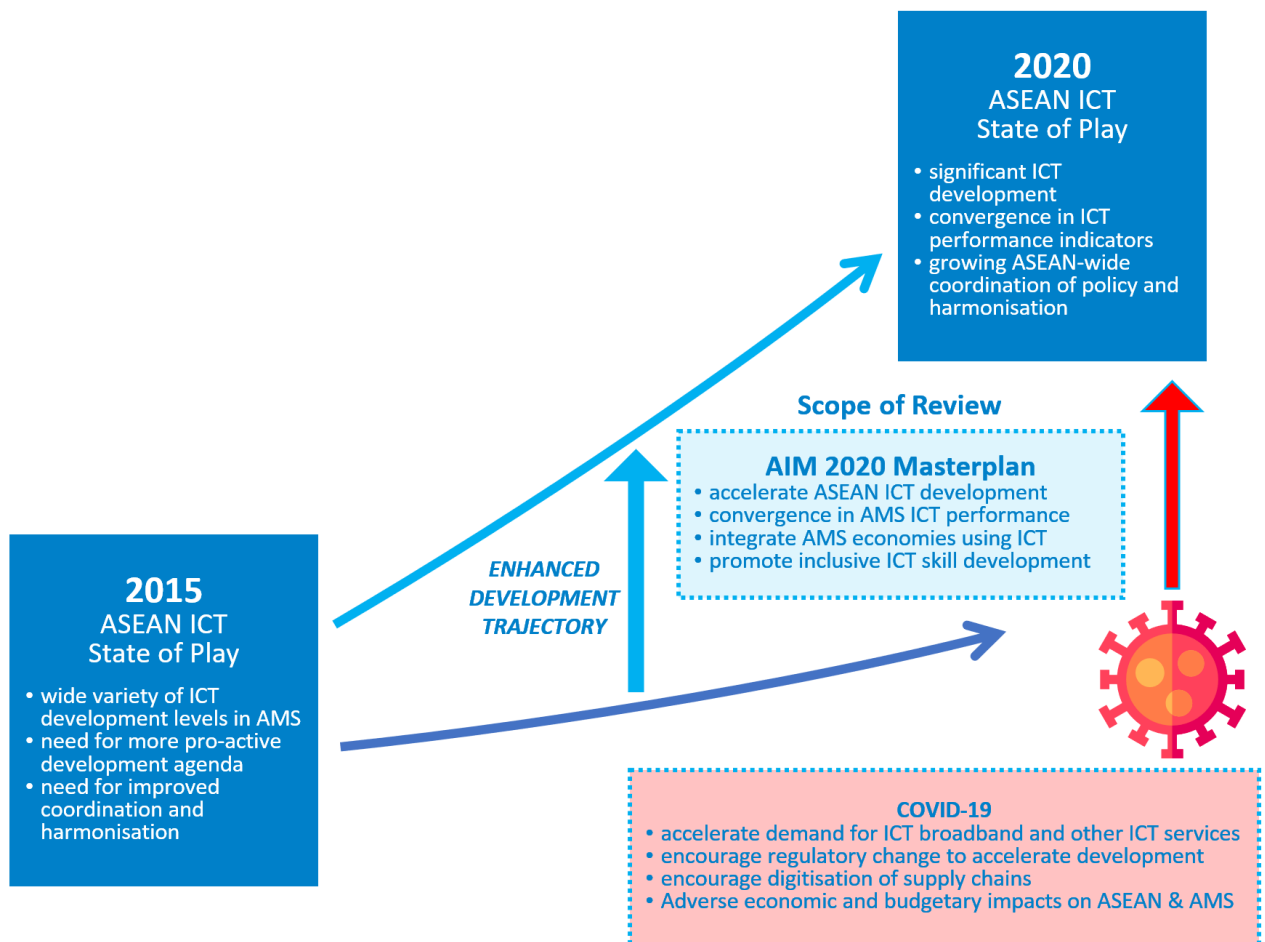
Thus, the action points typically were undertakings to do research, identify opportunities and challenges, develop recommendations, initiate programs, and establish guidelines and frameworks. Therefore, at one level, assessing the progress towards the AIM 2020 goals should entail evaluating the progress of these various research and development projects. The importance of these activities should not be understated. Developing goals, clearly articulating objectives, systematically identifying pathways for development and establishing clear policies are essential to good policymaking and the development of institutions that promote real progress. Therefore, it is important to assess the progress towards the specific action points in the AIM 2020.

The development of policies and programs, however, occurs within the context of the rapidly changing ICT and socio-economic environment. The unexpected emergence of the COVID-19 pandemic in late 2019 had a significant impact on almost every industry. One of the major impacts of the COVID-19 pandemic may be to make all sectors of the economy more ICT-dependent than they were previously.

Thus, it is also important to examine the changing context of AMS engagement with ICT generally and at a number of specific levels. Any review process should seek to evaluate specific measures of material progress towards the AIM 2020's high-level goals. For example, if the percentage of population regularly using online banking increased significantly between 2016 and 2020, this would indicate real progress towards a more digitally-enabled society. Sections 2 and 3 provide further discussion on data for assessing this kind of material progress.

Figure 4 provides conceptual illustration of the role of the AIM 2020 and its Final Review. The fundamental objective of the AIM 2020 is to accelerate ASEAN's ICT development and bring into closer alignment the ICT development and capability of AMS. The role of the Final Review is to review the effectiveness of the AIM 2020 and to provide recommendations for the development of subsequent masterplans.

**Figure 4** Role of the AIM 2020 and Final Review



Finally, it is important to emphasise that achievements of the AIM 2020 strategic thrusts, objectives and action points are important in their own right and that such progress should be seen as stepping stones to the achievement of material and measurable improvement – they are intermediate steps rather than final objectives. It is necessary to develop objective, evidence-based assessments to measure progress towards the AIM 2020 objectives.

Given the complexity of all the socio-economic factors at play, especially due to the recent COVID-19 pandemic, it is impossible to say to what extent the AIM 2020 action points might have contributed to the progress in ICT that actually has been made in the period 2016 to 2020. Many factors are at play which drive ICT development. For example, one of the most important factors in driving progress may be the decreasing price and increasing functionality of smartphones which is ultimately determined by a range of economic and technological factors at a global level. Nonetheless, since resources are always scarce, it is necessary and prudent to attempt to evaluate what initiatives appear most productive and those that do not.

## 1.2 Review Methodology

The AIM 2020 Final Review is based on:

- analysis of the AIM 2020 itself and the Mid-term Review (Section 2);
- analysis of resources and the AIM 2020 budget (Section 3);
- the AIM 2020 Stakeholder Survey (Section 4); and
- Inputs from a set of related data and publications and additional materials (Section 5).

The summary, conclusions and recommendations are provided in Section 6.

# THE MID-TERM REVIEW



## 2 THE AIM 2020 AND THE MID-TERM REVIEW

### 2.1 The AIM 2020

The AIM 2020 is comprehensive in its coverage of ICT related issues and concerns. The five key outcomes and eight strategic thrusts give rise to 16 key initiatives and 28 action points (a full exposition of these is provided in Appendix 2). These action points cover topics as diverse as developing best practices and standards for smart cities, agreeing key issues in maintenance of submarine cables, and addressing social issues such as the digital divide, spectrum harmonisation and ICT human resource development.

The AIM 2020 represents an enormous development agenda but this ambitious reach is predicated on the sound position that in the 21<sup>st</sup> century, ICT underpins the development and competitiveness of almost every sector in the economy.

While bounded geographically, AMS are highly a diverse set of countries encompassing a broad range of stages of economic development and levels of GDP per capita. AMS have vastly different geographic conditions and population sizes as well as many languages, cultures, legal systems and historical experiences. Nonetheless, AMS agreed in the AIM 2020 to a powerful and comprehensive set of objectives that if sufficiently resourced and ambitiously actioned would further accelerate the region's impressive economic performance.

The diversity of AMS, however, inevitably limits the capacity to develop a mutually agreeable set of actions or a high level of specificity of these actions. Some of the action points may be more general than would ultimately be desirable, but by making progress on high-level objectives, the groundwork is laid for subsequent progress on more specific ICT objectives. It is important, of course, that objective assessments be made of progress towards stated goals. Below the assessments of the AIM 2020 Mid-terms Review and responses to the 2020 AIM Stakeholder Survey are discussed.

### 2.2 The AIM 2020 Mid-term Review

The AIM 2020 Mid-term Review involved interviews with stakeholders and circulation of questionnaires and was able to identify 51 completed or ongoing projects under the 28 action points and the eight strategic thrusts. A full list of the projects is provided in Appendix 2. The Review noted that

*More than 50% of the total projects of the AIM 2020 are implemented in accordance with the designated targets. Almost all Strategic thrusts and Action Points AIM 2020 had been acted upon with more than 80% of the Action Points addressed a total of 51 projects have been implemented since 2016, through which 24 Action Points are addressed, clearly eliminating ASEAN Member States' commitment towards a digitally-enabled, innovative, inclusive and integrated ASEAN community.*

The Review found that significant progress had been made on all strategic thrusts except Strategic Thrust 2, **People Integration and Empowerment through ICT**, with the Review noting that there had been "very limited contribution for Strategic Thrust 2. There is no project implemented that aims to strengthen digital inclusion."

**Table 1 Project Funding and Disbursements as of AIM 2020 Mid-term Review**

Item	Total	Complete	On going	Requires Acceleration	Other
Number of Projects	51	22	20	4	5
Self Funding Component ( a )	\$156,258	\$69,558	\$71,700	\$15,000	\$-
Dialogue Partner Fund ( b )	\$3,941,425	\$664,191	\$292,375	\$77,192	\$2,907,668
AICTF Eligible Fund ( c )	\$1,073,682	\$626,390	\$365,400	\$81,892	-
Total Fund (a+b+c)	\$5,171,365	\$1,360,138	\$729,475	\$174,084	\$2,907,668
Disbursed Fund	\$3,035,048	\$680,198	\$257,729	\$61,753	\$2,035,368
Disbursed Fund (%)	58.69%	50.01%	35.33%	35.47%	70.00%

The Review adopted a ‘Review, Refocus, Reframe’ approach for AMS’ consideration, suggesting that opportunities to review current objectives may have emerged over the first three years of the Masterplan.

The Review also noted the importance of establishing Key Performance Indicators (KPIs) to assess the “success of AIM 2020 programs”.

*Pre-determined indicators from the projects should contribute to the KPIs. Therefore, project should define new KPIs that has been agreed among AMS. It should have a joint understanding on the definitions of indicators and what it shall measure.*

The Review reached the following conclusions regarding progress on the AIM 2020:

- The need to have the **appropriate regulatory structures to support the digital economy**: this includes privacy laws, digital signature laws, data protection and incentives in place to support universal broadband access, mobile financial services, and e-commerce;
- A suggested **shift from long-term blueprints to rolling three-year plans**: rapid technological change tends to make longer term objectives irrelevant quickly and there was a need to be “agile and allow for course correction”;
- Need to **embrace industry 4.0**: including disruptive technologies such as AI, robotics, blockchain, 3D printing; and
- **Increasing the participation of women in ICT**: emphasise science, technology, engineering and mathematics (STEM) in schooling and integrate ICT skills development throughout the educational system.

This Final Review will consider the recommendations of the Mid-term report in its conclusions.



# **ANALYSIS OF RESOURCES AND BUDGET**

# 3 ANALYSIS OF RESOURCES AND AIM 2020 BUDGET

Appendix 3 details the various resources and budget from 2016 to 2020 in relation to the AIM 2020 and related activities. With some 66 projects and a total budget of USD 2.185 million on AIM 2020 activities, there is a strong case that the cost-benefit of spending such monies is high and a catalyst to better sector performance. This is because of the broader economic impacts from the use of digital technologies on ASEAN economies.

The factors influencing economic growth are many, including natural resource endowment, human capital, access to capital markets and cultural factors. In multiple studies,<sup>1</sup> the positive influence of telecommunications infrastructure, mobile telephony adoption and broadband penetration on economic growth has repeatedly been demonstrated.

The ITU has concluded that “[t]he evidence generated for this study as well as the results of prior research validate the positive contribution of broadband to GDP growth both for developed and developing countries and regions” and further that “the higher penetration of broadband, the more important is its contribution to economic growth”.<sup>2</sup> Various studies cited by ITU reach conclusions such as:

- a 10% increase in broadband penetration is associated with 3.6% increase in efficiency (46 US States during the period 2001-2005);
- a 10% increase in broadband penetration raises per-capita GDP growth by 0.9-1.5 percentage points (25 OECD countries between 1996 and 2007); and
- a 10% increase in broadband penetration yielded an additional 1.38 in GDP growth (120 low- and middle-income countries 1980-2002).

These studies, and many others, indicate the significant positive economic impacts of increased broadband penetration.

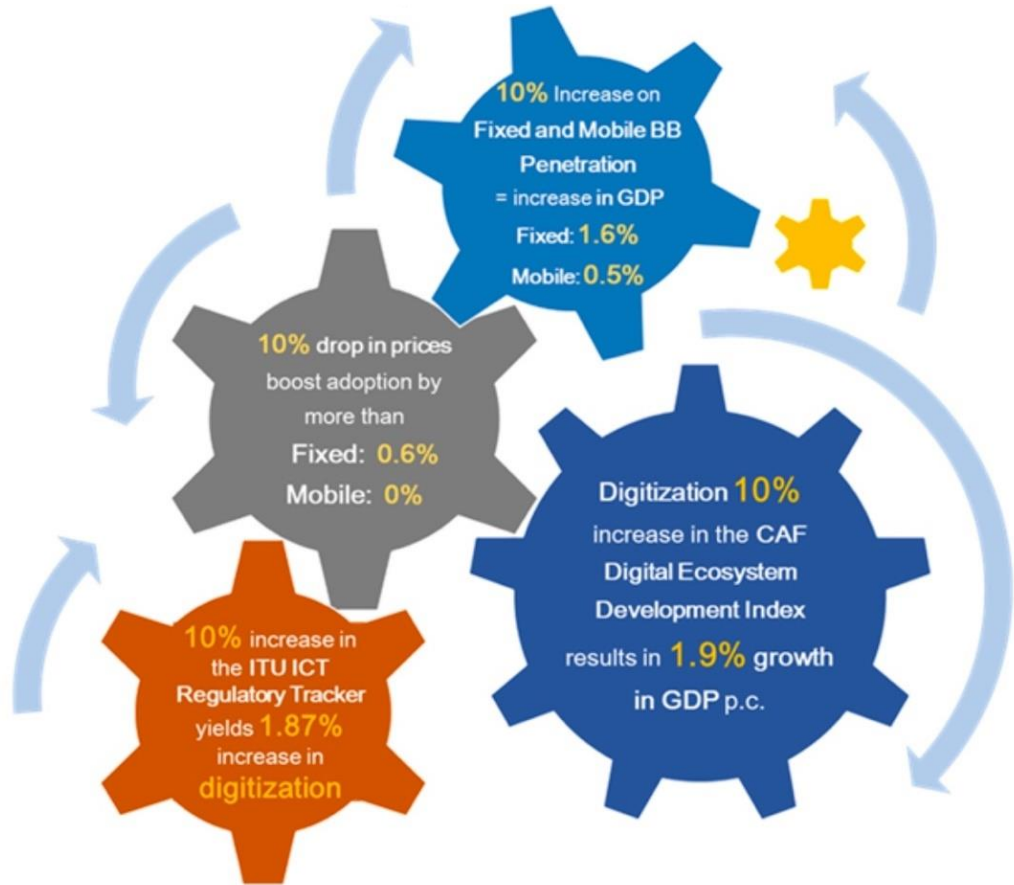
The ITU has undertaken further analysis of the positive economic impact of fixed and mobile broadband and digitization in the Asia-Pacific region – including ASEAN – in 2019 (see Figure 5 below). Given the positive economic impact of such factors, the small quantum of funds and effort spent by ASEAN and AMS on the AIM 2020 during 2016-2020 was arguably well spent.

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<sup>1</sup> ITU, *Impact of Broadband on the Economy: Research to Date and Policy Issues* (April 2012) ('Impact of Broadband') [www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports\\_Impact-of-Broadband-on-the-Economy.pdf](http://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf); ITU, *The Economic Contribution of Broadband, Digitization and ICT regulation* (2018) [www.itu.int/en/ITU-D/Regulatory-Market/Documents/FINAL\\_1d\\_18-00513\\_Broadband-and-Digital-Transformation-E.pdf](http://www.itu.int/en/ITU-D/Regulatory-Market/Documents/FINAL_1d_18-00513_Broadband-and-Digital-Transformation-E.pdf)

<sup>2</sup> ITU, 'Impact of Broadband' *op cit* page 92.

Figure 5 Asia and Pacific: Economic Impact of Fixed and Mobile Broadband Penetration and Digitisation 2019



Source: [https://www.itu.int/pub/D-PREF-EF.BDT\\_AP-2019](https://www.itu.int/pub/D-PREF-EF.BDT_AP-2019)



# STAKEHOLDER SURVEY

# 4 THE AIM 2020 STAKEHOLDER SURVEY

In April and May 2020, an online AIM 2020 Stakeholder Survey was undertaken. A total of 49 responses were received.

## 4.1 Respondent data

This section reports results from the initial section of the survey which asked respondents for information about themselves and their organisations. Figure 6 shows that there was good coverage of each of the AMS.

**Figure 6 Responses: 'In what country do you work?'**

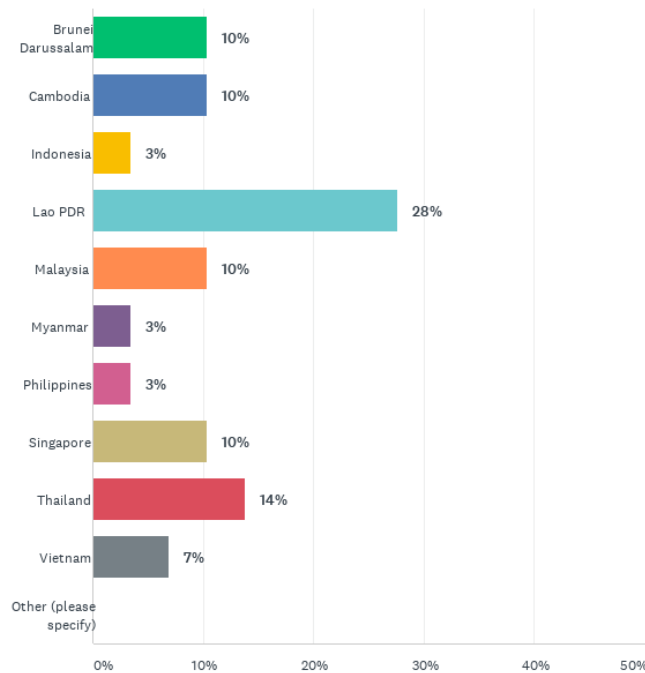


Figure 7 shows the distribution of respondents across roles. The 'other' roles listed by respondents were: Deputy Director, Division Director, Deputy Director General, and Head of Postal, Telco and Public Info-Comm for Regional Affairs.

**Figure 7 Responses: 'What is your role/position?'**

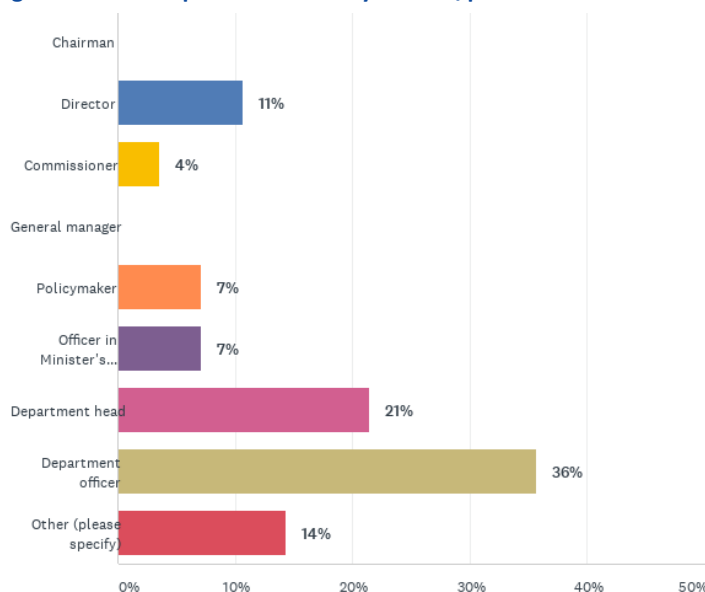


Figure 8 shows the types of organisations that respondents work for. Ministries and regulators make up the significant majority of respondents.

**Figure 8 Responses: 'For what kind of organisation do you work?'**

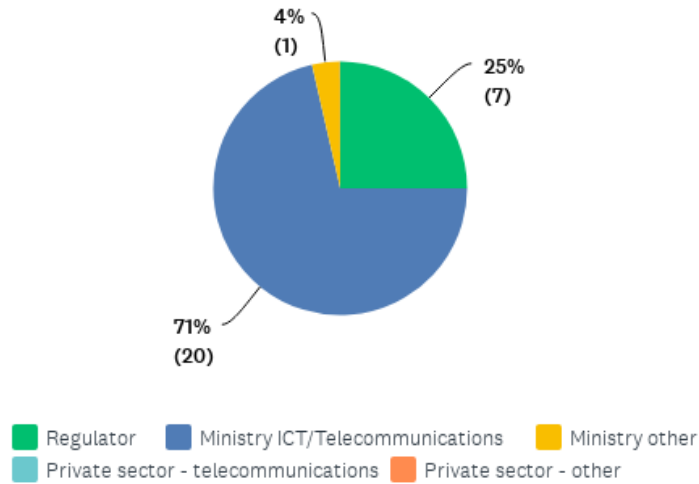


Table 2 What is the name of your organisation? the organisations that respondents work for.

**Table 2 What is the name of your organisation?**

Organisation name	Organisation name
<ul style="list-style-type: none"> <li>• Telecommunication Regulator of Cambodia</li> <li>• Ministry of Posts and Telecommunications</li> <li>• Ministry of Digital Economy and Society</li> <li>• Ministry of Post and Telecommunications</li> <li>• Ministry of Digital Economy and Society</li> <li>• National Privacy Commission</li> <li>• Ministry of Communications and Multimedia Malaysia</li> <li>• Department of International Cooperation</li> <li>• Infocomm Media Development Authority of Singapore</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Post and Telecommunications, E-Government Center Lao National Internet Center, Ministry of Post and Telecommunications</li> <li>• Lao Telecommunication Regulatory Authority</li> <li>• Department of Information and Communication Technology</li> <li>• E-Government Center</li> <li>• Authority for Info-communications Technology Industry of Brunei Darussalam</li> <li>• Ministry of Post and Telecommunications</li> <li>• saFD</li> <li>• Ministry of Communications and Informatics</li> </ul>

## 4.2 Respondents' Views on Implementation Progress of AIM 2020

This section examines the responses received to questions regarding the progress towards the completion and perceived value of the AIM 2020 action points under the eight strategic thrusts.

For each of the 28 action points, respondents were asked to rate the extent to which each was 'completed' and the extent to which each was found to be 'valuable'. Figure 9 provides a sample question from this section of the survey. Note that respondents were asked for each action/project item whether that item was in their area of responsibility. This 'filtering' of respondents resulted in there being significantly fewer respondents to specific questions but this was deemed necessary because respondents who did not have any responsibility for the specific item would be unlikely to have useful knowledge about that item. A figure for 'percent relevant' is given for each action/project item.

Figure 9 Sample of ACTION/PROJECT questions

**ACTION/PROJECT 1.1.1**  
**Study and identify enabling policies and best practices that will accelerate the development of e-commerce and digital service delivery in ASEAN**

Is this ACTION/PROJECT item within your area of responsibility?

Yes  No

Even if this ACTION/PROJECT item is **NOT** within your area of responsibility, please provide any views or information you have about this item.

In your opinion, to what extent has this task been successfully undertaken and completed? *The level of work is ..*

	don't know	nothing done	some work undertaken	significant work undertaken	work near completion	work completed
Project 1.1.1.1 undertaken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In your opinion, to what extent has this work produced valuable results? *The work has been..*

	don't know	no value	some value	valuable	highly valuable	extremely valuable
Project 1.1.1.1 valuable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Project 1.1.1.1 results - If any results of this work have been published please provide reference, preferably a URL (web link):

In order to present the results of this section of the survey in a more compact form, the raw responses were given a weighting and scores were calculated (a weighted average) for both the 'completed' and 'valuable' questions for each action point.

The weight assigned to each response for each of these questions is shown Table 3. The weights are, to some extent, arbitrary. For example, weights of 1, 2, 3, 4, and 5 could have been used for the responses:

- Nothing done;
- Some work undertaken;
- Significant work undertaken;
- Work near completion; and
- Work completed.

Instead, the weights 0, 2, 5, 9 and 10 have been used so that the calculated scores have a larger range which enables more easy discrimination between those Action Points that were more or less completed and more or less valued.

In addition, an average score for each strategic thrust was calculated and is presented as the last row in the summary table below. It should be noted that these scores are a statistical artefact only and the absolute value of scores has no significance. The appropriate way to interpret scores is as indicators of 'completeness' projects or their perceived value for each strategic thrust relative to the others. For example, results for Strategic Thrust 1: Economic Development and Transformation, are good (completed: 6.5 and valuable: 6.7) with the majority of respondents indicating that most of the action points were completed and that the results were valuable. In contrast, the results for Strategic Thrust 7: New Media and Content were relatively weak (completed: 2.8 and valuable: 4.8), indicating that respondents said that little work had been done and that results were only moderately valuable.

**Table 3. Score/weighting of Responses to Questions Relating to Action Points**

Response to 'has this task been successfully undertaken and completed?	Nothing done	Some work undertaken	Significant work undertaken	Work near completion	Work completed
Score (weighting)	0	2	5	9	10
Response to 'to what extent has this work produced valuable results?'	No value	Some value	Valuable	Highly valuable	Extremely valuable
Score (weighting)	0	2	5	9	10

Table 4 provides weighted average scores for each of the action points under Strategic Thrust 1. As commented above, the action points for this Strategic Thrust were generally completed or near completed and were regarded by the majority of respondents to be valuable to highly valuable.

**Table 4. Strategic Thrust 1 – Economic Development and Transformation: Action Points Score**

STRATEGIC THRUST 1. ECONOMIC DEVELOPMENT AND TRANSFORMATION		
ACTION/PROJECT ITEM (percent of respondents for whom the question was relevant)	Perceived Completeness Score	Perceived Value Score
<b>INITIATIVE 1.1 ACCELERATE THE DEVELOPMENT AND GROWTH OF ASEAN'S ICT INDUSTRY AND SERVICES: STRATEGICALLY SUPPORT THE GROWTH OF PRIORITY AREAS OF ASEAN'S DIGITAL ECONOMY</b>		
1.1.1.1. Study and identify enabling policies and best practices that will accelerate the development of e-commerce and digital service delivery in ASEAN (64%)	7.4	8.1
1.1.1.2. Identify best policies, industrial practices and case studies in the region that will benefit ASEAN businesses, especially SMEs (25%)	5.8	5.0
1.1.1.3. Raise awareness of digital trade and use of electronic payment among businesses so that they can better transact with their suppliers and customers, including online consumer protection (40%)	5.9	6.9
1.1.2.1. Commission a study to identify the opportunities and challenges of OTT services (60%)	6.7	7.7
1.1.2.2. Convene a dialogue with OTT players, regulators and other industry players, to discuss best practices towards OTT applications so as to enhance investment and innovation (55%)	5.9	8.6
<b>INITIATIVE 1.2 INCREASE THE USE OF SUSTAINABLE ICT IN PUBLIC AND PRIVATE SECTORS: ENCOURAGE THE USE OF SUSTAINABLE ICT BY THE PUBLIC AND PRIVATE SECTORS</b>		
1.2.1.1. Develop best practices and regional guide for 'sustainable and green ICT use in ASEAN' (32%)	6.7	5.8
1.2.1.2. Review and further develop the AIM2015 initiative on promoting green ICT growth for sustainable development in AMS (42%)	7.4	6.9
<b>Strategic Thrust 1 Average Score</b>	<b>6.5</b>	<b>6.7</b>

The results for Strategic Thrust 2 were also generally strong although there were very few respondents for two of these action project items, meaning the results may not be representative.

**Table 5. Strategic Thrust 2 – People Integration and Empowerment Through ICT: Action Points Score**

STRATEGIC THRUST 2. PEOPLE INTEGRATION AND EMPOWERMENT THROUGH ICT		
ACTION/PROJECT ITEM (percent of respondents for whom the question was relevant)	Perceived Completeness Score	Perceived Value Score
<b>INITIATIVE 2.1 STRENGTHEN DIGITAL INCLUSION IN ASEAN: IMPLEMENT PROGRAMMES WHICH WILL ENABLE MORE ASEAN CITIZENS TO USE ICT</b>		
2.1.1.1. Define and identify 'isolated and underserved communities' (35%)	5.2	4.3
2.1.1.2. Develop recommendations for increasing broadband connectivity and improving affordability, taking into consideration past AIM2015 initiatives (70%)	6.3	5.9

STRATEGIC THRUST 2. PEOPLE INTEGRATION AND EMPOWERMENT THROUGH ICT			
2.1.1.3.	Identify basic digital services to be made available for communities and citizens in ASEAN (65%)	4.8	4.8
2.1.1.4.	Profile case studies highlighting implementation and benefits of broadband in sectors such as health, education, energy, etc (41%)	5.3	8.1
2.1.2.1.	Sharing of best practices on 'USO 2.0' (41%)	7.1	6.7
2.1.2.2.	Develop a policy toolkit for broader ASEAN USO deployment and administration (41%)	6.4	6.7
2.1.3.1.	Develop a definition for next-generation telecentres, including its quality, delivery and sustainability standards (38%)	5.0	5.7
2.1.3.2.	Develop an 'ASEAN Telecentre Toolkit' for those who want to start and run a telecentre in ASEAN (18%)	4.7	9.0
2.1.3.3.	Develop a quality management system or checklist for subsidised or supported telecentres (18%)	2.0	3.3
Strategic Thrust 2 Average Score		5.2	6.1

The results for Strategic Thrust 3 were relatively weak. On a significant number of the action points respondents indicated that little or no work had been done and there was a spread of opinion on the value of the work completed.

**Table 6. Strategic Thrust 3 – Innovation: Action Points Score**

STRATEGIC THRUST 3. INNOVATION			
ACTION/PROJECT ITEM (percent of respondents for whom the question was relevant)		Perceived Completeness Score	Perceived Value Score
<b>INITIATIVE 3.1 PROMOTION OF NEW TECHNOLOGY AND POLICY APPROACHES: EQUIP ASEAN TO PROMOTE THE USE OF AND BENEFITS FROM NEW AND EMERGING TECHNOLOGIES</b>			
3.1.1.1.	Share best practices on smart city planning and development in ASEAN (38%)	4.8	3.5
3.1.1.2.	Identify suitable international and policy models and practices for smart city development, including in areas such as IoT, M2M, and sensor technologies (50%)	2.3	4.0
3.1.1.3.	Identify, develop or adopt suitable standards for smart city developments, such as for IoT, M2M, and sensor technologies, and related policies (25%)	1.8	5.0
3.1.1.4.	Explore the development of a measurement mechanism to track efficiencies in smart city management through ICT (25%)	1.8	3.8
3.1.2.1.	Establish a forum or platform for private sector to share developments and activities in big data management and analysis (50%)	3.9	4.9
3.1.2.2.	Develop guides for standardising the type and standards for machine-readable open data (31%)	2.4	3.2
3.1.2.3.	Support open data development through hosting of competitions where innovative uses and application of open government data is encouraged (e.g. a hackathon) (25%)	2.0	2.0
3.1.3.1.	Develop Centre of Excellence (CoE) collaboration by identifying CoEs and hosting networking events for them to meet and share ideas and experience (19%)	5.0	4.7
3.1.3.2.	Create a virtual platform to collaborate with research partners and stakeholders to collate and distribute updates on new technologies and standards to TELSOM (19%)	1.0	3.7
<b>INITIATIVE 3.2 PROMOTE COLLABORATION AND INNOVATION BETWEEN PUBLIC AND PRIVATE SECTORS: DEVELOP CLOSER TIES WITH THE PRIVATE SECTOR TO LEVERAGE SYNERGIES</b>			
3.2.1.1.	Study the existing start-up ecosystem of incubators, seed funders and venture capitalists in ASEAN (50%)	4.6	6.1
3.2.1.2.	Develop platforms to connect start-up companies to potential private investors (44%)	3.6	5.6
Strategic Thrust 3 Average Score		3.0	4.2

Strategic Thrust 4 was relatively weak on completed score but stronger on valuable score. Strategic Thrust 4 has one of the largest number of action points of any of the strategic thrusts. Particularly on some of the later action points, respondents indicated that little or no work had been done. This included:

- 4.3.1.1. Explore the development of a model Trusted Cloud Platform that may be used by public and private sectors in ASEAN (40% of respondents for whom the question was relevant)

- 4.3.1.2. Develop cloud computing policy guides (40%)
- 4.3.1.3. Promote cloud utilisation in public and private sectors (40%)
- 4.3.1.4. Incentivise private sector cloud computing development by developing guidelines, recommendations and practices demonstrating use and deployment of cloud services securely (40%).

Other action points within Strategic Thrust 4 achieved significantly better results, for example, Initiative 4.1.2.1: Convene dialogue with relevant stakeholders to identify key issues faced with submarine cable repairs in ASEAN. This initiative has produced the ASEAN Guideline on Strengthening Resilience & Repair of Submarine Cables.<sup>3</sup>

**Table 7. Strategic Thrust 4 – ICT Infrastructure Development Action Points Score**

STRATEGIC THRUST 4. ICT INFRASTRUCTURE DEVELOPMENT		
ACTION/PROJECT ITEM (percent of respondents for whom the question was relevant)	Perceived Completeness Score	Perceived Value Score
<b>INITIATIVE 4.1 FOSTERING BROADBAND ACCESS AND CONNECTIVITY: ENSURING AN ASEAN CONNECTIVITY BACKBONE IS IN PLACE</b>		
4.1.1.1. Identify new digital divides, such as access and cost, brought about by new technologies (67%)	4.6	5.9
4.1.1.2. Mapping of priority locations (cities, provinces) requiring broadband deployment for private sector participation; host discussion to highlight opportunities for private sector participation in broadband development and deployment (33%)	4.2	5.0
4.1.1.3. Support IPv6 adoption by partnering with stakeholders to raise awareness of its importance (53%)	5.1	5.5
4.1.2.1. Convene dialogue with relevant stakeholders to identify key issues faced with submarine cable repairs in ASEAN (33%)	5.2	7.4
4.1.2.2. Develop a template for Service Level Agreements (SLA) for submarine cable repair (27%)	7.3	7.0
4.1.2.3. Develop a framework on expedited protection and repair of submarine cables and to increase the resilience of ASEAN’s information hardware (40%)	4.4	5.0
<b>INITIATIVE 4.2 DEVELOP DISASTER MANAGEMENT AND RESPONSE FRAMEWORKS: INCREASE RESILIENCE OF ASEAN ICT COMMUNICATION NETWORKS</b>		
4.2.1.1. Map areas of infrastructural resilience against existing warning sensors (20%)	0.7	5.0
4.2.1.2. Have disaster management and early-warning centres share their experience on sensor and infrastructure resilience (27%)	0.7	3.8
4.2.1.3. Develop success stories and case studies featuring how sensor deployment contributes to infrastructure resilience after a disaster, and identify technologies that work in a practical setting (19%)	0.7	3.3
4.2.1.4. Develop a framework on use of ICT for Disaster Risk Reduction and Management System based on established best practices and policies among all AMS (38%)	4.3	4.8
<b>INITIATIVE 4.3 SUPPORT CLOUD COMPUTING DEVELOPMENT: DEVELOP ASEAN’S CLOUD COMPUTING ENVIRONMENT</b>		
4.3.1.1. Explore the development of a model Trusted Cloud Platform that may be used by public and private sectors in ASEAN (40%)	2.2	5.5
4.3.1.2. Develop cloud computing policy guides (40%)	3.5	5.5
4.3.1.3. Promote cloud utilisation in public and private sectors (40%)	2.8	4.8
4.3.1.4. Incentivise private sector cloud computing development by developing guidelines, recommendations and practices demonstrating use and deployment of cloud services securely (40%).	2.2	3.5
<b>Strategic Thrust 4 Average Score</b>	<b>3.4</b>	<b>5.1</b>

Strategic Thrust 5 scored relatively highly, although Initiative 5.2.1.1 is mostly incomplete according to most respondents. Notably, no respondents reported any published results for Strategic Thrust 5.

<sup>3</sup> The 19th ASEAN Telecommunications and Information Technology Ministers’ Meeting (TELMIN) and Related Meetings, Vientiane, Lao PDR, 25 October 2019: JOINT MEDIA STATEMENT <https://asean.org/storage/2019/10/ADOPTED-TELMIN-19th-TELMIN-JMS-.pdf>.

**Table 8. Strategic Thrust 5 – Human Capital Development Action Points Score**

<b>STRATEGIC THRUST 5. HUMAN CAPITAL DEVELOPMENT</b>		
<b>ACTION/PROJECT ITEM (percent of respondents for whom the question was relevant)</b>	<b>Perceived Completeness Score</b>	<b>Perceived Value Score</b>
<b>INITIATIVE 5.1 BUILDING ICT CAPACITY AND CAPABILITIES, PARTICULARLY FOR VULNERABLE GROUPS: EQUIPPING ALL ASEAN CITIZENS TO BE DIGITALLY-LITERATE WITH BASIC ICT SKILLSETS</b>		
5.1.1.1. Initiate a programme for ICT Human Resource discussion within ASEAN between the public, private, and academic sectors, to enable statistical comparisons of demand and supply. The comparison will take into consideration various sectors in the ICT economy and the cross-border flows of ICT professionals in order to identify and address skill gaps across AMS (41%)	4.6	5.6
<b>INITIATIVE 5.2 DEVELOP COMMON ICT WORKFORCE SKILLS: CREATE STANDARDS THROUGH WHICH THE ASEAN WORKFORCE IS ICT-LITERATE AND COMPETITIVE</b>		
5.2.1.1. Explore the development of baseline ICT skills and a reference document identifying 'Basic ICT Workforce Skills' in ASEAN (31%)	2.6	3.2
5.2.1.2. Review and enhance the ASEAN ICT Skill Standards Definition and Certification Framework developed under the AIM2015 (e.g. including more specified ICT skill areas where necessary) (41%)	5.6	5.6
<b>Strategic Thrust 5 Average Score</b>	<b>6.0</b>	<b>4.8</b>

Strategic Thrust 6 was one of the stronger scoring strategic thrusts and again contained a large number of action project items. This Strategic Thrust resulted in publications including the ASEAN Framework on International Mobile Roaming.

**This Table 9. Strategic Thrust 6 – ICT in the ASEAN Single Market Action Points Score**

<b>STRATEGIC THRUST 6. ICT IN THE ASEAN SINGLE MARKET</b>		
<b>ACTION/PROJECT ITEM (percent of respondents for whom the question was relevant)</b>	<b>Perceived Completeness Score</b>	<b>Perceived Value Score</b>
<b>INITIATIVE 6.1 CREATE A CONDUCIVE ENVIRONMENT FOR BUSINESSES: SUPPORT THE DEVELOPMENT OF THE AEC IN ICT PRODUCTS AND SERVICES</b>		
6.1.1.1. Identify messaging and platforms for communicating the strengths and growth potential of the ASEAN single market to global ICT vendors and service providers. Particular focus to be given to accelerating digital services development and delivery across ASEAN (44%)	3.9	6.1
6.1.1.2. Raise awareness of the ASEAN single market so that businesses can better engage with global suppliers and customers, including the sharing of ICT market information and regulations (31%)	4.8	6.4
6.1.1.3. Conduct ASEAN-organised trade delegations to specific ICT trade investment fairs to encourage investments in ASEAN. These are to be focused on both ICT and also on investments into ICT to support development in industries such as transport, health, education, as well as smart cities, etc (25%)	2.5	3.8
6.1.2.1. Develop a framework to provide affordable intra-ASEAN mobile voice, SMS and/or data roaming services (50%)	6.6	6.6
6.1.3.1. Promote spectrum management harmonization in ASEAN (e.g. 700 MHz band, International Mobile Telecommunications (IMT) and related next versions) (50%)	5.5	5.1
6.1.3.2. Study spectrum usage for newly emerging technologies and strengthen cross-border spectrum management and coordination (44%)	4.4	4.4
<b>INITIATIVE 6.2 PROMOTE AN OPEN MARKET FOR ICT ENTERPRISES/ PRODUCTS: PROACTIVELY SUPPORT THE ONGOING LIBERALISATION OF THE ASEAN MARKET FOR ICT PRODUCTS AND SERVICES</b>		
6.2.1.1. Identify priority ICT standards so as to facilitate alignment of ICT technical standards across AMS (47%)	3.4	4.4
6.2.1.2. Conduct a study on the potential for an ASEAN single telecommunications market, including studying the various components and aspects of a single telecom market and indicating the 'readiness' across AMS (31%)	5.8	6.6
<b>Strategic Thrust 6 Average Score</b>	<b>5.4</b>	<b>6.4</b>

These efforts to lower trading costs and achieve greater economic integration between AMS are critically important, particularly in the context of the COVID-19-driven decline in economic activity. Alignment of international mobile roaming arrangements between AMS should continue to be pursued and ICT standards and systems to minimise trade transaction costs should be a priority. Future masterplans should consider the objectives and terms of

trade agreements in place or under development or negotiation. Besides minimising technical and compliance costs in trade, future masterplans should encourage of digital supply chains, and the development of paperless trading, electronic invoicing, digital payment and digital identity management systems.

Specifically, Strategic Thrust 7 (over) scored quite poorly particularly in terms of completion although the work that was completed was generally regarded as quite valuable. To some extent, the relatively poor results can be attributed to relatively small numbers of respondents for particular action points.

A more ambitious approach which could be taken to ASEAN IMT spectrum management and harmonisation is detailed below

**ASEAN SPECTRUM MANAGEMENT AND HARMONISATION: A MORE AMBITIOUS APPROACH**

While AIM2020, Action Point 6.1.3 sought to Harmonize Telecommunication Regulations - Develop Guidelines for ASEAN Spectrum Regulatory Cooperation including having a target/project to promote spectrum management harmonization in ASEAN (e.g. 700 MHz band, International Mobile Telecommunications (IMT) and related next versions), it is now clear that was insufficient and that more ambitious targets should have been agreed upon. The lack of both harmonised coverage spectrum (e.g. 700 MHz) and capacity spectrum (e.g. 3.5 GHz) has undermined the realisation of other key action points including 2.1.1: Create Initiatives to Address Emerging or Growing Digital Divides in ASEAN. Future ASEAN masterplans should more specifically address this issue.

Specifically, as highlighted in two GSMA reports – (i) *Securing the digital dividend across the entire ASEAN: A Report on the status of the implementation of the APT700 Band for ATRC*, August 2018 and (ii) *Roadmap for C-Band in ASEAN*, August 2019, long term planning, the hallmark of AIM2020, has not resulted in the release of 700 MHz and 3.5 GHz bands across all of ASEAN. Initial statements made in June 2013,<sup>4</sup> by Brunei Darussalam, Indonesia, Malaysia and Singapore were promising – they announced a commitment to align with the Asian Pacific Telecommunity 700 MHz band plan and the spectrum would be available after 2020 –this has generally not occurred across ASEAN.

As a consequence, as at the date of this Review only the Philippines and Thailand are utilising the 700 MHz band; Singapore has auctioned the band but it is not in use, and it is vacant in Brunei Darussalam, Malaysia, Myanmar, Lao PDR and Viet Nam. Indonesia and Cambodia are yet to clear the band. Similarly, most AMS are struggling to have a co-ordinated approach to freeing up some of the C-Band spectrum (3.5 GHz) for use for 5G networks and services.

Going forward, there is a need for stronger coordination and firm availability dates set in relation to low band frequencies (i.e. sub-1 GHz) and higher frequency spectrum bands which are used by pan-ASEAN satellites where cross-border coordination and geographical proximity require such harmonisation.

A possible model for ASEAN can be found in Europe. In a series of decisions starting in 2017, the EU has taken steps to better co-ordinate and harmonise radio spectrum assignment so that Europe can become a leader in the rollout of 5G networks. This has resulted in decisions to establish pan-European bands for 5G namely 700 MHz (May 2017), 3.5 GHz (January 2019) and mmWave (26 GHz – May 2019).<sup>5</sup> Such decisions foresee the availability of the pioneer 700 MHz across the EU by mid-2020, and the pioneer band 3.5 GHz across the EU by end of 2020.

**Table 10. Strategic Thrust 7 – New Media and Content: Item Score**

STRATEGIC THRUST 7. NEW MEDIA AND CONTENT		
ACTION/PROJECT ITEM (percent of respondents for whom the question was relevant)	Perceived Completeness Score	Perceived Value Score
INITIATIVE 7.1 PROMOTE THE DEVELOPMENT OF MEDIA AND CONTENT MARKETS: SUPPORT AND PROMOTE THE SUSTAINABLE DEVELOPMENT OF AN ASEAN CONTENT MARKET		
7.1.1.1. Explore adding new categories to the ASEAN ICT Awards: (i) ‘New Media and Content’, focused on projects and products that take innovative approaches to the creation of local content (ii) ‘Community Content’ for content and apps that support community engagement and municipality services (44%)	3.0	3.0

<sup>4</sup> See [www.mcmc.gov.my/ms/media/press-clippings/brunei-indonesia-malaysia-singapore-agree-on-700](http://www.mcmc.gov.my/ms/media/press-clippings/brunei-indonesia-malaysia-singapore-agree-on-700).

<sup>5</sup> <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32017D0899>, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1549615962331&uri=CELEX:32019D0235> and <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019D0784>

STRATEGIC THRUST 7. NEW MEDIA AND CONTENT			
7.1.1.2.	Establish an engagement forum for AMS to dialogue with social media providers to discuss relevant matters (e.g. regulatory matters, responsible online practices, etc) (44%)	4.4	4.3
7.1.1.3.	Encourage multilingual content by commissioning the development of language APIs and plugins to enable sites to offer content in English and major ASEAN local languages through machine translation, and have the ASEAN website available in major ASEAN languages (13%)	1.0	9.0
7.1.2.1.	Document best practices and develop guides for developing local content, including: <ul style="list-style-type: none"> <li>Developing favourable content environments</li> <li>Funding development of local language packs for common CMS software</li> <li>Helping local companies go to market</li> <li>Helping local companies regionalise and distribute their content (19%)</li> </ul>	1.0	3.0
INITIATIVE 7.2 NURTURE ASEAN DIGITAL SOCIETY: BUILD AN ASEAN ONLINE COMMUNITY			
7.2.1.1.	Develop a framework of expected minimum levels of e-services delivery by 2020, including best practices and recommendations guidelines for (a) Improvement of quality of service for common e-government applications, and (b) Cross-leveraging existing successes within AMS; taking into consideration past IM2015 initiatives (40%)	2.3	3.5
7.2.2.1.	Developing a focused model programme targeting education, advocacy, and engagement around cyber wellness, including: <ul style="list-style-type: none"> <li>Developing guides and promoting awareness on online risks, particularly to vulnerable groups (children, youth, less-abled), and how they should respond</li> <li>Raise awareness and resilience to new threats and risks online (e.g. the rapid spread of misinformation, cyber-vigilantism and over-sharing of personal and corporate information)</li> <li>Developing measures for child online protection, including communication channels to report 'harmful content' and online abuse to the relevant AMS authorities, with a focus on safety for children</li> <li>Working with the community to establish online forums and exchange on cyber wellness and Internet abuse, with the goal of bringing together stakeholders' views</li> <li>Sharing of information and data among countries on trends and challenges in the online space for greater mindshare in formulation of policies and programmes (25%)</li> </ul>	5.0	6.3
Strategic Thrust 7 Average Score		2.8	4.8

Published results for this Strategic Thrust include ASEAN Critical Information Infrastructure Framework,<sup>6</sup> ASEAN Framework on Personal Data Protection,<sup>7</sup> and Feasibility Study on Establishing an ASEAN CERT.

Strategic Thrust 8 scored relatively strongly, particularly on completion score.

**Table 11. Strategic Thrust 8 – Information Security and Assurance Action Points Score**

STRATEGIC THRUST 8. INFORMATION SECURITY AND ASSURANCE			
ACTION/PROJECT ITEM (percent of respondents for whom the question was relevant)		Perceived Completeness Score	Perceived Value Score
INITIATIVE 8.1 STRENGTHEN INFORMATION SECURITY IN ASEAN: CREATE A TRUSTED ASEAN DIGITAL ECONOMY			
8.1.1.1.	Commission a study that compares personal data privacy protection frameworks across AMS. The study will identify current practices, develop case studies, and disaggregate issues across different levels – local, national, cross-border and ASEAN (38%)	6.8	6.8
8.1.1.2.	Develop an ASEAN guideline or framework for personal data protection (40%)	7.3	6.5
8.1.2.1.	Develop best practice guide for information and network security in ASEAN, including cloud computing (20%)	7.8	6.3
8.1.3.1.	Commission a report to identify existing critical information infrastructures and suggest best approaches to coordinated protection and response (25%)	6.3	7.3
INITIATIVE 8.2 STRENGTHEN INFORMATION SECURITY PREPAREDNESS IN ASEAN: IMPROVE CYBER EMERGENCY RESPONSES AND COLLABORATION			

<sup>6</sup> see <https://www.eta.or.th/download-publishing/146/>

<sup>7</sup> see <https://asean.org/storage/2012/05/10-ASEAN-Framework-on-PDP.pdf>.

STRATEGIC THRUST 8. INFORMATION SECURITY AND ASSURANCE			
8.2.1.1.	Conduct a feasibility study on establishing an ASEAN CERT, including looking at possible ownership models – whether by AMS government or through Public-Private Partnership (PPP) (20%)	7.7	5.0
8.2.1.2.	Develop an Incident Reporting Framework, including templates and standardised responses to pre-identified ‘threat levels’ and attach types (13%)	5.0	5.0
8.2.1.3.	Promote regular cyber security collaboration between governments, business community and citizens through joint awareness-raising campaigns and the exchange of relevant materials (20%)	6.3	6.3
Strategic Thrust 8 Average Score		6.7	6.2

Figure 10 and Table 12 show the average scores for each strategic thrust. The higher the score the higher the overall perceived level of completeness and value for the component action points that make up each strategic thrust. The strongest outcomes were in Strategic Thrusts 1, 2, 6 and 8 and the weaker outcomes were for Strategic Thrusts 3 and 7. Strategic Thrust 5 scored relative well on completeness but less strongly on perceived value. We note:

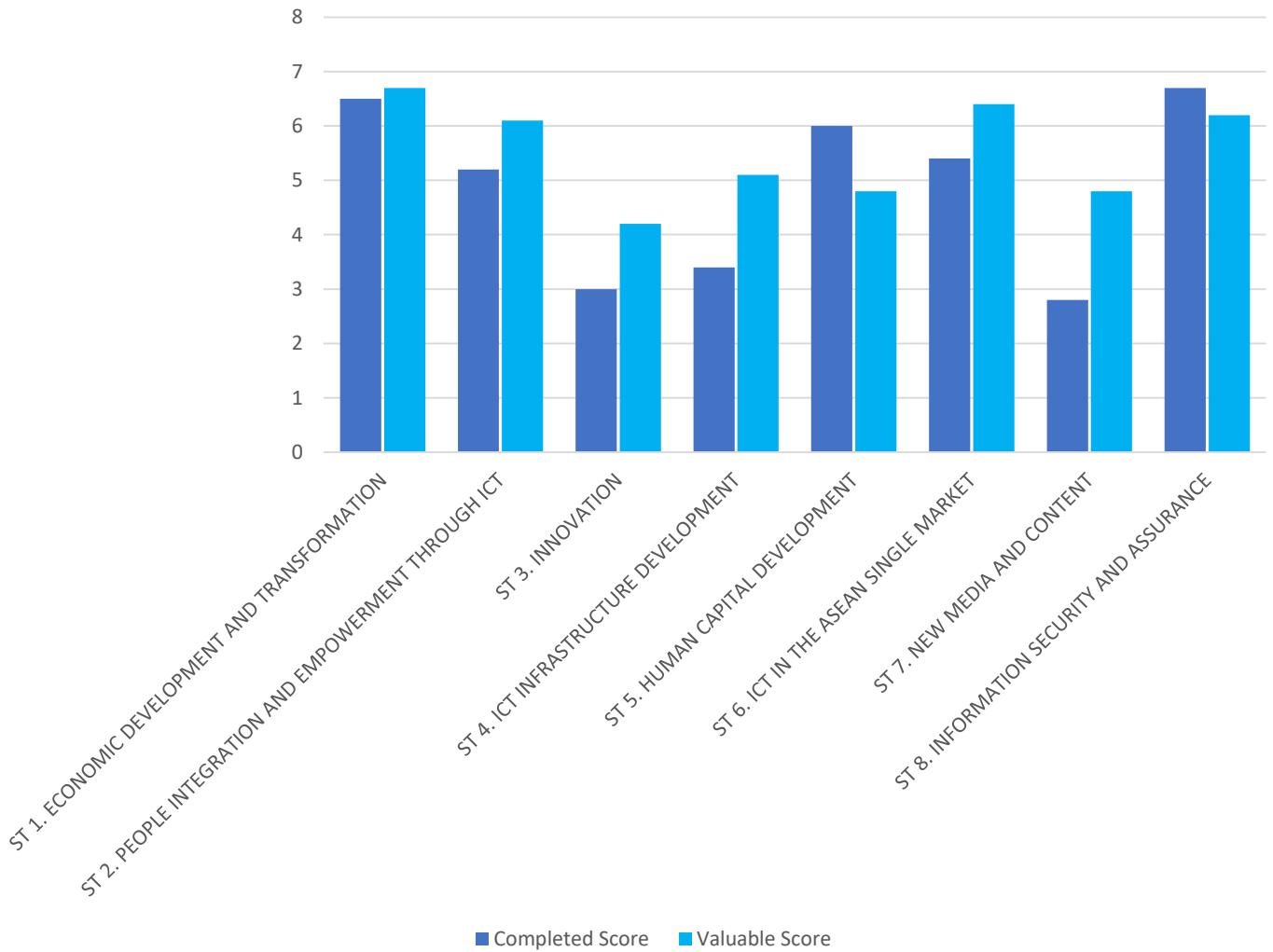
- For Strategic Thrust 3, multiple respondents reported that work had not been completed although that which had was reported to be valuable.
- For Strategic Thrust 7, responses to many of the action points indicated that several of them were characterised as ‘some work undertaken’. For the important area of data privacy protection, useful development of an ASEAN Framework on Personal Data Protection was undertaken.<sup>8</sup>
- Strategic Thrust 4 did not score very strongly, mainly because most respondents reported that, as noted above, work on cloud computing issues had generally not reached completion. This is something of a concern because cloud computing is essential to new technology trends including big data, AI, IoT, Industrial Revolution 4.0 and smart cities.

**Table 12 Strategic Thrust Average Score**

STRATEGIC THRUST	Perceived Completeness Score	Perceived Value Score
STRATEGIC THRUST 1. ECONOMIC DEVELOPMENT AND TRANSFORMATION	6.5	6.7
STRATEGIC THRUST 2. PEOPLE INTEGRATION AND EMPOWERMENT THROUGH ICT	5.2	6.1
STRATEGIC THRUST 3. INNOVATION	3.0	4.2
STRATEGIC THRUST 4. ICT INFRASTRUCTURE DEVELOPMENT	3.4	5.1
STRATEGIC THRUST 5. HUMAN CAPITAL DEVELOPMENT	6.0	4.8
STRATEGIC THRUST 6. ICT IN THE ASEAN SINGLE MARKET	5.4	6.4
STRATEGIC THRUST 7. NEW MEDIA AND CONTENT	2.8	4.8
STRATEGIC THRUST 8. INFORMATION SECURITY AND ASSURANCE	6.7	6.2

<sup>8</sup> See <https://asean.org/storage/2012/05/10-ASEAN-Framework-on-PDP.pdf>

**Figure 10 Strategic Thrust Average Score**



In addition to this feedback on the progress of the AIM 2020 action points, the respondents were also asked additional questions about the potential impacts of the COVID-19 pandemic on the AIM 2020 objectives. Input was sought regarding the types of data that would be useful for measuring progress towards the AIM 2020 objectives (Section 4.4). Finally, respondents were also asked to identify objectives that should be prioritised in future masterplans (Section 3.5).

### 4.3 Respondents’ Views on Impacts of COVID-19 Pandemic

Given that the survey was being conducted in April and May 2020, and at the time the COVID-19 pandemic was in its relatively early stages, we added questions to the survey about the perceived impact of the pandemic. Basically, the questions were intended to determine respondents’ views on how the pandemic is expected to impact the achievement of the AIM 2020 objectives.

**Figure 11 Responses: 'In your view, what impact will COVID-19 have on the achievement of AIM 2020 goals in broad general terms both until the end of 2020 and beyond?'**

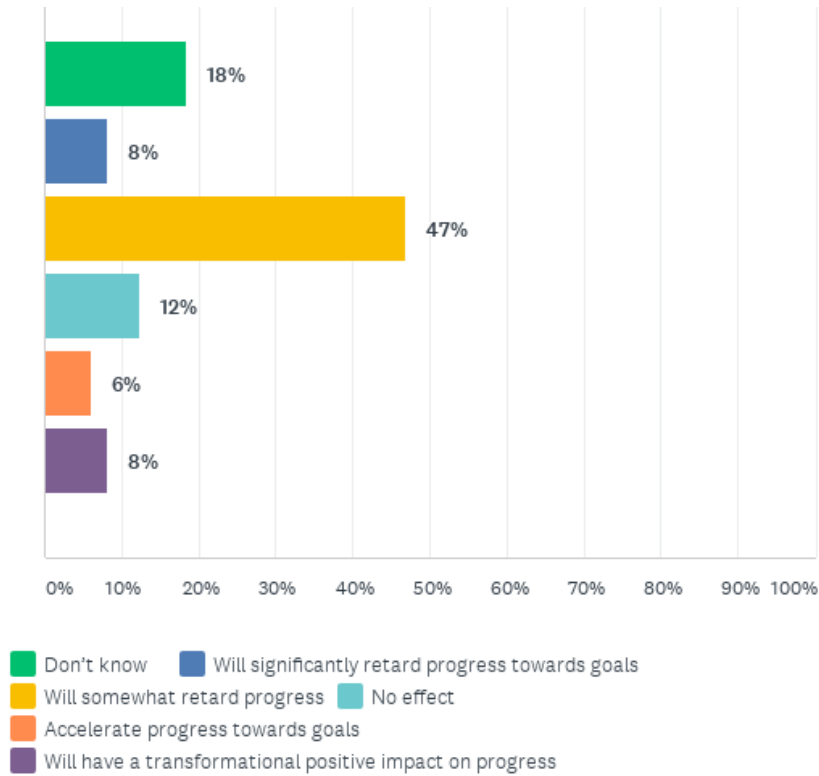


Figure 11 shows the results from this initial question on the effects of the COVID-19 pandemic. These indicate that respondents are predominantly of the view that the COVID-19 pandemic will negatively impact the achievement of the AIM 2020 goals with a total of 52% stating that they believe the pandemic will significantly retard or somewhat affect progress. 12% of respondents believe that the COVID-19 pandemic will have no effect and 14% believe that the pandemic will cause an acceleration towards the AIM 2020 goals.

Figure 12 shows the nature of expected negative impacts for those we believe that the impacts of the COVID-19 pandemic will be negative. 88% of respondents believe that 'travel and other barriers will have a negative impact on ICT skills transfer and/or country economic activity'. 54% of respondents also believe that 'decreased consumer demand because of lost employment and incomes' will have a significant negative impact. The decreased capacity of the private and public sectors to fund ICT programs and infrastructure was also a prominent concern among respondents.

**Figure 12 Responses: 'What factors do you think will lead to progress towards AIM 2020 goals being retarded (choose as many options as you think appropriate)'**

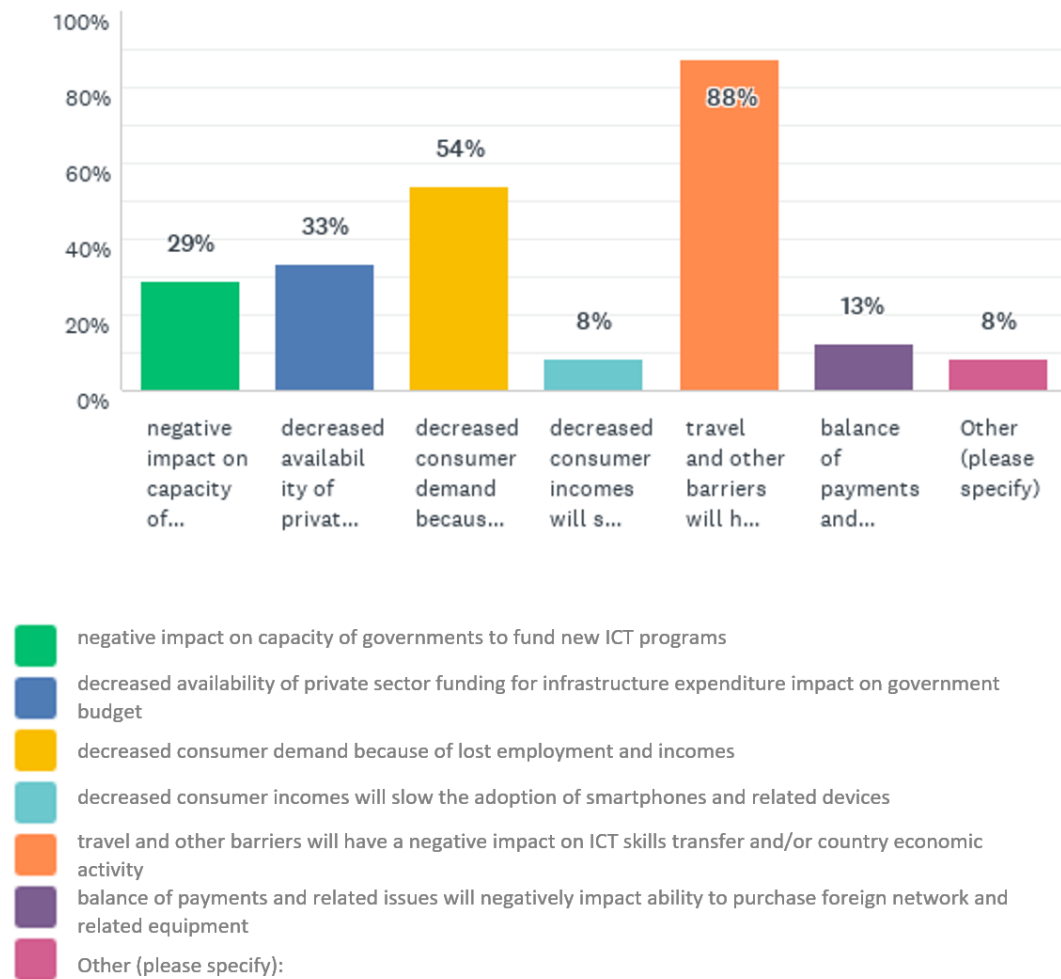
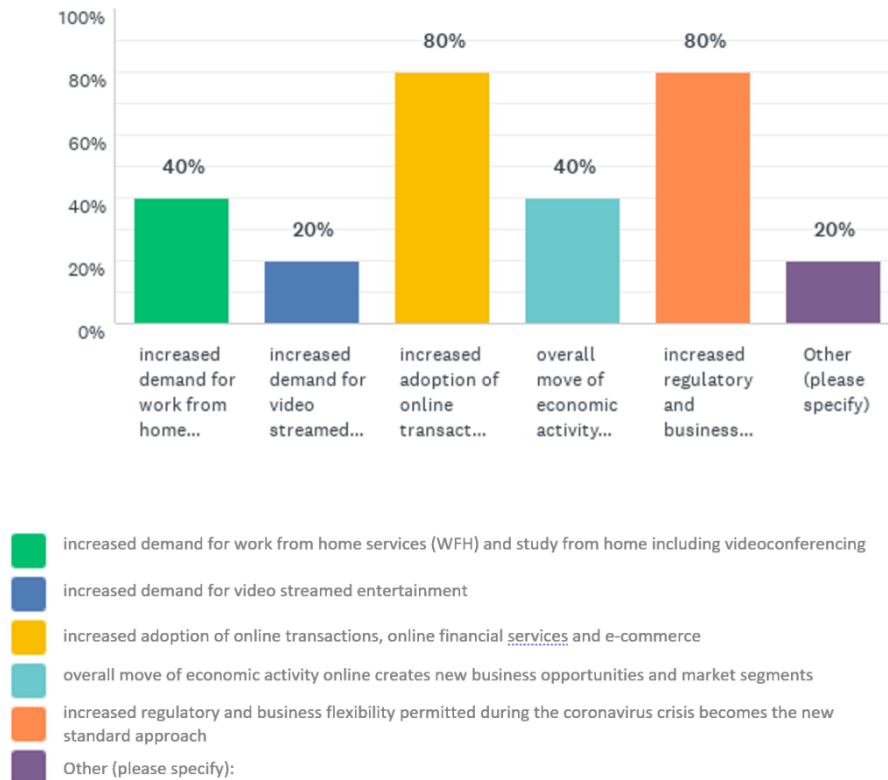


Figure 13 shows the nature of expected positive impacts of those who believe that the impacts of the COVID-19 pandemic will be positive. These views emphasised the behavioural and adaptive responses of businesses and citizens to pandemic conditions. 80% of respondents believe that 'increase adoption of online transactions, online financial services and e-commerce' as well as 'increased regulatory and business flexibility permitted during the coronavirus crisis becomes the new standard approach'. Respondents also anticipate an overall positive impact from 'increased demand for work from home services and study from home including video conferencing' and that 'overall move of economic activity online creates new business opportunities and market segments'.

These are interesting forecasts and do, in fact, anticipate the experience of the past seven months of the COVID-19 experience to the end of August 2020. There have been many comments from industry analysts to the effect that the COVID-19 pandemic has caused an decade's worth of progress in the ICT domain in six months. One of the comments in the 'other' section was 'Help escalate digital transformation'.

**Figure 13 Responses: ‘What factors do you think will lead to progress towards AIM 2020 goals being retarded (choose as many options as you think appropriate)’**



## 4.4 AIM 2015 and 2020 Ongoing Activities

Appendix A of the AIM 2020 makes reference to ongoing efforts that were initiated in the AIM 2015 and were incorporated into the 2020 plan. Particularly because of the impact of the COVID-19 in 2020, it may be necessary to carry over items into the new masterplan, the ADM 2025. This is because it imposes significant limitations on the ability of AMS to implement projects due country lockdown and social distancing measures taken in response to the pandemic.

## 4.5 Respondents’ Views on Future Masterplan Priorities

In the final part of the survey, respondents were asked to offer comments on priorities for the next masterplan. This included ranking themes for the ADM 2025 and a ranking of objectives in order of priority.

The first question in the final part of the survey was:

We are interested in your thoughts and opinions regarding the new ADM 2025. Below please describe what you believe are priorities for the Masterplan and/or important items to include.

RESPONSES:

- I sincerely hope that it will focus on the Human Resource factor as we have built sufficient infrastructure as a foundation.*

  - 1. ASEAN Digital Transformation Framework, shall be developed and adopted as the process and guidance for government agencies and business to digitally transform to gain better competitiveness and economic development.*
  - 2. ASEAN Technology testbeds for emerging technology. i.e. IoT, Data Science, Artificial Intelligence, Advanced Robotics, AR/VR, Cybersecurity.*
  - 3. Digital Taskforce Development for ASEAN i.e. Digital Literacy, Re – skilling, Up – skilling*
  - 4. ASEAN Digital Start-ups Networking*
  - 5. Capacity Building Program for development Cybersecurity, Personal Data Protection and Cybersecurity Ethics*
  - 6. Digital Indicators for AMSs and for ASEAN as a whole.*

- Promoting privacy and data protection legislation among AMS Promoting privacy-respecting and trustworthy cross border data flows
- Digital transformation;
- Incorporating lessons learnt from the COVID-19 crisis.
- Digital transformation Guidance
- Green ICT ecosystem and sustainability development, Digital technology and Innovation for Energy, Environment, Disaster, Climate change, Agriculture, Food security and health protection.
- Holistic plan that covers all AMS interests to capitalise on digital economy.
- Digital Transformation, Start-up, cyber security, capacity building, narrow down digital gap and technology blockchain, cloud, AI and Bigdata.

Next, respondents were asked to rank high level themes for the ADM 2025 (Table 13).

**Table 13 Proposed Themes for ADM 2025**

Ranking	THEME (in order of Ranking)	Percentage of respondents ranking of 1st
1	ASEAN: A Digitally Connected Community	56
2	ASEAN: Towards a Responsible Digital Community	31
3	ASEAN: Towards a Holistic Digital Ecosystem	25

Next, respondents were asked to priorities the objectives listed in Table 14.

**Table 14 Proposed ADM 2025 Objectives**

Ranking	OBJECTIVE (in order of Ranking)	Percentage of respondents ranking either 1st or 2nd
1	To enhance resilient, secure and trusted digital environment, with the aim to support economic progression and technological advancement	62
2	To encourage interoperability and seamless digital connectivity in ASEAN	51
3	To establish an inclusive and comprehensive regional strategy which will propel ASEAN to be a front-runner in the Digital Economy	50
4	To strengthen ASEAN's position as a region conducive for investment and trade through digital technologies and innovation	31
5	To support the work of the other ASEAN sectoral bodies, emphasising the cross-sectoral role of digital technologies in economic and social development, and security measures	25
6	To build bridges with relevant stakeholders including dialogue partners, private sector organisations, associations and commercial entities to advance the digital transformation and digital economy agenda in ASEAN	13



**RELATED  
DATA, PUBLICATIONS  
AND ADDITIONAL ISSUES**

# 5 RELATED DATA, PUBLICATIONS AND ADDITIONAL ISSUES

In this section, recent data and publications that are relevant to the Final Review of the AIM 2020 are examined alongside other issues relating to current ICT development, as well as the COVID-19 pandemic.

## 5.1 Relevant publications

Since the start of 2016, several relevant publications have become available which are relevant to an evaluation of the AIM 2020 and to the development of subsequent masterplans. There were activities in each AMS to raise recognition of the plan.

### The Master Plan on ASEAN Connectivity 2025

**The Master Plan on ASEAN Connectivity 2025** (MPAC 2025) focuses on physical connectivity, people-to-people connectivity and institutional connectivity. Its five areas of strategic focus are:

- sustainable infrastructure
- digital innovation
- seamless logistics
- regulatory excellence
- people mobility.

The focus of the MPAC 2025 is inherently broader than the AIM 2020 because it includes a focus on transport linkages, trade and a broad range of other institutional considerations. It does recognise, however, the central role of ICT in achieving increased overall ASEAN connectivity. The broader context for the MPAC 2025 is regional economic growth, increasing living standards, the drive for increased productivity and competitiveness in ASEAN, the central role of trade and logistics in ASEAN's economic development, opportunities for achieving greater economies of scale in the region through increased conductivity, and emerging geo-strategic concerns.

MPAC 2025 defines the central role of ICT as an enabler across industry and as a means by which various social policy objectives can be realised. This is illustrated, for example, by the following initiatives from MPAC 2025:

- Initiative 4: Enhance the MSMEs (Micro, Small and Medium Enterprises) Technology Platform.
- Initiative 5: Develop the ASEAN Digital Financial Inclusion Framework
- Initiative 6: Establish an ASEAN Open Data Network.
- Initiative 7: Establish an ASEAN Digital Data Governance Framework.

Thus, the broad thrust of the AIM 2020 is entirely consistent with that of the MPAC 2025 and the Final Review recommends that MPAC 2025 be referenced to inform the development of the ADM 2025.

In 2020, a review of the MPAC 2025 was published, **Second Master Plan on ASEAN Connectivity 2025 Progress Review Report**. The Progress Review notes that:

*This Report shows that more tangible progress and concrete outputs have been made as [12] out of 15 initiatives have entered implementation phase (see Exhibit 1). As the implementation deepens and broadens, more efforts will continue to be directed towards engaging the wider group of stakeholders, such as city governments, private sector representatives, industry associations, and multilateral organisations.*

Figure 14 Overall Implementation Status of MPAC 2025



## ASEAN Economic Community Blueprint 2025

**ASEAN Economic Community (AEC) Blueprint 2025** is the high-level strategic plan for ASEAN economic development. The objectives of the blueprint are a more cohesive ASEAN economy, to improve economic growth and productivity, promote good governance, and sustainable green development. The primary elements of the blueprint are:

- A highly integrated and cohesive economy
- A competitive, innovative and dynamic ASEAN
- Enhanced connectivity and sectoral cooperation
- A resilient, inclusive, people-oriented and people-centred ASEAN
- A Global ASEAN

As is the case with the MPAC 2025, the AEC Blueprint 2025 acknowledges the important role of ICT in ASEAN development. Under element three, **Enhanced connectivity and sectoral cooperation**, AEC Blueprint 2025 identifies:

- Information and communications technology:
  - I. Economic Transformation
  - II. People Integration and Empowerment through ICT
  - III. Innovation
  - IV. ICT Infrastructure Development
  - V. Human Capital Development
  - VI. ICT in the Single Market
  - VII. New Media and Content Industry
- E-commerce:
  - I. Harmonised consumer rights and protection laws
  - II. Harmonised legal framework
  - III. Inter-operable, mutually recognised, secure, reliable and user-friendly e-identification and authorisation (electronic signature)
  - IV. Coherent and comprehensive framework for personal data protection.

## ASEAN Digital Integration Index: Measuring Digital Integration

**ASEAN Digital Integration Index: Measuring digital integration to inform economic policies 2020<sup>9</sup>** is a proposed methodology and description of datasets for the development of a new ASEAN Digital Integration Index (ADIX). The proposed ADIX is based on a very broad and substantial set of data inputs. An example of the types of data proposed to be included in the index illustrates the breadth of coverage:

- OECD Trade Facilitation Indicators
- United Nations, ITU - Global Cybersecurity Index
- UN Global Survey on Digital and Sustainable Trade Facilitation
- ITU, Measuring the Information Society Report 2018
- WIPO, Global Innovation Index (GII) database
- UN E-Government Survey 2018.

The DII document provides links to all datasets proposed to be part of the index and, as such, represents a significant information source in its own right. The document also provides useful methodological notes on techniques for the construction of the index.

The document should be considered as an input for future instances of the ICT masterplan, in particular in terms of developing datasets to provide objective measurement of progress towards masterplan goals

## 5.2 Assessment of Implementation Progress of AIM 2020

Understanding the progress that ASEAN and individual economies have made in the ICT domain over the period from 2016 to 2020 is not only useful in understanding the effectiveness of the AIM 2020, but it also offers useful inputs to the development of the next masterplan.

This raises the question: what are the measurable outputs of the AIM 2020 vision that would enable us to make an assessment of progress towards its goals between 2016 and 2020?

As the 2018 mid-term progress report stated: “AIM 2020 requires specific indicators that are able to measure the level of effectiveness, sustainability and impact of projects to the public in general.” This comment emphasises the need for objective, measurable indicators of progress that ultimately have a positive impact on the welfare of the general public in ASEAN countries. For the sake of completeness and rigour of the indicator, it is worth emphasising an important methodological and analytical issue. While there is no doubt that progress towards the AIM 2020 goals will facilitate the ICT development of ASEAN (and ASEAN growth generally), there is such an enormous multiplicity of factors that drive ICT development that it is difficult, if not impossible, to attribute direct relationships between particular policy developments and interventions and improvements in ICT performance. For example, increased penetration of smartphone use may be attributable in part to a set of regulatory interventions but will also be attributable to the technological change that drives down handset prices. Untangling specific causes and effects in these scenarios is usually impossible given the unavailability of appropriate data and the statistical challenges present in these multiclausal scenarios.

In practice, there is a need to develop reliable, comprehensive and objective statistical measures of ICT development and continuously assess these against the types of goals defined in the AIM 2020. Over time, it should be possible to observe material progress through improvements in the data and the contribution of improved regulation and policy and its role in such improvement.

The AIM 2020 Mid-term Review suggested the following KPIs that would assist in assessing the progress towards the AIM 2020 goals:

- Percentage (%) of GDP by ICT sector for Strategic Thrust 1
- Household Wired Broadband Subscriptions/Population (%) for Strategic Thrust 2

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<sup>9</sup> Refer to <https://asean.org/storage/2019/01/ASEAN-Digital-Integration-Framework.pdf>

- Innovation Index of the Global Competitiveness Index for Strategic Thrust 3
- Online Service Index (OSI) for Strategic Thrust 7
- ITU Global Cybersecurity Index (GCI).

This is a good starting point and to these measures could be added a number of others such as:

- number of mobile phone subscribers per 100 population
- number of smart phone owners per 100 population
- percentage of population covered by 2G, 3G, 4G, 5G cellular and broadband services;
- expenditure on infrastructure over the five year period 2015-2020
- trend of price per subscriber for cellular data subscriptions
- the value of the ITU Information Development Index (IDI) (noting that they have been changes in approach to the index recently)
- average daily usage per capita over the period
- number of graduates in information technology courses at university level and information technology technical graduates at the TVET level
- levels of investment in information technology start-up companies
- inbound foreign direct investment in telecommunications infrastructure; and
- levels of aggregate data flows into and out of ASEAN countries.

This list is provided for illustrative purposes but there are many other datasets that could be used in assessing progress towards the AIM 2020 targets. As noted above, the excellent work undertaken for the ***ASEAN Digital Integration Index, Measuring digital integration to inform economic policies 2020*** is highly suited to evaluating the progress of ASEAN towards the goals that the AIM 2020 is designed to facilitate. It is arguable that the proposed ASEAN ADIX might be actually too broad in relation to the AIM 2020 because it encompasses a broad range of trade and economic variables. If this is judged to be the case, it would be possible to construct from the ASEAN ADIX a sub-index that was more specifically oriented towards ICT or Digital masterplan goals.

### 5.3 Data Collected for AIM 2020 Final Review

As discussed above, the data in this section were collected to provide context for the Final Review. Figure 15 shows the value of a mobile connection affordability index between 2014 and 2018. In most cases the value of the index has improved in some cases quite rapidly, for example, Indonesia, Cambodia and Lao PDR all indicate improving affordability over the period.

Figure 15 Affordability of Mobile Connection, 2014 v 2018

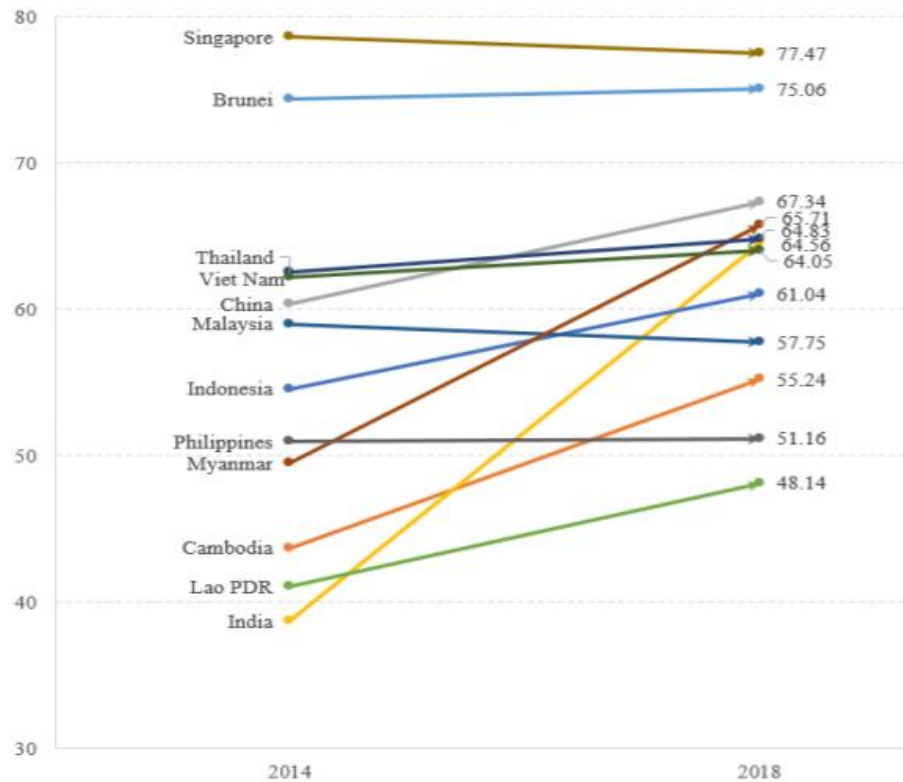
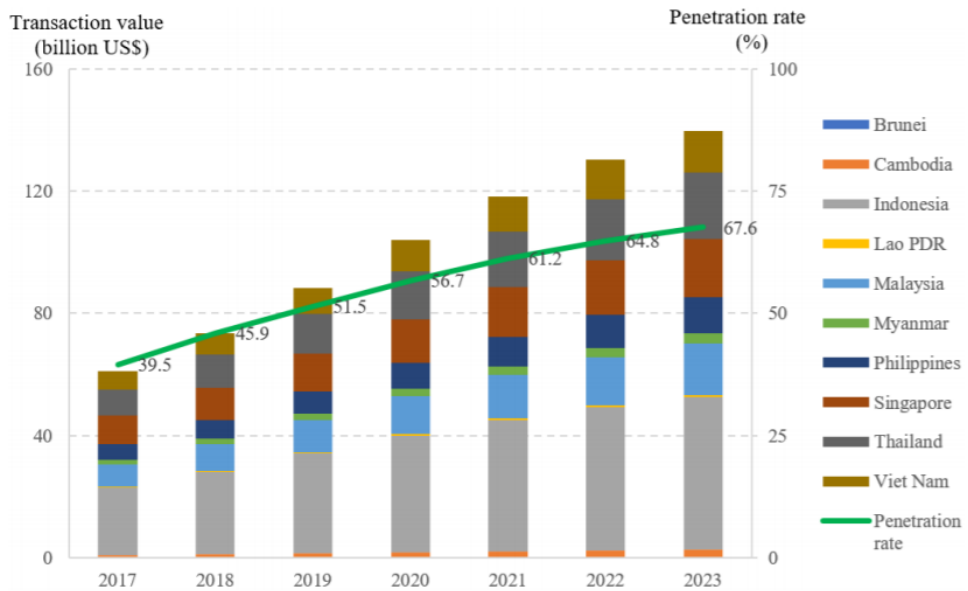


Figure 16 shows the value of the payments transactions and penetration in the period from 2017 to 2023 (forecast). The regional penetration rate for use of the payments has increased from 39.5% to 67.6%, which is a significant change with the large majority of the regional population now using e-payment systems.

Figure 16 E-payment transaction value and penetration



Source: Author. Raw data from Statista database.

Table 15 provides data from the ITU for mobile cellular (voice) telephone subscriptions and mobile broadband subscriptions. The figures for mobile phone subscriptions are for prepaid subscriptions. These are relatively low in Singapore where the majority of descriptions are post-paid.

It can be seen that the mobile penetration rate is high in all AMS. The data for mobile broadband subscriptions shows very rapid growth between 2015 and 2019. For example, Indonesia's number of subscribers increased from around 108 million to around 220 million in this period, with the corresponding figure for Myanmar being 18 million to almost 50 million. In several AMS, subscriptions per 100 inhabitants now exceeds 100 implying, that some individuals have multiple accounts. Although there has been a rapid growth of subscriptions over the period, in Lao PDR, Viet Nam and, to some extent, the Philippines, increased penetration should be a priority. This will likely require significant investment in extending the reach of 4G and future 5G mobile broadband services.

**Table 15 Mobile Cellular Subscriptions and Mobile Broadband Subscriptions in ASEAN**

	Mobile-cellular telephone subscriptions			Mobile-broadband subscriptions		
	Prepaid subscriptions (%)	Population coverage (%)	As % of total telephone subscriptions	(000s)		per 100 inhabitants
	2019	2019	2019	2015	2019	2019
<b>Brunei Darussalam</b>	75.7	99.0	86.6	406.6	553.9	127.8
<b>Cambodia</b>	99.5	99.0	99.7	6,710.5	15,899.0	96.4
<b>Indonesia</b>	97.4	99.2	97.3	107,518.0	219,762.9	81.2
<b>Lao PDR</b>	94.7	95.0	74.5	994.2	3,483.8	48.6
<b>Malaysia</b>	72.7	96.7	87.3	27,759.1	40,430.9	126.5
<b>Myanmar</b>	99.8	95.2	99.2	18,155.7	49,781.6	92.7
<b>Philippines</b>	96.3	94.0	97.6	42,330.0	72,646.2	67.2
<b>Singapore</b>	34.8	100.0	82.6	8,048.0	9,076.7	156.4
<b>Thailand</b>	76.5	98.0	98.0	59,688.0	60,348.0	86.7
<b>Viet Nam</b>	93.0	99.8	97.4	35,782.2	69,894.5	72.5

Source: ITU

A useful indicator of ICT development is the presence of secure Internet services within a country. Table 16 and Table 17 provide data from the World Bank for the numbers of secure Internet servers both per million people and in total between 2012 and 2019. All countries show strong growth, with some countries exhibiting extremely rapid growth, for example, Brunei Darussalam, Singapore and Malaysia. Growth for Myanmar, Lao PDR, Cambodia and Philippines is significantly more muted.

**Table 16 Secure Internet Servers (per 1 million people)**

	2012	2013	2014	2015	2016	2017	2018	2019
Brunei Darussalam	122.8	150.8	241.6	573.6	612.2	1,620.8	1,988.5	10,720.4
Philippines	11.8	12.5	16.1	20.9	40.5	87.8	92.9	111.3
Cambodia	3.0	4.0	4.6	10.2	20.5	55.2	81.1	159.3
Indonesia	5.3	7.8	11.8	17.7	306.2	1,280.7	1,283.0	1,683.8
Lao PDR	1.9	2.6	3.3	4.2	8.3	16.4	20.4	31.2
Malaysia	101.4	122.3	151.1	233.9	945.6	4,917.7	5,713.0	6,723.9
Myanmar	0.1	0.2	0.7	1.0	20.5	9.9	9.2	12.3
Singapore	1,898.9	2,549.5	2,544.0	3,585.2	19,060.7	58,690.3	84,713.9	122,481.4
Thailand	30.9	38.9	51.9	69.4	146.5	578.3	953.9	1,403.8
Vietnam	9.0	14.2	20.3	32.7	278.7	1,348.7	1,769.5	2,597.0

**Table 17 Secure Internet servers**

	2012	2013	2014	2015	2016	2017	2018	2019
Brunei Darussalam	49.0	61.0	99.0	238.0	257.0	688.0	853.0	4,645.0
Philippines	1,146.0	1,233.0	1,619.0	2,139.0	4,202.0	9,239.0	9,903.0	12,035.0
Cambodia	44.0	60.0	71.0	158.0	323.0	883.0	1,318.0	2,626.0
Indonesia	1,320.0	1,970.0	3,006.0	4,569.0	80,094.0	338,925.0	343,412.0	455,692.0
Lao PDR	12.0	17.0	22.0	28.0	57.0	114.0	144.0	224.0
Malaysia	2,948.0	3,604.0	4,513.0	7,079.0	29,017.0	152,966.0	180,124.0	214,828.0
Myanmar	5.0	9.0	37.0	55.0	1,087.0	529.0	494.0	663.0
Singapore	10,088.0	13,765.0	13,915.0	19,844.0	106,879.0	329,385.0	477,674.0	698,581.0
Thailand	2,095.0	2,649.0	3,555.0	4,768.0	10,103.0	40,023.0	66,225.0	97,741.0
Vietnam	812.0	1,286.0	1,864.0	3,033.0	26,098.0	127,584.0	169,056.0	250,511.0

Table 18 provides ITU data for cyber security in ASEAN for 2015 and 2018. All countries except Myanmar report strong improvements in the Cyber Security Index values with very large increases from Lao PDR and Viet Nam.

**Table 18 Global Cybersecurity Index**

Country	2015 <sup>10</sup>			2018 <sup>11</sup>			% Score Change
	Score	Regional Rank	Global Rank	Score	Regional Rank	Global Rank	
Brunei	0.3824	8	16	0.624	14	64	63%
Cambodia	0.1176	15	25	0.161	27	131	37%
Indonesia	0.4706	5	13	0.776	9	41	65%
Lao PDR	0.059	17	27	0.195	22	120	231%
Myanmar	0.3824	8	16	0.172	27	128	(55%)
Philippines	0.3529	9	17	0.643	12	58	82%
Singapore	0.675	4	6	0.898	1	6	33%
Thailand	0.4118	7	15	0.796	7	35	93%
Viet Nam	0.3235	10	18	0.693	11	50	114%

Source: ITU

Table 19 provides data from UNESCO on percentages of tertiary graduates from STEM programs.

**Table 19 Percentage of graduates from tertiary education graduating from STEM programmes**

Country	2015	2018	% Change
Brunei	30.49	39.21	29%
Cambodia	15.43	N/A	-
Indonesia	17.30	19.42	12%
Lao PDR	11.85	22.46	90%
Myanmar	N/A	33.67	-
Philippines	N/A	28.74 (2017)	-
Singapore	32.50 (2016)	34.93 (2017)	7%
Thailand	26.77	27.86 (2016)	4%
Viet Nam	23.42	22.68	(3%)

Source: <http://data.uis.unesco.org/index.aspx?queryid=163#>

## 5.4 Respondents' Views on Priority Datasets

Survey respondents were asked to rank a candidate dataset in order of its usefulness for indicating progress towards the AIM 2020 objectives.

<sup>10</sup> [www.itu.int/dms\\_pub/itu-d/opb/str/D-STR-SECU-2015-PDF-E.pdf](http://www.itu.int/dms_pub/itu-d/opb/str/D-STR-SECU-2015-PDF-E.pdf)

<sup>11</sup> [www.itu.int/dms\\_pub/itu-d/opb/str/D-STR-GCI.01-2018-PDF-E.pdf](http://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2018-PDF-E.pdf)

The results of these questions are provided below in Table 20 – Table 24. In addition, the respondents were asked to suggest other potential datasets and these responses are also outlined in tables below.

Note: the ranking is based on a score that takes the sum of respondents’ first and second preferences for each objective. This performs a ‘rounding’ function that provides more representative ranking results.

**Table 20 Ranking of Data Relevant to Objective 1: An Accessible, Inclusive and Affordable Digital Economy**

Ranking	DATASET (in order of Ranking)	Percentage of respondents ranking either 1st or 2nd
1	Percentage of a country’s and/or region’s population which has access to mobile voice and data services [population mobile coverage]	63
2	Percentage smartphone penetration in my country [% smartphone penetration]	38
3	Percentage of my country’s population with wireless subscriptions [% wireless subscriptions]	38
4	The average national price of subscriptions for wireless data services as a proportion of income per capita [wireless price/GDP/per capita]	38
5	Percentage of a country’s and/or region’s geographic area which has access to mobile voice and data services [geographic mobile coverage]	32
6	The value of the International Telecommunication Union ICT Development Index [ITU IDI]	20
7	Average monthly mobile and fixed downloads (GBs) in my country [avg download GBs]	19

RESPONSES:

- *Average price for mobile broadband (per MB and GB) - Average price for fix broadband (per MB and GB) - Proportion of household with computer access at home*
- *Percentage of contribution of digital services to the overall GDP*

**Table 21 Ranking of Data Relevant t to Objective 2: Deployment of Next-Generation ICT as Enablers of Growth**

Ranking	DATASET (in order of Ranking)	Percentage of respondents ranking either 1st or 2nd
1	Percentage of my country’s population which has access to wireless 4G or 5G data services [% 4G/5G]	75
2	Percentage of my country’s population who have graduated in any ICT field of study (including computing, engineering, software etc)	44
3	Annual investment in ICT start-ups in ASEAN countries	38
4	The total amount of mobile or IMT spectrum available in my country [% IMT utilised]	32
5	Average annual investment in ICT infrastructure (nationally and regionally)	31
6	The average size of wireless subscription data download limits [wireless data caps]	31
7	The total of fibre kilometres per million population in ASEAN region and/or my country	31
8	International data flows into and out of ASEAN countries	31

RESPONSES:

- *Average annual investment in ICT in research and development*  
*Percentage of ICT start-up to another start-up*  
*Percentage of my country’s population who have graduated in High ICT field (for research and development)*  
*Coverage of 4G or 5G*  
*Business R&D expenditure in Information Industries as a percentage of GDP*
- *local content and machine learning*
- *Data that relates to cloud infrastructure*

**Table 22 Ranking of Data Relevant to Objective 3: Sustainable Development through Smart City Technologies**

Ranking	DATASET (in order of Ranking)	Percentage of respondents ranking either 1st or 2nd
1	The total number of smart city initiatives in the ASEAN region	75
2	Changes in geographic area coverage of 4G and 5G services in Smart Cities	75
3	Changes in the broadband speed of 4G and 5G services in Smart Cities	75
4	Total population living in ASEAN smart cities	69
5	Proportion of countries with smart/stored value public transport ticketing	57

RESPONSES:

- *Human resource index, green city ecosystem and poverty reduction environment in each country*
- *ASEAN SMART City ranking*

**Table 23 Ranking of Data Relevant to Objective 4: Multiple ICT Opportunities across a Single Regional Market**

Ranking	DATASET (in order of Ranking)	Percentage of respondents ranking either 1st or 2nd
1	Intra-regional trade facilitated by e-commerce	69
2	Evidence of ICT supply chain integration across ASEAN	57
3	Total number of employees of trans-ASEAN ICT companies	56
4	Number of ASEAN region ICT companies with revenues over USD100 million operating across ASEAN countries	37

RESPONSES:

- *The above ranking is based on the 4 options provided. There may be other alternatives that are higher ranked options.*
- *ICT/Telecommunication Standardization and Technical Skill*

**Table 24 Ranking of Data Relevant to Objective 5: Secure Digital Marketplaces, Safe Online Communities**

Ranking	DATASET (in order of Ranking)	Percentage of respondents ranking either 1st or 2nd
1	Proportion of national/ASEAN population with access to online banking services	80
2	Proportion of national/ASEAN population with access to electronic payment services	74
3	The proportion of retail transactions conducted online	67
4	Number of regulatory actions by regulators regarding breeches by online service providers	54
5	Number of consumer complaints regarding social media services	47
6	The total value of online sales	40

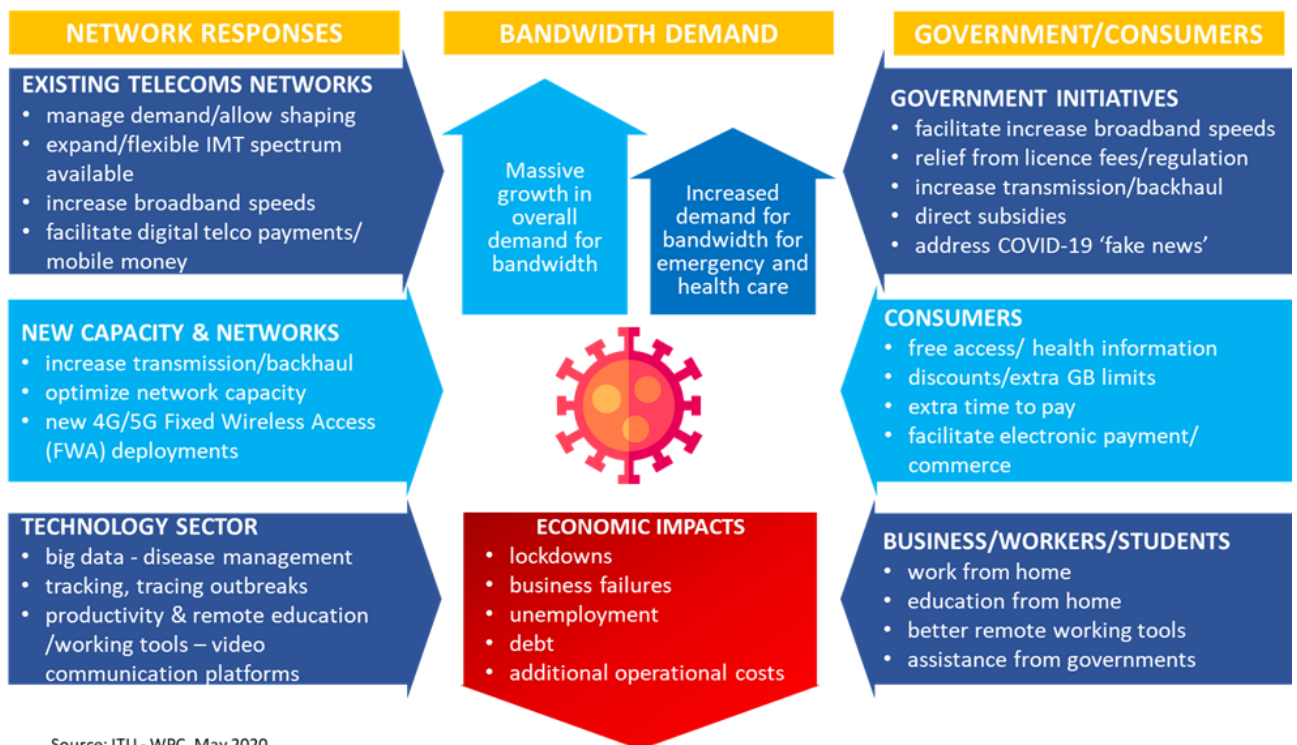
RESPONSES:

- 1. In my opinion, none of the 6 options above is a direct indicator of “secure” or “safe”. They may not be suitable for evaluating progress towards objective 5.
- 2. Suggestion: Look into measuring the level of maturity in applying existing ASEAN frameworks and guidelines such as:
  - Intra-ASEAN Secure Transactions Framework (<https://www.eta.or.th/download-publishing/29/>)
  - Guideline on Accountabilities and Responsibilities of E-marketplace Provider (<https://asean.org/storage/2018/02/ASEAN-Guideline-for-Online-Marketplace-Providers.pdf>)
- Number of ASEAN countries adopting data privacy & protection standards

## 5.5 Responding to COVID-19 Pandemic

ASEAN’s responses to the COVID-19 pandemic mirrored closely the global responses to the pandemic<sup>12</sup> and are summarised in Figure 17.

Figure 17 COVID-19 Telecommunications/ICT sector responses



Source: ITU - WPC, May 2020

In the short term, AMS should adopt initiatives and reforms which address both the pandemic issues directly and ameliorate the adverse economic impacts of the COVID-19 pandemic by continuing to support work from home/school from home (WFH/SFH) activity where possible by consumers. AMS should also provide support to SMEs and MSMEs to survive both the health and economic crisis. It is also critical to work with stakeholders and leverage ICT as an enabler of economic growth, incomes and employment. In addition to accelerating the assignment of available globally harmonized IMT spectrum which has been elsewhere discussed, these include:

<sup>12</sup> Refer to ITU, *Pandemic in the Internet Age: Communications Industry Responses, GSR Discussion Paper on Ensuring Connectivity and Business Continuity – Key Lessons Learned* (June 2020), page 10.

## Accelerate 4G/5G deployment and the transition from legacy 2G/3G networks

To support the additional and growing online demand (along with declining demand for circuit switched voice services in certain markets) there is likely a need to move existing 2G/3G spectrum to 4G and 5G services. As highlighted in a recent GSMA report on case studies in Asia-Pacific examining 2G/3G switch off and the transition from such legacy networks,<sup>13</sup> the process takes three years from initial decision-making to switch-off on average, but it can be shorter if adoption rates of new generation mobile technologies are relatively high. In order to assist the COVID-19 recovery phase and the transition to 'COVID-normal', such transition should receive AMS' governmental and regulatory support as it will provide significant additional wireless broadband speed and capacity.

Singapore has already switched off its 2G services. Malaysia announced in late August 2020 the switch off of 3G services in 2021 as part of its Jendela infrastructure initiative.<sup>14</sup> Viet Nam plans to switch off 2G services in 2022,<sup>15</sup> and the switch off of 2G services has been considered in Thailand. Further announcements on the transition from legacy networks by ASEAN MNOs and approaches in other AMS will be made in the next 2–3 years.

## Support the deployment of Fixed Wireless Access (FWA) as complimentary and substitute to broadband networks.

Given the increased traffic from WFH and SFH, mobile operators are looking to quickly augment coverage and capacity over cities and urban areas which may be subject to social distancing requirements. The rapid deployment of 4G/5G FWA services to (i) provide coverage where the fixed network is non-existent or somewhat limited and/or (ii) to quickly meet demand increases arising after the pandemic crisis, should be examined by ASEAN network operators and regulators.

The key thing to note is that FWA services provide high speed 'FTTx-like' (wireless services that approach the performance of fibre broadband land lines)<sup>16</sup> affordable connectivity sought by businesses large and small, homeowners and consumers at their preferred locations during the current pandemic period but also into the future.

They are both an affordable substitute for, and a complement to, the deployment of fixed FTTx services. Certainly, FWA can play an important role in the rapid achievement of government policy objectives of universal coverage (ie action to bridge the 'digital divide' may need to be accelerated as a result of country coronavirus responses) and create more competitive broadband markets going forward.<sup>17</sup>

## Interoperable contact tracing apps.

As part of the ASEAN recovery and part of the adjusting to the 'new normal', ASEAN could develop guidelines in support of contact tracing for COVID-19.<sup>18</sup> Such guidelines should support a harmonised approach if possible subject to privacy considerations and allow the interoperability of data. It could be similar to approaches in the EU.<sup>19</sup> The interoperability should also facilitate intra-ASEAN travel, trade and tourism.

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<sup>13</sup> GSMA, *Legacy network rationalisation: Experiences of 2G and 3G migrations in Asia-Pacific* (May 2020) <[www.gsma.com/spectrum/resources/legacy-mobile-network-rationalisation/](http://www.gsma.com/spectrum/resources/legacy-mobile-network-rationalisation/)>.

<sup>14</sup> Refer to <[www.mcmc.gov.my/skmmgovmy/media/General/pdf/KENYATAAN-MEDIA-PM-JENDELA-29082020.pdf](http://www.mcmc.gov.my/skmmgovmy/media/General/pdf/KENYATAAN-MEDIA-PM-JENDELA-29082020.pdf)>.

<sup>15</sup> Refer to <<https://tuoitrenews.vn/news/business/20200212/vietnam-to-terminate-2g-service-by-2022-minister/52967.html>>.

<sup>16</sup> In the European Union, the Body of European Regulators for Electronic Communications (BEREC) new *Guidelines on Very High Capacity Networks* issued 1 October 2020 takes a technology neutral approach including within the term "very high capacity network" for both fixed and wireless broadband networks <[https://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/regulatory\\_best\\_practices/guidelines/9439-berec-guidelines-on-very-high-capacity-networks](https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/9439-berec-guidelines-on-very-high-capacity-networks)>.

<sup>17</sup> Refer to Scott W Minehane, *COVID-19: Addressing Current Connectivity Challenges by Accelerating the Development of Fixed Wireless Broadband Solutions* (31 March 2020) <[www.linkedin.com/pulse/covid-19-addressing-current-connectivity-challenges-fixed-minehane/](http://www.linkedin.com/pulse/covid-19-addressing-current-connectivity-challenges-fixed-minehane/)>

<sup>18</sup> ITU, *Pandemic in the Internet Age: Communications Industry Responses* (June 2020) [https://reg4covid.itu.int/wp-content/uploads/2020/06/ITU\\_COVID-19\\_and\\_Telecom-ICT.pdf](https://reg4covid.itu.int/wp-content/uploads/2020/06/ITU_COVID-19_and_Telecom-ICT.pdf)

<sup>19</sup> [www.ecdc.europa.eu/en/publications-data/covid-19-mobile-applications-support-contact-tracing](http://www.ecdc.europa.eu/en/publications-data/covid-19-mobile-applications-support-contact-tracing).



# CONCLUSIONS AND RECOMMENDATIONS

# 6 CONCLUSIONS AND RECOMMENDATIONS

## 6.1 Published Outcomes

A significant number of the projects resulted in published frameworks, outcomes and generated a series of meetings and discussions between ASEAN regulators and policymakers that resulted in significant agreement being reached between AMS. Some of the significant success stories include a number of ASEAN Frameworks approved by ADGMIN (which was previously known as TELMIN).

### ASEAN Frameworks Approved by ADGMIN (previously TELMIN) during AIM2020

- ASEAN Framework on Digital Data Governance, which seeks to enhance business certainty for digital adoption and innovation, as well as to build good data protection standards for cross-border data flow;
- ASEAN Framework on International Mobile Roaming, which aims to promote transparent and affordable international mobile roaming services in ASEAN, with a view to further enhance regional integration, and benefit consumers in the region;
- ASEAN Guidelines for Strengthening Resilience and Repair of Submarine Cables, which seek to provide guidance to relevant parties and facilitate the process for applying for the necessary permits from the various ASEAN Member States, with a view to expediting repairs of submarine cables by minimising permit requirements and cost, and benefitting businesses and consumers in the region;
- ASEAN Framework on Personal Data Protection, which aims to strengthen the protection of personal data in ASEAN and to facilitate cooperation among ASEAN Member States, with a view to contribute to the promotion and growth of regional and global trade and the flow of information;
- ASEAN Cybersecurity Cooperation Strategy, which calls for the creation of a safe and secure cyberspace in ASEAN by strengthening cybersecurity cooperation in cybersecurity incident response, Computer Emergency Response Team (CERT) policy and coordination, and cybersecurity capacity building; and
- ASEAN Framework for the Next Generation Universal Service Obligation (USO 2.0) which sets out recommended approaches for policymakers to align USO policies and programmes that focus on both the supply-side connectivity and demand-sides solutions.

These outcomes demonstrate useful and substantive results from the AIM 2020 action points and creates a basis for moving into the next phase of ASEAN ICT development with the ADM 2025.

## 6.2 Conclusions

The Final Review of the AIM 2020 offers the following conclusions:

1. **Coverage:** The AIM 2020 had a broad coverage that is appropriate to its role as a master strategy document for ASEAN ICT development.
2. **Impact:** The AIM 2020 provided a large number of action points that reflect its broad coverage and provide an appropriate set of research and policy development activities to support ASEAN's ICT development.
3. **Related to other Sectors:** The AIM 2020 was well integrated with a set of related ASEAN research and policy development documents.
4. **Challenges:** The structures and arrangements for Masterplan governance and action project execution appear to be somewhat opaque. It was difficult to determine what organisations and/or individuals were responsible for particular action items. It might

be beneficial to publish details of parties responsible for various activities and provide contact details as part of the AIM 2020 published outputs. Along with the item below – ‘Communicating Vision’ – this would encourage greater awareness and distribution AIM 2020 outcomes. It would also make future review processes easier to execute and more effective.

5. **Communicating Vision:** There appears to be fewer publications and identifiable outcomes resulting from the Masterplan action items than might be expected. For the majority of action items, no publications were identified. This could be due to the low numbers of respondents to some of the particular action points in the survey – there may be publications that were not identified by the survey. The Mid-term Review and this Final Review both adopted an internal perspective which entailed seeking input on AIM 2020 outcomes from the individuals and organisations that were responsible for executing the various action items. There would likely be benefit in communicating more clearly and more widely the outcomes of Masterplan action items. Key businesses, industry representative bodies and consumer representative organisations with particular interest in ICT could be made more aware of Masterplan outcomes and be asked to provide input on what activities are the most beneficial and effective.
6. **Digital Divide Remains:** Across ASEAN there remains a significant digital divide which means that a proportion of the population in AMS do not have access to broadband services and are unable to participate fully in the digital economy and society as highlighted in Table 25. This remains a challenge that should unite the region.

**Table 25 Fixed, mobile and broadband penetration in ASEAN**

AMS	2019 Penetration % (Fixed)	2019 Penetration % (Fixed Broadband)	2019 Penetration % (Mobile)	2019 Penetration % (Mobile Broadband)
Brunei Darussalam	20.0	12.5	128.6	127.8
Cambodia	0.3	1.1	129.9	96.4
Indonesia	3.5	3.5	127.5	81.2
Lao PDR	20.8	1.1	60.8	48.6
Malaysia	20.3	9.3	139.6	126.5
Myanmar	1.0	0.2	113.8	92.7
Philippines	3.8	3.9	154.8	67.2
Singapore	32.8	25.8	156.4	156.4
Thailand	3.8	14.5	186.2	86.7
Viet Nam	3.8	15.4	141.2	72.5

Source: ITU, WTID, July 2020 (NB Highlights based on fixed broadband below 10 percent penetration and mobile broadband below 100 percent penetration).

7. **Spectrum:** Given the essential nature of the International Mobile Telecommunications (IMT) spectrum in increasing connectivity, providing affordable, high speed wireless broadband services, and being part of innovative technologies in ASEAN, unfortunately the action points in relation to IMT bands were insufficient. It is arguable that more ambitious targets should have been agreed upon in the AIM 2020. In particular, the lack of both harmonised coverage spectrum (e.g. 700 MHz) and capacity spectrum (e.g. 3.5 GHz) has undermined the realisation of other key AIM 2020 action points. Access to sufficient, affordable IMT spectrum is an essential element of facilitating world class digital economies across ASEAN including the successful deployment of 5G services during term of ADM2025.
8. **COVID-19:** In many AMS, WHF/SFH due to the coronavirus has been a catalyst to seismic shifts *inter alia* social media group interaction, online streaming of content and distribution, learning and online commerce and banking. It has also resulted in profound regulatory changes in many countries, including AMS. Such changes, which are beyond the scope of this report, allow online banking and financial transactions,

legal hearings, telehealth, pharmaceutical dispensation, and similar. Such changes, especially in relation to online payments and transactions, etc, are likely to have a lasting positive legacy as a result of the COVID-19 pandemic and should be built upon in an ambitious way in the ADM 2025.

9. **Suggested ADM 2025 Objectives:** Based on survey responses, the overwhelming supported theme for the proposed ADM 2025 was “ASEAN: A Digitally Connected Community” with the highest three ranked proposed objectives being as follows:

Ranking	OBJECTIVE (in order of Ranking)
1	To enhance resilient, secure and trusted digital environment, with the aim to support economic progression and technological advancement
2	To encourage interoperability and seamless digital connectivity in ASEAN
3	To establish an inclusive and comprehensive regional strategy which will propel ASEAN to be a front-runner in the Digital Economy

## 6.3 Recommendations

The Final Review of the AIM 2020 offers the following recommendations:

1. **Improved Linkages:** Consider, where possible, linking masterplan strategic thrusts to particular ICT development objectives that can be measured by objective data. It is recognised that this will not apply to all masterplan objectives equally. It is suggested that framing strategic thrusts in relation to specific measurable outcomes may be useful in designing specific action points. Having an ASEAN digital index allows the assessment of measurable outcomes.
2. **Be More Focused and Prioritise:** It may be useful to define a smaller number of action points if, in practice, insufficient resources are available to fully execute a large number of items – as was the case in the AIM 2020 plan. It may be preferable to complete more fully a smaller number of action items and ensure that published outputs are associated with all of them. This point is essentially about defining prioritisation. The more that Masterplan outcomes are published, the more likely it will be that they can be effectively shared with business, government and citizens which increases the likelihood of receiving useful external feedback.
3. **Define Explicit Responsibilities for Producing Published Outputs:** Consider defining responsibilities for developing published outcomes for all action points in future ASEAN masterplans. These responsibilities should be allocated at the time responsibility for action items are allocated.
4. **Communicating the Vision:** ASEAN should consider publishing more information about overall and specific project governance and responsibility details. Further, ASEAN should promote more activities to raise awareness of its work in this area (including stakeholder engagements etc) and the outcomes it generates. It is recommended that efforts are undertaken to communicate Masterplan outcomes to key ICT businesses and to industry representative and consumer representative organisations with particular interests in ICT issues and development. Furthermore, effort should be made to obtain feedback from the stakeholders on their perceptions about what Masterplan activities are the most valuable and beneficial.
5. **Economy Driven Issues:** Future masterplans should include activities which are needed to address those aspects which form part of significant trade agreements, commitments or similar undertakings (including those under negotiation) by ASEAN (such as the Regional Comprehensive Economic Partnership (RCEP)). It is critical to continue to address issues to support ASEAN SMEs and MSMEs. More specifically, there is a broader need to address the ‘digital divide’ and the going need for digital transformation across all sectors including agriculture, manufacturing and services.

6. **Possible Shorter Term Masterplan:** the current ASEAN agreed approach is to prepare, similar to AIM 2020, the proposed ADM 2025. However, given the significant impact of COVID-19 – globally, in Asia and on AMS – there could be consideration for a masterplan of a shorter duration (i.e. 2 to 3 years). This shorter document could be focused on the ICT/digital measures which could aid in the recovery from COVID-19 pandemic and the establishment of the ‘new normal’. Without an understanding of the new ‘COVID-normal’ it will be difficult to assess and devise a traditional five-year masterplan. If this approach is not adopted, then the mid-term review of the ADM 2025 becomes more important and critical in order for ASEAN to achieve its longer term goals in this area.
7. **Facilitating Post COVID-19 recovery:** As part of the ASEAN recovery and part of the adjusting to the ‘new normal’, the future ADM 2025 (or a quick one-off activity) may consider to include an item related to the recovery of the digital economy amidst a pandemic. Such example could include the development of ASEAN guidelines in support of contact tracing for COVID-19.<sup>20</sup>
8. **Under-developed Action Points:** As highlighted in Section 3.2, one of the key conclusions on Strategic Thrust 4, was that respondents indicated that little or no work had been done in relation to range of cloud issues as part of the initiatives under AIM 2020. This is unfortunate given that cloud computing is an essential component of a number of key new technologies and innovations including AI, Big Data and machine learning. It is critical that the ADM 2025 reprioritise activity in this area with a range of concrete initiatives/action items.
9. **The Future:** Going forward in the ADM 2025 there should be a greater appreciation and policy approaches to address digital divide, increase awareness and co-operation among stakeholders, programs which are consistent with other AMS initiatives. While beyond the scope of the AIM 2020, there is a need for ASEAN to review policies and encourage the investment in new technologies including 5G, AI etc. There is also a need to improve resilience for the any future or regional major crisis, with focus on SMEs and MSMEs as they are main players and employers of the region.

The recommendations of the AIM 2020 Review are summarised below.

**Figure 18** AIM 2020 Review recommendations summary



<sup>20</sup> [https://reg4covid.itu.int/wp-content/uploads/2020/06/ITU\\_COVID-19\\_and\\_Telecom-ICT.pdf](https://reg4covid.itu.int/wp-content/uploads/2020/06/ITU_COVID-19_and_Telecom-ICT.pdf)

# APPENDIX 1: LIST OF AIM 2020 PROJECTS

1. The work plan for Establishing an ASEAN Framework on Digital Data Governance and the formation of a Working Group on Digital Data Governance (multi-years)
2. Study on the Framework for the Mutual Recognition of Digital Signatures in ASEAN (JAIF 2.0)
3. Framework for Infrastructure Investment to Balance Policy Goals of Broadband Development and OTT Expansion (OTT Framework)
4. Opportunities and Challenges of Over-the-Top (OTT) Services' Regulation, and recommended approaches, and principles on net neutrality
5. Workshop on promoting IT applications for enhancing energy saving and environmental protection in ASEAN
6. Next Generation Universal Service toward Ubiquitous Broadband Ecosystems (USO 2.0)
7. The Capacity Building on Accelerating the Development Framework of Smart Sustainable Cities (SSC) for ASEAN countries (JAIF)
8. Study to develop guides and applications for open and big data development in ASEAN countries
9. Workshop on Impacts of Internet of Things to e-Government applications in ASEAN
10. A Conceptual Framework for Creation of Virtual Collaboration Platform
11. ASEAN ICT Awards 2016
12. ASEAN ICT Awards 2017
13. ASEAN ICT Awards 2018
14. ASEAN ICT Awards 2019
15. Startups@ASEAN
16. ASEAN Maker Hackathon and IoT Information Sharing Workshop
17. ASEAN Maker Hackathon ('Makerthon') 2018
18. ASEAN Broadband Strategy
19. IPv6 Adoption within ASEAN Government Agencies
20. ASEAN Guidelines for Strengthening Resilience and Repair of Submarine Cables (2018-2019)
21. Study on Disaster Data Dissemination and Prevention System among ASEAN
22. The Aligning Public Policy and Regulation Framework to Promote Cloud Computing Environment (JAIF)
23. Reviewing and Enhancing ASEAN ICT Skill Standard
24. Mobile Communication Quality of Service (QoS) Benchmarking in Developing Countries of ASEAN Member Countries
25. Quality of Experience (QoE) Assessment Models for Mobile Services for ASEAN Countries
26. Mobile Number Portability in ASEAN
27. ASEAN Framework on International Mobile Roaming (IMR) - (2016-2017)
28. Study on establishing an ASEAN Telecommunications Single Market (AADCP II)
29. Study to develop best practices guide for local content development and support in ASEAN countries
30. Gap Analysis, Recommendation and Promotion on Best Practice of ASEAN e-Service Development
31. Study on Agricultural Market Information Systems in ASEAN member states

32. Developing Guidelines and Promoting Awareness on Child and Youth Online Risk and Protection (With ITU for expert)
33. ASEAN Cyber Wellness Training of Tutors
34. ASEAN Framework on Personal Data Protection
35. ASEAN Framework on Digital Data Governance (2018-2019)
36. Develop Regional Network Security Best Practices
37. The ASEAN Critical Information Infrastructure Protection framework
38. ASEAN Cybersecurity Cooperation Strategy 2017-2020
39. Feasibility Study on Establishing ASEAN CERT
40. ASEAN-Japan Cybersecurity Capacity Building Centre (JAIF 2.0)
41. Cybersecurity Incident Handling Exercise-CYDER (JAIF 2.0) (ASEAN)
42. ASEAN CERT Incident Drill (ACID) 2016-2020 (Self Fund)
43. Workshop on Public-Private-Partnership model for building Smart Cities in ASEAN
44. ASEAN Cyberkids Camp 2016
45. ASEAN Cyberkids Camp 2017
46. ASEAN Cyberkids Camp 2018
47. ASEAN Cyberkids Camp 2019
48. ASEAN ICT Masterplan 2020 Mid-Term Review
49. ASEAN ICT Masterplan 2020 National Promotional Activities
50. ASEAN ICT Masterplan 2020 Completion Report
51. Cyber Security Capacity Building for Young People in ASEAN Member States (Cyber Sea Games) (JAIF 2.0) (Indonesia)
52. ASEAN Locker Alliance to Facilitate and Promote e-Commerce Trade

# APPENDIX 2: STAKEHOLDER SURVEY: ACTION POINTS RESPONSES

AIM 2020 Action points survey results summary.

STRATEGIC THRUST 1. ECONOMIC DEVELOPMENT AND TRANSFORMATION	
<b>ACTION/PROJECT 1.1.1.1.</b> <i>Study and identify enabling policies and best practices that will accelerate the development of e-commerce and digital service delivery in ASEAN</i>	
64% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>100% of respondents identified that the level of work is significant, near completion or completed.</b>
To what extent has this work produced valuable results?	<b>100% said this work has produced valuable, highly valuable or extremely valuable results.</b>
Published results:	
<ul style="list-style-type: none"> <li>• <a href="https://asean.org/storage/2018/02/AECC18-ASEAN-DIFAP_Endorsed.pdf">https://asean.org/storage/2018/02/AECC18-ASEAN-DIFAP_Endorsed.pdf</a></li> <li>• <a href="https://asean.org/storage/2012/05/6B-ASEAN-Framework-on-Digital-Data-Governance_Endorsed.pdf">https://asean.org/storage/2012/05/6B-ASEAN-Framework-on-Digital-Data-Governance_Endorsed.pdf</a></li> <li>• <a href="http://www.covid19.gov.la">www.covid19.gov.la</a>; <a href="https://play.google.com/store/apps/details?id=com.gov.mpt.laokyc&amp;hl=en">https://play.google.com/store/apps/details?id=com.gov.mpt.laokyc&amp;hl=en</a>;<a href="https://egc.gov.la/">https://egc.gov.la/</a>;<a href="https://mail.gov.la/">https://mail.gov.la/</a></li> <li>• The work plan for Establishing an ASEAN Framework on Digital Data Governance and the formation of a Working Group on Digital Data Governance (Singapore)</li> <li>• ASEAN DDG Framework</li> </ul>	
<b>ACTION/PROJECT 1.1.1.2.</b> <i>Identify best policies, industrial practices and case studies in the region that will benefit ASEAN businesses, especially SMEs</i>	
25% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>80% of respondents identified that the level of work undertaken is significant.</b>
To what extent has this work produced valuable results?	<b>80% said this work has produced valuable, or highly valuable results.</b>
Published results:	
<ul style="list-style-type: none"> <li>• <a href="https://asean.org/storage/2012/05/Study-on-MSME-Participation-in-the-Digital-Economy-in-ASEAN.pdf">https://asean.org/storage/2012/05/Study-on-MSME-Participation-in-the-Digital-Economy-in-ASEAN.pdf</a></li> </ul>	
<b>ACTION/PROJECT 1.1.1.3.</b> <i>Raise awareness of digital trade and use of electronic payment among businesses so that they can better transact with their suppliers and customers, including online consumer protection</i>	
40% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>75% of respondents identified that the level of work is significant or completed.</b>
To what extent has this work produced valuable results?	<b>Almost 88% said this work has produced valuable, highly valuable or extremely valuable results.</b>
Published results:	
<ul style="list-style-type: none"> <li>• <a href="https://www.aseanconsumer.org/file/post_image/Final%20ASEAN%20Capacity%20Building%20Roadmap%202020-2025%20-%203Mar20.pdf">https://www.aseanconsumer.org/file/post_image/Final%20ASEAN%20Capacity%20Building%20Roadmap%202020-2025%20-%203Mar20.pdf</a></li> </ul>	

STRATEGIC THRUST 1. ECONOMIC DEVELOPMENT AND TRANSFORMATION

**ACTION/PROJECT 1.1.2.1. Commission a study to identify the opportunities and challenges of OTT services**

60% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Just over 83% of respondents identified that the level of work is significant, near completion or completed.</b>
To what extent has this work produced valuable results?	<b>Nearly 92% said this work has produced valuable, highly valuable or extremely valuable results.</b>

Published results:

- Key Takeaways from meeting on OTT, hosted by NBTC during 12-13 September 2017 in Bangkok, Thailand
- Key Takeaways from 2018 ATRC Dialogue on OTT Services, hosted by MCMC during 25-26 June 2018 in Kuala Lumpur, Malaysia.
- Key Takeaways from 2019 ASEAN Multi-Stakeholder Consultative Dialogue, hosted by US-ABC on 16 May 2019 in Singapore.
- Key takeaways and (Draft) ASEAN Initiatives for Facilitating Sustainable OTT Ecosystem resulted from 2019 ATRC OTT Dialogue on 19 August 2019 in Bangkok.

**ACTION/PROJECT 1.1.2.2. Convene a dialogue with OTT players, regulators and other industry players, to discuss best practices towards OTT applications so as to enhance investment and innovation**

55% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Approximately 73% of respondents identified that the level of work is significant, near completion or completed.</b>
To what extent has this work produced valuable results?	<b>Near to 82% said this work has produced valuable, highly valuable or extremely valuable results.</b>

Published results:

- Key Takeaways from meeting on OTT, hosted by NBTC during 12-13 September 2017 in Bangkok, Thailand
- Key Takeaways from 2018 ATRC Dialogue on OTT Services, hosted by MCMC during 25-26 June 2018 in Kuala Lumpur, Malaysia.
- The ATRC 24<sup>th</sup> meeting noted Key Takeaways from 2018 ATRC Dialogue on OTT Services, hosted by MCMC during 25-26 June 2018 in Kuala Lumpur, Malaysia.
- Key Takeaways from 2019 ASEAN Multi-Stakeholder Consultative Dialogue, hosted by US-ABC on 16 May 2019 in Singapore.
- Key Takeaways from 2019 ATRC OTT Dialogue, Hosted by The NBTC on 19 August 2019 in Bangkok, Thailand.
- The ATRC 25<sup>th</sup> meeting noted Key Takeaways from 2019 ATRC OTT Dialogue, Hosted by The NBTC on 19 August 2019 in Bangkok, Thailand.
- It is expected that the (Draft) ASEAN Initiatives for Facilitating Sustainable Over-the-Top (OTT) Ecosystem will be adopted by 1st ADGMIN in January in 2021.
- 2020 ATRC Stakeholders Consultative Dialogue (OTT Dialogue), hosted by NBTC, is scheduled to be held in Q3/2021, Bangkok, Thailand.

**ACTION/PROJECT 1.2.1.1. Develop best practices and regional guide for 'sustainable and green ICT use in ASEAN'**

32% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Just over 83% of respondents identified that the level of work is significant, near completion or completed.</b>

STRATEGIC THRUST 1. ECONOMIC DEVELOPMENT AND TRANSFORMATION	
To what extent has this work produced valuable results?	<b>About 83% said this work has produced valuable or extremely valuable results.</b>
Published results:	
<ul style="list-style-type: none"> <li><a href="http://www.ilkap.gov.my/download/muatturun/GP%20Green%20ICT.pdf">http://www.ilkap.gov.my/download/muatturun/GP%20Green%20ICT.pdf</a></li> </ul>	
<b>ACTION/PROJECT 1.2.1.2. Review and further develop the AIM2015 initiative on promoting green ICT growth for sustainable development in AMS</b>	
42% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Almost 88% of respondents identified that the level of work is significant, near completion or completed.</b>
To what extent has this work produced valuable results?	<b>Nearly 88% said this work has produced valuable or extremely valuable results.</b>
Published results: none	

STRATEGIC THRUST 2. PEOPLE INTEGRATION AND EMPOWERMENT THROUGH ICT	
<b>ACTION/PROJECT 2.1.1.1. Define and identify 'isolated and underserved communities'</b>	
35% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Nearly 67% of respondents identified that the level of work undertaken is significant. Almost 17% identified the work as completed.</b>
To what extent has this work produced valuable results?	<b>Just over 83% said this work has produced valuable results.</b>
Published results:	
<ul style="list-style-type: none"> <li><a href="https://www.skillsforemployment.org/edmsp1/groups/skills/documents/skpcontent/ddrf/mtmy/~edisp/wcmstest4_132852.pdf">https://www.skillsforemployment.org/edmsp1/groups/skills/documents/skpcontent/ddrf/mtmy/~edisp/wcmstest4_132852.pdf</a></li> <li><a href="https://www.covid19.gov.la/index.php?r=site/index">https://www.covid19.gov.la/index.php?r=site/index</a>; <a href="https://egc.gov.la/gweb/gweb/backend/web/">https://egc.gov.la/gweb/gweb/backend/web/</a></li> <li>USO 2.0 Framework</li> </ul>	
<b>ACTION/PROJECT 2.1.1.2. Develop recommendations for increasing broadband connectivity and improving affordability, taking into consideration past AIM2015 initiatives</b>	
70% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Just over 83% of respondents identified that the level of work is significant, near completion or completed.</b>
To what extent has this work produced valuable results?	<b>50% said this work has produced some value or valuable results. 50% said this work has produced highly valuable or extremely valuable results.</b>
Published results:	
<ul style="list-style-type: none"> <li><a href="https://www.eria.org/uploads/media/E-commerce-Connectivity-in-ASEAN/0_E-Commerce-Connectivity-in-ASEAN_FINAL.pdf">https://www.eria.org/uploads/media/E-commerce-Connectivity-in-ASEAN/0_E-Commerce-Connectivity-in-ASEAN_FINAL.pdf</a></li> <li>USO 2.0 Framework</li> </ul>	
<b>ACTION/PROJECT 2.1.1.3. Identify basic digital services to be made available for communities and citizens in ASEAN</b>	
65% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE

STRATEGIC THRUST 2. PEOPLE INTEGRATION AND EMPOWERMENT THROUGH ICT	
To what extent has this task been successfully undertaken and completed?	<i>Almost 73% of respondents identified that some work or significant work has been undertaken.</i>
To what extent has this work produced valuable results?	<i>Nearly 46% said this work has produced results of some value. Almost 54% said this work has produced valuable, highly valuable or extremely valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li>USO 2.0 Framework</li> </ul>	
<b>ACTION/PROJECT 2.1.1.4. Profile case studies highlighting implementation and benefits of broadband in sectors such as health, education, energy, etc</b>	
41% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<i>Nearly 43% of respondents identified that some level of work has been undertaken. Just over 57% identified that the level of work is significant, near completion or completed.</i>
To what extent has this work produced valuable results?	<i>100% said this work has produced valuable, highly valuable or extremely valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 2.1.2.1. Sharing of best practices on 'USO 2.0'</b>	
41% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<i>Nearly 86% of respondents identified that the level of work is significant, near completion or completed.</i>
To what extent has this work produced valuable results?	<i>Almost 72% said this work has produced valuable, highly valuable or extremely valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li><a href="https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Universal-Service-Provision-Annual-Report-2018.pdf">https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Universal-Service-Provision-Annual-Report-2018.pdf</a></li> <li>USO 2.0 Framework</li> </ul>	
<b>ACTION/PROJECT 2.1.2.2. Develop a policy toolkit for broader ASEAN USO deployment and administration</b>	
41% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<i>Nearly 43% of respondents identified that significant work has been undertaken. Almost 43% identified that work has been completed.</i>
To what extent has this work produced valuable results?	<i>Nearly 72% said this work has produced valuable, highly valuable or extremely valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 2.1.3.1. Develop a definition for next-generation telecentres, including its quality, delivery and sustainability standards</b>	
38% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<i>Respondents identified that the level of work undertaken is split evenly between some, significant or near completion (just over 33% each).</i>

STRATEGIC THRUST 2. PEOPLE INTEGRATION AND EMPOWERMENT THROUGH ICT	
To what extent has this work produced valuable results?	<i>50% said this work has produced results of some value or valuable. 50% said this work has produced highly valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 2.1.3.2.      <i>Develop an 'ASEAN Telecentre Toolkit' for those who want to start and run a telecentre in ASEAN</i></b>	
18% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Just over 33% of respondents identified the level of work as nothing done. Nearly 67% identified the level of work is significant or near completion.</i>
To what extent has this work produced valuable results?	<i>Nearly 67% said this work has produced highly valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 2.1.3.3.      <i>Develop a quality management system or checklist for subsidised or supported telecentres</i></b>	
18% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Just over 33% of respondents identified the level of work as nothing done. Almost 67% identified the level of work is some or significant.</i>
To what extent has this work produced valuable results?	<i>Almost 67% said this work has produced results of no value or some value. Just over 33% said this work has produced highly valuable results.</i>
Published results: None	
STRATEGIC THRUST 3. INNOVATION	
<b>ACTION/PROJECT 3.1.1.1.      <i>Share best practices on smart city planning and development in ASEAN</i></b>	
38% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>50% of respondents identified the level of work as nothing done or some work undertaken. 50% identified the level of work as near completion.</i>
To what extent has this work produced valuable results?	<i>50% said this work has produced results of no value or some value. 50% said this work has produced valuable or highly valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 3.1.1.2.      <i>Identify suitable international and policy models and practices for smart city development, including in areas such as IoT, M2M, and sensor technologies</i></b>	
50% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>25% of respondents identified the level of work is nothing done. 75% identified the level of work undertaken is some or significant.</i>
To what extent has this work produced valuable results?	<i>Almost 63% said this work has produced some value or valuable results.</i>
Published results: None	

<b>STRATEGIC THRUST 3. INNOVATION</b>	
<b><i>ACTION/PROJECT 3.1.1.3. Identify, develop or adopt suitable standards for smart city developments, such as for IoT, M2M, and sensor technologies, and related policies</i></b>	
25% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<b>75% of respondents identified that some work or significant work has been undertaken.</b>
To what extent has this work produced valuable results?	<b>50% said this work has produced results of no value or some value. 50% said this work has produced highly valuable or extremely valuable results.</b>
Published results: None	
<b><i>ACTION/PROJECT 3.1.1.4. Explore the development of a measurement mechanism to track efficiencies in smart city management through ICT</i></b>	
25% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<b>75% of respondents identified that some work or significant work has been undertaken.</b>
To what extent has this work produced valuable results?	<b>50% said this work has produced results of no value or some value. 50% said this work has produced valuable or highly valuable results.</b>
Published results: None	
<b><i>ACTION/PROJECT 3.1.2.1. Establish a forum or platform for private sector to share developments and activities in big data management and analysis</i></b>	
50% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<b>50% of respondents identified that some work has been undertaken. Nearly 38% identified the level of work undertaken is near completion.</b>
To what extent has this work produced valuable results?	<b>Nearly 88% said this work has produced some value, valuable or highly valuable results.</b>
Published results: None	
<b><i>ACTION/PROJECT 3.1.2.2. Develop guides for standardising the type and standards for machine-readable open data</i></b>	
31% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<b>80% of respondents identified that some work or significant work has been undertaken.</b>
To what extent has this work produced valuable results?	<b>80% said this work has produced some value or valuable results.</b>
Published results: None	
<b><i>ACTION/PROJECT 3.1.2.3. Support open data development through hosting of competitions where innovative uses and application of open government data is encouraged (e.g. a hackathon)</i></b>	
25% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
<b>QUESTION</b>	<b>RESPONSE</b>
To what extent has this task been successfully undertaken and completed?	<b>75% of respondents identified that some work has been undertaken. 25% identified the level of work undertaken is significant.</b>
To what extent has this work produced valuable results?	<b>75% said this work has produced results of some value. 25% said this work has produced valuable results.</b>

STRATEGIC THRUST 3. INNOVATION	
Published results: None	
<b>ACTION/PROJECT 3.1.3.1.</b> <i>Develop Centre of Excellence (CoE) collaboration by identifying CoEs and hosting networking events for them to meet and share ideas and experience</i>	
19% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Respondents identified that the level of work undertaken is split evenly between some, significant or near completion (just over 33% each).</i>
To what extent has this work produced valuable results?	<i>Just over 33% said this work has produced results of no value. Almost 67% said this work has produced valuable or highly valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 3.1.3.2.</b> <i>Create a virtual platform to collaborate with research partners and stakeholders to collate and distribute updates on new technologies and standards to TELSOM</i>	
19% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>100% of respondents identified that some work has been undertaken.</i>
To what extent has this work produced valuable results?	<i>Almost 67% said this work has produced results of some value. Just over 33% said this work has produced highly valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 3.2.1.1.</b> <i>Study the existing start-up ecosystem of incubators, seed funders and venture capitalists in ASEAN</i>	
50% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>50% of respondents identified that some work has been undertaken. 50% identified the level of work undertaken is significant, near completion or completed.</i>
To what extent has this work produced valuable results?	<i>75% said this work has produced valuable or highly valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li><a href="https://static1.squarespace.com/static/56a87acd05f8e263f7b16c7f/t/5c9b0762085229887ba9af72/1553663849501/Cambodian_Tech_Startup_Report_Final_250319.pdf">https://static1.squarespace.com/static/56a87acd05f8e263f7b16c7f/t/5c9b0762085229887ba9af72/1553663849501/Cambodian_Tech_Startup_Report_Final_250319.pdf</a></li> <li>AICTA, Startup@ASEAN, Makerthon</li> </ul>	
<b>ACTION/PROJECT 3.2.1.2.</b> <i>Develop platforms to connect start-up companies to potential private investors</i>	
44% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Almost 43% of respondents identified the level of work as nothing done. Just over 57% identified the level of work undertaken is some, significant, near completion or completed.</i>
To what extent has this work produced valuable results?	<i>Just over 57% said this work has produced valuable results.</i>
Published results:	

STRATEGIC THRUST 3. INNOVATION

- <https://www.digitalcambodia.com.kh/>

STRATEGIC THRUST 4. ICT INFRASTRUCTURE DEVELOPMENT

**ACTION/PROJECT 4.1.1.1. Identify new digital divides, such as access and cost, brought about by new technologies**

67% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>40% of respondents identified the level of work as some work undertaken. 60% identified the level of work undertaken is significant or near completion.</b>
To what extent has this work produced valuable results?	<b>90% said this work has produced some value, valuable or highly valuable results.</b>

Published results:

- ASEAN Broadband strategy

**ACTION/PROJECT 4.1.1.2. Mapping of priority locations (cities, provinces) requiring broadband deployment for private sector participation; host discussion to highlight opportunities for private sector participation in broadband development and deployment**

33% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>80% of respondents identified that some work or significant work has been undertaken.</b>
To what extent has this work produced valuable results?	<b>100% said this work has produced valuable results.</b>

Published results: None

**ACTION/PROJECT 4.1.1.3. Support IPv6 adoption by partnering with stakeholders to raise awareness of its importance**

53% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Nearly 88% of respondents identified that the level of work undertaken is some, significant or near completion.</b>
To what extent has this work produced valuable results?	<b>75% said this work has produced valuable or highly valuable results.</b>

Published results: None

**ACTION/PROJECT 4.1.2.1. Convene dialogue with relevant stakeholders to identify key issues faced with submarine cable repairs in ASEAN**

33% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>60% of respondents identified the level of work undertaken is significant. 40% identified the level of work undertaken is some or completed.</b>
To what extent has this work produced valuable results?	<b>60% said this work has produced valuable results. 40% said this work has produced highly valuable results.</b>

Published results:

- <https://asean.org/storage/2012/05/ASEAN-Guidelines-for-Strengthening-Resilience-and-Repair-of-Submarine-Ca....pdf>
- ASEAN Guideline on Strengthening Resilience & Repair of Submarine Cables

STRATEGIC THRUST 4. ICT INFRASTRUCTURE DEVELOPMENT

**ACTION/PROJECT 4.1.2.2. *Develop a template for Service Level Agreements (SLA) for submarine cable repair***

27% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>50% of respondents identified the level of work undertaken is significant. 50% identified the level of work undertaken is near completion or completed.</b>
To what extent has this work produced valuable results?	<b>50% said this work has produced valuable results. 50% said this work has produced highly valuable results.</b>

Published results:

- <https://asean.org/storage/2012/05/ASEAN-Guidelines-for-Strengthening-Resilience-and-Repair-of-Submarine-Ca....pdf>

**ACTION/PROJECT 4.1.2.3. *Develop a framework on expedited protection and repair of submarine cables and to increase the resilience of ASEAN’s information hardware***

40% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Almost 67% of respondents identified that some work or significant work has been undertaken.</b>
To what extent has this work produced valuable results?	<b>Just over 83% said this work has produced some value, valuable or highly valuable results.</b>

Published results:

- <https://asean.org/storage/2012/05/ASEAN-Guidelines-for-Strengthening-Resilience-and-Repair-of-Submarine-Ca....pdf>
- ASEAN Guideline on Strengthening Resilience & Repair of Submarine Cables

**ACTION/PROJECT 4.2.1.1. *Map areas of infrastructural resilience against existing warning sensors***

20% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Almost 67% of respondents identified that some work has been undertaken.</b>
To what extent has this work produced valuable results?	<b>Nearly 67% said this work has produced some value or highly valuable results.</b>

Published results: None

**ACTION/PROJECT 4.2.1.2. *Have disaster management and early-warning centres share their experience on sensor and infrastructure resilience***

27% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>50% of respondents identified that some work has been undertaken.</b>
To what extent has this work produced valuable results?	<b>Respondents said that this work has produced results evenly split between no value, some value, valuable or highly valuable results (25% each).</b>

Published results: None

**ACTION/PROJECT 4.2.1.3. *Develop success stories and case studies featuring how sensor deployment contributes to infrastructure resilience after a disaster, and identify technologies that work in a practical setting***

19% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
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STRATEGIC THRUST 4. ICT INFRASTRUCTURE DEVELOPMENT	
To what extent has this task been successfully undertaken and completed?	<i>Almost 67% of respondents identified that some work has been undertaken.</i>
To what extent has this work produced valuable results?	<i>Respondents said that this work has produced results evenly split between no value, some value or highly valuable results (just over 33% each).</i>
Published results: None	
<b>ACTION/PROJECT 4.2.1.4. <i>Develop a framework on use of ICT for Disaster Risk Reduction and Management System based on established best practices and policies among all AMS</i></b>	
38% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Just over 33% of respondents identified that some work has been undertaken. Just over 50% identified the level of work undertaken is significant, near completion or completed.</i>
To what extent has this work produced valuable results?	<i>Nearly 67% said this work has produced valuable or highly valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li>The objective of this project was to understand the current status of Disaster Data Dissemination and Prevention System in ASEAN and the viewpoints of member state governments and academic institutes. The project aimed to study practices of Disaster Data Dissemination and Prevention System in the region and induce experience sharing among each member state in using ICT as disaster management tools, such as Big Data Platform, Internet of Things (IoT), Internet of Everything (IoE). Main activities of the project were <ol style="list-style-type: none"> <li>Gathering data from literature review, surveys, and interviews from relevant ASEAN stakeholders, including public, business and academic sectors, on Disaster Data Dissemination and Prevention System.</li> <li>Reviewing current policies, regulations, strategic plans, and directions for ASEAN member states, as well as identifying challenges and problems. The study also covered the previous disaster-related organizational efforts with data dissemination.</li> <li>Analyzing the system and proposing recommendation to ASEAN member states on policy framework, technology applications, and implementation.</li> <li>Organizing a two-day workshop with participations from key stakeholders/experts among ASEAN member states and Japan to discuss and prepare an in-depth report. The final report was published as handbooks in 8 June 2018.</li> </ol> </li> </ul>	
<b>ACTION/PROJECT 4.3.1.1. <i>Explore the development of a model Trusted Cloud Platform that may be used by public and private sectors in ASEAN</i></b>	
40% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Almost 67% of respondents identified that some work has been undertaken.</i>
To what extent has this work produced valuable results?	<i>Nearly 67% said this work has produced valuable or highly valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 4.3.1.2. <i>Develop cloud computing policy guides</i></b>	
40% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Almost 67% of respondents identified that some work or significant work has been undertaken.</i>
To what extent has this work produced valuable results?	<i>Nearly 67% said this work has produced valuable or highly valuable results.</i>

STRATEGIC THRUST 4. ICT INFRASTRUCTURE DEVELOPMENT

Published results: None

**ACTION/PROJECT 4.3.1.3. Promote cloud utilisation in public and private sectors**

40% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Over 83% of respondents identified that the level of work is some, significant or near completion.</b>
To what extent has this work produced valuable results?	<b>Nearly 67% said this work has produced valuable or highly valuable results.</b>

Published results: None

**ACTION/PROJECT 4.3.1.4. Incentivise private sector cloud computing development by developing guidelines, recommendations and practices demonstrating use and deployment of cloud services securely**

40% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Almost 67% of respondents identified that some work has been undertaken.</b>
To what extent has this work produced valuable results?	<b>Nearly 67% said this work has produced valuable results.</b>

Published results: None

STRATEGIC THRUST 5. HUMAN CAPITAL DEVELOPMENT

**ACTION/PROJECT 5.1.1.1. Initiate a programme for ICT Human Resource discussion within ASEAN between the public, private, and academic sectors, to enable statistical comparisons of demand and supply. The comparison will take into consideration various sectors in the ICT economy and the cross-border flows of ICT professionals in order to identify and address skill gaps across AMS**

41% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Just over 71% of respondents identified the level of work as some or significant work undertaken. Almost 29% identified the level of work as near completion or completed.</b>
To what extent has this work produced valuable results?	<b>Nearly 72% said this work has produced valuable or highly valuable results.</b>

Published results:

- The final report of Study to Evaluate Current Status and Develop Recommendations to Narrow the Gaps Between Demand and Supply in ICT Human Resource in ASEAN project is under approval process and will be later published on <https://www.depa.or.th/asean-manpower> after approved by ASEAN Secretariat.
- <http://www.data.gov.la/reports>

**ACTION/PROJECT 5.2.1.1. Explore the development of baseline ICT skills and a reference document identifying 'Basic ICT Workforce Skills' in ASEAN**

31% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>60% of respondents identified the level of work as some work undertaken. 40% identified the level of work as significant.</b>

**STRATEGIC THRUST 5. HUMAN CAPITAL DEVELOPMENT**

To what extent has this work produced valuable results?	<b>40% said this work has produced some value. 40% said this work has produced valuable or highly valuable results.</b>
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Published results: None

**ACTION/PROJECT 5.2.1.2.** *Review and enhance the ASEAN ICT Skill Standards Definition and Certification Framework developed under the AIM2015 (e.g. including more specified ICT skill areas where necessary)*

41% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Over 57% of respondents identified that the level of work is significant or near completion.</b>
To what extent has this work produced valuable results?	<b>Over 57% said this work has produced valuable or highly valuable results.</b>

Published results:

- The ASEAN ICT Skills Standard project has been developed three phases since AIM2015, which aimed to develop and maintain ASEAN ICT Skills Standard. The first phase was completed in 2013, while the second phase was concluded in 2015. This report is result of the current phase or third phase, which is finalized in 2018.  
The first of the ASEAN ICT Skills Standard project covers 5 skills, which include;
  1. Software Development
  2. ICT Project Management
  3. Enterprise Architecture Design
  4. Network and System Administration
  5. Information System and Network Security It also results in the first version of the mapping table that around countries in the region to compare their standards to each other within these 5 skills.
 The second phase of the project added two more skills to the standard which are;
  1. Cloud Computing
  2. Mobile Computing
 In Addition to adding definitions for the two skills to the standard, activities in the second phase also include updating definitions and mapping table that had been developed in the first phase to ensure that all contents of the report were up – to – date.  
As this current phase, the main focus on reviewing 7 skills set that have been added to the ASEAN ICT Skills Standard Definition and study three additional skills, which are;
  1. Social business
  2. Big data
  3. Internet of Things
 The Completion Report is attached. (<https://fliphtml5.com/vmpw/gvmq/basic/>)
- ASEAN ICT Skills Standards

**STRATEGIC THRUST 6. ICT IN THE ASEAN SINGLE MARKET**

**ACTION/PROJECT 6.1.1.1.** *Identify messaging and platforms for communicating the strengths and growth potential of the ASEAN single market to global ICT vendors and service providers. Particular focus to be given to accelerating digital services development and delivery across ASEAN*

44% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Over 57% of respondents identified the level of work as some work undertaken. Nearly 43% identified the level of work as significant or near completion.</b>
To what extent has this work produced valuable results?	<b>Nearly 86% said this work has produced valuable or highly valuable results.</b>

Published results: None

STRATEGIC THRUST 6. ICT IN THE ASEAN SINGLE MARKET

**ACTION/PROJECT 6.1.1.2.** *Raise awareness of the ASEAN single market so that businesses can better engage with global suppliers and customers, including the sharing of ICT market information and regulations*

31% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>80% of respondents identified that the level of work is significant or near completion.</b>
To what extent has this work produced valuable results?	<b>80% said this work has produced valuable or highly valuable results.</b>

Published results: None

**ACTION/PROJECT 6.1.1.3.** *Conduct ASEAN-organised trade delegations to specific ICT trade investment fairs to encourage investments in ASEAN. These are to be focused on both ICT and also on investments into ICT to support development in industries such as transport, health, education, as well as smart cities, etc*

25% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>50% of respondents identified that the level of work is significant.</b>
To what extent has this work produced valuable results?	<b>75% said this work has produced valuable results.</b>

Published results: None

**ACTION/PROJECT 6.1.2.1.** *Develop a framework to provide affordable intra-ASEAN mobile voice, SMS and/or data roaming services*

50% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Near to 63% of respondents identified that the level of work is near completion or completed.</b>
To what extent has this work produced valuable results?	<b>Almost 63% said this work has produced highly valuable or extremely valuable results.</b>

Published results:

- ASEAN Framework on International Mobile Roaming
- ASEAN IMR Framework

**ACTION/PROJECT 6.1.3.1.** *Promote spectrum management harmonization in ASEAN (e.g. 700 MHz band, International Mobile Telecommunications (IMT) and related next versions)*

50% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>75% of respondents identified that the level of work is significant or near completion.</b>
To what extent has this work produced valuable results?	<b>75% said this work has produced some value or valuable results.</b>

Published results:

- ASEAN sub working group on spectrum

**ACTION/PROJECT 6.1.3.2.** *Study spectrum usage for newly emerging technologies and strengthen cross-border spectrum management and coordination*

44% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
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STRATEGIC THRUST 6. ICT IN THE ASEAN SINGLE MARKET	
To what extent has this task been successfully undertaken and completed?	<i>Nearly 86% of respondents identified that the level of work is some or significant work undertaken.</i>
To what extent has this work produced valuable results?	<i>Almost 86% said this work has produced some value or valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li>ASEAN sub working group on spectrum</li> </ul>	
<b>ACTION/PROJECT 6.2.1.1. Identify priority ICT standards so as to facilitate alignment of ICT technical standards across AMS</b>	
47% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Nearly 88% of respondents identified that the level of work is some or significant work undertaken.</i>
To what extent has this work produced valuable results?	<i>Almost 88% said this work has produced valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li>The project is under preparation for workshop among ASEAN representatives that was postponed because of the COVID-19 pandemic.</li> </ul>	
<b>ACTION/PROJECT 6.2.1.2. Conduct a study on the potential for an ASEAN single telecommunications market, including studying the various components and aspects of a single telecom market and indicating the 'readiness' across AMS</b>	
31% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>80% of respondents identified that the level of work is significant or near completion.</i>
To what extent has this work produced valuable results?	<i>60% said this work has produced valuable results. 40% said this work has produced highly valuable results.</i>
Published results: None	

STRATEGIC THRUST 7. NEW MEDIA AND CONTENT	
<b>ACTION/PROJECT 7.1.1.1. Explore adding new categories to the ASEAN ICT Awards: (i) 'New Media and Content', focused on projects and products that take innovative approaches to the creation of local content (ii) 'Community Content' for content and apps that support community engagement and municipality services</b>	
44% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Nearly 29% of respondents identified the level of work as nothing done. Over 57% identified the level of work as some or significant work undertaken.</i>
To what extent has this work produced valuable results?	<i>Almost 29% said this work has produced results of no value. Over 57% said this work has produced some value or valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 7.1.1.2. Establish an engagement forum for AMS to dialogue with social media providers to discuss relevant matters (e.g. regulatory matters, responsible online practices, etc)</b>	
44% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE

STRATEGIC THRUST 7. NEW MEDIA AND CONTENT	
To what extent has this task been successfully undertaken and completed?	<i>Almost 43% of respondents identified the level of work as some work undertaken. Just over 57% identified the level of work as significant or near completion.</i>
To what extent has this work produced valuable results?	<i>Nearly 86% said this work has produced some value, valuable or highly valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li>Project done under OTT Dialogue</li> </ul>	
<b>ACTION/PROJECT 7.1.1.3.</b> <i>Encourage multilingual content by commissioning the development of language APIs and plugins to enable sites to offer content in English and major ASEAN local languages through machine translation, and have the ASEAN website available in major ASEAN languages</i>	
13% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>50% of respondents identified the level of work undertaken as don't know. 50% identified the level of work as some undertaken.</i>
To what extent has this work produced valuable results?	<i>50% said this work has produced results as don't know. 50% said this work has produced highly valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 7.1.2.1.</b> <i>Document best practices and develop guides for developing local content, including:</i> <ul style="list-style-type: none"> <li><i>Developing favourable content environments</i></li> <li><i>Funding development of local language packs for common CMS software</i></li> <li><i>Helping local companies go to market</i></li> <li><i>Helping local companies regionalise and distribute their content</i></li> </ul>	
19% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Nearly 67% of respondents identified that the level of work is some work undertaken.</i>
To what extent has this work produced valuable results?	<i>Almost 67% said this work has produced some value or valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 7.2.1.1.</b> <i>Develop a framework of expected minimum levels of e-services delivery by 2020, including best practices and recommendations guidelines for (a) Improvement of quality of service for common e-government applications, and (b) Cross-leveraging existing successes within AMS; taking into consideration past AIM2015 initiatives</i>	
40% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Over 83% of respondents identified that the level of work is some work undertaken.</i>
To what extent has this work produced valuable results?	<i>Nearly 67% said this work has produced some value or valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 7.2.2.1.</b> <i>Developing a focused model programme targeting education, advocacy, and engagement around cyber wellness, including:</i> <ul style="list-style-type: none"> <li><i>Developing guides and promoting awareness on online risks, particularly to vulnerable groups (children, youth, less-abled), and how they should respond</i></li> <li><i>Raise awareness and resilience to new threats and risks online (e.g. the rapid spread of misinformation, cyber-vigilantism and over-sharing of personal and corporate information)</i></li> </ul>	

STRATEGIC THRUST 7. NEW MEDIA AND CONTENT

- *Developing measures for child online protection, including communication channels to report ‘harmful content’ and online abuse to the relevant AMS authorities, with a focus on safety for children*
- *Working with the community to establish online forums and exchange on cyber wellness and Internet abuse, with the goal of bringing together stakeholders’ views*
- *Sharing of information and data among countries on trends and challenges in the online space for greater mindshare in formulation of policies and programmes*

25% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>50% of respondents identified the level of work as some work undertaken. 50% identified the level of work as near completion.</b>
To what extent has this work produced valuable results?	<b>75% said this work has produced valuable results. 25% said this work has produced extremely valuable results.</b>

Published results:

- <file:///C:/Users/USER/Downloads/Telegram%20Desktop/OCSE%20English%20report%20final.pdf>

STRATEGIC THRUST 8. INFORMATION SECURITY AND ASSURANCE

**ACTION/PROJECT 8.1.1.1.** *Commission a study that compares personal data privacy protection frameworks across AMS. The study will identify current practices, develop case studies, and disaggregate issues across different levels – local, national, cross-border and ASEAN*

38% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Over 33% of respondents identified the level of work undertaken as near completion. 50% identified the level of work as some, significant or work completed.</b>
To what extent has this work produced valuable results?	<b>Over 33% said this work has produced highly valuable results. 50% said this work has produced some value, valuable or extremely valuable results.</b>

Published results:

- <https://asean.org/storage/2012/05/10-ASEAN-Framework-on-PDP.pdf>
- Together under ASEAN DDG Framework

**ACTION/PROJECT 8.1.1.2.** *Develop an ASEAN guideline or framework for personal data protection*

40% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<b>Nearly 67% of respondents identified that the level of work is near completion or completed.</b>
To what extent has this work produced valuable results?	<b>Almost 67% said this work has produced valuable or highly valuable results.</b>

Published results:

- <https://asean.org/storage/2012/05/10-ASEAN-Framework-on-PDP.pdf>
- Together under ASEAN DDG Framework

**ACTION/PROJECT 8.1.2.1.** *Develop best practice guide for information and network security in ASEAN, including cloud computing*

20% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?

STRATEGIC THRUST 8. INFORMATION SECURITY AND ASSURANCE

QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Nearly 67% of respondents identified that the level of work is significant.</i>
To what extent has this work produced valuable results?	<i>Almost 67% said this work has produced valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 8.1.3.1. Commission a report to identify existing critical information infrastructures and suggest best approaches to coordinated protection and response</b>	
25% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>75% of respondents identified that the level of work is significant.</i>
To what extent has this work produced valuable results?	<i>50% said this work has produced valuable results. 50% said this work has produced highly valuable or extremely valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li>ASEAN Critical Information Infrastructure Framework: <a href="https://www.eta.or.th/download-publishing/146/">https://www.eta.or.th/download-publishing/146/</a></li> </ul>	
<b>ACTION/PROJECT 8.2.1.1. Conduct a feasibility study on establishing an ASEAN CERT, including looking at possible ownership models – whether by AMS government or through Public-Private Partnership (PPP)</b>	
20% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Nearly 67% of respondents identified that the level of work is near completion.</i>
To what extent has this work produced valuable results?	<i>100% said this work has produced valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 8.2.1.2. Develop an Incident Reporting Framework, including templates and standardised responses to pre-identified ‘threat levels’ and attach types</b>	
13% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>50% of respondents identified the level of work as some work undertaken. 50% identified the level of work as near completion.</i>
To what extent has this work produced valuable results?	<i>100% said this work has produced valuable results.</i>
Published results: None	
<b>ACTION/PROJECT 8.2.1.3. Promote regular cyber security collaboration between governments, business community and citizens through joint awareness-raising campaigns and the exchange of relevant materials</b>	
20% of respondents identified this ACTION/PROJECT item as being within their area of responsibility?	
QUESTION	RESPONSE
To what extent has this task been successfully undertaken and completed?	<i>Nearly 67% of respondents identified that the level of work is significant.</i>
To what extent has this work produced valuable results?	<i>Almost 67% said this work has produced valuable results.</i>
Published results:	
<ul style="list-style-type: none"> <li>ANSAC Meetings</li> </ul>	

# APPENDIX 3: AIM 2020 MONITORING 2016-2020

		Status	Activities	AICTF Budgeted Amount	Projects	
1 ECONOMIC DEVELOPMENT AND TRANSFORMATION			9	\$175,400		
1	<b>Initiative 1.1 Accelerate the Development and Growth of ASEAN's ICT Industry and Services.</b> <i>Strategically support the growth of priority areas of ASEAN's digital economy</i>	3	1.1.1 Promote Digital Trade in ASEAN		<ul style="list-style-type: none"> <li>- The work plan for Establishing an ASEAN Framework on Digital Data Governance and the formation of a Working Group on Digital Data Governance (Singapore)</li> </ul>	
			1		<ul style="list-style-type: none"> <li>- Study on the Framework for the Mutual Recognition of Digital Signatures in ASEAN (JAIF 2.0) (Viet Nam)</li> </ul>	
			1	\$5,000	<ul style="list-style-type: none"> <li>- SG ASEAN Locker Alliance to Facilitate and Promote e-Commerce Trade (2020)</li> </ul>	
		4	1.1.2 Develop a Consultative Approach towards Over-the-Top (OTT) Service Providers	1	\$30,400	<ul style="list-style-type: none"> <li>- OTT Framework for balancing between broadband development policy goal and OTT expansion (Indonesia)</li> </ul>
				1	\$44,000	<ul style="list-style-type: none"> <li>- Opportunities and Challenges of Over-the-Top (OTT) Services' Regulation, and recommended approaches, and principles on net neutrality (Malaysia and Brunei Darussalam)</li> </ul>
				2	\$34,000	<ul style="list-style-type: none"> <li>- TH "OTT/New Media" Category - ATRC-related Dialogue "</li> <li>ATRC Stakeholders Consultative Dialogue " (2019)</li> <li>- TH OTT Dialogue (2020)</li> </ul>

			Status	Activities	AICTF Budgeted Amount	Projects
<b>1 ECONOMIC DEVELOPMENT AND TRANSFORMATION</b>				9	\$175,400	
1.2	<b>Initiative 1.2 Increase the Use of Sustainable ICT in Public and Private Sectors.</b> <i>Encourage the use of sustainable ICT by the public and private sectors</i>	1.2.1 Identify and Adopt Appropriate Best Practices for Sustainable and Green ICT Use	2	2		- Workshop on promoting IT applications for enhancing energy saving and environmental protection in ASEAN (JAIF 2.0) (Viet Nam)  - -V2X (Vehicle- To-Everything) apps for Sustainable and Green ICT Practice: a best practice of ICT use to increase traffic safety and reducing fuel consumption (2019)
<b>2 PEOPLE INTEGRATION AND EMPOWERMENT THROUGH ICT</b>				6	0	
2.1	<b>Initiative 2.1 Strengthen Digital Inclusion in ASEAN</b> <i>Implement programmes which will enable more ASEAN citizens to use ICT</i>	2.1.1 Create Initiatives to Address Emerging or Growing Digital Divides in ASEAN	2	2		Next Generation Universal Service toward Ubiquitous Broadband Ecosystems (USO2.0) – Phase 1 (Indonesia, Viet Nam, Malaysia & Thailand) USAID
		2.1.2 Develop a Next-Generation USO ('USO 2.0') Framework	2	2		
		2.1.3 Develop Best Practices for Next Generation Telecentres	2	2		
<b>3 INNOVATION</b>				11	\$564,292	

			Status	Activities	AICTF Budgeted Amount	Projects
1	<b>ECONOMIC DEVELOPMENT AND TRANSFORMATION</b>			9	\$175,400	
3.1	<b>Initiative 3.1 Promotion of New Technology and Policy Approaches</b> <i>Equip ASEAN to promote the use of and benefits from new and emerging technologies</i>	3.1.1 Develop Best Practice Guides and Standards for Smart City Development	5	5	\$148,650	<ul style="list-style-type: none"> <li>- The Capacity Building on Accelerating the Development Framework of Smart Sustainable Cities (SSC) for ASEAN countries (JAIF 2.0) (Viet Nam)</li> <li>-V2X (Vehicle- To-Everything) apps for Sustainable and Green ICT Practice: a best practice of ICT use to increase traffic safety and reducing fuel consumption (2019)</li> <li>- TH "Study to identify priority and facilitate alignment of standards in the digital sectors across AMS"(2019)</li> <li>- ID Smart ASEAN 2020 Network: Learn, Collaborate and Innovate (2019)</li> <li>- PH, VN &amp; BN Architecture for the ASEAN Smart Cities platforms with due consideration on the Use of ICT for Disaster Risk Reduction Management (DRRM) System and the availability of a secure, scalable and connectable Transmission Control Protocol/Internet Protocol (2019 and 2020)</li> </ul>
		3.1.2 Develop Guides and Applications for Open and Big Data	1	1	\$33,000	<ul style="list-style-type: none"> <li>- Study to develop guides on open and big data development in ASEAN countries ( Viet Nam)</li> </ul>

			Status	Activities	AICTF Budgeted Amount	Projects
<b>1 ECONOMIC DEVELOPMENT AND TRANSFORMATION</b>				<b>9</b>	<b>\$175,400</b>	
		3.1.3. Monitor New Technology Developments and Trends	2	2	\$29,950	- Workshop on Impacts of Internet of Things to e-Government applications in ASEAN (Viet Nam)
					\$32,992	- Conceptual framework for creation of virtual collaboration platform (Cambodia)
3.2	<b>Initiative 3.2 Promote Collaboration and Innovation Between Public and Private Sectors</b> <i>Develop closer ties with the private sector to leverage synergies</i>	3.2.1 Develop an Ecosystem Conducive to Support Start-ups and Strengthen Enterprises	3	3	\$240,700	- Annual ASEAN ICT Award (2016-2019)
					\$20,300	- Startups@ASEAN (Singapore)
					\$58,700	- ASEAN Maker Hackathon ('Makerthon') 2017, 2018, 2019, & 2020 (Malaysia)
<b>4 ICT INFRASTRUCTURE DEVELOPMENT</b>				<b>7</b>	<b>\$121,000</b>	
4.1	<b>Initiative 4.1 Fostering Broadband Access and Connectivity</b> <i>Ensuring an ASEAN connectivity backbone is in place</i>	4.1.1 Reduce Development Disparities in Access and Affordability to Broadband Access and Improving ICT Interoperability	2	2	\$68,000	- ASEAN Broadband Strategy (Indonesia and Lao PDR)
					\$15,000	- IPv6 Adoption within ASEAN Government Agencies (Singapore)
		4.1.2 Promote Cooperation to Strengthen the Resilience and Repair of Submarine Cables	2	2	\$38,000	- ASEAN Guideline for Strengthening Resilience and Repair of Submarine Cables (Singapore)

			Status	Activities	AICTF Budgeted Amount	Projects
<b>1 ECONOMIC DEVELOPMENT AND TRANSFORMATION</b>				<b>9</b>	<b>\$175,400</b>	
4.2	<b>Initiative 4.2 Develop Disaster Management and Response Frameworks</b> <i>Increase resilience of ASEAN ICT communication networks</i>	4.2.1 Develop Best Practices for Disaster Risk Reduction and Management System using ICT	2	2		- Study on Disaster Data Dissemination and Prevention System among ASEAN (JAIF 2.0) (Thailand)
4.3	<b>Initiative 4.3 Support Cloud Computing Development</b> <i>Develop ASEAN's cloud computing environment</i>	4.3.1 Establish a Model Cloud Computing Platform for Use by Private and Public Sectors	1	1		- The Aligning Public Policy and Regulation Framework to Promote Cloud Computing Environment (Lao PDR) (JAIF 2.0)
<b>5 HUMAN CAPITAL DEVELOPMENT</b>				<b>7</b>	<b>\$221,750</b>	
5.1	<b>Initiative 5.1 Building ICT Capacity and Capabilities, Particularly for Vulnerable Groups</b> <i>Equipping all ASEAN citizens to be digitally-literate with basic ICT skillsets</i>	5.1.1 Continue On-going Efforts to Narrow the Gaps between Demand and Supply in ICT Human Resource	4	1	\$50,000	-TH Study to evaluate current status and develop recommendations to narrow the gaps between demand and supply in ICT Human Resource in ASEAN (2019)
				1		-ID A 3D Multiuser Virtual Learning Environment for Children Online Protection Awareness Raising (2019) (Proposed to DPs)
				1	\$45,250	-VN Study to develop best practices guide for ICT human resource development in ASEAN (2019)

			Status	Activities	AICTF Budgeted Amount	Projects
<b>1 ECONOMIC DEVELOPMENT AND TRANSFORMATION</b>				<b>9</b>	<b>\$175,400</b>	
				1	\$40,700	- BN Study to Determine the Current Gaps between Demand and Supply in ICT Human Resource for Certified Professionals in Information Security in ASEAN (2020)
5.2	<b>Initiative 5.2 Develop Common ICT Workforce Skills</b> <i>Create standards through which the ASEAN workforce is ICT-literate and competitive</i>	5.2.1 Continue Efforts to Align ICT Skill Standards for ASEAN	3	1	\$41,700	- Review and Enhance ASEAN ICT skills Standard (Thailand)
				1	\$25,600	- PH Digital Jobs towards ASEAN Integration: "Creating meaningful ICT-enabled jobs in socio-economically disadvantaged areas in the ASEAN Region" (2020)
				1	\$18,500	- TH Study on ASEAN ICT Skill Standard Definition for Artificial Intelligence (2020)
<b>6 ICT IN THE ASEAN SINGLE MARKET</b>				<b>8</b>	<b>\$192,150</b>	
6.1	<b>Initiative 6.1 Create a Conducive Environment for Businesses</b> <i>Support the development of the AEC in ICT products and services</i>	6.1.1 Facilitate and Grow ICT Investments into ASEAN	3	1	\$40,650	- Mobile Communication Quality of Service (QoS) Benchmarking in Developing Countries of ASEAN Member Countries (Lao PDR)
				1	\$29,000	- Study and take survey on building QoE Assessment Model and Propose a guideline for ASEAN countries (Viet Nam)
				1	\$19,200	- Mobile number portability in ASEAN (Brunei Darussalam)

			Status	Activities	AICTF Budgeted Amount	Projects	
<b>1 ECONOMIC DEVELOPMENT AND TRANSFORMATION</b>				<b>9</b>	<b>\$175,400</b>		
		6.1.2 Promote the Lowering of Voice, SMS, and/or Data Roaming Charges in ASEAN	1	1	\$80,000	- ASEAN International Mobile Roaming (IMR) Framework (Singapore & Lao PDR)	
		6.1.3 Harmonize Telecommunication Regulations - Develop Guidelines for ASEAN Spectrum Regulatory Cooperation	2	1			- Sub Working Group on Spectrum Management
				1	\$23,300	- VN Guidelines on the technical and regulatory solutions to promote efficient L band (1427-1518 MHz) spectrum access and usage for IMT services (2020)	
6.2	<b>Initiative 6.2 Promote an Open Market for ICT Enterprises/ Products</b> <i>Proactively support the on-going liberalisation of the ASEAN market for ICT products and services</i>	6.2.1 Nurture the Free Flow of ICT Products and Services in ASEAN	2	2		- Study on establishing an ASEAN Telecommunications Single Market (AADCP II) (The Philippines)	
<b>7 NEW MEDIA AND CONTENT</b>				<b>8</b>	<b>\$234,700</b>		
7.1	<b>Initiative 7.1 Promote the Development of Media and Content Markets</b> <i>Support and promote the sustainable development of an ASEAN content market</i>	7.1.1 Encourage the Growth, Production and Use of New Media in ASEAN	2	2	\$71,500	- Study to develop policies and regulatory guidelines for new media and social networks in ASEAN countries (2019) - ATRC Stakeholders Consultative Dialogue (2019)	
		7.1.2 Develop Best Practices Guide for Local Content	2	2	\$34,900	- Study to develop best practices guide for local content development and support in ASEAN countries (Viet Nam)	

			Status	Activities	AICTF Budgeted Amount	Projects	
<b>1 ECONOMIC DEVELOPMENT AND TRANSFORMATION</b>				<b>9</b>	<b>\$175,400</b>		
		Development and Support			\$43,600	- LA Strategic Workshop and Guideline to Promote the Use of IDN and IDN ccTLDs Among ASEAN Community (2020)	
7.2	<b>Initiative 7.2 Nurture ASEAN Digital Society</b> <i>Build an ASEAN online community</i>	7.2.1 Develop Best Practices for e-Service Delivery		2	\$36,600	- Gap Analysis, Recommendation and Promotion on Best Practice of ASEAN e-Service Development (Lao PDR)	
					\$29,600	- Study on Agricultural Market Information Systems in ASEAN member states (Cambodia)	
		7.2.2 Develop and Foster Cyber Wellness through Guidelines, Education and Outreach Programmes		2	2	\$18,500	- Develop guidelines and promote awareness on child and youth online risk and protection (Thailand)
							- ASEAN Cyber Wellness Training of Tutors (AJICTF) (Indonesia)
<b>8 INFORMATION SECURITY AND ASSURANCE</b>				<b>10</b>	<b>\$89,000</b>		
8.1	<b>Initiative 8.1 Strengthen Information Security in ASEAN</b> <i>Create a trusted ASEAN digital economy</i>	8.1.1 Develop Regional Data Protection Principles		2	\$74,000	-SG The work plan for Establishing an ASEAN Framework on Digital Data Governance and the formation of a Working Group on Digital Data Governance (2018 & 2019)	
		8.1.2 Develop Regional Network Security Best Practices		2	\$15,000	- The 5th and 6th ANSAC	
						- Strengthening Information Security in ASEAN: Develop Regional Network Security Best Practices (JAIF 2.0) (Indonesia)	
		8.1.3 Develop Regional Critical Information		2	2		- The ASEAN Critical Information Infrastructure Protection framework (AJICTF) (Thailand)

			Status	Activities	AICTF Budgeted Amount	Projects
<b>1 ECONOMIC DEVELOPMENT AND TRANSFORMATION</b>				<b>9</b>	<b>\$175,400</b>	
		Infrastructure Resilience Practices				
8.2	<b>Initiative 8.2 Strengthen Information Security Preparedness in ASEAN</b> <i>Improve cyber emergency responses and collaboration</i>	8.2.1 Strengthen Cyber Incident Emergency Response Collaboration	4	1		- Feasibility study on establishing ASEAN CERT (Self Fund) (Singapore)
				1		ASEAN-Japan Cybersecurity Capacity Building Centre (Thailand) (JAIF 2.0)
				1		Cybersecurity Incident Handling Exercise-CYDER (JAIF 2.0) (ASEAN)
				1		- ASEAN CERT Incident Drill (ACID) 11 & 12 (Singapore self fund)
<b>Total</b>				<b>66</b>	<b>\$1,598,292</b>	
					\$25,000	- AIM2020 Midterm Review
					\$150,000	- AIM 2020 National Promotional Activities
					\$56,100	- AIM2020 Completion Report
					\$56,100	- Annual ASEAN Cyberkids Camp (2016-2019 (Indonesia, Philippines, Brunei Darussalam and Viet Nam)
						- Cyber Security Capacity Building for Young People in ASEAN Member States (Cyber Sea Games) (JAIF 2.0) (Indonesia)
					\$300,000	Development – ADM 2025



Windsor Place Consulting Pty Ltd (WPC) is internationally recognised as an outstanding provider of advice to the information industries. The firm, established in 2000, works extensively in telecommunications, media, and information technology, both in the development of commercial strategies for the private sector and the formulation of national policy and legislative settings for public sector clients. WPC's team members have a long association with these industries, having been actively involved through various stages of market liberalisation, from the introduction of competition in Australia in the 1990's to the drafting and implementation of modern convergence legislation in a range of countries especially in Asia, Africa and the Pacific.

WPC has undertaken projects in each and every ASEAN Member State over the past 20 years including engagements for Governments, regulators, licensed operators, investors and international organisations such as the International Telecommunications Union (ITU), the World Bank, Asia-Pacific Telecommunity (APT) on range of issues including legislation, spectrum, broadband policy, interconnection, tariff regulation and training.

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