

# ASEAN's Digital Integration:

## Evolution of Framework Documents

---

Ikumo Isono  
Hilmy Prilliadi



Economic Research Institute  
for ASEAN and East Asia

## ASEAN's Digital Integration: Evolution of Framework Documents

Copyright © 2023 by Economic Research Institute for ASEAN and East Asia (ERIA)

Published by

Economic Research Institute for ASEAN and East Asia (ERIA)  
Sentral Senayan II 6<sup>th</sup> Floor  
Jalan Asia Afrika no. 8, Gelora Bung Karno  
Senayan, Jakarta Pusat 10270  
Indonesia

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means electronic or mechanical without prior written notice to and permission from ERIA.

This book explores the evolution of ASEAN policies and initiatives on the digital sector and digital economy and identifies the characteristics of ASEAN's digital integration as an element of the regional integration process. It outlines important milestones, such as the e-ASEAN Framework Agreement in 2000, ASEAN Economic Community Blueprint in 2007, establishment of the ASEAN Coordinating Committee on Electronic Commerce in 2016, and ASEAN Digital Integration Framework Action Plan in 2019. The book argues that ASEAN has updated the characteristics of the digital sector and its impact on society, broadened its scope, and concretised its actions. Distinctive initiatives such as the ASEAN Single Window; e-authentication and digital identity; ASEAN Computer Emergency Response Team; e-payment and QR codes; and digitisation of ASEAN micro, small, and medium-sized enterprises are presented. It also analyses the relationships and differences between the five comprehensive framework documents adopted during 2019–2021 and discusses the prospects of the ASEAN Digital Economy Framework Agreement and Post-2025 Agenda.

Cover Design: Ikumo Isono and Artmosphere

Layout: Artmosphere

National Library of Indonesia Cataloguing-in-Publication Data  
ISBN: 978-6025-460-48-7

# Foreword

In an era defined by the rapid advancements of technology, the integration of digital systems has become a paramount consideration for nations around the world. Amongst these nations, the Association of Southeast Asian Nations (ASEAN) has emerged as a trailblazer, tirelessly working towards the seamless integration of digital technologies across its member states. It is with great pleasure that I present this remarkable book, 'ASEAN's Digital Integration: Evolution of Framework Documents,' which comprehensively explores ASEAN's journey towards digital integration. Authored by Ikumo Isono, Senior Economist at the Economic Research Institute for ASEAN and East Asia (ERIA), and Hilmy Prilliadi, Research Associate at ERIA, this book provides a transformative journey into the world of digital integration within ASEAN. As the President of ERIA, an institution committed to fostering regional cooperation and sustainable economic development, it is an honour to introduce this pivotal work to you. The pages that follow unravel the complexities, challenges, and possibilities of digital integration in ASEAN, while also tracing its development since the adoption of the ASEAN Vision 2020 in 1997.

I am pleased to note that this book aligns with the objectives of ERIA's Digital Innovation and Sustainable Economy Centre (DISC), which serves as a hub for collaboration amongst policymakers, businesses, academics, and organisations, aiming to generate knowledge and promote sustainable economic growth in the East Asia Summit (EAS) region. Through cutting-edge research and capacity building, DISC provides evidence-based recommendations that support ASEAN-wide initiatives, including the crucial ASEAN Digital Economy Framework Agreement (DEFA), e-commerce, data governance, and cross-border data flows. This book offers insights into key areas of digital integration in ASEAN, making it an indispensable resource for identifying critical areas that need attention and underscoring the tremendous value that digital integration brings to the region.

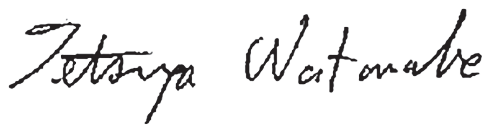
Before diving into the contents of this book, allow me to share a story that underscores the relevance and significance of ASEAN's digital integration journey. Imagine a bustling and secure marketplace in the heart of a vibrant city, where people from diverse backgrounds can easily access and converge to exchange goods, services, and ideas. Amidst the sounds of merchants haggling and the vibrant tapestry of languages, there is a palpable energy — a shared purpose to connect, collaborate, and prosper. Now, transpose this scene into the digital realm, where borders are dissolved, and connections are made with a mere click. This virtual marketplace, which ASEAN aspires to foster, transcends geographical boundaries, empowering individuals, businesses, and economies. It is a realm where the promise of digital integration lies, offering enhanced interoperability, innovation, and sustainable growth opportunities. However, the path towards digital integration within ASEAN is a complex and multifaceted one. Therefore, this book meticulously examines key areas of focus, ranging from the ASEAN Single Window and interoperability of e-payment systems to competition policy, submarine cables, data localisation, digital identity, AI, fintech, and beyond. These topics, which have been discussed in ASEAN framework documents, receive comprehensive analysis, offering readers invaluable insights into their evolution and potential impact on the region.

Digital integration has become an imperative for nations around the world, and ASEAN is no exception. The rapid advancement of digital technologies presents both opportunities and challenges for the region. ASEAN's digital integration efforts have evolved to encompass a wide range of objectives, including enhancing interoperability, developing robust digital infrastructure, fostering digital innovation, nurturing human resources, supporting member states, and contributing to the growth of existing industries, livelihoods, and national economies. Since the adoption of the ASEAN Vision 2020 in 1997, ASEAN has taken significant strides to facilitate digital integration. It has formulated numerous documents, frameworks, agreements, and action plans, creating a roadmap that guides the region towards a more integrated digital ecosystem.

This book highlights the significant role played by ASEAN in addressing the challenges posed by the global COVID-19 pandemic. It uncovers the region's resilience and adaptability in establishing initiatives that mitigate the impact of the crisis, resulting in a multi-layered list of endeavours. These initiatives exemplify ASEAN's commitment to leveraging digital integration as a strategic tool for recovery, resilience, and sustainable development. Furthermore, the authors examine the next important milestones in ASEAN's digital integration journey — the ASEAN Digital Economy Framework Agreement (DEFA) and the Post-2025 Agenda. These crucial milestones will shape the future trajectory of digital integration in ASEAN, ensuring its adaptability to technological advancements.

I invite you to embrace a transformative journey through the pages of 'ASEAN's Digital Integration: Evolution of Framework Documents.' The authors' policy recommendations offer a comprehensive guide for policymakers and stakeholders, ensuring a prosperous and inclusive digital ecosystem for the ASEAN region.

I extend my heartfelt appreciation to the authors for their exceptional contributions in crafting this valuable book. Their meticulous research, expertise, and commitment to the region's digital integration development have yielded work that will undoubtedly shape the future of digital integration in ASEAN. May this book inspire policymakers, researchers, industry leaders, and stakeholders to actively engage in fostering ASEAN's digital integration, creating a prosperous and inclusive digital ecosystem that empowers individuals, businesses, and communities alike. Together, let us seize the opportunities of the digital age and build a resilient and equitable future for all in the ASEAN region.



**Tetsuya Watanabe**

President, Economic Research Institute for ASEAN and East Asia (ERIA)

# Contents

Foreword	III
Contents	V
List of Figures	VII
List of abbreviations	VIII
Executive Summary	XIII
<b>1. Introduction</b>	<b>1</b>
<b>2. What Is ASEAN's Digital Integration?</b>	<b>4</b>
2.1 What Is the Digital Economy?	4
2.2 Why Is the Digital Economy Important?	6
2.3 Defining ASEAN's Digital Integration	8
<b>3. ASEAN Digital Initiatives</b>	<b>11</b>
3.1 Topology Map	11
3.2 1997–2000: e-ASEAN Framework Agreement	14
3.3 2000–2009: Launch of Initiatives towards Creation of the Community	15
3.4 2010–2014: First ICT Master Plan	17
3.5 2015–2016: Formal Launch of the ASEAN Community and New Master Plans	17
3.6 2017–2019: Integration of Digital Sector Initiatives	19
3.7 2020 Onwards: Digital Masterplan and Recovery from the COVID-19 Pandemic	20
3.8 Initiatives with Dialogue Partners	22
<b>4. Evolution of Actions</b>	<b>25</b>
4.1 Evolution of Key Actions	25
4.1.1 ASEAN Single Window	25

4.1.2	E-Authentication and Digital Identity	26
4.1.3	ASEAN CERT and CRISP	27
4.1.4	Interoperable E-Payment System and QR Code Framework	28
4.1.5	Digitalisation of ASEAN Micro and MSMEs	29
4.2	Comparison of Actions	30
4.2.1	Comparison Table	30
4.2.2	Similarities and Differences between the Documents	32
<b>5.</b>	<b>Prospects for Accelerating Digital Integration</b>	<b>34</b>
5.1	Elements in the DEFA and Post-2025 Agenda	34
5.2	Strengthening the ASEAN Coordinating Committee on E-Commerce and Digital Economy	39
5.3	Infrastructure	41
5.4	Linking the Formation of the Framework to Its Actual Effects	42
<b>6.</b>	<b>Conclusions and Key Recommendations</b>	<b>44</b>
	References	48
	Appendix: Topics and Actions of Five Digital Integration Framework Documents in ASEAN	58

# List of Figures

<b>Figure 2.1</b>	The Digital Economy by Bukht and Heeks	5
<b>Figure 2.2</b>	Architecture of the Digital Economy	5
<b>Figure 2.3</b>	Six Priority Areas in the ASEAN Digital Integration Index, 2021	9
<b>Figure 2.4</b>	How Digital Integration Contributes to the ASEAN Community	10
<b>Figure 3.1</b>	Topology Map of ASEAN Digital Documents	12
<b>Figure 5.1</b>	Average Download Speed in ASEAN	41

# List of Abbreviations

<b>4IR</b>	Fourth Industrial Revolution
<b>A4AI</b>	Alliance for Affordable Internet
<b>AAEC</b>	ASEAN Agreement on Electronic Commerce
<b>AAMRA</b>	ASEAN Authorized Economic Operator Mutual Recognition Arrangement
<b>ABC</b>	ASEAN Broadband Corridor
<b>ACCEC</b>	ASEAN Coordinating Committee on Electronic Commerce
<b>ACCED</b>	ASEAN Coordinating Committee on E-Commerce and Digital Economy
<b>ACCSME</b>	ASEAN Coordinating Committee on Small and Medium Enterprises
<b>ACDD</b>	ASEAN Customs Declaration Document
<b>ACRF</b>	ASEAN Comprehensive Recovery Framework
<b>ACTS</b>	ASEAN Customs Transit System
<b>ADB</b>	Asian Development Bank
<b>ADBI</b>	Asian Development Bank Institute
<b>ADGMIN</b>	ASEAN Digital Ministers Meeting
<b>ADGSOM</b>	ASEAN Digital Senior Officials' Meeting
<b>ADII</b>	ASEAN Digital Integration Index
<b>ADII 2021</b>	ASEAN Digital Integration Index Report 2021
<b>ADIX</b>	ASEAN Digital Index
<b>ADM</b>	ASEAN Digital Masterplan
<b>ADR</b>	Alternative Dispute Resolution
<b>AEC</b>	ASEAN Economic Community
<b>AEM</b>	Economic Ministers' Meeting



<b>AEO</b>	Authorized Economic Operators
<b>AFAGIT</b>	Agreement on Facilitation of Goods in Transit
<b>AFTA</b>	ASEAN Free Trade Area
<b>AI</b>	Artificial Intelligence
<b>AMS</b>	ASEAN Member States
<b>AOSD</b>	ASEAN Online Sales Day
<b>APCI</b>	ASEAN Payment Connectivity Initiative
<b>APSC</b>	ASEAN Political-Security Community
<b>ASCC</b>	ASEAN Socio-Cultural Community
<b>ASCF</b>	ASEAN Smart Cities Framework
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>ASW</b>	ASEAN Single Window
<b>ASWSC</b>	ASEAN Single Window Steering Committee
<b>ATIGA</b>	ASEAN Trade in Goods Agreement
<b>ATISA</b>	ASEAN Trade in Services Agreement
<b>AWPEC</b>	ASEAN Work Programme on Electronic Commerce / ASEAN Work Program on E-commerce
<b>AWSC</b>	ASEAN-Wide Self-Certification
<b>B2B</b>	Business to Business
<b>B2G</b>	Business to Government
<b>BSBR</b>	Bandar Seri Begawan Roadmap
<b>CBDFM</b>	Cross Border Data Flow Mechanism
<b>CERT</b>	Computer Emergency Response Team
<b>CLMV</b>	Cambodia, Lao PDR, Myanmar, and Viet Nam
<b>CoO</b>	Certificate of Origin
<b>CPL</b>	Competition Policy and Law
<b>CRISP</b>	Cybersecurity Resilience and Information Sharing Platform

<b>CSP</b>	Comprehensive Strategic Partnership
<b>DEFA</b>	Digital Economy Framework Agreement
<b>DEPA</b>	Digital Economy Partnership Agreement
<b>DIF</b>	Digital Integration Framework
<b>DIFAP</b>	Digital Integration Framework Action Plan
<b>DigiSRII</b>	Digital and Sustainable Regional Integration Index
<b>DMF</b>	Data Management Framework
<b>DTN</b>	Digital Technology Network
<b>e-AH</b>	Electronic Animal Health
<b>e-FS</b>	Electronic Food Safety
<b>e-Phyto</b>	Electronic Phytosanitary
<b>ERIA</b>	Economic Research Institute for ASEAN and East Asia
<b>EU</b>	European Union
<b>FinTech</b>	Financial Technology
<b>FWA</b>	Fixed Wireless Access
<b>GDP</b>	Gross Domestic Product
<b>GDPR</b>	General Data Protection Regulation
<b>GNI</b>	Gross National Income
<b>IAI</b>	Initiative for ASEAN Integration
<b>ICT</b>	Information and Communication Technology
<b>INSW</b>	Indonesian National Single Window
<b>IoT</b>	Internet of Things
<b>IP</b>	Intellectual Property
<b>ITU</b>	International Telecommunication Union
<b>LOA</b>	Level of Assurance
<b>MNE</b>	Multinational Enterprises

<b>MoU</b>	Memorandum of Understanding
<b>MPAC</b>	Master Plan on ASEAN Connectivity
<b>MSME</b>	Micro, Small and Medium-sized Enterprises
<b>NSW</b>	National Single Window
<b>NTM</b>	Non-Tariff Measures
<b>ODR</b>	Online Dispute Resolution
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PDP</b>	Personal Data Protection
<b>QR</b>	Quick Response
<b>RCEP</b>	Regional Comprehensive Economic Partnership
<b>RegTech</b>	Regulatory Technology
<b>RFID</b>	Radio Frequency Identification
<b>SADEA</b>	Singapore-Australia Digital Economy Agreement
<b>SEOM</b>	Senior Economic Officials Meeting
<b>SME</b>	Small and Medium-sized Enterprises
<b>TELMIN</b>	Telecommunications and Information Technology Ministers Meeting
<b>TELSOM</b>	Telecommunications and Information Technology Senior Officials Meeting
<b>TRS</b>	Time Release Study
<b>TVET</b>	Technical and Vocational Education and Training
<b>UBIN</b>	Unique Business Identification Number
<b>UK</b>	United Kingdom
<b>UKSDEA</b>	United Kingdom-Singapore Digital Economy Agreement
<b>UNCITRAL</b>	United Nations Commission on International Trade Law
<b>UNCTAD</b>	United Nations Conference on Trade and Development

<b>UNESCAP</b>	United Nations Economic and Social Commission for Asia and the Pacific
<b>US</b>	United States
<b>USAID</b>	United States Agency for International Development
<b>USO</b>	Universal Service Obligation
<b>VAP</b>	Vientiane Action Programme
<b>VET</b>	Vocational Education and Training
<b>VoIP</b>	Voice over Internet Protocol
<b>WC-Finc</b>	Working Committee on Financial Inclusion

# Executive Summary



The Association of Southeast Asian Nations (ASEAN) is accelerating its adoption of digital technologies, supported by a young and technologically receptive population of 680 million, more than half of whom are under 30 years old. The number of internet users in ASEAN reached 460 million by 2022, up from 260 million in 2015. Mobile app messaging, social networking, ride-sharing and home-delivery bikes are used on a daily basis. Online shopping has become a habit, especially amongst urban dwellers since COVID-19, transforming retailers with physical shops. The total value of goods in the digital economy will approach US\$ 200 billion by 2022, doubling since 2019. The impact of the digital revolution goes beyond social networking, online businesses and mobile apps. Digital technologies are transforming all sectors.

ASEAN has responded to the rise of digital technology and the digital economy by promoting ASEAN's own digital integration initiatives to boost digital transformation. As discussed below, digital integration encompasses multiple objectives, including enhancing interoperability, infrastructure development, accelerating digital innovation, human resources development, supporting member states and contributing to existing industries, livelihoods and national growth. ASEAN has developed a number of documents, frameworks, agreements, and action plans for digital integration and digital economy development. These framework documents and action plans issued by ASEAN have increased rapidly since 2016, reflecting the recognition of the importance of digital (see Figure 3.1). In response to COVID-19 and the associated proliferation of digital technologies, a number of framework documents have been issued in 2020 and 2021.

It is reported at the time of writing that formal negotiations on the Digital Economy Framework Agreement (DEFA) will begin soon. In addition, 2025 is the target year for the current ASEAN Community Blueprints and Master Plans, which are expected to be updated. These are expected to play a role in ensuring or further accelerating the pace of ASEAN's digital transformation and represent the next important milestone in digital integration.

What, then, is ASEAN's digital integration? What are its characteristics, how has it been shaped, and how is it expected to develop under the DEFA and Post 2025 Agenda? This publication analyses more than 70 agreements, frameworks, guidelines, action plans, and declarations issued by ASEAN; analyses the evolution of ASEAN's policies and initiatives on the digital sector and digital economy; and identifies the characteristics of ASEAN's digital integration as an element of the regional integration process. It argues that ASEAN has responded to change, grasped the characteristics of digital and its impact on society, broadened its scope, and concretised its actions.

Flexibility and inclusiveness are amongst the features of ASEAN's digital integration. ASEAN instruments comprise agreements and protocols that require signature and ratification procedures, and framework instruments that are not legally binding and do not require signature or ratification procedures. ASEAN and its Member States have made flexible use of these instruments to achieve results. For some Member States, capacity building through technical and legal assistance has been a key action. Cooperation with dialogue partners has also been strong. Inclusiveness was not only focussed on member states, but also on micro, small and medium-sized enterprises (MSMEs), which still lag behind in terms of digitalisation compared to other major economic players, such as large corporations and urban-based companies.

Recognising the breadth of the digital concept, ASEAN has embraced and further concretised its actions in the areas encompassed by digital. The scope has expanded to include new areas such as personal data protection, paperless trade, digital payments and digitisation of traditional sectors. Initiatives previously treated as separate efforts of the ASEAN Community are now counted as one of the initiatives in digital integration and linked to other initiatives. This change has been particularly evident since the establishment of the ASEAN Coordinating Committee for Electronic Commerce (ACCEC) in 2016. Digital integration will drive the adoption of emerging technologies such as 5G, cloud, artificial intelligence (AI), big data and internet of things (IoT), and address increasingly complex issues related to cyber security, consumer protection and cross-border data flows.

On the other hand, there are still significant gaps amongst ASEAN Member States (AMS) in terms of their readiness for the digital economy. Digital integration will be called upon to contribute to bridging these gaps and to continue to evolve in response to further changes of the times, such as AI and the transition to a data-driven economy. To help ensure that this objective is better addressed in the Post-2025 Agenda, including DEFA and the revised Master Plans for 2025, this publication provides concrete examples of what ASEAN has valued, aimed for and achieved so far in the digital integration process. It then identifies items to be discussed in DEFA and Post-2025 Agenda and what has been discussed in those ASEAN frameworks, and presents policy recommendations on issues to be addressed to accelerate digital integration.

### **Defining digital integration in ASEAN**

Digital integration is not clearly defined in the Digital Integration Framework (DIF) or in many ASEAN documents. This publication identifies the nature of digital integration by looking at the overall picture of the actions defined in the ASEAN framework documents, including the Digital Integration Framework Action Plan (DIFAP), which comprehensively defines the actions of the DIF. A key feature of ASEAN's digital integration is the inclusion of infrastructure development, human resources development and capacity building in its actions. Infrastructure development and human resource development are national measures that should be directly handled by the member states. In other words, in ASEAN, digital integration is not only about liberalising and facilitating trade and investment in cross-border information and communication technology (ICT) products and digital services. It includes (1) enhancing interoperability amongst member states to promote intra-regional trade and growth, and (2) developing infrastructure within each member state to promote digital innovation and contribute to existing industries, people's livelihoods and ultimately national growth. The DIF/DIFAP also emphasises the development of national legal and regulatory systems. These are the hallmarks of ASEAN's digital integration, which differ significantly from ordinary digital trade and digital economy agreements. ASEAN digital integration also contributes to the three ASEAN communities and is also the basis for enhanced ASEAN connectivity in support of the communities. This book, therefore, uses the following original definition of ASEAN's digital integration.

*ASEAN's digital integration is the use of digital and digital economy to enhance regional trade, growth, competitiveness and inclusiveness, and to achieve a stronger, more connected and resilient Community. This includes improving interoperability, developing digital infrastructure, building human resource capacity and establishing national legal and regulatory systems, with the aim of accelerating economic growth at both regional and national levels.*

## **Milestones and initiatives in ASEAN's digital integration**

There are five major milestones in ASEAN's digital integration: the e-ASEAN Framework Agreement in 2000, the ASEAN Economic Community (AEC) Blueprint in 2007, the ICT Masterplan 2015 in 2011, the establishment of ACCEC in 2016, and the DIFAP and ASEAN Agreement on Electronic Commerce (AAEC) in 2019. The e-ASEAN Framework Agreement of 2000 is noteworthy because the concept of what we now call digital integration was already addressed in this framework. The AEC Blueprint of 2007 explicitly positioned the previously proposed digital-related initiatives towards the AEC's goals as part of the economic integration initiative. The first ICT Masterplan of 2011, although limited to the ICT sector, had the characteristics of ASEAN's digital integration, focusing not only on trade facilitation in ICT but also on the development of each ASEAN member state through ICT development. ACCEC was established by Senior Economic Officials Meeting (SEOM) in 2016 and was a key player in the convergence of the ICT and e-commerce sectors and the promotion of digital integration initiatives. The DIFAP incorporates the actions of the AEC Blueprint 2025, ASEAN ICT Masterplan 2020, ASEAN Work Programme on Electronic Commerce, Master Plan on ASEAN Connectivity 2025 and related strategic action plans, and outlines the status of implementation for those initiatives already in place. At the time of writing, DIFAP is the ASEAN framework document that covers the broadest range of areas. The AAEC is the current state of achievement as a legally binding document. On this basis, it is expected that DEFA and the Post-2025 Agenda will be the next milestones in the future.

After DIFAP, a series of framework documents with strategic action lists were adopted, including the ASEAN Comprehensive Recovery Framework and its Implementation Plan (ACRF) in 2020, and the ASEAN Digital Masterplan 2025 (ADM 2025), the Bandar Seri Begawan Roadmap (BSBR), and the Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce (Work Plan for AAEC) in 2021. Initiatives were strengthened and new initiatives were established to address COVID-19, and a multi-layered list of initiatives was developed. These five documents do not replace the other four, but coexist and provide actions that contribute to ASEAN's digital integration.

Examples of the evolution of actions in specific areas illustrate how ASEAN has extended the notion of digital and digital integration. The document provides examples of distinctive initiatives such as the ASEAN Single Window, e-authentication and digital identity, the ASEAN Computer Emergency Response Team (CERT), e-payments and QR codes, and digitisation of MSMEs.

The ASEAN Single Window (ASW) is a good example of how ASEAN has extended the concept of digital not only to ICTs but also to the area of ICT utilisation. ASW is a regional single-window system that integrates the national single-window (NSW) systems of member states. ASW itself has a long history as an economic integration initiative, with the single-window approach being proposed in 2003. However, the first time ASW is mentioned in an ASEAN document on digital integration is when the full operation of the ASW was encouraged at the 2019 DIFAP. ASW has not been treated as an ICT initiative, as it is an application of ICT technology and not part of the field of ICT itself, such as ICT infrastructure development, ICT regulation, cybersecurity, etc. In contrast, ASW is now seen as an integral part of digital integration.

Digital identity is a good example of ASEAN's proactive approach to introducing new concepts. In addition to initiatives based on traditional concepts such as e-authentication and secure transaction initiatives, ASEAN has begun to address digital identity within digital integration. While e-authentication is a service-centric concept, digital identity is a user-centric concept based on the idea of allowing users to access services across different platforms and domains. The Work Plan for AAEC and the BSBR prescribe the actions of digital identity.

CERT and CRISP describe the progress of a phased approach to spreading national initiatives to the region. The Roadmap for Integration of the e-ASEAN Sector advocated performance guidelines for CERT in each AMS. The 2017 ASEAN Work Programme on Electronic Commerce aimed to foster international coordination amongst cybersecurity agencies. The BSBR underlined two crucial requirements for ASEAN's cybersecurity advancement: establishing an ASEAN CERT and implementing an ASEAN CRISP memorandum of understanding.

The initiative to adopt an interoperable QR code framework is emblematic of ASEAN's uniqueness. ASEAN has been emphasising the promotion of electronic payments and secure payments. In addition to this, the introduction of innovative payment methods such as QR code-based payments and the development of an ASEAN Interoperable QR Code Framework have been advocated in DIFAP and BSBR in response to the rapid spread of QR in ASEAN as a means to facilitate electronic payments. This boosts regional cross-border payment initiatives being promoted bilaterally and multilaterally by the AMS and create a pathway for expansion to all AMS.

The digitisation of the ASEAN MSME is an example of the strategic shift in ASEAN's digital policy focus. The MSME has a role in driving the growth of ASEAN's internet economy. The COVID-19 pandemic also greatly accelerated the digitalisation of MSMEs, and while ASEAN has long recognised the importance of MSMEs in the context of economic integration, it was only around 2015 that the importance of MSMEs was explicitly identified in ASEAN's digital integration documents. Again, in contrast, recent documents have increasingly regarded the digitisation of ASEAN MSMEs as one of the central issues in digital policy. The BSBR, in recommending the negotiation and adoption of the DEFA, specifies that it should include matters to leverage the ongoing digital transformation in the region, prepare MSMEs for digital transformation and develop a digitally-ready workforce.

### **Prospects for the DEFA and the Post-2025 Agenda**

ASEAN's digital integration is expected to continue to adapt and evolve in response to technological advances and benefit from a combination of legally binding agreements and non-binding framework instruments to maintain flexibility and effectiveness. To this end, the establishment of a legally binding ASEAN Digital Economy Framework Agreement (DEFA) and a Post-2025 Agenda that is non-binding and defines direction and strategy will be the next important milestone.

Previous studies have compared Singapore's digital economy agreements (DEAs) with the AAEC and Regional Comprehensive Economic Partnership (RCEP) and provided examples of items that ASEAN needs to catch up on. We share with these earlier documents the recognition of the importance of these new areas for the development of the digital economy. We also acknowledge the importance of the comparisons with AAEC and RCEP, which need to be ratified and accepted, and look forward to efforts to address them in future binding ASEAN documents. As new areas to be discussed in the DEFA and post-2025, we have discussed



the following areas mentioned in existing studies: e-invoicing, competition policy, submarine cables, data localisation, data innovation, open government, source code, digital identity, AI, and fintech. We noted that, contrary to what existing studies have indicated, these are not completely 'new' areas for ASEAN, but are already being addressed in ASEAN framework documents.

Enhancing coordination capacity to advance the digital integration process will be more important. ACCEC was established in 2016 and was renamed the ASEAN Coordinating Committee on E-Commerce and Digital Economy (ACCED) in 2022. As noted above, ACCEC has made significant progress in the development of e-commerce and digital integration. The name change to ACCED should not be seen as an indication that its mandate will be expanded in the future, but rather that its actual mandate is reflected in its name, as ACCEC has dealt with the area of digital economy since its inception. Financial inclusion is an initiative of the ASEAN Working Committee on Financial Inclusion (WC-FINC) and its link to ACCED is not clear at the moment. Inclusiveness of the digital economy, such as rural areas, gender, and people with disabilities are also areas where the relationship with ACCED has remained unclear. This publication recommends that these areas are properly encompassed in the ACCED.

Disparities in access speeds, both broadband and mobile, still exist between ASEAN countries. The development of the underlying digital infrastructure is essential to support the growth of ASEAN's digital economy, and efforts must continue to be made to bridge the gaps. However, the point made in this publication is that AMS have nevertheless made essential improvements in the development of ICT infrastructure. Significant speed improvements have been observed in each AMS, particularly in mobile data. For example, mobile data speeds in Myanmar have increased 50-fold in nine years. This shows that Member States are regulating their markets well, encouraging competition while taking care to provide universal service, and encouraging market players to invest in telecommunications infrastructure at a much faster rate than the increase in users and usages.

ASEAN's framework documents on the digital field should ultimately be reflected in actual policies implemented by AMS to contribute to people's businesses and livelihoods. While the individual initiatives of Member States are beyond the scope of this analysis, this publication uses the example of the ASEAN Model Contractual Clauses for Cross Border Data Flow and the ASW to illustrate the importance of ASEAN initiatives being reflected in national measures and contributing to business activities, the synergies that exist within ASEAN, and the further developments in each of these areas will be expected.

Key policy recommendations are as follows:

**Establish a common understanding of ASEAN's digital integration:** Define and share a clear scope of digital integration within ASEAN, taking into account the region's strengths and uniqueness. Recognise that this definition and scope will evolve with technological advances and their impact on people's lives.

**Accelerate the establishment of the ASEAN Digital Economy Framework Agreement (DEFA) and the Post-2025 Agenda:** Prioritise the conclusion and signing of the DEFA, possibly before 2025. Develop an action plan for the DEFA to ensure effective implementation and progress towards digital integration goals.

**Strengthen the ACCED:** Expand the scope of ACCED to include financial inclusion and digital inclusion issues. Strengthen coordination capacity and include more cross-cutting issues to streamline implementation and optimise resource allocation. The significant surge in the 2020-2021 framework document within ASEAN was evidently excessive, prompting the suggestion that the ACCED should similarly summarise existing initiatives proficiently and craft a new framework document for the post-2025 era.

**Redefine the DIFAP:** Consolidate and optimise current initiatives across the five framework documents to ensure effective coordination and progress. This could be done through a workplan for the above-mentioned DEFA.

**Update the ASEAN Digital Integration Index (ADII) surveys:** Conduct regular ADII surveys to monitor the status of digital integration and identify gaps. Supplement outcome-based surveys such as the ADII with output-based surveys to assess the status of legal and institutional arrangements in each Member State.

**Recognise the importance of data in the digital economy:** Address data-related challenges such as data innovation, open government data, data localisation, data protection and cybersecurity. Balance data protection with data use to take advantage of opportunities in the data-driven world.

**Continue to develop ASEAN's digital infrastructure:** Support the growth of the digital economy by addressing disparities in digital infrastructure, including broadband speed and cost issues. Promote technical and market competition to achieve universal service and last mile connectivity.

**Carry out regular consultations with users:** Engage with users, including MSMEs, digital start-ups and consumers, through regular consultations to incorporate their perspectives into digital inclusion policies. This will help design responsive policies and build legitimacy and trust in the policy-making process.

**Develop a communication strategy:** Raise awareness of the benefits of digital inclusion amongst businesses and citizens through a comprehensive communication strategy. Highlight how digital integration efforts have positively impacted real businesses and people's lives. Communicate ASEAN's progress in digital integration to dialogue partners and the world, highlighting the region's strengths and the need for cooperation.

# 1. Introduction

The Association of Southeast Asian Nations (ASEAN) has been working on digital transformation for more than 25 years – since 1997 – when it adopted ASEAN Vision 2020. This vision called for the formation of an ASEAN community and launched an initiative on information and communication technology (ICT) development within the region. In 2000, the *e-ASEAN Framework Agreement* was signed by ASEAN leaders, and various other initiatives have been undertaken to promote digitalisation within ASEAN (ASEAN, 2021e).

Southeast Asia is indeed experiencing accelerated adoption of digital technologies, supported by a young and technologically receptive population of 680 million people, more than half of whom are under the age of 30 years. The number of internet users in ASEAN increased by 100 million in 4 years from 260 million in 2015, with another 100 million added since 2019, reaching a total of 460 million in 2022 (Google, Temasek, Bain & Company, 2022).

Messaging, social-networking services, ridesharing, and delivery of goods via mobile apps are used daily. Online shopping has become a habit, especially since the COVID-19 pandemic, transforming the retail sector from brick-and-mortar shops. The gross merchandise value of the digital economy in Southeast Asia was close to \$200 billion in 2022, representing a twofold increase from 2019 (Google, Temasek, Bain & Company, 2022). The impact of the digital revolution goes beyond social networking, online business, and mobile apps. Digital technologies are transforming all sectors (World Bank, 2019).

However, Tran, Phan, and Nguyen (2022) indicated that the gap amongst ASEAN Member States (AMS) is still large in terms of readiness for the digital economy. For example, according to the Network Readiness Index 2022, Singapore ranked 2 out of 131 countries worldwide – yet the Lao People’s Democratic Republic (Lao PDR) ranked 102 and Cambodia 104.<sup>1</sup> Tong, Li, and Kong (2021) also emphasised that simultaneous growth in the regional integration of the digital economy cannot be assumed due to considerable gaps amongst AMS that now exist.

To understand ASEAN’s digital integration and its evolution, this book analyses more than 70 agreements, master plans, frameworks, action plans, and related declarations by ASEAN. By looking at the objectives of each document, its scope, nature of actions, and relationship to other documents, it seeks to clarify how ASEAN’s digital integration has been shaped over the past 20 years.

ASEAN’s digital integration has been characterised by its scope and flexibility. It has gone beyond policy harmonisation amongst AMS to facilitate trade and investment in ICT products and digital services – similar to how economic integration in ASEAN has encompassed more than liberalisation and facilitation of goods, services, and investment. Digital integration is characterised by the inclusion of ICT infrastructure

---

<sup>1</sup> Brunei Darussalam and Myanmar are not ranked.

development, promotion of digital transformation, cybersecurity cooperation, institutional building support for AMS, digital education, and digital human resources development. It is noteworthy that it comprises transactions between countries as well as domestic measures (e.g. expanding broadband access to underserved rural areas).

The documents issued by ASEAN comprise some agreements and protocols that require signatures or ratification procedures as well as several framework documents, which are not legally binding and do not require signatures or ratification procedures. ASEAN and AMS have considered the needs and concerns of all AMS with different levels of development, infrastructure, and regulatory frameworks. For some AMS, capacity building through technical and legal assistance has been a key action. These capacity-building efforts were provided not only within the ASEAN region, but also through cooperation with dialogue partners. Inclusiveness has been a focus not only for AMS but also for micro, small, and medium-sized enterprises (MSMEs) that are still lagging behind in terms of digitalisation compared to other key economic players such as large firms and companies based in urban areas (ERIA, 2019).

Over time, new challenges have led to a wider range of initiatives and more concrete actions. The scope has been expanded to include personal data protection, paperless trade, digital payments, and digitisation of traditional sectors. Initiatives that were previously treated as separate initiatives of ASEAN are now counted as digital integration initiatives. This means that ASEAN has responded to the evolution and diffusion of technology and extended its notion of digital integration. This change has been particularly evident since 2016 and has evolved in response to the pandemic. Digital integration is driving the adoption of emerging technologies, such as 5G, cloud, artificial intelligence (AI), big data, and internet of things (IoT), and is addressing increasingly complex issues regarding cybersecurity, consumer protection, and cross-border data flows.

Scholarly works have evaluated ASEAN's digital integration to varying degrees. Corning (2022) examined how the complexity and fragmentation of digital trade governance shaped the digital trade strategies of AMS and how these strategies, in turn, shaped digital governance in the region. Mirakyan (2021) analysed the digitalisation processes in ASEAN, determined the strategy for integration, and provided relevant dynamics of digitalisation-level indicators. Khan et al. (2020) evaluated AMS attraction to digitalisation through their speedy development, which means that the region is now home to some of the most competitive digital economies. Kusumastuti and Nuryani (2020) examined the digital literacy levels amongst AMS, how their awareness of this aspect emerged, and their causes. Intentilia, Haes, and Suardana (2022) provided an overview of utilising digital platforms for diplomacy in ASEAN.

The following are the research questions addressed in this book.

**What is the history of ASEAN efforts in the digital sector?** Chapter 3 outlines how the digital sector has been addressed since the ASEAN Vision 2020 in 1997, which proposed the formation of the ASEAN Community. ASEAN's history of digital sector initiatives shows how it has responded as a region to the growing importance of the digital economy, making it an important element in the regional integration process. By tracing the evolution of ASEAN policies and initiatives related to the digital sector and digital economy, this book argues that ASEAN has grasped the characteristics of digital integration and its impact on society, broadened its scope, and concretised its actions. It should be further emphasised that ASEAN's digital integration does not simply mean trade and e-commerce integration; it includes, for example, public sector digitalisation, education services, and digital innovation.

**How have the key initiatives of digital integration in ASEAN evolved?** In Chapter 4, the ASEAN Single Window (ASW), e-authentication and digital identity, ASEAN Computer Emergency Response Team (CERT), e-payment and QR codes, and the digitisation of ASEAN MSMEs are taken as examples of how ASEAN has extended the notion of digital integration and has concretised and progressed individual actions within the initiatives. In Chapter 5, it also describes the progress of ASEAN initiatives and their relationship with national initiatives in regard to the ASW and how they have led to significant effects in practice.

**What are the relationships and differences between the five comprehensive framework documents adopted during 2019–2021?** After the *ASEAN Digital Integration Framework Action Plan (DIFAP) 2019–2025* (ASEAN, 2019b), a series of framework documents were adopted: the *ASEAN Comprehensive Recovery Framework (ACRF)* (ASEAN, 2020a), *ASEAN Digital Masterplan 2025 (ADM)* (ASEAN, 2021b), *Bandar Seri Begawan Roadmap: An ASEAN Digital Transformation Strategy to Accelerate ASEAN's Economic Recovery and Digital Economy Integration* (BSBR) (ASEAN, 2021c), and *Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce (Work Plan for AAEC)* (ASEAN, 2021f). They were issued to minimise the negative impact of the COVID-19 pandemic and to further boost digitisation, which has accelerated as a side effect of the pandemic. To understand the relationship of these five frameworks, an integrated comparison table of actions is developed and analysed.

**What are the prospects of the ASEAN Digital Economy Framework Agreement (DEFA) and ASEAN Post-2025 Agenda?** It is important to discuss the prospects of the DEFA and Post-2025 Agenda, as they have the impetus to accelerate the digital integration process. Chapter 5 examines e-invoicing, competition policy, submarine cables, data localisation, data innovation, open government, source code, digital identities, AI, and FinTech. Existing literature has suggested that these and other new areas be discussed in DEFA, but what we have found is that these areas are not entirely new to ASEAN and have been discussed in various framework documents. The book also discusses what ASEAN needs to focus on post-2025: strengthening coordination capacities, promoting infrastructure development, and acknowledging the importance and difficulties of translating framework development into practical effects.

Chapter 2 outlines reasons why digital integration is important in ASEAN, defines the digital economy and digital integration, and presents the analytical framework of this book. Chapter 3 outlines the history of ASEAN's digital initiatives. Chapter 4 describes the key actions and shows how those actions have evolved. Chapter 5 discusses DEFA and the outlook beyond 2025. The final chapter provides conclusions and key policy recommendations and discusses the limitations of this analysis.

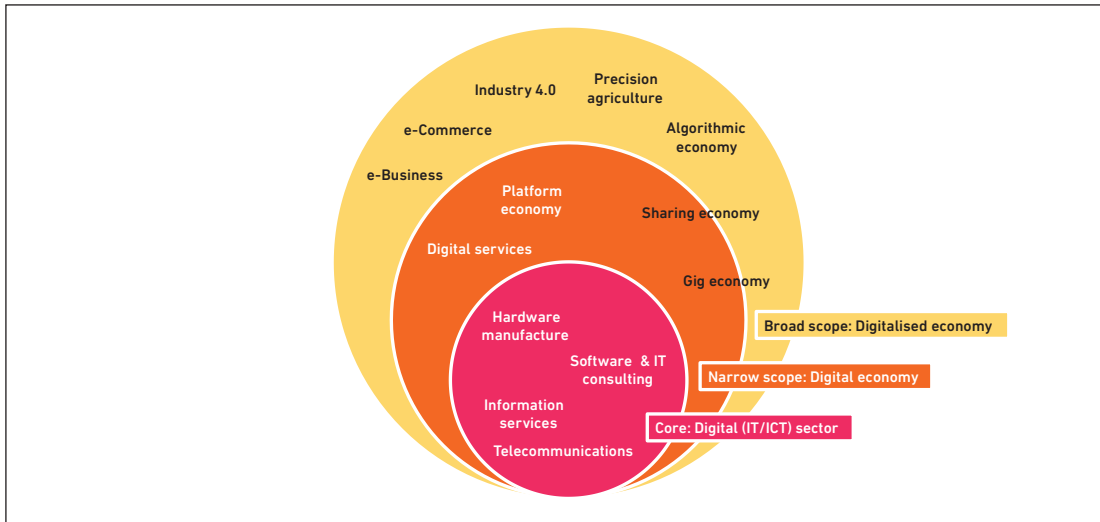
## 2. What Is ASEAN's Digital Integration?

### 2.1. What Is the Digital Economy?

Definitions of the digital economy vary. Lane (1999) defined the digital economy as the convergence of computer and communication technologies on the internet and the resulting information and technology flows that stimulate major changes in all e-commerce and organisations. Narmanov (2021) stated that there are two aspects of the digital economy – one in which new technologies make traditional business processes more efficient, and the other in which the digital economy itself transforms the whole system through technological innovation. Basaev (2019) regarded the digital economy as a distinct economic activity founded on novel data processing techniques and as a component connecting to the social economy. The G20 Digital Economy Task Force (2016) delineated the digital economy as economic activities, including the use of digitised information and knowledge as a vital factor of production, modern information networks as a significant sphere of activity, and ICT to enhance productivity and optimise economic structures.

The concept proposed by Bukht and Heeks (2017) gained prominence around 2020 when the digital economy garnered increased attention (e.g. ADB, 2021; OECD, 2020; UNCTAD, 2017). They categorised it into three components: the digital sector, classified as ICT; the digital economy in a narrower sense, encompassing digital services and the platform economy; and the digitalised economy in a broader sense, representing the real economic activity enabled by digital technology use (see Figure 2.1). Industry 4.0 and e-commerce are part of the digitalised economy, whereas the sharing economy and gig economy intersect with both the digitalised and digital economies. They warned that adopting a broad definition would make the digital economy synonymous with a mere 'economy' because of the increasing use of digital technologies in existing industries. They, therefore, separated the digitalised economy from the digital economy; the digital economy was limited to sectors with strong digital characteristics. However, as of 2023, it is now widely recognised that economic activities classified under this digitalised economy are also part of the digital economy.

**Figure 2.1 The Digital Economy by Bukht and Heeks**

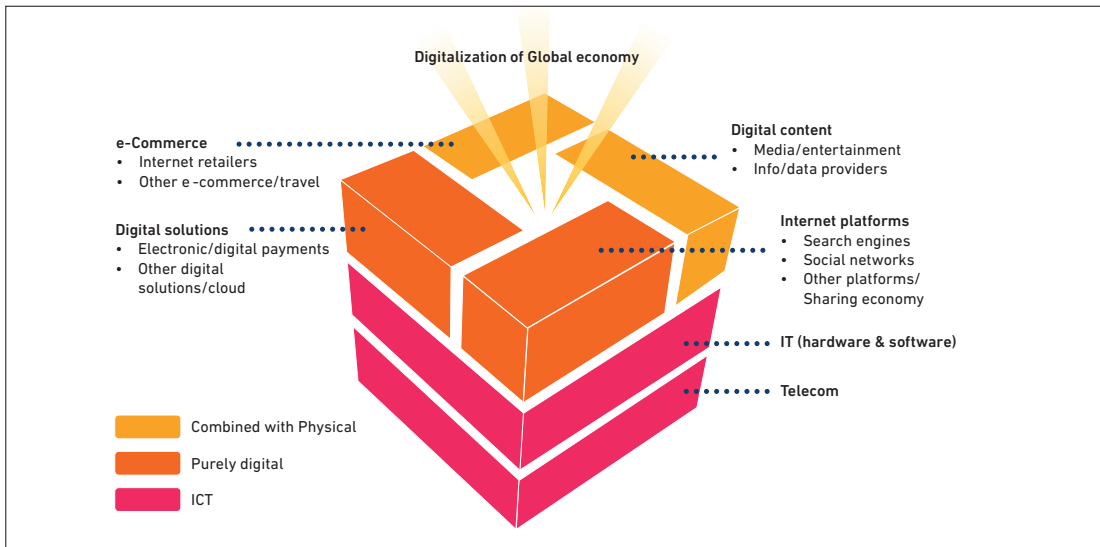


ICT = information and communication technology, IT = information technology.

Source: Bukht and Heeks (2017).

UNCTAD (2017) similarly presented the architecture of the digital economy in relation to multinational enterprises (MNEs) (Figure 2.2). MNEs are categorised into two types: ICT MNEs, comprising telecommunications and information technology; and digital MNEs. It further categorised digital MNEs into pure digital players (i.e. internet platforms and digital solution providers), which operate in an entirely digital environment; and mixed players (i.e. e-commerce and digital content), which are more digital in character. It then allowed for the gradual integration of industries that do not currently utilise digital means into the digital economy.

**Figure 2.2 Architecture of the Digital Economy**



ICT = information and communication technology, IT = information technology.

Source: Authors, modified from UNCTAD (2017).

Knickrehm et al. (2016) defined the digital economy as the part of gross economic output that derives from several broad 'digital' inputs, including digital technology, digital equipment (i.e. hardware, software, and telecommunications equipment), and intermediate digital goods and services used in production. OECD (2020) defined the digital economy as all economic activities that depend on or are significantly enhanced by the use of digital inputs, including digital technologies, digital infrastructure, digital services, and digital data.

Similar concepts to the digital economy exist as well. Industry 4.0, often referred to as the Fourth Industrial Revolution, lacks a universally accepted definition. However, it encompasses technologies such as AI, robotics, IoT sensors, cloud computing, augmented reality, blockchain, and 3D printing. These technologies are integrated into various sectors, including industry, transport, healthcare, and communications, to enhance efficiency and connectivity (Lee et al., 2018; Osinde et al., 2019; Piccarozzi et al., 2018). The *Consolidated Strategy on the Fourth Industrial Revolution for ASEAN* defined it as the 'convergence of the physical and digital worlds' (ASEAN, 2021d). Two contrasting views exist regarding the scope of Industry 4.0 in comparison to the digital economy: (i) Industry 4.0 is broader than the digital economy as it influences governance, education, healthcare, and lifestyles; or (ii) it is narrower than the digital economy as it excludes pure digital technologies and ICT.

Digital transformation refers to the process of using digital technologies to fundamentally change organisational structures, how businesses operate, how they deliver value to customers, and how they interact with stakeholders. Definitions of digital transformation vary by context and are often associated with terms such as digitisation, automation, and digital maturity (Lima et al., 2022; Polyakova, 2021; Tsaples and Papathanasiou, 2022). Digital transformation is thus a process used in the digital economy and Industry 4.0.

## 2.2. Why Is the Digital Economy Important?

The digital economy has become a strategic asset for creating value for both the private sector and society as a whole (UNCTAD, 2017). The digital economy itself has higher economic growth than other sectors and drives national economic growth. In 2016, the digital economy was worth \$11.5 trillion worldwide, equivalent to 15.5% of global gross domestic product (GDP), growing 2.5 times faster than global GDP in the last 15 years, and almost doubling since 2000 (Huawei and Oxford Economics, 2017). Jovanović, Dlačić, and Okanović (2018) noted that countries with higher levels of digitalisation have higher levels of competitiveness, innovation, and entrepreneurial activity. GDPs are also higher in more digitalised countries. Moretti (2012) extended this discussion to cities, citing that one job in the tech industry generates five new jobs in the local service industry, and that a higher proportion of the tech industry also results in higher wages in other industries in the region.

Moreover, the digital economy contributes to economic development through the digital transformation of existing industries. As discussed previously, the adoption of digital technologies is gaining momentum to include all industries. Within Industry 4.0, technologies such as AI, IoT, and big data analytics will be integrated into existing industries to create new business models and to promote innovation across industries (ASEAN, 2021d). The digital economy in a broader sense will enhance the integration process through ASEAN community pillars. According to ASEAN (2021d), amongst the three focus areas, the strategies of technological governance and cybersecurity contribute to the ASEAN Political-Security Community, those of digital economy contribute to the ASEAN Economic Community (AEC), and those of digital transformation of society contribute to the ASEAN Socio-Cultural Community.



Digital technology also overcomes distance. Baldwin (2011) noted that around 1990 should be referred to as the second unbundling, when the use of ICT enabled the separation of production processes and international division of labour. He asserted that this was the next important turning point after the division of consumption and supply (i.e. the first unbundling) with the development of railways and steamships in 19th century. With the development of communications technologies, a third unbundling is underway in which the reduction of face-to-face costs enables the unbundling of tasks and the international division of labour on an individual basis (Baldwin, 2016; Kimura, 2018).

Further, the digital economy provides opportunities and increases inclusiveness for people with disabilities. Unlike printed documents, digitised documents have the technology to provide information to people with visual impairments. There is a growing number of digital technologies for overcoming disabilities, such as ICT solutions that enable people with mild to moderate dementia to handle simple electronic devices, tools to assist children with intellectual limitations in their learning, job-matching services that connect people with disabilities with businesses, and cafés where people who cannot move their limbs can remotely operate robots to serve customers (Cashmore and Crosta, 2022; Lauriks et al., 2007; Maebara et al., 2022).

The digital economy provides opportunities for MSMEs and individuals looking to start businesses. Social networking, as well as e-commerce, connect small suppliers and consumers. It is no longer difficult to buy goods from small sellers abroad, as platforms shoulder the formalities including customs clearance, quarantine, and inspection. On-demand food delivery apps are giving smaller sellers, such as food stalls, the opportunity to gain more customers. For example, GoFood, Indonesia's largest online food delivery company, comprises vendors that are restaurants, bistros, shop stalls, carts and/or other physical forms (Gojek, 2023). E-payments are now used by many MSMEs and people without bank accounts.

The digital economy increases the potential for leapfrogging in developing countries as well. As developing countries have immature economic systems and institutions, services using digital technologies may be more easily introduced without the need for coordination with existing regulations or resistance from economic actors with vested interests (ERIA, 2022). Despite the high network externalities of digital services, it has also been observed that domestic and regional companies can gain a larger share of the domestic market than global players by adapting services that have already been successful in developed countries. This is particularly true in sectors that require links to the real economy, such as online shopping markets, for example Tokopedia and Shopee.

Finally, the digital economy contributes to sustainability and economic resilience. The use of ICT has consistently reduced carbon emissions in various industries (Haini, 2021). AI-based inspection systems reduce false positives and over-detection of defects that tend to occur in visual inspections, reducing the environmental impact as well as the cost of materials in an organisation. In fact, innovations from technologies such as drones, internet of things, IoT, big data, and cloud computing have reduced deforestation, air pollution, water pollution, categorisations as endangered species, e-waste, and carbon footprints (ASEAN, 2021d).

Although the emergence of COVID-19 disrupted everyday life and business all over the world, it has also stimulated the use of digital technologies, transforming society. In the ASEAN region, the use of e-commerce accelerated, and digital payments have become more acceptable to both users and businesses; indeed, one-third of digital merchants said they would not have survived the pandemic without digital platforms (Google, Temasek, Bain & Company, 2021). The average share of internet users who purchased goods online increased from 53% before the pandemic in 2019 to 60% after the pandemic in a 66-country study (UNCTAD, 2022).

It has been assumed that companies able to utilise digital technologies without face-to-face contact would be able to mitigate the damage to their business development compared to those without, and data and empirical analysis are increasingly supporting this. Abidi, El Herradi, and Sakha (2023), using data from the Middle East and Central Asia, showed that companies that invested in digitalisation before the pandemic experienced a smaller decline in sales than those that had not. Cong, Yang, and Zhang (2021), using data from China, showed that digitalisation of SMEs significantly affected their resilience to damages from the COVID-19 pandemic, including mitigation of reduced demand, sustained cash flow, and ability to resume operations quickly.

The pandemic itself accelerated digital transformation in existing enterprises. The increase in digital technology adoption due to the pandemic is not limited to e-commerce. In the education sector, digitally supported teaching and learning were introduced because of the need to move from face-to-face teaching to distance learning. Social care organisations were forced to switch quickly to digital technologies during the pandemic to continue providing care, as they were unable to meet clients in person, often resulting in accelerated innovation (Reale, 2021).

## 2.3. Defining ASEAN's Digital Integration

Digital integration is used both as a technical term in the ICT field and as a term for regional integration. As a technical or business word, digital integration refers to the process of integrating digital technologies into various aspects of a business or organisation. Integrating digital technologies into new business models improves internal and external processes and increases flexibility in production (Bouncken, Kraus, Roig-Tierno, 2021; Salamova, Khatsieva, Gishlakaeva, 2021). The integration of digital technologies also contributes to the integration of business processes in the context of Industry 4.0 (Marcinkevicius and Vilkas, 2023).

Digital integration in the context of regional integration is not as clearly defined in ASEAN. The *ASEAN Digital Integration Framework* (DIF) stated that the core of regional digital integration is transforming the basis of competition in the global economy and creating a regionally integrated digital economy (ASEAN, 2018a). However, Bain & Company (2018), which was cited by the DIFAP, defined digital integration as harnessing the digital economy to promote trade and growth within the region.<sup>1</sup> In a factsheet addressing the COVID-19 impact on SMEs, digital integration was noted as 'a critical enabler for harnessing the scale of ASEAN as a region, enabling ASEAN to compete more effectively in the global economy, and enables individual AMS to accelerate their own domestic growth' (The Asia Foundation and Google.org, 2020).<sup>2</sup>

A distinctive feature of the DIFAP is that it includes infrastructure development, human resources development, and capacity building in its actions. Infrastructure development and human resources development are national measures for which AMS should be directly responsible. The factsheet above specified the channels through which digital integration contributes directly to the economic growth of each AMS – rather than only affecting transactions between AMS (The Asia Foundation and Google.org, 2020). In other words,

---

<sup>1</sup> Singapore, the 2018 ASEAN Chair, commissioned Bain & Company to conduct a study to support the development of the DIF.

<sup>2</sup> This factsheet was prepared under project 'Go Digital ASEAN: Digital skills to address the economic impact of COVID-19', which was approved for implementation by the ASEAN Coordinating Committee on Micro, Small and Medium Enterprises (ACCMSME).

in ASEAN, digital integration is not just about liberalising and facilitating cross-border ICT products and digital services trade and investment; instead, it includes (i) increasing interoperability amongst AMS and promoting intraregional trade and growth; and (ii) developing infrastructure within each AMS to promote digital innovation and to contribute to existing industries, livelihoods, and, ultimately, national growth. In addition, the DIFAP emphasises the development of national legal and regulatory systems, which are characteristics of ASEAN digital integration, differing significantly from typical digital trade and digital economy agreements (ASEAN, 2019b).

This book therefore adopts the following definition:

*ASEAN's digital integration is the use of digital and digital economy to enhance regional trade, growth, competitiveness and inclusiveness, and to achieve a stronger, more connected and resilient Community. This includes improving interoperability, developing digital infrastructure, building human resource capacity and establishing national legal and regulatory systems, with the aim of accelerating economic growth at both regional and national levels.*

In the DIF, six priority areas were set to address critical barriers and accelerate existing ASEAN platforms to achieve digital integration: (i) facilitating seamless trade, (ii) protecting data while supporting digital trade and innovation, (iii) enabling seamless digital payments, (iv) broadening the digital talent base, (v) fostering entrepreneurship, and (vi) coordinating actions (ASEAN, 2018a). These six priority areas were taken over by the DIFAP as well as the *ASEAN Digital Integration Index Report 2021* (ADII), which adopted broader concept names (Figure 2.3). The ADII 2021 is a flagship report that best represents the current state of digital integration in ASEAN at the time of writing in 2023.

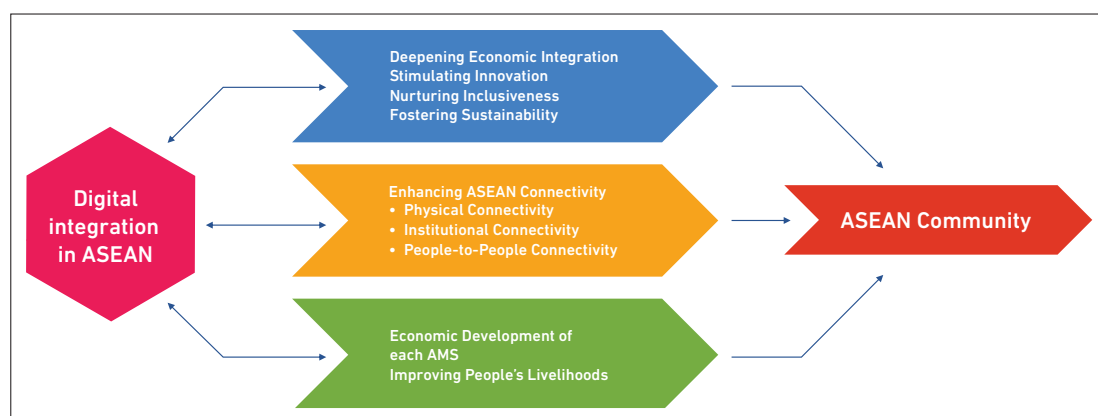
**Figure 2.3 Six Priority Areas in the ASEAN Digital Integration Index, 2021**



Source: USAID and US-ASEAN Connect (2021).

Figure 2.4 shows the pathways through which ASEAN digital integration can contribute to the ASEAN community. Throughout this book, this perspective of how digital integration can contribute to the ASEAN community is maintained – even if it is difficult to analyse it all. As indicated in ERIA (2022), digital integration contributes to deeper economic integration, innovation, inclusiveness, and sustainability of ASEAN as a whole. As the *Master Plan on ASEAN Connectivity 2025* (MPAC) shows, digital innovation contributes to these three connectivity pillars (ASEAN, 2016b). As ASEAN’s digital integration directly focusses on the legal and infrastructure development of AMS, digital integration promotes AMS initiatives and contributes to AMS economic development and livelihoods. These three-way initiatives also contribute to accelerating digital integration itself. Those pathways ultimately lead to a stronger, more competitive, and more inclusive ASEAN community.

**Figure 2.4 How Digital Integration Contributes to the ASEAN Community**



AMS = ASEAN Member State.

Source: Authors.

As the digital economy continues to expand around the world, the term 'digital economy integration' is also beginning to be used. For example, in its Digital and Sustainable Regional Integration Index, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) treats digital economy integration as an element to achieve overall regional integration, alongside trade and investment, finance, and infrastructure (UNESCAP, 2020).

ASEAN used the term 'digital economy integration' in the title of the BSBR. However, it did not provide a precise definition, although it argued that it is necessary to take advantage of ongoing digital transformation to advance the ASEAN digital economy integration agenda (ASEAN, 2021e).

This book consistently uses the term 'digital integration', since the analytical framework used is the six priority areas in Figure 2.3, and the term 'digital integration' is used in most ASEAN documents, except for the BSBR. However, in the future, the term 'digital economy integration' may be used more frequently. Nevertheless, an important argument that emerges from our analysis is that ASEAN’s current digital integration already essentially covers digital economy integration.

## 3. ASEAN Digital Initiatives

### 3.1. Topology Map

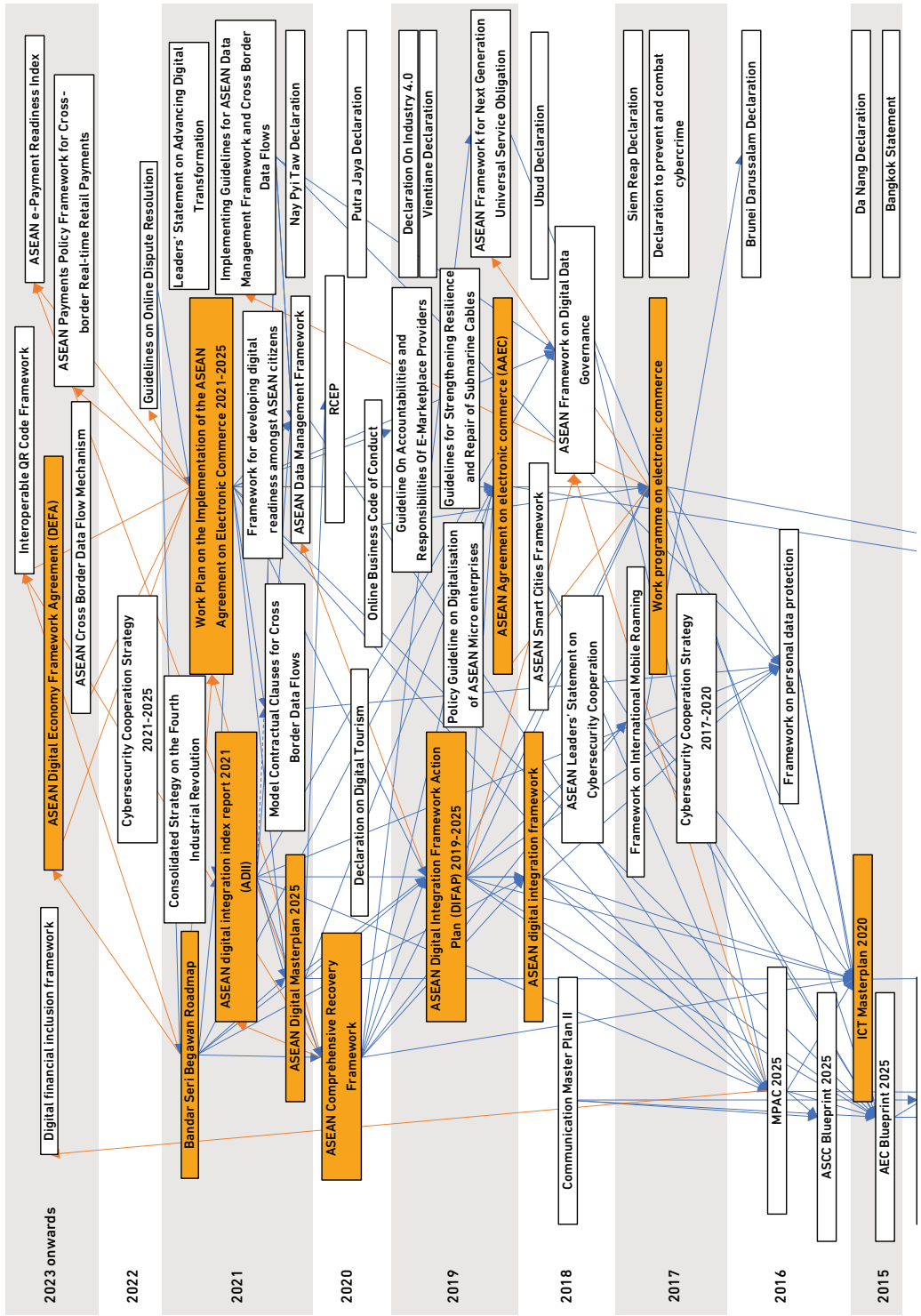
Since the adoption of the ASEAN Vision 2020 in 1997, ASEAN has made significant efforts to promote digital integration and to advance the development of the digital economy in conjunction with building and strengthening the ASEAN community. In this process, ASEAN has adopted several types of documents, such as frameworks, road maps, guidelines, declarations, blueprints, master plans, and agreements.

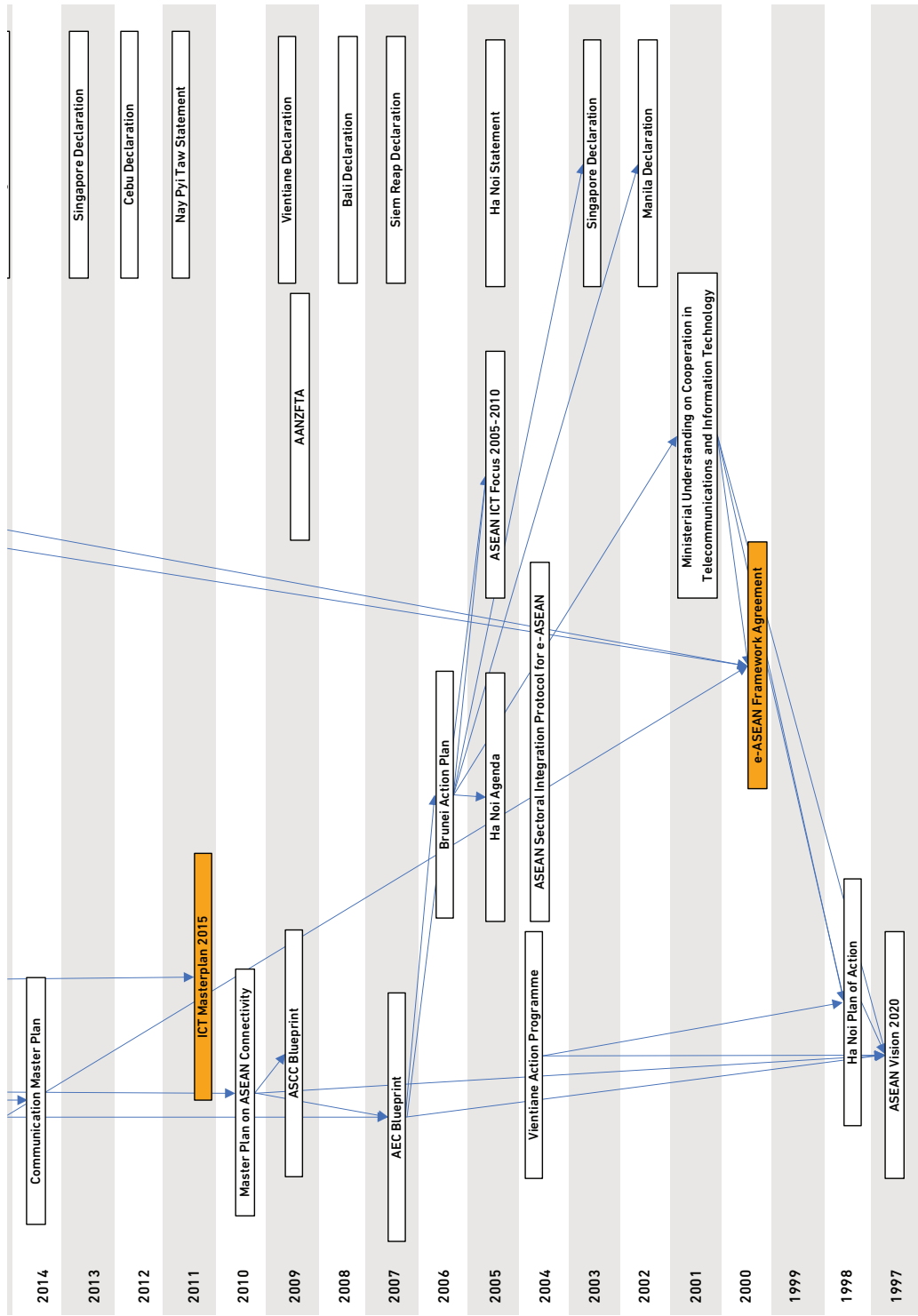
The topology map (Figure 3.1) illustrates the development of digital integration in ASEAN by organising each document from oldest to newest and showing which document refers to which document. Blueprints and master plans are on the left, declarations are on the right, and key digital documents are in the middle.<sup>1</sup> Lines indicate references to other documents in the text. For example, the 2019 AAEC refers to the 2000 e-ASEAN Framework Agreement as 'building upon Article 5 of the e-ASEAN Framework Agreement' (ASEAN, 2021f). References to existing documents are in blue, while references to non-existent documents are represented by orange arrows.<sup>2</sup>

<sup>1</sup> This map does not contain documents related to dialogue partners, and not all ASEAN documents are included.

<sup>2</sup> Links from the declaration text to the documents referred are omitted but are used in practice to identify important documents.

**Figure 3.1 Topology Map of ASEAN Digital Documents**





AANZFTA = ASEAN–Australia–New Zealand Free Trade Agreement, AEC = ASEAN Economic Community, ASCC = ASEAN Socio-Cultural Community, ICT = information and communications technology, MPAC = Master Plan on ASEAN Connectivity, RCEP = Regional Comprehensive Economic Partnership.  
Source: Authors.

Rather than looking at the detailed relationships between individual documents, this topology map is intended to provide an understanding of how many framework documents have been published in recent years, creating complex relationships. Since 2017, the number of frameworks and documents has increased; a concentration can be seen in 2019 and 2021. This indicates the increasing importance of and ASEAN's efforts in the digital field in recent years. There are several documents related to digital integration, with similar names, such as the *Digital Integration Framework* (DIF), the *Digital Integration Framework Action Plan* (DIFAP), and the *ASEAN Digital Integration Index Report 2021* (ADII 2021), as well as documents related to e-commerce such as the *ASEAN Work Programme on Electronic Commerce*, the *ASEAN Agreement on Electronic Commerce* (AAEC), and the *Work Plan on the Implementation of the ASEAN Agreement on Electronic Commerce 2021-2025* (*Work Plan for AAEC*).

In addition, the number of orange lines has increased in recent years. These orange lines represent non-existent documents, meaning that the creation and conclusion of certain frameworks or agreements in the future have been identified as actions. This reflects a trend toward increased concretisation of efforts. The BSBR and *Work Plan for AAEC* explicitly mentioned multiple future frameworks and agreements, and the DEFA, which at the time of writing has not yet been negotiated, is discussed in both of them.

In this topology map, important documents in ASEAN's digital integration can be identified by using both the scale of their reference from many documents and the scale of referencing other documents. The AEC blueprints, connectivity master plans, and ICT/digital masterplans are referred to by many framework documents. The ADII 2021 and *Work Plan for AAEC* both play roles in summarising previous efforts. The DIFAP is at the core of ASEAN's digital integration history, as it summarises many efforts and is referenced in many documents.

The remainder of this chapter provides an overview of how ASEAN's digital integration has progressed and reviews how these key documents have addressed the digital sector.

### 3.2. 1997–2000: *e-ASEAN Framework Agreement*

The **ASEAN Vision 2020**, adopted in 1997, advocated for the establishment of an ASEAN community by 2020. In the economic sector, it called for the creation of 'a stable, prosperous and highly competitive ASEAN Economic Region in which there is a free flow of goods, services and investments, a freer flow of capital, equitable economic development and reduced poverty and socio-economic disparities' (ASEAN, 1997). Concerning infrastructure, it proposed the interconnection of information highways/multimedia corridors in ASEAN and the integration of the telecommunications network.

The **1999–2004 Ha Noi Plan of Action**, adopted at the 6th ASEAN Summit in 1998, was the first in a series of action plans to realise this vision. It had a time frame of 6 years and focussed on recovering from the 1997/98 Asian financial crisis and strengthening regional integration. Encouraging e-commerce was listed under 'Enhance Greater Economic Integration,' which began with the realisation of the ASEAN Free Trade Area (AFTA). Infrastructure measures related to telecommunications covered the achievement of mutual interoperability and interconnectivity of national information infrastructure amongst AMS, development of an ASEAN action plan on regional broadband interconnection, assurance of seamless roaming of telecommunications services within the region, and promotion of intra-ASEAN trade of telecommunications equipment and services (ASEAN 1998).



The **e-ASEAN Framework Agreement**, signed in November 2000, defined measures to achieve the concept of e-ASEAN. Before that, the e-ASEAN Initiative was endorsed at the 3<sup>rd</sup> Informal ASEAN Summit held in Manila in 1999. The agreement stated that establishing an ASEAN information infrastructure under the Ha Noi Plan of Action would enhance ASEAN's competitiveness (ASEAN, 2000). Its purpose was to promote (i) cooperation to develop, strengthen, and enhance the competitiveness of the ICT sector in ASEAN; (ii) cooperation to narrow the digital divide within and between AMS; (iii) cooperation between the public and private sectors to realise e-ASEAN; and (iv) liberalisation of trade in ICT products, ICT services, and investment. Measures covered ASEAN information infrastructure; e-commerce in ASEAN; liberalisation of ICT products and ICT services trade and investment; trade facilitation of ICT products and services; e-society and capacity building to narrow the digital divide; e-government; and schedule flexibility.

Notably, the concept of digital integration – which includes developing national ICT sectors; bridging the digital divide; education, training, and capacity building; improving interoperability between AMS; and harmonising national institutions – was addressed in this framework. The agreement was signed by the leaders but was never ratified in full; its status on the ASEAN Legal Instruments website is not in force (ASEAN, 2023). However, the innovative nature of the agreement was passed on in the form of references by the *ASEAN Work Programme on Electronic Commerce* and the AAEK.

Between the DIFAP and *e-ASEAN Framework Agreement*, the major differences are the emphasis on digital innovation and entrepreneurship. The DIFAP highlights digital innovation and entrepreneurship, promotes the development of digital start-ups and MSMEs, and creates a conducive environment for their growth. They were not explicitly dealt with in the *e-ASEAN Framework Agreement*.

### 3.3. 2000–2009: Launch of Initiatives towards Creation of the Community

The **Ministerial Understanding on ASEAN Cooperation in Telecommunications and Information Technology**, signed at the 1<sup>st</sup> ASEAN Telecommunications and Information Technology Ministers Meeting (TELMIN) in 2001, provided the institutional working mechanisms of subsequent meetings, telecommunications and information technology senior officials meeting (TELSOM), and associated working groups, as well as the objectives for ASEAN cooperation in telecommunications and information technology.

The **Vientiane Action Programme 2004-2010** was adopted by ASEAN leaders in 2004 to accelerate the implementation of the *ASEAN Vision 2020* (ASEAN, 2004b). In response to the Declaration of ASEAN Concord II in 2003, which aimed to build three communities, the section for economic integration became the AEC in the *Vientiane Action Programme*. Under this, ICT was 1 of 11 priority sectors, and Section 2.7 covered telecommunications and information technology. It called for the creation of digital opportunities through the development of ICT infrastructure and services with universal access; development of ASEAN information infrastructure; promotion of e-government, e-commerce, and e-society initiatives; promotion of trade and investment in ICT services; and development of ICT human resources.

The **Roadmap for Integration of e-ASEAN Sector** is Appendix I to the **ASEAN Sectoral Integration Protocol for e-ASEAN** (ASEAN, 2004a). It outlined achieving integration of the e-ASEAN sector by 2010 and contained both specialised issues that are exclusive to the e-ASEAN industry and horizontal ones that applied to all sectors. Horizontal issues included tariff elimination, removal of non-tariff barriers, customs procedures,

logistics, investment and services trade, mobility of professionals, and human resources development. ASEAN information infrastructure, capacity building, e-government, and e-commerce were classified as specific issues. The development of ASEAN information infrastructure, e-government, e-commerce, and ICT human resources development fell under the responsibility of TELSOM.

In addition, within the document for logistics – another priority area – policies such as the use of RFID, cross-border electronic trading, information sharing, and facilitation of e-payments and e-signatures were designated as measures to be implemented by TELSOM. This action proved that a comprehensive approach to economic integration was necessary for ICT sector integration and that ICT sector integration could contribute to economic integration in other sectors – the concept and scope under the DIFAP.

The **Brunei Action Plan** in 2006 summarised efforts in the ICT sector more specifically (ASEAN, 2006). These included ICT capacity building and information infrastructure development, improving access to ICT, and promoting policies and domestic laws related to e-commerce. Cooperation with dialogue partners, strengthening cybersecurity networks, developing ICT skills standards, and promoting universal access were also emphasised. Specific ICT technologies and topics were highlighted, such as voice over internet protocol (VoIP), open standards and open-source technology, wireless broadband, mobile number portability, international mobile roaming charges, and prepaid SIM cards (ASEAN, 2006).

In November 2007, the **ASEAN Economic Community Blueprint**, now known as the *AEC Blueprint 2015*, was adopted at the 13th ASEAN Summit in Singapore. This document reflected the commitment made at the 12th ASEAN Summit in January 2007 to accelerate the establishment of the ASEAN Community, including the AEC, by 2015. The blueprint aimed to transform ASEAN into a single market and production base, a highly competitive economic region, a region of equitable economic development, and a region fully integrated into the global economy, incorporating a strategic schedule of measures (ASEAN, 2007).

As can be seen from the topology map, the *AEC Blueprint* integrated already proposed initiatives towards the goal of an AEC. Digital initiatives were divided into two main areas – information infrastructure under B4: Infrastructure Development and B6: E-Commerce. The facilitation of connectivity and the ASEAN mutual recognition arrangement for telecommunications equipment were mentioned under information infrastructure. ICT was stated in items for tariff elimination in the e-ASEAN sector, the ASW, and the acceleration of Cambodia–Lao PDR–Myanmar–Viet Nam integration through the ASEAN Integration Initiative. E-processing of rules of origin was also mentioned. The schedule for information infrastructure referred to the *Brunei Action Plan* and ICT Focus 2005–2010.

ICT initiatives have not been confined to the AEC. The **ASEAN Socio-Cultural Community Blueprint** encouraged the use of ICT to promote education and lifelong learning, particularly in underserved communities, through open education, distance learning and e-learning. The actions included references to digital content and digital broadcasting (ASEAN, 2009).

The **ASEAN–Australia–New Zealand Free Trade Area** was created in February 2009 and entered into force for the first eight countries in January 2010. It is characterised by its chapters on electronic commerce, including e-authentication and digital certificates, online consumer protection, online data protection, paperless trading, and cooperation.

### 3.4. 2010–2014: First ICT Master Plan

The 2010 **MPAC** was designed to strengthen regional connectivity within ASEAN and to accelerate community building. The plan was adopted at the 17<sup>th</sup> ASEAN Summit in 2010 and focussed on three main areas: physical infrastructure development (i.e. physical connectivity), effective institutional arrangements (i.e. institutional connectivity), and empowered people (i.e. people-to-people connectivity) (ASEAN, 2011a). Regarding the digital sector, ICT fell under physical connectivity, and establishing an ASEAN broadband corridor was selected as a priority project. Developing ICT skill standards was also a priority project under people-to-people connectivity.

The **ASEAN ICT Masterplan 2015** was the first ICT masterplan in the ASEAN region, adopted in January 2011. It intended to bring about the following four key outcomes: ICT as an engine of growth for AMS, recognition as a global ICT hub, enhanced quality of life for the people of ASEAN, and contribution towards ASEAN integration (ASEAN, 2015b). Six strategic thrusts were thus defined: economic transformation, people's empowerment and engagement, innovation, infrastructure development, human capital development, and bridging the digital divide. Seventeen initiatives and 29 actions were set, and a timeline was created for the initiatives to be realised. The key outcomes and strategic thrusts reaffirmed ASEAN's recognition of the ICT sector as the foundation for ASEAN integration and its focus on the development of each AMS through ICT development – not only trade facilitation in ICT sector. These initiatives and actions led to the initiation of 87 projects, with at least one project having been completed for each action point by 2015 (ASEAN, 2015b).

Despite the progressive nature of the inclusion of human resources development and innovation, the scope for the digital economy was limited. For example, e-commerce was not mentioned in the masterplan. Yet the Intra-ASEAN Secure Transactions Framework, a 2011 project by Thailand, did contribute to the e-commerce sector as well (ASEAN, 2015b).

### 3.5. 2015–2016: Formal Launch of the ASEAN Community and New Master Plans

In November 2015, ASEAN leaders adopted the declaration of the AEC establishment and released the **AEC Blueprint 2025**, which sets out the economic integration path for the next decade (ASEAN, 2015a). It built on the 2015 blueprint and aimed to strengthen and to reinforce the following five features of the AEC by 2025: a highly integrated and cohesive economy; competitive, innovative, and dynamic ASEAN; enhanced connectivity and sectoral cooperation; resilient, inclusive, people-oriented, and people-centred ASEAN; and global ASEAN. The 2025 blueprint further emphasised ASEAN's focus on the development and promotion of MSMEs.

Although it had a greater emphasis on ICT, the digital sector – by its current definition – was featured in several areas. In the *AEC Blueprint 2015*, e-commerce was located in B6 under 'B: Competitive economic region', and information infrastructure was positioned as a component of 'B4: Infrastructure development' (ASEAN, 2007). In 2025 blueprint, ICT and e-commerce were under 'C: Enhanced connectivity and sectoral cooperation', i.e. 'C2: Information and communication technology' and 'C3: E-commerce' (ASEAN, 2015a). Under 'A4: Financial integration, financial inclusion, and financial stability', the need to address the digital gap,

utilise digital payments, and implement personal safeguard measures against the threat of digital fraud was highlighted. In 'B9: Global megatrends and emerging trade-related issues', the need to utilise accelerating technology-digital advancements was mentioned (ASEAN, 2015a).

In February 2017, the AEC 2025 *Consolidated Strategic Action Plan* was adopted, providing a detailed action plan for the AEC Blueprint 2025, which was further revised in August 2018. 'C2: ICT' included promotion of digital trade, bridging the digital divide initiatives, innovation, ICT infrastructure development, human resources development, and actions on cybersecurity. 'C3: E-commerce' comprised consumer protection, harmonisation of the legal framework for online dispute resolution, e-identification, and actions on personal data protection. In addition, digital-related actions appeared in Financial inclusion (A4), Emerging trade-related issues (B9), and Strengthening MSMEs (D1). Actions on the ASW were covered in 'A1: Trade in Goods' (ASEAN, 2017a).

The **ASEAN ICT Masterplan 2020** was adopted at the 15<sup>th</sup> TEMLIN in 2016 to articulate ASEAN's ICT development plan for 2016–2020. It aimed to drive ASEAN towards a secure, sustainable, and transformative digitally enabled economy, empowering an innovative, inclusive, and integrated ASEAN Community (ASEAN, 2016c). It was structured according to a hierarchy of five key outcomes, with a notable reference to the digital economy: an accessible, inclusive, and affordable digital economy; deployment of next-generation ICT as enablers of growth; sustainable development through smart city technologies; multiple ICT opportunities across a single regional market; and secure digital marketplaces and safe online communities. Eight strategic thrusts were set: economic integration and transformation; people's integration and empowerment through ICT; innovation; ICT infrastructure development; human capital development; ICT in the single market; new media and content; and information security and assurance.

Unlike the *ASEAN ICT Masterplan 2015*, e-commerce was mentioned. Action point 1.1.1 specified the contribution to e-commerce and SMEs. The three targets/projects of this action point were to research and identify policies and best practices to accelerate e-commerce and digital services in ASEAN; identify regional policies that will benefit ASEAN businesses, especially SMEs; and raise awareness of the use of digital transactions and electronic payments amongst businesses. It can be argued that the six DIF/DIFAP areas were addressed in this plan as well (ASEAN, 2016a).

During the implementation period of the *ASEAN ICT Masterplan 2020*, the following was adopted: *ASEAN Framework on Digital Data Governance*, *ASEAN Framework on International Mobile Roaming*, *ASEAN Guidelines for Strengthening Resilience and Repair of Submarine Cables*, *ASEAN Framework on Personal Data Protection*, *ASEAN Cybersecurity Cooperation Strategy*, and *ASEAN Framework for the Next Generation Universal Service Obligation* (ASEAN, 2020b).

Of these, the **ASEAN Framework on Personal Data Protection**, adopted in 2016, was the starting point for a growing number of frameworks and is mentioned in many documents due to its importance. The framework's goals are to improve ASEAN personal data privacy laws and to make it easier for AMS to collaborate (ASEAN, 2016a). However, the framework is non-binding and does not constitute nor create obligations under national or international law. It only advised that AMS should cooperate, promote, and implement the principles of personal data protection into national laws and regulations while continuing to ensure and to facilitate the free flow of information between AMS (ASEAN, 2016a).

The **MPAC 2025** was adopted at the 28th ASEAN Summit in 2016. It aimed to achieve a seamlessly and comprehensively connected and integrated region that will promote competitiveness, inclusiveness, and a greater sense of Community through 15 initiatives across five strategic areas: sustainable infrastructure, digital innovation, seamless logistics, regulatory excellence, and people mobility (ASEAN, 2016b). The 2010 MPAC did feature ICT as a topic of physical connectivity, but the MPAC 2025 clearly stated that digital innovation contributes to all three connectivity pillars. Under digital innovation, four initiatives were specified: technology adoption support for MSMEs, development of the ASEAN digital financial inclusion framework, the Open Data Network, and establishment of an ASEAN digital data governance framework (ASEAN, 2016b).

### 3.6. 2017–2019: ACCEC-led Integration of Digital Sector Initiatives

The **ASEAN Work Programme on Electronic Commerce**, adopted in 2017, aimed to promote interoperability and harmonisation of e-commerce-related regulations and standards to facilitate cross-border e-commerce in ASEAN. The framework focussed on accessibility enhancement, human resources development, consumer protection, promotion of interoperability and harmonisation of e-commerce-related regulations and standards, personal data protection, cybersecurity, international logistics, e-payment, and cross-border e-commerce by MSMEs. Notably, the development of the AAEC was also listed as an outcome (ASEAN, 2017b).

In the course of developing the work programme, the Senior Economic Officials Meeting (SEOM) agreed to establish the ASEAN Coordinating Committee on Electronic Commerce (ACCEC), which would prepare the work programme. It is significant that the work programme included development of broadband infrastructure as an outcome under the jurisdiction of TELMIN, given that the document is about e-commerce – the first major step towards the convergence of the ICT and e-commerce sectors under coordination of the ACCEC.

The **DIF** was thus prepared by the ACCEC and adopted in 2018. It is noteworthy that the six pillars leading to the DIFAP and ADII were identified as priority areas in it: facilitating seamless trade, protecting data while supporting digital trade and innovation, enabling seamless digital payments, broadening the digital talent base, fostering entrepreneurship, and coordinating actions.

At the 32<sup>nd</sup> ASEAN Summit in April 2018, ASEAN leaders established the ASEAN Smart Cities Network, a collaborative effort by cities from the 10 AMS to work towards the common goal of smart and sustainable urban development. The **ASEAN Smart Cities Framework** was adopted in November 2018 in Singapore, which noted that planning and managing smart and sustainable urbanisation can be supported by key enablers such as 'Technological and digital solutions' and 'Partnership and Funding' (ASEAN, 2018b).

In January 2019, ASEAN economic ministers signed the **AAEC**, which aimed to strengthen the capacity of ASEAN to establish common principles and rules and to implement them to promote the growth of e-commerce in ASEAN and to create an environment of trust and confidence in the use of e-commerce (ASEAN, 2019a). The AAEC entered into force in December 2021.

The **DIFAP** was adopted by ASEAN economic ministers later that year. It set out initiatives, outputs, timelines, and implementing bodies through the six priority areas of the DIF. The ministers recognised the DIFAP as a blueprint to further develop the ASEAN digital economy. It incorporated action plans under the *AEC Blueprint 2025*, *ASEAN ICT Masterplan 2020*, *ASEAN Work Programme on Electronic Commerce*, MPAC 2025, and relevant strategic action plans. For initiatives already in progress, it featured a description of the status of implementation. As discussed in the next chapter, at the time of this writing, the DIFAP covered actions across the widest range of ASEAN framework documents. Of the initiatives, the *ASEAN Data Classification Framework* has since been renamed the **ASEAN Data Management Framework** (ASEAN, 2021a).

In October 2019, it was agreed to rename TELMIN to the ASEAN Digital Ministers' Meeting (ADGMIN) as well as TELSOM the ASEAN Digital Senior Officials' Meeting (ADGSOM). This reflects the role of ICT as an enabler of digital transformation in other sectors and the change in scope from ICT to digital.

### 3.7. 2020 Onwards: Digital Masterplan and Recovery from the COVID-19 Pandemic

The number of framework documents with action lists increased in response to the COVID-19 pandemic. The **ACRF** and its implementation plan were adopted by ASEAN leaders in November 2020 as a consolidated exit strategy from the COVID-19 crisis. It focusses on key sectors most affected by the pandemic and sets out a broad strategy for recovery in line with sectoral and regional priorities, thereby clarifying ASEAN's response through the different phases of recovery. The following five broad strategies were set out, with a number of actions in the digital area set out in the fourth strategy: enhancing health systems, strengthening human security, maximising the potential of intra-ASEAN market and broader economic integration, accelerating inclusive digital transformation, and advancing towards a more sustainable and resilient future (ASEAN, 2020a).

The **ADM 2025**, adopted in January 2021, is regarded as the successor to the *ASEAN ICT Masterplan 2020* and envisions ASEAN as a leading digital community and economic bloc, powered by secure and transformative digital services, technologies, and ecosystems (ASEAN, 2021b). It specifies eight desired outcomes, by noting that to achieve a digital economy and digital society, three conditions need to be met across ASEAN: high-quality and ubiquitous connectivity, secure and relevant services for end-users, and removal of barriers on the use of digital services by businesses and consumers. The desired outcomes speed up ASEAN's recovery from the pandemic, improve fixed and mobile broadband infrastructure, deliver trusted digital services, create a sustainable market for digital services, improve e-government services, connect businesses and facilitate cross-border trade, increase digital economy participation, and create a digitally inclusive society.

In 2021, the ACCEC presented the first iteration of the **ADII**. It aimed to assess ASEAN and AMS progress in the following six DIF-based pillars: digital trade and logistics, digital data protection and cybersecurity, digital payments and identities, digital skills and talent, innovation and entrepreneurship, and institutional and infrastructural readiness. In addition to country editions, it compares the index with dialogue partners in Annex B. Indicators in the ADII are often external objective indicators, such as OECD Trade Facilitation Indicators and the UN Global Survey on Digital and Sustainable Trade Facilitation, so it does not directly examine progress in each action of the DIFAP but indexes general digital integration progress.

The **BSBR** was endorsed at the 20th AEC Council in October 2021. To capitalise on the ongoing digital transformation in ASEAN, the BSBR outlines short-term steps for the digital sector that ASEAN can take by drawing on existing related initiatives without creating duplicative ones. Specifically, the BSBR aims to transform ASEAN into a leading digital economy through strong commitment; work on a single coherent document, with key areas of action, flagship initiatives, specific targets, timelines, and accountability; and prioritised actions that harness technology to jumpstart the region's economy, simplify business processes, promote access to and trust in digital applications, enhance protection of intellectual property rights, capacitate people on digital technologies, and improve cross-sectoral cooperation. In implementing the BSBR, the ACCEC will act as the coordinating sectoral body, with oversight by senior economic officials and support and input from representatives of relevant sectoral bodies in each AMS. AMS also agreed to conduct a study on establishing the DEFA by 2023 and to start negotiations on the DEFA by 2025. Subsequently, the chair's statement of the 40<sup>th</sup> and 41<sup>st</sup> ASEAN summits in 2022 changed the timing for the start of negotiations to 'as soon as' (ASEAN, 2022b).

The **Work Plan on the Implementation of the ASEAN Agreement on Electronic Commerce** (*Work Plan for AAEC*) was endorsed at the 53<sup>rd</sup> ASEAN Economic Ministers' Meeting in September 2021. This publication was supported by the Government of Australia through the ASEAN-Australia Development Cooperation Program Phase II. It outlines steps to be implemented across the region over 5 years to expand ASEAN's digital resilience, draws on existing ASEAN activities in various sectoral organisations, and highlights the ACCEC's coordination role to drive the overarching work plan (ASEAN, 2021f).

The **Consolidated Strategy on the Fourth Industrial Revolution for ASEAN** was endorsed in October 2021. This publication was also supported by the Government of Australia. It aims to maximise digital transformation opportunities; maintain openness, transparency, and security; promote economic growth and connectivity; and foster inclusive and equitable economic development in the increasingly converging physical and digital worlds known as Industry 4.0 (ASEAN, 2021d). The integrated strategy presents six enablers: digital infrastructure, capacity building, institutions and governance, resource mobilisation, cooperation and collaboration, and effective monitoring. Annex 2 of the strategy lists 73 frameworks and other initiatives regarding Industry 4.0 in ASEAN, under technological governance and cybersecurity (13 initiatives), digital economy (29 initiatives), digital transformation of society (27 initiatives), and cross-dimensional (4 initiatives). Initiatives include the *Kuala Lumpur Transport Strategic Plan, 2016–2025*; *ASEAN Framework Action Plan on Rural Development and Poverty Eradication, 2016–2020*; and *ASEAN Work Plan on Sports, 2021–2025*. Although not originally digital integration documents, the document recognises the increasing digital involvement in all activities. The document explains the impact of digital transformation and Industry 4.0 on all three community pillars and the need for coordination of the various initiatives.

The **ASEAN Leaders' Statement on Advancing Digital Transformation in ASEAN**, adopted at the 38<sup>th</sup> ASEAN Summit in October 2021, outlined ASEAN's key points such as accelerating digital transformation, promoting Industry 4.0, and encouraging multi-stakeholder collaboration across all ASEAN sectoral institutions and pillars of the community (ASEAN, 2021c).

### 3.8. Initiatives with Dialogue Partners

ASEAN has continued to work with dialogue partners in promoting digital integration. Within the framework of various agreements and initiatives, ASEAN is actively working with dialogue partners such as Australia, Canada, China, the European Union (EU), India, Japan, New Zealand, the Russian Federation, South Korea, the United Kingdom (UK), and the United States (US) to build on each other's strengths and to address common challenges. There was a trend in the last few years when ASEAN elevated partnership titles from strategic partnerships to comprehensive strategic partnerships (CSPs) towards Australia, China, India, and the US. In the development of SP to CSP transformation, China and Australia have explicitly listed specific CSP initiatives. This is reflected by including new initiatives as an Annex to the Plan of Action to Implement the ASEAN–China and ASEAN–Australia strategic partnership. These new initiatives in the digital area provide an insight into the interest of ASEAN and dialogue partners. Meanwhile, as of the time of writing, the US and India have still not published the specific CSP initiative with ASEAN. This section summarises the current state of cooperation with dialogue partners, focussing on the content of the latest strategic partnership document.

ASEAN cooperates with China, Japan, and South Korea in the digital sector bilaterally and through the ASEAN+3 framework. The ASEAN–**China** Strategic Partnership for Peace and Security includes commitments on ICT cooperation, digital tourism, and MSME development. Following the establishment of the CSP, the 2022 ASEAN–China Ministerial Meeting adopted an annex that includes strengthening digital connectivity and supply chain resilience, exploring synergies between the ADM 2025 and the Initiative on Building ASEAN–China Partnership on Digital Economy, and adding practical cooperation in digital learning and technical and vocational education. The annex also includes a joint feasibility study on the ASEAN–China Free Trade Area and the launch of upgrade negotiations. Moreover, the ASEAN–China CSP highlights digital area priorities, such as cybersecurity, digital economy, and e-commerce.

In July 2020, ASEAN and **Japan** agreed to an economic resilience action plan, which includes supporting regional digital trade transformation, protecting businesses in digital trade and e-commerce, providing financial support for digital transformation, establishing a digital transformation platform, holding an ASEAN–Japan Industry 4.0 dialogue, and identifying MSME digital technology needs. Japan also provided assistance in ICT cooperation at the ASEAN Digital Ministers' Meeting. Furthermore, Japan committed to narrowing development gaps in ASEAN through subregional development initiatives, which focus on connectivity, digital innovations, and Sustainable Development Goals. In March 2023, Japan formally requested establishment of a CSP with ASEAN. Cooperation between ASEAN and Japan has also been realised through the adoption of an ASEAN–Japan ICT work plan, which covers the issues of digital connectivity and infrastructure, digital transformation, robustness, reliability and security, digital policy, regulation and standards, and cooperation and collaboration.

The ASEAN–**Republic of Korea** Plan of Action for 2021–2025 outlines areas of cooperation between ASEAN and South Korea in the digital economy. They will seek to promote cybersecurity cooperation and enhance policy dialogue and information exchange through the ASEAN Digital Ministers' Meeting and other relevant mechanisms. Use of digital technology for MSMEs, implementation of the ADM 2025, and civil services are included. The plan also includes support for Industry 4.0, creative industries, ASEAN youth through digital skills development, sustainable infrastructure, digital innovation and people mobility, and ASEAN Smart City Network. ASEAN and South Korea are committed to establishing and growing a network for upcoming generations through the development of digital skills and youth participation in the region's policy dialogue by signing the ASEAN–South Korea Next-Generation Opinion Leaders Programme as well.



The **ASEAN Plus Three** Cooperation Work Plan, 2023–2027 outlines several areas of cooperation related to the digital sector, including trade and investment promotion through digital technologies, ASEAN+3 financial cooperation in areas such as Fintech and disaster risk financing, digital infrastructure, and MSME development through digital capacity building. It also includes promoting the digital economy through activity areas such as the DEFA, e-commerce, cybersecurity, digital human resources development, digital financial services, ASW, and payment connectivity.

The **ASEAN–India** Partnership for Peace, Progress, and Shared Prosperity (2021–2025) outlines initiatives for cooperation in the digital sector. These include enhancing practical defence cooperation, including cybersecurity; expanding digital trade; developing a digitally enabled workforce; and supporting the ASEAN Smart City Network. In addition, the plan includes cooperation through capacity building and knowledge sharing in AI, Industry 4.0, ICT in disaster management, cyber forensics, next-generation transmission technologies, and advanced satellite communications, as well as enhancing women and youth participation in human resources and digital skills development programmes. The India–ASEAN Digital Work Plan 2023 includes similar initiatives such as capacity building and knowledge sharing in emerging areas of the ICT sector, such as AI in cybersecurity, IoT and AI applications in next-generation smart cities and Society 5.0, and future sustainable data and transport networks. An ASEAN–India CSP intends to enhance cooperation on the digital economy and FinTech.

The **ASEAN–US** Leaders’ Statement on Digital Development encourages deeper cooperation between the two sides by first creating the ADII. The Plan of Action to Implement the ASEAN–United States Strategic Partnership (2021–2025) describes a US–ASEAN digital economy initiative to support regional cybersecurity, intellectual property rights strategies, digital inclusion of youth and women, access to technology for MSMEs, and efforts to bridge the digital divide. The plan also includes the US–ASEAN Smart Cities Partnership; Digital Connectivity and Cybersecurity Partnership; and ASEAN–USAID Inclusive Growth in ASEAN through Innovation, Trade, and E-Commerce. The digital sector is prioritised in the ASEAN–US CSP by advancing economic cooperation through digital connectivity, digital economy, and digital trade standards.

The Plan of Action on ASEAN–**EU** Strategic Partnership (2023–2027) includes cooperation on digital trade, intellectual property rights in a digital environment, ICT infrastructure, public–private partnerships, MSMEs, the ADM 2025, digital data governance, ASEAN Digital Index (ADIX), and cybersecurity. The plan encourages people-to-people exchanges and cooperation in education, science, and culture to achieve universal access to quality education and to enhance digital transformation. It calls for joint cooperation in the implementation of MPAC 2025 and support for the ASEAN Smart City Network. Additionally, the EU helped deliver the second phase of the ADIX through the Enhanced Regional EU–ASEAN Dialogue Instrument Facility, which facilitates the EU and ASEAN in collaborating on issues of common concern (EU, 2021).

**Australia** has supported the development of key framework documents in recent years, such as the *Work Plan for APEC* and the *Consolidated Strategy on the Fourth Industrial Revolution for ASEAN*. The Plan of Action to Implement the ASEAN–Australia Strategic Partnership (2020–2024) includes initiatives on digital connectivity, digital trade, entrepreneurship and developing a digital-ready workforce, and strengthening cooperation on digital integration. The plan also assisted ASEAN in developing the DEFA and covered smart cities and cybersecurity. After the establishment of the CSP in 2021, the focus now includes digital transformation and future skills initiatives, regional security, support for recovery from COVID-19, MSMEs and start-ups, and enhanced cooperation on gender equality and women’s empowerment, including financial inclusion.

The 19<sup>th</sup> ASEAN–**Canada** Dialogue reaffirmed the commitment to further deepen their partnership and to note progress in the implementation of the ASEAN–Canada Plan of Action (2021–2025). Both parties are looking forward to the first round of free trade agreement negotiations, scheduled for August 2022. The advancement of the Women, Peace, Security Agenda; cybersecurity; public health emergencies/preparedness; digital economy, sustainable development and environment; connectivity; innovation; smart cities; human capital development through education; and people-to-people exchanges have also been discussed (ASEAN, 2022a).

The 2021–2025 Plan of Action to implement the ASEAN–**New Zealand** Strategic Partnership aims to strengthen cooperation in various areas, including the digital economy. The plan will strengthen the region’s digital transformation and support the development of human capital to address the challenges and to seize opportunities of Industry 4.0, e-commerce, and digital trade through leveraging the experience of the Digital Economy Partnership Agreement, possible ASEAN and New Zealand capacity development programmes, and exchange of information and best practices. It will also cooperate in the field of cybersecurity and support technical and vocational education and training and the ASEAN Smart Cities Network.

The 2021–2025 Plan of Action outlines areas of cooperation between **Russia** and ASEAN in the digital sphere. The plan highlights enhanced ICT cooperation in cybersecurity, disaster management, counterterrorism, and international crime. The plan promotes experience exchange and capacity building in trade and investment-related areas of mutual interest, such as green technology, and financial technology, and strengthens cooperation in the digital economy, including MSME capability in digital literacy and business development, smart manufacturing, and Industry 4.0. It proposes to explore the establishment of an ASEAN–Russia Joint Working Group on Smart Cities as well.

The Plan of Action to Implement the ASEAN–**UK** Dialogue Partnership (2022–2026) shows a strong interest in the digital sector. ASEAN and the UK will work together on digital connectivity, cross-border digital trade, and operationalising the ASEAN–UK Digital Innovation Partnership. It will also support the collaboration between the UK–ASEAN Business Council and ASEAN Business Advisory Council in the digital sector, including digital innovation, infrastructure development, and MSME development. It will share best practices and information on data protection and emerging digital technologies. The plan explores the possibility of exchanging best practices and discussing the interoperability of the ASW and the UK National Single Window and channelling UK expertise into improving trade facilitation in ASEAN through cooperating on digital transformation; digital technical standards; digital inclusion; and adoption of digital tools in areas such as regulation, e-payments, and the digitisation of supply chains.

## 4. Evolution of Actions

### 4.1. Evolution of Key Actions

#### 4.1.1. ASEAN Single Window

The ASW is a regional single window system that aims to integrate AMS national single windows (NSWs) (Indira and Kusumasari, 2020). NSWs allow traders to submit all necessary information and documents electronically through a single point of entry to fulfil import, export, and transit-related regulatory requirements. The ASW is an important component of ASEAN economic integration as well as an important step for ASEAN's digital integration in terms of digitising trade facilitation processes and improving security and transparency through digitised trade procedures. While the ASW has progressed steadily as an AEC initiative, interestingly, ASEAN digital integration documents show that the idea of an ASW has emerged only in recent years.

The 2003 Declaration ASEAN Concord II (Bali Concord II) Annex recommended the adoption of a single window (ASEAN, 2003). The 2004 *Vientiane Action Programme* implied a strategy was needed to integrate customs structures in ASEAN for a harmonised customs environment in Section 2.3.5.1 (ASEAN, 2004b). It also emphasised the establishment of an ASEAN customs environment, assisted by ICT applications, by implementing the ASW and ASEAN e-customs. ASW implementation is also outlined in the 2004 *Roadmap for Integration of the e-ASEAN Sector* (ASEAN, 2004a) with the ASEAN Single Window Steering Committee as an implementing body. The same document recommended developing a single window, including the e-processing of trade documents at the national and regional levels (ASEAN, 2004a).

In December 2005, AMS passed the ASW Agreement, which paved the way for the implementation of a regional single window that would integrate AMS NSWs. In December 2006, *ASEAN signed the Protocol and Agreement to Establish and Implement the ASEAN Single Window*. It then adopted the *Memorandum of Understanding on the Implementation of the ASEAN Single Window Pilot Project* in July 2011, which aimed to implement an ASW pilot project to assess its benefits and challenges (ASEAN, 2011b).

The ASW legal framework was created when ASEAN adopted the *Protocol on the Legal Framework to Implement the ASEAN Single Window* in September 2015. Its purpose was to provide a legal framework for the operations, interactions, and e-processing of transactions amongst NSWs within the ASW environment while taking into account relevant international standards and best practices recommended by international agreements and conventions concerning trade facilitation and modernisation of customs techniques and practices (ASEAN, 2015c).

Support for the establishment of NSWs in Cambodia, Lao PDR, Myanmar, and Viet Nam was provided through the Initiative for ASEAN Integration. The completion of NSW establishment was incorporated into actions in the *Initiative for ASEAN Integration Work Plan III* in August. At the time of the development, Viet Nam had an NSW in place but had not integrated it into the platform of all technical control agencies. The *Review of the Initiative for ASEAN Integration Work Plan III* reported that, as of October 2019, NSWs had been completed in Cambodia, Lao PDR, Myanmar, and Viet Nam (ASEAN, 2020c).

The ASW's first functional module – the electronic exchange of preferential certificates of origin – was implemented by four of six pilot AMS in January 2018 (Hapsari, 2018). By the end of 2019, all 10 AMS joined the ASW live operations. The future aim of the system is to facilitate the electronic exchange of trade documents such as customs declarations, animal health certificates, and food safety certificates, and to improve the efficiency of cargo customs clearance (ASEAN, 2021b).

Despite this steady progress of the ASW in ASEAN economic integration, the ASW was mentioned late in ASEAN documents on digital integration. Although the ASW was included in the 2004 *Roadmap for Integration of the e-ASEAN Sector*, it was considered a 'common issue' and thus regarded as a customs measure that contributed to trade facilitation of ICT products rather than a measure of ICT (ASEAN, 2004a). The ASW was not mentioned in the ICT Masterplan 2015 (ASEAN, 2011a) nor the *ASEAN ICT Masterplan 2020* (ASEAN, 2016c). This contrasts with the 2007 *ASEAN Economic Community Blueprint*, which stated that the implementation of measures to simplify, harmonise, and standardise the application of ICT was necessary to realise the ASW (ASEAN, 2007).

In the digital integration documents, the ASW was finally encouraged in the DIFAP in 2019. The ADM 2025 emphasises the importance of the ASW in digitising the trade facilitation process and ensuring that businesses can trade digitally and securely, including cross-border transactions with other businesses and customers (ASEAN, 2021b). Moreover, the acceleration phase of the BSBR also recommends establishing ASW connections to ASEAN dialogue partners.

The ASW is an application of ICT – not ICT itself – such as ICT infrastructure development, ICT regulation, cybersecurity, and other technologies. Areas such as the ASW, where ICT technology is applied, were originally a separate area from ICT, similar to the digitised economy in the discussion of the definition of digital integration in Chapter 2. It was not previously treated as an ICT sector, although it is now considered an essential component of digital integration. In other words, this case is distinctive, as it suggests that the concept of digital integration in ASEAN has expanded.

#### 4.1.2. E-Authentication and Digital Identity

Digital identity interoperability refers to the ability of different digital identity systems to work together seamlessly, allowing users to access services across different platforms and domains (OECD, 2022). Interoperability is essential for the effective expansion of digital identity, as it enables cross-border transactions and the exchange of information between different systems. However, achieving interoperability is a challenge that requires the development of common standards and protocols as well as the establishment of trust amongst different identity providers (Bazarhanova and Smolander, 2020).

While digital identity is an important aspect of the digital economy in ASEAN (Nengsi, 2019), it is only in recent years has it gained importance. In addition to the relatively traditional concepts of e-authentication and secure transaction initiatives, ASEAN is incorporating new digital identity initiatives into its digital integration. Digital identities are different from e-authentication and secure transactions. Digital identities correspond to the electronic information associated with an individual in a particular identity system, which is used by online service providers to authenticate and to authorise users for services protected by access policies (Chen, 2007). Digital identities are used to enable online interactions and transactions amongst people, enterprises, service providers, and government institutions (Paganelli and Polzonetti, 2007). E-authentication and secure transactions have been used for a long time to ensure secure communication amongst individuals, services, and devices through centralised digital entities (Gilani et al., 2020). Digital identities are more user-centric, while e-authentication and secure transactions are more service-centric (Paganelli and Polzonetti, 2007). Digital identities also preserve privacy, while e-authentication and secure transactions are more focussed on authentication and verification of identity as well as the integrity and authenticity of electronic information (Gilani et al., 2020).

The desire for secure transactions in ASEAN appeared in Article 5(c) of the *e-ASEAN Framework Agreement* (ASEAN, 2000). The ASEAN ICT Masterplan 2015 listed e-authentication and secure transaction as its Strategic Thrust 2 (ASEAN, 2015b). Meanwhile, digital identity appeared within the *Intra-ASEAN Secure Transactions Framework* to define the entity under terms and definitions (Wayuparb et al., 2014). Meanwhile, ASEAN has also deployed or is deploying digital identity systems. The ADII noted that the use of national digital identities is still in its infancy in ASEAN compared to developed countries (USAID and US-ASEAN Connect, 2021).

The *Work Plan for AAEC* and BSBR emphasise digital identity. The work plan has actions related to digital identity, such as encouraging all AMS to maintain – or adopt as soon as practicable – measures based on international norms for the use of interoperable e-authentication technologies. It also ensures stakeholder socialisation and compliance with e-authentication approaches (ASEAN, 2021f). Meanwhile, the BSBR highlights the establishment of ASEAN-wide unique business identification numbers (UBIN) and further work on business digital identities (ASEAN 2021c).

As such, digital identity is a new concept that ASEAN has only begun to address. Since digital trade agreements in other countries have started dealing with digital identities, concrete initiatives are expected to be developed in ASEAN through the DEFA and Post-2025 Agenda.

#### 4.1.3. ASEAN CERT and CRISP

The CERT is responsible for monitoring, detecting, and responding to cybersecurity incidents in AMS. ASEAN recognises the importance of cybersecurity and has taken steps to establish a regional CERT to enhance cybersecurity cooperation and information sharing amongst AMS (Hapsari, 2018). The ASEAN CRISP works to enhance cybersecurity cooperation and information sharing amongst AMS. It aims to improve the region's cybersecurity resilience by facilitating the sharing of threat intelligence, best practices, and technical expertise amongst AMS. It also provides a forum for AMS to collaborate on cybersecurity capacity-building and training programmes. The establishment of the CRISP is a significant step towards enhancing cybersecurity cooperation and information sharing in ASEAN, which is essential for addressing the cybersecurity challenges faced by the region (Mizan et al., 2019).

The *Roadmap for Integration of the e-ASEAN Sector* made CERTs a key measure. It put in place minimum performance guidelines for setting up national CERTs and guidelines for information sharing between CERTs in ASEAN (ASEAN, 2004a). Through the 2006 Brunei Action Plan, AMS agreed to intensify capacity-building and training programmes for national CERTs and to strengthen the region's cybersecurity network by expanding ASEAN CERT incident drills to include ASEAN dialogue partners in 2007. The *ASEAN ICT Masterplan 2015* emphasised the importance of CERTs under Initiative 4.2 to promote network integrity, information security, and data protection (ASEAN, 2015b). In addition, the *ASEAN ICT Master Plan 2020* described a continued effort to establish an ASEAN Network Security Council to promote CERT cooperation and sharing of expertise. Under this master plan as well, a feasibility study on establishing an ASEAN CERT was conducted (ASEAN, 2016c). The 2017 *ASEAN Work Programme on Electronic Commerce* outlined an initiative to establish an international coordination mechanism amongst cybersecurity agencies to share best practices, exchange information on policies and strategies, and cooperate in response to cybersecurity incidents (ASEAN, 2017).

The BSBR called for two key requirements: the establishment of an ASEAN CERT and implementing an ASEAN CRISP memorandum of understanding (ASEAN, 2021b). To advance the implementation of the ASEAN CERT, Singapore is collaborating with other AMS on an operational framework that will outline the ASEAN CERT's purpose, scope, composition, partners, functions, and mechanism.

#### 4.1.4. Interoperable E-Payment System and QR Code Framework

The promotion of e-payments in AMS is an important aspect of advancing the region's digital economy (Mizan et al., 2019). In particular, ASEAN advocates a unique initiative, an interoperable QR code framework, as QR codes are quick and easy payment methods that can be employed on a variety of platforms and devices and are rapidly gaining popularity in ASEAN as a means of facilitating e-payments. Digital platforms within ASEAN – such as Grab and Gojek – have contributed significantly to the spread of e-payments and e-money. Interoperable e-payment systems and QR code frameworks can help boost cross-border transactions and improve payment system efficiency. In addition, the ASEAN Payment Connectivity Initiative was established to promote the interoperability of e-payment systems across AMS. It seeks to establish common technical standards and protocols for e-payment systems as well as to promote trust and security in their use (Najib and Fahma, 2020).

The definitions of secure payments and e-payments can be differentiated based on their security features. Secure payments refer to payment methods that are protected by security measures to prevent unauthorised access and fraud (Casado-Aranda, Liébana-Cabanillas, Sánchez-Fernández, 2018). E-payments are broader, which encompasses various methods, including credit cards, prepaid cards, e-cash, and e-checks. E-payment methods are used for e-commerce transactions and are considered the most common payment method (Halaweh, 2017). However, concerns over privacy, security, and reliable execution of payments are important factors that discourage customers from adopting existing e-payment methods. Secure payments are designed to address these concerns by providing additional security measures to protect against unauthorised access and fraud.

Several documents before the adoption of the DIFAP developed e-payments in ASEAN. The *ASEAN ICT Masterplan 2020*, in promoting digital trade in ASEAN (Action Point 1.1.1), sought to raise awareness of digital trade and the use of e-payments amongst businesses so that they could better transact with their suppliers and customers, including online consumer protection (ASEAN, 2016c). Meanwhile, Initiative 5 of the MPAC 2025 seeks to raise awareness of digital trade and the use of e-payments amongst businesses so that they can better transact with suppliers and customers, including online consumer protection (ASEAN, 2016b).

The DIFAP's output includes the implementation of cross-border retail payments and payment innovations, such as fast payments and QR code payments (ASEAN, 2019b). The BSBR focusses on the development of an ASEAN interoperable QR code framework. It also seeks to implement interoperable cross-border real-time retail payment systems based on an ASEAN framework and implementing policy guidelines (ASEAN, 2021c).

#### 4.1.5. Digitalisation of ASEAN MSMEs

Digitalisation of ASEAN MSMEs has become a central issue in digital policy. MSMEs play a significant role in driving the growth of the internet economy in Southeast Asia (Google, Temasek, Bain & Company, 2022). The COVID-19 pandemic has also accelerated the digitalisation of MSMEs in ASEAN, as businesses had to adapt to the new normal of remote work and online transactions (Mendoza and Tadeo, 2023). According to Bain & Company (2018), 75% of ASEAN MSMEs see the benefits of digital integration, but only 16% fully utilise digital technologies. Assisting more MSMEs in making better use of digital tools could significantly contribute to ASEAN economic development.

ASEAN has long recognised the importance of MSMEs in the context of economic integration, although only around 2015 were the importance of MSMEs made explicit in ASEAN's digital integration documents. More precisely, although the *e-ASEAN Framework Agreement* discussed the need for capacity-building programmes – including education and training for 'small business enterprises', ICT workers, policymakers, and regulators – no SME-specific objectives or initiatives were mentioned until 2015 (ASEAN, 2000). This is another good example of how the focus of digital integration in ASEAN has expanded and changed with the development and diffusion of technology.

In the economic integration context and amongst ASEAN documents, MSMEs were mentioned in the *ASEAN Vision 2020* (ASEAN, 1997). The vision promoted a modern and competitive SME sector in ASEAN, which would contribute to the industrial development and efficiency of the region. The *ASEAN Economic Community Blueprint 2025* strengthened the role of MSMEs as part of its outcome to realise a 'resilient, inclusive, people-oriented and people-centred ASEAN' (ASEAN, 2015a).

The 2004 *ASEAN Sectoral Integration Protocol for e-ASEAN* and *Roadmap for the Integration of the e-ASEAN Sector*, 2006 *Brunei Action Plan*, and 2011 *ICT Masterplan 2015*, do not make specific reference to SMEs. However, under the *ICT Masterplan 2015*'s actions, a project to 'promote and encourage the deployment of IPv6 for small and medium enterprises (SMEs)' was initiated (ASEAN, 2015b).

The importance of MSMEs is explicitly stated in post-2015 documents on digital integration. Action Point 1.1.1 of the *ASEAN ICT Masterplan 2020* recommends encouraging and enhancing digital trade, especially for SMEs, through policy innovation, awareness raising, electronic trading, and other better ways of trading and payments (ASEAN, 2016c). *The Master Plan on ASEAN Connectivity 2025* supports the adoption of technology by MSMEs as stated under the digital innovation pillar (ASEAN, 2016b). The DIF states that the core of digital integration is to transform the competitive base of ASEAN and local businesses, including MSMEs. Amongst the six priority areas, the explanations in '(ii) protect data while supporting digital trade and innovation', and '(v) foster entrepreneurship' refer to MSMEs (ASEAN, 2018a). The DIFAP also refers to upskilling MSMEs in '(iv) broaden digital talent base' in the revised description of the six priority areas (ASEAN, 2019b).

The digitalisation of MSMEs is encouraged in documents on digital integration as well as initiatives in the SME field. The ASEAN SME Academy, for example, provides online training and resources to assist ASEAN MSMEs in adopting digital technologies. The ASEAN Coordinating Committee on Micro, Small, and Medium Enterprises (ACCMSME) also developed a strategic action plan to encourage the region's MSMEs to 'go digital'. Initiatives include the creation of digital platforms for MSMEs, provision of digital training and support, and promotion of e-commerce and digital marketing.

The *Work Plan for AAEC* promotes digitalisation for MSMEs by encouraging the conduct of annual business surveys to measure the perceived adequacy of existing competition laws and policies in the e-commerce sector, with particular attention on the views of MSMEs (ASEAN, 2021f). The BSBR recommends the initiation of negotiations and adoption for the DEFA, which specifies that it should include matters deemed essential to capitalise on the ongoing digital transformation in the region, prepare MSMEs for digital transformation, and develop a digitally ready workforce (ASEAN, 2021c).

## 4.2. Comparison of Actions

As the topology map shows, since the DIFAP, a series of framework documents have been adopted with strategic action lists, i.e. the DIFAP, ACRF, ADM, BSBR, and *Work Plan for AAEC*. Each framework document has a focus, and there are similarities and differences in their approaches to certain key areas.

### 4.2.1. Comparison Table

Actions in key documents are compared in the Appendix. The actions of all documents are compared by topic (e.g. trade facilitation and e-commerce legal framework).

The selection criteria for actions in each document are as follows. The DIFAP has six priority areas, and each priority area consists of initiatives. For the ACRF, initiatives and programmes are categorised as actions to be considered in this book. The ACRF has five broad strategies; this book focusses on initiatives under 'Broad Strategy 4: Accelerating Inclusive Digital Transformation' and digital-related initiatives under 'Broad Strategy 3: Maximising the Potential of Intra-ASEAN Market and Broader Economic Integration'. The ADM 2025 uses



enabling actions to achieve desired outcomes. These enabling actions are thus analysed and placed under categories. The BSBR is divided into recovery, acceleration, and transformation phases. There are several measures grouped inside each phase where each measure has actions. Each topic of the *Work Plan for AAEC* includes at least one objective that reflects a subsidiary goal or constituent element of the topic's desired outcome. Each objective is placed within the *Work Plan for AAEC* as an action.

The DIFAP has the broadest coverage of topics regarding the digital sector. In the comparison table, the DIFAP has actions placed under all topics, whereas the other documents have blank cells (i.e. no actions in several specific topics). Duplication of actions are avoided. Where the same action is used, the source is clearly stated, but the overlap is limited. It is therefore worthwhile to integrate and to evaluate the actions in all five documents, as shown in the Appendix. Moreover, there are relevant actions across multiple documents – the DIFAP, ACRF, and BSBR. The focus of the individual actions is differentiated in each. The ADM 2025 and *Work Plan for AAEC* share some of the same actions but often present separate actions.

These depend on the circumstances and year in which each document was established. The DIFAP is the overall blueprint for ASEAN digital integration and outlines digital priorities in areas such as trade facilitation, data protection, digital payments, digital human resources, entrepreneurship, and regional coordination. The ACRF is acting as an integrated COVID-19 crisis exit strategy. The ACRF and its implementation plan build on the existence of the DIFAP and address both ASEAN's immediate needs for a successful transition to the 'new normal' and its medium- and long-term needs for resilience through the recovery phase. The BSBR was adopted after the ADM 2025 and aims to leverage the ongoing digital transformation in ASEAN without creating overlapping initiatives with the DIFAP, ACRF, AAEC (the agreement itself), and ADM 2025. It focusses on key actions from existing relevant initiatives in ASEAN that will have immediate and long-term benefits for the region's competitiveness.

The ADM 2025, which was adopted by ADGMIN as a successor of the *ASEAN ICT Masterplan 2020*, is a 5-year plan that aims to transform ASEAN into a leading digital community and economic bloc powered by secure and transformative digital services, technologies, and ecosystems. The document is more of a direction-setting document than a concrete action statement. The *Work Plan for AAEC*, which was supported by Australian ASEAN–Australia Development Cooperation Program Phase II, was developed for the continued expansion of ASEAN digital resilience and implementation of the AAEC. The actions of the work plan are non-binding because the proposals and activities are subject to further updates as necessary to reflect the fast and dynamic changes in e-commerce activities and digital innovation.

Therefore, ASEAN has produced several framework documents to respond to the COVID-19 pandemic and the expanding digital economy; these actions are related but unique. The DIFAP is an excellent framework with broad digital field coverage, while the ACRF, ADM 2025, BSBR, and *Work Plan for AAEC* – which were all issued after the pandemic – are complementary. The efforts of the five documents should be discussed in an integrated manner, bearing in mind the nature of the individual documents.

## 4.2.2. Similarities and Differences between the Documents

One of the key areas appearing in many of these documents is the ASW, which aims to facilitate seamless cross-border trade by enabling the electronic exchange of trade documents amongst AMS. The DIFAP emphasises the operationalisation of the ASW, with the ACRF calling for this in all 10 AMS by end-2021. The BSBR supports the establishment of ASW connections with ASEAN dialogue partners, and the *Work Plan for AAEC* supports the implementation of technical studies on ASW connections with dialogue partners and encourages a supplement to the *ASW Technical Guide*.

Another focus in these framework documents is the ASEAN-Wide Self-Certification system. ASEAN-Wide Self-Certification is intended to further strengthen the commitments of the ASEAN Trade in Goods Agreement by allowing traders to self-certify the origin of goods to qualify for preferential tariffs. The DIFAP includes the implementation of AWSC as one of its actions, and the ACRF more specifically articulates the action and recommends its introduction at the time of revision of the ASEAN+1 free trade agreements. There are no AWSC-related actions in the ADM 2025, BSBR, or *Work Plan for AAEC*.

Internet accessibility is also a common focus of the DIFAP, ACRF, and ADM 2025, with all three documents encouraging affordable internet access for rural and underserved areas. The DIFAP highlights the adoption of an ASEAN framework for affordable mobile voice, SMS, and data-roaming services within the region. The ACRF promotes transparent and affordable international mobile data-roaming services. The ADM 2025 promotes common roaming of mobile data services across ASEAN, aiming to reduce the cost of business travel in the region by lowering tariffs.

The priority of intellectual property in e-commerce is a common focus found in documents other than the ADM 2025. The *Work Plan for AAEC*, which places e-commerce as a central issue, outlines the most comprehensive actions. The ADM 2025 differs in that it fosters e-commerce, such as strengthening last-mile fulfilment cooperation and improving competitiveness in the digital economy.

Common to each framework document is the emphasis on cybersecurity. In particular, the CRISP is highlighted as a key mechanism for incident response coordination and information exchange between AMS. The ACRF and BSBR both encourage its implementation. The BSBR further emphasises the establishment of an ASEAN CERT to ensure a more secure regional cyberspace.

The development of interoperable cross-border real-time retail payment systems is another area of focus in the DIFAP, ACRF, and BSBR. The DIFAP encourages initiatives to promote interoperability amongst real-time retail payment systems by adopting international standards. Subsequently, the ACRF and BSBR have set out more advanced actions to implement interoperable cross-border real-time retail payment systems based on an ASEAN payments policy framework. The *Work Plan for AAEC* recommends actions to develop annual business surveys with questions on the safety, security, efficiency, and interoperability of cross-border e-payment systems.

The digital human resources base is another area; the DIFAP aims to prepare ASEAN readiness for industrial transformation towards Industry 4.0 by defining specific ICT digital skills requirements and road maps for MSMEs and strengthening cooperation between AMS in common target industries. The ACRF has broader actions and comprehensively encourages the use of ICT by more people – not only in the industrial sector but also by MSMEs.

Consumer protection is another area where different framework documents show various approaches. The DIFAP maintains a framework for cross-border cooperation in addressing consumer protection issues, with an emphasis on participation in, for example, the UN Intergovernmental Expert Consumer Protection and UN IGE Consumer Protection Meeting. ACRF activities related to consumer protection are closely linked to training, in particular e-learning modules on consumer protection and the application of good practices in consumer protection. The ADM 2025 promotes consumer protection and rights regarding e-commerce, and the *Work Plan for AAEC* is dedicated to related legislation and regulation.

The digitisation of MSMEs in ASEAN is an area where both similarities and differences exist. The DIFAP and ACRF are developing activities related to the digitalisation of MSMEs in ASEAN; the DIFAP focusses on establishing and promoting digital service hubs to encourage MSMEs to enter the global market. The ACRF outlines actions to revitalise MSMEs for post-COVID-19. The other three documents make no direct reference to the digitisation of MSMEs.

Finally, the implementation and coordination of the DIF can be seen as a development between the framework documents. Both the DIFAP and BSBR focus on the ACCEC, but the BSBR has a more advanced perspective. This can be considered an extension of the action from the DIFAP to BSBR. The DIFAP prompted a review and revision of the role of ACCEC. Two years later, after the adoption of the BSBR, ASEAN recommended that the ACCEC be strengthened so that it can monitor, effectively coordinate, and expedite the implementation of the DIFAP, *Work Plan for AAEC*, and BSBR.

The DIFAP, ACRF, and BSBR have actions focussed on DIFAP initiatives, but the perspectives between the documents differ. The DIFAP itself recommends the development of a monitoring and reporting mechanism for implementation. The ACRF articulates a more specific action to undertake a comprehensive review of the DIF and DIFAP through the reporting of the ADII. Additionally, as a pandemic recovery measure, the BSBR recommends a review of the DIFAP, including an acceleration of its schedule.

## 5. Prospects for Accelerating Digital Integration

As ASEAN moves towards digital integration, regional leaders are looking for ways to accelerate this progress. The DEFA aims to put in place trade rules and regulations and to promote cooperation amongst AMS for digital economy development. It is expected to be an important milestone in digital integration initiatives. The BSBR proposes a study to examine new areas that could be included in the framework to accelerate ASEAN's digital integration towards a regionally integrated economy to 2023, which will serve as input to the DEFA. ASEAN leaders have also agreed to start negotiations on the DEFA as soon as possible. In addition, new frameworks, the Post-2025 Agenda, are expected to emerge in 2025, the final year of current Blueprints, ADM and MPAC.

Meanwhile, the disparity between technology development and adoption and cybersecurity regulation continues to pose significant challenges to digital integration. Against new risks and security threats, the digital integration of AMS remains in its early stages (Pratamasari, 2020; USAID and US-ASEAN Connect, 2021). Success will depend on how ASEAN effectively embraces new areas, improves coordination amongst the various working committees and working groups, and enhances its ability to identify and to resolve challenges. It also depends on AMS reflecting this in their national legislation and ensuring each AMS's readiness for digital integration and to implement various agreements.

Research indicates that it is crucial to understand existing digital economy initiatives from ASEAN agreements and sectoral bodies' work plans to prevent duplication. To effectively track progress on digital integration, regular monitoring and evaluation are needed, including regular ADII surveys and publications to track and to compare scores with previous years.

### 5.1. Elements in the DEFA and Post-2025 Agenda

This section describes the current status of ASEAN initiatives on new areas, as derived from Yean (2021) and Sefrina (2023). These studies compared Singapore's digital economy agreements (DEAs) with the AAEC and Regional Comprehensive Economic Partnership (RCEP) agreement and point out that there are many items that ASEAN has to catch up on (Sefrina, 2023; Yean, 2021). The importance of comparisons with the AAEC and RCEP, which require ratification and/or acceptance, is also acknowledged, and it is hoped that efforts will be made to address them in future binding ASEAN documents. As of April 2023, Singapore has completed negotiations on digital economy partnership agreements with Chile and New Zealand (Digital Economy Partnership Agreement), a DEA with Australia (entered into force on 8 December 2020), a DEA with the UK (entered into force on 14 June 2022), and a digital partnership agreement with South Korea.

As mentioned earlier, the Government of Singapore has played a significant role in building the infrastructure supporting the formation of the ASEAN digital economy and is actively involved in promoting digital cooperation with other countries. Singapore's well-developed digital economy is a good example of the linkages amongst policy support, technological development, business activities, and digital economy expansion.

Singapore DEA provisions that are not yet covered by the DIFAP include e-invoicing, open government information, commercial ICT products that use cryptography, source code, unsolicited commercial e-messages, digital inclusion, AI and emerging technologies, financial technology cooperation, and data localisation. Although the DIFAP is the framework with the greatest scope of coverage, several new areas are still not addressed when compared to Singapore's DEAs.

The DIFAP also covers initiatives not in Singapore's DEA treaty text, including broadband accessibility, code of conduct for online business, and e-commerce platform fostering. In fact, these are policies that can all be completed domestically: the development of physical broadband infrastructure; ways in which firms, in particular MSMEs, can be responsible and fair to consumers in doing business online; and development of e-commerce platforms. This confirms the characteristics of ASEAN's digital integration, which looks not only at transactions amongst AMS but also at domestic policies and developments. It is an appropriate approach for ASEAN to undertake regulatory harmonisation as well as to reduce disparities between countries through physical infrastructure development to enhance the unity of the ASEAN digital economy and to strengthen the advantages of the size of the market.

In the following, we return to the comparison between Singapore's DEAs and AAEC, which requires ratification and/or acceptance, and select some of the items that the AAEC has not yet dealt with for discussion. In ASEAN countries at different stages of development, it is practically difficult to implement initiatives with commitments on par with Singapore (Sefrina, 2023). On the other hand, however, as explained below, many of these new areas are already under discussion in ASEAN.

Although the DIFAP and AAEC do not include e-invoicing, the BSBR explicitly encourages the development and adoption of common e-invoicing standards to facilitate business transactions under Measure 1 of the Acceleration Phase. E-invoicing can reduce the cost of invoicing for companies. According to Poel et al. (2016), the total cost of invoices for Belgian private sector companies in 2014 could have been reduced by 58% if all invoices were sent digitally. Furthermore, e-invoicing can improve tax compliance and reduce administrative burdens for businesses and governments (Rocha, 2022, Bellon, 2019).

DEA member states have agreed to collaborate on initiatives to promote the adoption of e-invoicing by businesses. This initiative is intended to raise awareness and to build capacity for e-invoicing by widely publicising the existence of infrastructures to support e-invoicing.

**Competition policy** has become another crucial element in many digital economy agreements. The digital sector is characterised by rapid technological innovation, network effects, big data, economies of scale, economies of scope, and winner-take-all dynamics (Dessemond, 2020). These features enable large companies in the digital economy to, for example, offer products and services for free in one market and to generate revenue from online advertising and the analysis and sale of user data in another. It is easy to create companies with substantial market dominance, although their own preferential practices may stifle competition and innovation. Thus, a competition policy specific to the digital economy is crucial, yet excessive regulation of companies also discourages innovation in the digital sector. This leads to the need for intraregional coordination to improve the competitive environment between countries.

The AAEC has no article on competition policy but lists 'competition' under Article 6. The DEA with Australia articulates cooperation on competition policy in Article 16. The *Work Plan for AAEC* places a competition clause in B.7.1. The RCEP provides Chapter 13 on competition, which includes Article 13.2 on basic principles and Article 13-3 on appropriate measures against anti-competitive activities. Enabling Action 4.2 of the ADM 2025 recommends greater cooperation between ICT and competition regulators in the ICT sector and digital economy.

**Submarine cables** are essential for maintaining and developing a modern networked society, as they form the backbone of the internet and carry critical services (Saunavaara and Salminen, 2023). One of the main reasons for the importance of submarine cable cooperation in digital economy agreements is that improving the resistance and repairability of these cables is crucial for the resilience of the digital economy. Parties to these agreements need to take measures to reduce the risk of damage to submarine cables caused by natural and human-made threats, such as earthquakes and submarine landslides (Goodman, 2022).

ASEAN adopted *ASEAN Guidelines for Strengthening Resilience and Repair of Submarine Cables* in 2019. Article 8.38 of Singapore's DEA with the UK calls on parties to ensure reasonable, non-discriminatory, and transparent access to submarine cable-landing stations and cable systems in their territories (Ministry of Trade and Industry, Singapore, 2022). Article 22 of the DEA with Australia recognises the importance of submarine telecommunications cable systems and aims to ensure their efficient installation, maintenance, and repair. This article describes measures to provide flexibility in the choice of suppliers for these services and to reduce the risk of damage to these systems (Ministry of Trade and Industry, Singapore, 2020)

**Data localisation** refers to storing data within the boundaries of a specific jurisdiction or country without allowing them to be transferred or processed outside of the region. This may be mandated by law or regulation or implemented voluntarily by companies for technical reasons<sup>1</sup> or as security or risk management measures. With regard to legal and administrative regulations, there are two types of regulations: those relating to cross-data transfer and those relating to the physical location of the hardware that stores and processes the data. Data localisation is regulated in the AAEC, while the RCEP and Singapore's DEAs provide a more in-depth approach to it.

The EU's General Data Protection Regulation focusses on the protection of personal data and aims to ensure that personal data is protected irrespective of where it is processed and stored. It requires companies to ensure that personal data have appropriate safeguards when transferred outside of the EU but does not mandate that data be stored within a specific jurisdiction.

The *ASEAN Framework on Digital Data Governance* states that not all requirements imposed on cross-border data flows are harmful to the economy and calls for a review and minimisation of the following restrictions to each AMS (ASEAN, 2018c):

Restrictions may come in the form of policies requiring organisations to store data within the country (e.g., data localisation), or regulatory conditions imposed before data can flow out of the country of origin (e.g., consent of the individual, for purposes of fulfilling contractual obligations).

---

<sup>1</sup> If data-processing speed is important for service provision, companies may choose to locate data and data-processing facilities in-country, taking into account the cost of setting up data centres and technology (Bliedy et al., 2018; Huang et al., 2019; Gagliardi et al., 2008).

The AAEC stipulates, in Article 7.4, that AMS must remove or minimise barriers to the cross-border flow of information, including personal data, under appropriate safeguards. The *Work Plan for AAEC* also states that all AMS must identify and eliminate or minimise data localisation requirements. The RCEP and Singapore's DEAs differ in that they allow data cross-border transfer in principle, stating that the cross-border transfer of information by electronic means cannot be prevented if it is done for the conduct of the business. The DEAs in Singapore specify that the data covered include personal data.

The AAEC and RCEP emphasise the importance of computing facilities in 'Article 7.6: Location of Computing Facilities' and 'Article 12.14: Location of Computing Facilities', respectively. They recognise the existence of own measures on the use or location of computing facilities, including for reasons of ensuring the security and confidentiality of communications. On that basis, it provides that the establishment of a computing facility in the country concerned is not required as a condition of entry into the business.<sup>2</sup> Similar provisions exist in the Singapore–Australia DEA (Article 24), Singapore–UK DEA (Article 8.61-G), and Singapore–Chile and New Zealand agreement (Article 4.4). The DEA with Australia differs in that it extends the non-requirement to establish computing facilities in the country of concern to financial services (Article 25).

The article on **data innovation** in the DEAs aim to help companies make better use of data across borders to improve their products and services and to promote economic growth and competitiveness. Data innovation can drive service innovation in existing enterprises (Troilo, De Luca, Guenzi, 2017). Data innovation can also promote competitive advantage in SMEs and manufacturing industries (Al-Khatib, 2022; Bhatti et al., 2022). Data innovation is discussed under DIFAP data protection as 'foster data-driven innovation'. The Singapore–Australia DEA supports data innovation by co-developing data-sharing projects, developing policies and standards on data portability, and sharing research and industry practices on data innovation. The Singapore–UK DEA supports data innovation by collaborating on the development of policies and standards on data mobility, such as consumer data portability, and by sharing policy approaches and industry practices on data sharing. The Singapore–Chile and New Zealand agreement recognises that a trusted data-sharing mechanism is important for facilitating innovation and creativity; dissemination of information, knowledge, technology, culture, and the arts; competition; and open and efficient markets.

**Open government** is an initiative to make government information available to the public. Open government data drive innovation in the public and private sectors (Ruijter and Meijer, 2020) and can promote citizen participation in policy making and service delivery (Weerakkody et al., 2017). Furthermore, open government data can improve the efficiency of government services (OECD, 2016).

The *ASEAN ICT Masterplan 2020* mentions open government data under Strategic Thrust 3, 3.1.2.3: 'Support open data development through the hosting of competitions where innovative uses and application of open government data is encouraged'. However, the initiative scored poorly in the final review (ASEAN, 2020b). The ADM 2025's 'B.2.3.3: Local and national/regional IoT-related actions' indicates high expectations for open government data and highlights that AMS have important roles to play. The Singapore–Australia DEA places open government data in Article 27, implying that government information refers to non-proprietary information, including data, held by the central level of government. The Singapore–UK DEA's Article 8.61-H and Article 9.5 of those with Chile and New Zealand recognise that facilitating public access to government information promotes economic and social development, competitiveness, and innovation.

---

<sup>2</sup> The RCEP does not preclude the parties from adopting or maintaining all measures that they consider necessary for the protection of their essential security interests. It also stipulated that such measures cannot be disputed by other contracting parties.

**Source code** in the DEAs represents restrictions on a government requiring the disclosure of source code – which is software information expressed in a programming language or algorithms representing the processing steps of a programme – as a condition of entry into the country’s market. Government requirements for source code reduce the security strength of products, increase the risk of technology leakage, and inhibit companies’ multinational expansion.

The RCEP agreement proposes to continue the discussion on source codes in ‘Article 12.16: Dialogue on Electronic Commerce’. Source code is also mentioned in Article 28 of the Singapore–Australia DEA and Article 8.61–K of the Singapore–UK DEA. The Australia–Singapore DEA states that neither country can require the transfer of, or access to, the source code of software owned by a person as a condition for the import, distribution, sale, or use of such software, or of products containing such software, in its territory. However, this does not preclude governmental, regulatory, or judicial authorities from requiring persons of the other contracting party to make software available to them for the purposes of investigations, inspections, examinations, enforcement actions, or judicial or administrative proceedings. The Singapore–UK DEA contains a similar requirement for algorithms expressed as source code.

**Digital identity** is addressed in the DIFAP, ADM 2025, and BSBR, as explained in Chapter 4. It is also prioritised in Article 8.61–S of the UK–Singapore DEA, Article 29 of the Singapore–Australia DEA, and Article 7.1 of the agreement with Chile and New Zealand. These work to promote compatibility and interoperability between digital identities by developing frameworks and common standards, protecting digital identities, supporting international frameworks, identifying and implementing use cases, and exchanging knowledge and expertise on best practices. Singapore’s DEA website provides an example of how a government-managed digital identity for businesses and employees can significantly streamline business processes, such as company registration and opening corporate bank accounts (Ministry of Trade and Industry, Singapore, 2023).

**AI** is integral to digital integration; its applications are vast and diverse, ranging from digital marketing to agriculture, Industry 4.0, health care, and education (Ismail et al., 2022; Kim, 2022; Mogaji, Soetan, Kieu, 2021; Yang et al., 2022). Furthermore, the development of deep learning models in natural language processing in recent years has led to dramatic improvements in translation, summarisation, and document-generation capabilities, with the prospect of transforming back office and professionals’ work. There are still many aspects of AI that require policy intervention, such as in the biases and prejudices it brings, ethical issues, and its impact on employment.

AI is mentioned in DIFAP regional/international cooperation as ‘adopt regional policy to deliver best practice guidance on AI governance’ and in the *ASEAN ICT Masterplan 2020* final review as a project – ‘Study on ASEAN ICT Skill Standard Definition for Artificial Intelligence’ (ASEAN, 2020b). AI is referred to in Article 31 of the Singapore–Australia DEA, Article 8.61–R of the Singapore–UK DEA, and Article 8.2 of the agreement with Chile and New Zealand where AI technologies are recognised as generally striving to promote the adoption of ethical and governance frameworks that support the trustworthy, safe, and responsible use of its technologies.



**FinTech** is a generic term for innovations that combine financial services with information technology. A familiar example is the use of smartphones for money transfers and payments. FinTech expands the inclusion of financial services to many unbanked people in developing countries, especially vulnerable groups living mainly in rural areas far from formal financial institutions (Setiawan et al., 2021). It also improves the financial services industry itself (Sari, 2023). Furthermore, it has the potential to challenge traditional banking by revolutionising the financial services sector (Jugurnath, Hemshika, Štraupaitė, 2023).

FinTech is described in the ACRF's 4e as 'providing digital platform and related policies for promoting MSME digital upskilling and providing digital technology and fintech to access markets'. The Singapore–Australia DEA has a similar approach in Article 32. The Singapore–UK DEA also encourages the use of FinTech to support innovation in financial services in Article 8.53(2). Meanwhile, the agreement with Chile and New Zealand encourages parties to promote cooperation between FinTech industries through Module 8. Parties recognise that effective cooperation on FinTech requires the involvement of businesses.

## 5.2. Strengthening the ASEAN Coordinating Committee on E-Commerce and Digital Economy

The ACCEC was established in November 2016 and renamed the ASEAN Coordinating Committee on E-Commerce and Digital Economy (ACCED) in September 2022. In the course of its progress, the ACCEC has been involved in the preparation and publication of the following documents, which have shown significant progress in the development of e-commerce and digital integration:

- (i) *ASEAN Work Programme on Electronic Commerce* (2017),
- (ii) DIF (2018),
- (iii) ASEAN–Australia Digital Trade Standards Cooperation Initiative (2018),
- (iv) AAEC (2019),
- (v) DIFAP (2019),
- (vi) ADII (2021),
- (vii) *Work Plan for AAEC* (2021), and
- (viii) Feasibility Study of ASEAN Trust Mark Scheme (2022).

The ACCED's role is critical to the implementation of current initiatives and promotion of future digital integration, as the *Work Plan for AAEC* points out. It has been working in the field of the digital economy since its early days, and the name change to the ACCED does not indicate that its mandate will be extended in the future but rather reflects its actual mandate. However, it can be argued that the current scope is still insufficient given the power of the digital economy to transform society. This section discusses the need to strengthen the ACCED's coordination capacity and scope of jurisdiction by identifying the areas of the digital economy that are weakly addressed.

Financial inclusion is an initiative of the ASEAN Working Committee on Financial Inclusion (WC-FINC), and the link with the ACCED is not clear at the moment. The working committee promotes innovative digital finance and digital financial literacy as well as prepares the ASEAN e-Payment Readiness Index. There is no mention of it in the DIFAP; the ACRF has two initiatives by it, to 'promote innovative digital finance and digital financial literacy' and the ASEAN e-Payment Readiness Index.

Digital financial inclusion is as fundamental to the digital economy as ICT infrastructure and cybersecurity; it maintains banking stability in AMS (Banna and Alam, 2021). Furthermore, financial inclusion has a positive impact on the growth of manufacturing firms with low levels of access to credit (Nizam et al., 2020). It can promote inclusive and sustainable economic growth and stimulate the formalisation and growth of MSMEs through access to financial services (Yang and Zhang, 2020). Digital financial inclusion can help increase real incomes and accelerate growth in the ASEAN region.

The inclusiveness of the digital economy is another area where the relationship to the ACCED has remained unclear. Efforts to address rural areas in the DIFAP have been limited to the provision of broadband access, and there has been no focus on how to extend the digital economy (e.g. e-commerce) to rural areas. There are no initiatives on gender in the DIFAP as well. In the *Work Plan for AAEC*, the term 'rural' is mentioned once, and 'gender' is not mentioned at all. This is in stark contrast to 'ACCEC' which is mentioned 100 times and 'SMEs' 31 times. In fact, the digital gender divide has only recently been explicitly addressed in ASEAN policy programmes (Marsan and Say, 2021). In 2020, the ASEAN Leaders' Special Session at the 36th ASEAN Summit on Women's Empowerment in the Digital Age was held, recognising the disproportionate impact of COVID-19 on women and girls, including loss of employment and economic livelihoods and gender-based violence; empowerment through the ACRF and other means was discussed. For ASEAN to ensure that the adoption of Industry 4.0 technologies will be inclusive and not lead to further marginalisation, it is further indicated in the *Consolidated Strategy on the Fourth Industrial Revolution for ASEAN* that ASEAN must continuously reskill and upskill its labour force, particularly the marginalised (ASEAN, 2021d). Sey and Kingsley (2022) indicated that women's inequality is acknowledged by the media, academics, and policy rhetoric as a critical issue in the ASEAN digital economy. Moreover, people with disabilities sometimes have their voices ignored or dismissed (Cashmore and Crosta, 2022).

The environment and energy sectors are areas where the digital economy and technology can make significant changes and are directly related to the sustainability of the digital economy itself. Scoping is important to avoid raising the cost of coordination excessively. Therefore, the ACCED and SEOM should consult on which areas of the digital economy and Industry 4.0 to which their jurisdiction should be extended, with a focus on outcomes.<sup>3</sup>

Coordinating the number of framework documents over the digital economy is also an important jurisdiction of the ACCED. In 2020, a move was proposed from a long-term blueprint to a 3-year plan (ASEAN, 2020b). This is based on the notion that 5 years is too long to keep pace with changes in digital technology. Conversely, the dramatic increase in the 2020–21 framework document that occurred in ASEAN – albeit aimed at recovering from COVID-19 – was clearly an overreach. The ACCED needs to be able to better coordinate how it will summarise the initiatives to date and develop a new framework document for post-2025.

---

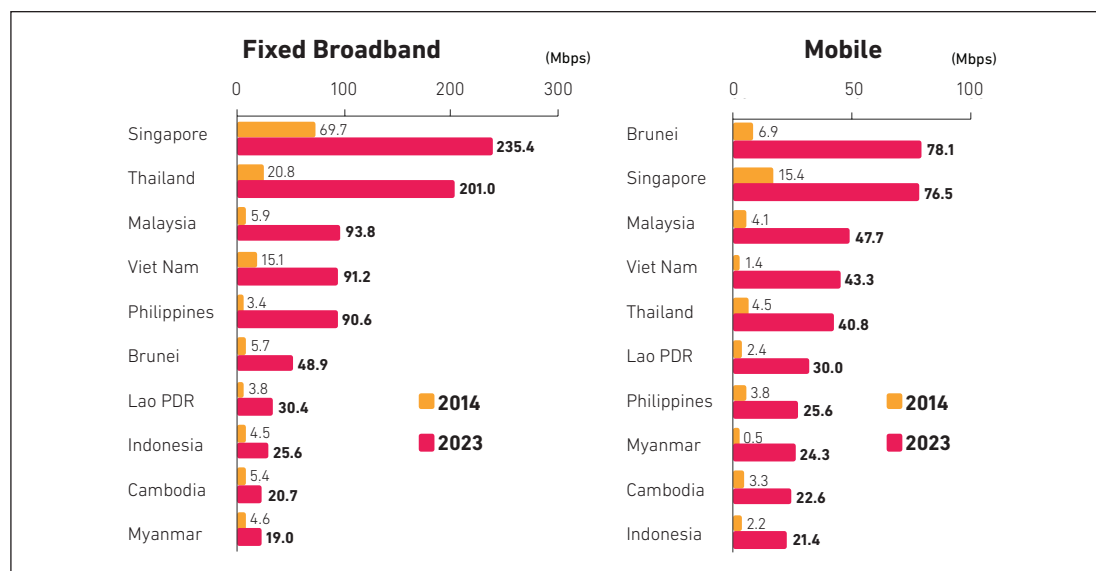
<sup>3</sup> This is also related to the question of who will oversee Industry 4.0 strategy. The Consolidated Strategy on the Fourth Industrial Revolution for ASEAN recommends the formation of a task force with a coordination function (ASEAN, 2021d).

### 5.3. Infrastructure

The development of digital infrastructure in ASEAN is still in its early stages (Chia, 2016). Lack of adequate digital infrastructure and digital literacy issues have been identified as major barriers to the implementation of Industry 4.0 (Mueller, 2019). One of the factors contributing to the digital divide in AMS is broadband speeds, both fixed and mobile. Higher mobile and fixed broadband usage correlates with higher average incomes and higher GDP over time<sup>4</sup> (ITU, 2020). According to Purnama (2018), there is a two-way causal relationship between fixed broadband penetration and economic growth in the AMS.

Disparities in speeds for both broadband and mobile still exist amongst AMS. However, it should be pointed out that AMS have made essential improvements in developing ICT infrastructure. Figure 5.1 shows a comparison of fixed broadband and mobile speeds in the AMS in 2014 and 2023. Dramatic speed increases are observed in each AMS, particularly in mobile data. Myanmar’s mobile data speeds have increased 50-fold in 9 years, for instance. This shows that the AMSs have regulated the market well, encouraging competition while taking care to provide universal service and encouraging market players to invest in telecommunications infrastructure much faster than the growth in users and usage.

**Figure 5.1 Average Download Speed in ASEAN**



Lao PDR = Lao People’s Democratic Republic, mbps = megabits per second.

Source: Chung (2014) and Ookla, Speedtest, <https://www.speedtest.net>

<sup>4</sup> ITU, Economic Impact of Broadband, Digitization and ICT Regulation, <https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Economic-Contribution.aspx>

Usage prices are also important. In 2018, the United Nations Broadband Commission for Sustainable Development set an updated affordability target of reducing the price of entry-level broadband services to below 2% of monthly gross national income per capita by 2025. An Alliance for Affordable Internet report showed that there are significant differences in broadband speeds and costs within AMS, however. The average cost of fixed broadband in AMS is 3.5% of monthly income, above the affordability target of 2.0% set by the commission (A4AI, 2021). Myanmar has achieved its 2021 broadband target through data-only mobile broadband affordability. Cambodia, which met its 2020 target, did not meet its 2021 target. The lowest price for 2-gigabyte mobile data was in Singapore, at less than 0.2% of the average monthly gross national income per capita (ITU, 2022).

## 5.4. Linking the Formation of the Framework to Its Actual Effects

Ultimately, the frameworks on the ASEAN digital economy must be reflected in the actual policies implemented by AMS and contribute to businesses and livelihoods. While individual AMS initiatives are beyond the scope of this analysis, this book will only point out the importance of having this perspective in the following examples.

Singapore published *Guidance for Use of ASEAN Model Contractual Clauses for Cross Border Data Flows in Singapore*, in line with *ASEAN Model Contractual Clauses for Cross Border Data Flow* in 2021. The ASEAN clauses include provisions on data protection, data security, and data processing, which can be used by data exporters and importers to ensure the protection of personal data during cross-border transfers. These provisions are based on the principles of the *ASEAN Framework on Personal Data Protection*, which strengthens the protection of personal data in AMS and promotes cooperation amongst the participants in the framework (ASEAN, 2016a). The framework contains provisions on cross-border data flows and recommends that overseas transfers should either obtain the consent of the individual or take reasonable steps to ensure that the organisation to which the data are transferred protects personal data consistent with these principles. This can be achieved through contractual arrangements such as standard contractual clauses or binding corporate rules.

The guidance recommends the use of the ASEAN model contractual clauses as the basis for cross-border transfers, with the following clarifications and amendments to Singapore's personal data protection legislation:

- (i) The definition of the data subject now includes the personal data of the deceased.
- (ii) A time limit is established for notifying the source of the transfer in the event of a data breach.
- (iii) The data breach is not a breach of the data subject's right to privacy.
- (iv) An addendum of additional terms is not necessary in relation to Singapore law.

The ASEAN model contractual clauses do not promise anything that will immediately change national legislation. In fact, few AMS have explicitly indicated contracts as a requirement to be met when transferring personal data out of the country. However, it is possible that such an ASEAN initiative – and Singapore's initiative – will influence cross-border business practices in each AMS and subsequently positively impact AMS legal systems. The adoption of such model clauses may lead to reduced negotiation and compliance costs and increase time efficiency while protecting personal data during cross-border transfers (Wang and Cao, 2021).

Another example is the ASW. The ASW implementation process has been in place since it was agreed at the 9<sup>th</sup> ASEAN Summit in October 2003. Its implementation, national agreement, and implementation took a long time. The Indonesian National Single Window (INSW) has been operational since 2007 and is an institution formed through the encouragement of ASW. The ASW Steering Committee reported on the success of the ASW trial through a coalition approach between Indonesia and Malaysia, and the system was planned to be expanded to other AMS. However, it was not until early 2018 that the implementation of the e-certificate of origin Form D was officially declared within the ASW framework.

It was realised that the implementation of NSWs would be challenging, but at the same time, it was envisaged that the greatest benefit would come from introducing NSWs as part of the process towards the ASW, rather than from introducing the ASW itself (ADB and ADBI, 2015). Officials stated that the main constraints were institutional rather than technical. A strong national lead agency needed to coordinate and consult with stakeholders, and a high level of government support was required. The effectiveness of an NSW is often illustrated by Viet Nam. Its NSW, which has been fully deployed at Noi Bai International Airport, has significantly reduced customs clearance times from 3–6 hours to less than 10 minutes (Thuy, 2020).

The introduction of e-certificate of origin Form D is a major step forwards in improving trade facilitation and facilitating logistics within the ASEAN region, as well as reducing costs incurred during the import and export process. As discussed in Chapter 4, by the end of 2019, all had joined ASW live operations. Business actors are able to exchange certificate of origin data electronically through the e-form D scheme, which allows acceleration of the issuance of goods, reduction of the number of manual/hard copy documents, and acceleration of the availability of goods on the market. In addition, as mentioned above, extensions are planned, including the future exchange of trade-related documents such as the ASEAN Customs Declaration Document, e-phytosanitary certificates, and e-animal health certificates through the ASW. Linkages with dialogue partners are also proposed, but these will take time to be realised. At the same time, however, it is a good example of how ASEAN has and will continue to tackle difficult and important issues over time.

## 6. Conclusions and Key Recommendations

Since the adoption of *ASEAN Vision 2020* in 1997, digital integration has evolved as a key ASEAN initiative. ASEAN has developed various documents in support, including frameworks, roadmaps, agreements, master plans, work plans, and action plans. The *e-ASEAN Framework Agreement* in 2000 was one of the first documents to facilitate the liberalisation of trade in ICT products and to promote the growth of e-commerce. The *AEC Blueprint* in 2007 initiated the formation of an economic community and was succeeded by the *AEC Blueprint 2025* in 2015. The *ICT Masterplan*, which initially concentrated on the ICT sector, was extended from the ICT sector to the digital economy sector with the 2015 revision and the *ASEAN Digital Masterplan 2025* in 2021. Also, after the establishment in 2016, the ACCEC under the guidance of SEOM led the way in issuing framework documents on digital integration. The nature of the digital economy, which goes beyond ICT to include the wider digitalised economy across which digital transformation spans, has meant that convergence and collaboration between the ICT sector and ICT-enabled economic sector has been essential.

One of the conclusions is that ASEAN efforts towards digital integration cannot be understood solely in terms of specific documents. The five post-2019 key documents – the DIFAP, ACRF, ADM 2025, BSBR, and *Work Plan for AAEC* – comprehensively shape ASEAN's current efforts in digital integration. Of these, the DIFAP has the broadest scope.

ASEAN's digital integration has been treated in a more integrated manner, with new and important concepts added, and steady action is being taken on each topic. It includes the objectives of enhancing interoperability amongst AMS; developing infrastructure within each AMS; accelerating digital innovation; developing human resources; supporting new AMS through capacity building; and contributing to existing industries, livelihoods, and the growth of nations. Some initiatives, such as the ASW, have been ongoing as part of ASEAN economic integration, but their importance in digital integration has only been recognised recently. The concept of ASEAN's digital integration has also expanded into new areas such as cross-border transfer of information by electronic means, location of computing facilities, and cybersecurity. In addition, unique initiatives such as an interoperable QR code framework are being discussed to promote interoperability amongst AMS. The BSBR used 'digital economy integration' in its title, while ASEAN digital integration has already become synonymous with digital economy integration. Moreover, going back to the traditional definition that ICT does not include e-commerce but the digital economy, it could be argued that integration of the digital economy sector was envisaged as a concept at the time of the *e-ASEAN Framework Agreement* in 2000.

The next milestone is the establishment of the DEFA and the Post-2025 Agenda. ASEAN's digital integration is expanding and changing as technology advances and spreads and will continue to evolve and to change with the DEFA, Post-2025 Agenda, and various individual frameworks. ASEAN has combined legally binding agreements and protocols with non-binding framework documents to maintain flexibility and effectiveness, and this trend will continue to be a strength.

ASEAN is still in the early stages of developing a digital economy, and each AMS is at a different level of readiness for digital economy integration. Some AMS need additional support to implement digital economy initiatives. As elements to be discussed in the DEFA and Post-2025 Agenda, this book discussed e-invoicing, competition policy, submarine cables, data localisation, data innovation, open government data, source code, digital identity, AI, and FinTech. These have already been discussed in the ASEAN framework document and are expected to accelerate catch-up. The ACCED, which has been renamed from ACCEC, stated that the digital economy is its jurisdiction and will also play a decisive leading role in future digital integration. Financial inclusion and digital inclusion, on the other hand, currently have no clear relationship with the ACCED, and therefore the ACCED's scope needs to be expanded and its coordination capacity strengthened. The book highlights the importance of developing digital infrastructure in ASEAN to support the growth of the digital economy and to ensure that all AMS can benefit from digital integration. Despite ongoing efforts, there are still significant gaps in digital infrastructure, such as broadband speed and cost issues.

The following are the key policy recommendations:

**Establish a common understanding of ASEAN's digital integration.** Digital integration is defined differently in various documents. While the scope of digitalisation can be extended to virtually all human activities, the scope of ASEAN digital integration needs to be defined and shared with relevant sectoral bodies. This should be determined in terms of what kind of digital integration can maximise ASEAN's strengths and uniqueness, thus this digital integration will be region-specific. It also needs to be recognised that this definition and scope will change as technology changes and spills over into people's lives.

**Accelerate towards the DEFA and Post-2025 Agenda.** The conclusion and signing of the DEFA will be the next milestone. The BSBR states that negotiations on the DEFA would commence by 2025, and the Chairman's Statement of the 40<sup>th</sup> and 41<sup>st</sup> ASEAN Summit in 2022 changed the date for the commencement of negotiations on the DEFA to 'as soon as'. This means that it is now more likely that the DEFA can be signed before 2025. In this case, there will be two milestones: the DEFA and the Post-2025 Agenda. The Post-2025 Agenda envisages the succession of the ADM as well as ASEAN community blueprints and MPAC. In this context, it is vital that elements such as those addressed in Chapter 5 are incorporated at a high level to accelerate digital integration. Moreover, it is crucial that ASEAN develops an action plan for the DEFA, like the *Work Plan for AAEC*, to ensure effective implementation and progress towards digital integration goals.

**Strengthen the ACCED.** Since the establishment of the ACCEC in 2016, there have been many ACCEC-led developments in digital integration. Going forwards, the ACCED, which was renamed from the ACCEC, will continue to lead digital integration in ASEAN. The ACCED's scope should be expanded to financial inclusion and digital inclusion issues. It should also encompass more cross-cutting issues and strengthen its coordination capacity to streamline issue identification and implementation capabilities. Coordination ranges from setting and disseminating the common understandings mentioned above and optimising the actions, enhancing the monitoring function, and strengthening the communication strategy described below.

**Redefine the DIFAP.** The analysis of the five overarching framework documents in 2019–2021 reveals that the DIFAP has the broadest scope. Meanwhile, the new documents make the DIFAP actions more specific. To ensure effective coordination and progress towards digital integration goals, current initiatives in the five framework documents should be consolidated and optimised. This could be done through a work plan for the above-mentioned DEFA. At the same time, it is essential that the next ADM retains its future-oriented characteristics but has a scope as broad as the revised DIFAP, with ACCED input.

**Update ADII surveys.** A monitoring function is essential for optimising resources and achieving maximum impact. The ADII is the best tool for understanding the status of digital integration and is useful for identifying gaps within ASEAN and East Asia. The ADII should be carried out on a regular basis as per its stated aim. Updating the ADII survey will help understand the economic and sociological effects of digital integration along with implications, which is important for ASEAN policymakers and governments. Meanwhile, in compiling the index, the ADII only uses data published by third parties that have a clear methodology, are readily available, and regularly published (USAID and ASEAN Connect, 2021). Therefore, it cannot be used to monitor the effectiveness of actions in the DIFAP or other ASEAN frameworks. In addition to outcome-based surveys such as the ADII, there is a need for output-based surveys to monitor the current state of legal and institutional arrangements in each AMS.

**Recognise the importance of data in the digital economy.** The digital economy is data-driven. Data innovation and open government data are key topics in the DEFA and Post-2025 Agenda. These elements, which are in Singapore's DEAs, highlight the significance of addressing the challenges associated with enhancing data usability while protecting personal data. Exploring the balance between data protection and utilisation is crucial to seizing opportunities in the data-driven world. At the same time, data biases and prejudices must be addressed, and ethical aspects must be taken into account. To address this issue, the ADII's 'Pillar 2: Data Protection and Cyber Security' should include aspects of promoting data utilisation.

**Continue to develop ASEAN digital infrastructure.** It is important to support the growth of the digital economy and to ensure that all AMS and people can benefit from digital integration. This includes addressing disparities in digital infrastructure, such as broadband speed and cost issues. AMS have been delivering significantly faster mobile data transmission speeds for many years. Yet while leading countries in the region have achieved greater speed gains, gaps between AMS still exist. While the development and diffusion of mobile communications has given rise to the development of e-commerce, online delivery services, and ridesharing, faster speeds are needed for technological innovations such as data innovation. In addition, the number of internet users is growing rapidly but leaves room for further growth. It will be necessary to encourage technical and market competition between fixed wireless access, satellite broadband, and mobile data services to achieve universal service and last-mile connectivity (ASEAN, 2021b).

**Conduct regular consultations with users.** The ASEAN framework documents, whether binding or non-binding, should always be seen from the perspective that they will ultimately be reflected in AMS policies. To this end, ASEAN should conduct regular consultations with users, including MSMEs, digital start-ups, and consumers, to ensure that their perspectives are included in the development of digital integration policies. Policymakers can better design and implement policies that are more responsive to user demands by understanding user wants and preferences through the lens of the user. Involving users and stakeholders in the creation of policies that affect them can also contribute to the building of trust in the policymaking process.



**Develop a communications strategy.** ASEAN should develop a communications strategy to raise awareness of the benefits of digital integration. This should include providing information on how digital integration efforts have contributed to real businesses and people's lives. A focus on improving women's participation in the digital economy could also be a step towards changing attitudes. A communication strategy will also help establish a common regional understanding in the policy responses needed to make the most of digital for 2025 and beyond. If there is a consensus on the significance of intellectual property rights protection, consumer protection, connectivity, and e-payments, regional cooperation will greatly boost the region's digital trade, as well as the digital economy itself. In addition, it is important to communicate ASEAN advancements in digital integration to dialogue partners and the world. A uniqueness of ASEAN's digital integration is that the scope of ASEAN efforts is, in part, broader than the most advanced DEAs. Identifying ASEAN specific strengths and constraints will be helpful in working with dialogue partners. As well as informing dialogue partners of ASEAN's assistance needs, dialogue partners can also learn from ASEAN.

These key policy recommendations are only those that have been derived from this analysis in terms of accelerating ASEAN's digital integration. ASEAN will be required to implement all actions in the five framework documents discussed in Section 4.2 and the Appendix, including those actions in data protection, personal data protection, cybersecurity, digital education and skills development, and SME digitalisation.

In this book, all documents and discussions observed were within ASEAN, which means that the scale and extent of digital integration in regions and countries outside of ASEAN were not taken into account. Therefore, future research may need to extend beyond ASEAN to obtain more comprehensive results that would be useful for research, analysis, and development of digital integration. It may be helpful for future research to examine the efforts of the World Trade Organization and international forums in digital integration since they play a crucial role in shaping the rules and regulations governing digital trade and the digital economy. Those national initiatives within AMS could also provide emerging issues for further research, but this study does not discuss such initiatives except in the context of linking the framework formation to actual effects. Furthermore, even if limited to ASEAN digital integration documents, several documents involve dialogue partners and international organisations in their formulation, while this study does not make sufficient reference to the forms and patterns of cooperation with other organisations. Limitations indicate a need for further research beyond the scope of ASEAN and a need to consider the efforts of other institutions in promoting digital integration policies and regulations.

In conclusion, through its initiatives, ASEAN is not only one of the fastest-growing economies in the world but has also established itself as one of the fastest-growing regions in the world in terms of internet markets and digital economy (ASEAN, 2021e). This study clearly indicates that ASEAN efforts have accelerated in recent years. Despite facing various challenges, ASEAN has demonstrated its ability to identify challenges. As 2025 approaches – a critical year for both the community and digital integration – it is imperative that ASEAN takes proactive steps to expedite digital integration and to fully realise the potential of the digital economy.

## References

- Abidi, N., M. El Herradi, and S. Sakha (2023), 'Digitalization and Resilience during the COVID-19 Pandemic', *Telecommunications Policy*, 4(47), 102522, <https://doi.org/10.1016/j.telpol.2023.102522>
- Al-Khatib, A.W. (2022), 'Can Big Data Analytics Capabilities Promote a Competitive Advantage? Green Radical Innovation, Green Incremental Innovation and Data-Driven Culture in a Moderated Mediation Model', *Business Process Management Journal*, 28(4), pp.1025–46, <https://doi.org/10.1108/BPMJ-05-2022-0212>
- Alliance for Affordable Internet (A4AI) (2021), *Affordability Report 2021: A New Strategy for Universal Access*, Washington, DC, [https://a4ai.org/wp-content/uploads/2021/12/A4AI\\_2021\\_AR\\_AW.pdf](https://a4ai.org/wp-content/uploads/2021/12/A4AI_2021_AR_AW.pdf)
- The Asia Foundation and Google.org (2020), 'GO Digital Asia: Digital Skills to Address the Economic Impact of COVID-19 Project', *Factsheets*, June, <https://asiafoundation.org/wp-content/uploads/2020/06/Factsheet-Go-Digital-ASEAN-as-of-19-June-2020.pdf>
- Asian Development Bank (ADB) (2021), *Capturing the Digital Economy—A Proposed Measurement Framework and Its Applications: A Special Supplement to Key Indicators for Asia and the Pacific 2021*, Manila, <https://doi.org/10.22617/FLS210307-3>
- ADB and Asian Development Bank Institute (ADBI) (2015), *Connecting South Asia and Southeast Asia*, Tokyo: ADBI, <https://www.adb.org/sites/default/files/publication/159083/adbi-connecting-south-asia-southeast-asia.pdf>
- Association of Southeast Asian Nations (ASEAN) (1997), *ASEAN Vision 2020*, <https://asean.org/asean-vision-2020/>
- (1998), *Ha Noi Plan of Action*, <https://asean.org/hanoi-plan-of-action/>
- (2000), *e-ASEAN Framework Agreement*, <https://agreement.asean.org/media/download/20140119121135.pdf>
- (2001), *Ministerial Understanding on ASEAN Cooperation in Telecommunications and Information Technology*, <https://www.lawforasean.krisdika.go.th/File/files/1496220748.5a0ef10ecaf3dd12187a223c69b5f2c3.pdf>
- (2003), *Declaration of ASEAN Concord II (Bali Concord II)*, <https://asean.org/speechandstatement/declaration-of-asean-concord-ii-bali-concord-ii/>
- (2004a), *Roadmap for Integration of e-ASEAN Sector*, <https://asean.org/wp-content/uploads/2012/05/19426.pdf>
- (2004b), *Vientiane Action Programme*, <https://asean.org/wp-content/uploads/images/archive/VAP-10th%20ASEAN%20Summit.pdf>
- (2006), *Brunei Action Plan 'Enhancing ICT Competitiveness: Capacity Building'*, <https://asean.org/brunei-action-plan-enhancing-ict-competitiveness-capacity-building/>

- (2007), *ASEAN Economic Community Blueprint*, Jakarta, <https://www.asean.org/wp-content/uploads/images/archive/5187-10.pdf>
- (2009), *ASEAN Socio-Cultural Community Blueprint*, Jakarta, <https://asean.org/wp-content/uploads/images/archive/5187-19.pdf>
- (2011a), *Master Plan on ASEAN Connectivity*, Jakarta, <https://asean.org/wp-content/uploads/2021/08/Master-Plan-on-ASEAN-Connectivity.pdf>
- (2011b), *Memorandum of Understanding on the Implementation of the ASEAN Single Window Pilot Project*, <https://asean.org/wp-content/uploads/2020/12/Memorandum-of-Understanding-on-the-Implementation-of-the-ASEAN-Single-Window-Pilot-Project-1.pdf>
- (2012b), *ASEAN Sectoral Integration Protocol for e-ASEAN*, <https://asean.org/asean-sectoral-integration-protocol-for-e-asean/>
- (2015a), *ASEAN Economic Community Blueprint 2025*, Jakarta, [https://asean.org/wp-content/uploads/2021/08/AECBP\\_2025r\\_FINAL.pdf](https://asean.org/wp-content/uploads/2021/08/AECBP_2025r_FINAL.pdf)
- (2015b), *ASEAN ICT Masterplan 2015 Completion Report*, Jakarta, <http://103.58.148.245/wp-content/uploads/2018/04/ASEANICTCompletionReport.pdf>
- (2015c), *Protocol on the Legal Framework to Implement the ASEAN Single Window*, <https://agreement.asean.org/media/download/20150915020056.pdf>
- (2016a), *ASEAN Framework on Personal Data Protection*, <https://asean.org/wp-content/uploads/2012/05/10-ASEAN-Framework-on-PDP.pdf>
- (2016b), *Master Plan on ASEAN Connectivity 2025*, Jakarta, <https://asean.org/wp-content/uploads/2018/01/47.-December-2017-MPAC2025-2nd-Reprint-1-1.pdf>
- (2016c), *The ASEAN ICT Masterplan 2020*, [https://asean.org/wp-content/uploads/images/2015/November/ICT/15b%20--%20AIM%202020\\_Publication\\_Final.pdf](https://asean.org/wp-content/uploads/images/2015/November/ICT/15b%20--%20AIM%202020_Publication_Final.pdf)
- (2017a), *ASEAN Economic Community 2025 Consolidated Strategic Action Plan*, <https://asean.org/wp-content/uploads/2012/05/Consolidated-Strategic-Action-Plan-endorsed-060217.rev.pdf>
- (2017b), *ASEAN Work Programme on Electronic Commerce*, [https://asean.org/wp-content/uploads/2021/09/ASEAN-Work-Programme-on-Electronic-Commerce\\_published.pdf](https://asean.org/wp-content/uploads/2021/09/ASEAN-Work-Programme-on-Electronic-Commerce_published.pdf)
- (2018a), *ASEAN Digital Integration Framework*, <https://asean.org/wp-content/uploads/2020/12/Adopted-ASEAN-Digital-Integration-Framework.pdf>
- (2018b), *ASEAN Smart Cities Framework*, <https://asean.org/wp-content/uploads/2019/02/ASCN-ASEAN-Smart-Cities-Framework.pdf>
- (2018c). *Framework on Digital Data Governance*. [https://asean.org/wp-content/uploads/2012/05/6B-ASEAN-Framework-on-Digital-Data-Governance\\_Endorsedv1.pdf](https://asean.org/wp-content/uploads/2012/05/6B-ASEAN-Framework-on-Digital-Data-Governance_Endorsedv1.pdf)
- (2019a), *ASEAN Agreement on Electronic Commerce*, <https://agreement.asean.org/media/download/20190306035048.pdf>
- (2019b), *ASEAN Digital Integration Framework Action Plan (DIFAP) 2019–2025*, [https://asean.org/wp-content/uploads/2018/02/AECC18-ASEAN-DIFAP\\_Endorsed.pdf](https://asean.org/wp-content/uploads/2018/02/AECC18-ASEAN-DIFAP_Endorsed.pdf)

- (2020a), *ASEAN Comprehensive Recovery Framework*, [https://asean.org/wp-content/uploads/2021/08/ACRF-Implementation-Plan\\_Pub-2020.pdf](https://asean.org/wp-content/uploads/2021/08/ACRF-Implementation-Plan_Pub-2020.pdf)
- (2020b), *Final Review of ASEAN ICT Masterplan 2020*, [https://asean.org/wp-content/uploads/2021/02/V4.-Final-Draft\\_-\\_AIM2020\\_Review\\_Final\\_Draft\\_19Nov2020.pdf](https://asean.org/wp-content/uploads/2021/02/V4.-Final-Draft_-_AIM2020_Review_Final_Draft_19Nov2020.pdf)
- (2020c), *Review of IAI Work Plan III and the Monitoring Reporting, and Evaluation (MRE) System*, <https://asean.org/wp-content/uploads/2021/12/Review-of-IAI-Work-Plan-III-and-the-Monitoring.pdf>
- (2021a), *ASEAN Data Management Framework*, [https://asean.org/wp-content/uploads/2-ASEAN-Data-Management-Framework\\_Final.pdf](https://asean.org/wp-content/uploads/2-ASEAN-Data-Management-Framework_Final.pdf)
- (2021b), *ASEAN Digital Masterplan 2025*, Jakarta, <https://asean.org/wp-content/uploads/2021/08/ASEAN-Digital-Masterplan-2025.pdf>
- (2021c), *ASEAN Leaders' Statement on Advancing Digital Transformation in ASEAN*, <https://asean.org/wp-content/uploads/2021/10/7.-ASEAN-Leaders-Statement-on-Digital-Transformation.pdf>
- (2021d), *Consolidated Strategy on the Fourth Industrial Revolution for ASEAN*, Jakarta, <https://asean.org/wp-content/uploads/2021/10/6.-Consolidated-Strategy-on-the-4IR-for-ASEAN.pdf>
- (2021e), *The Bandar Seri Begawan Roadmap: An ASEAN Digital Transformation Agenda to Accelerate ASEAN'S Economic Recovery and Digital Economy Integration*, [https://asean.org/wp-content/uploads/2021/10/Bandar-Seri-Begawan-Roadmap-on-ASEAN-Digital-Transformation-Agenda\\_Endorsed.pdf](https://asean.org/wp-content/uploads/2021/10/Bandar-Seri-Begawan-Roadmap-on-ASEAN-Digital-Transformation-Agenda_Endorsed.pdf)
- (2021f), *Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce*, [https://asean.org/wp-content/uploads/2022/03/Work-Plan-E-commerce-Agreement\\_endorsed\\_logo.pdf](https://asean.org/wp-content/uploads/2022/03/Work-Plan-E-commerce-Agreement_endorsed_logo.pdf)
- (2022a), 'ASEAN, Canada Remain Committed to Enhance Their Long-Standing Partnership for Mutual Benefit', press release, 28 March, <https://asean.org/asean-canada-remain-committed-to-enhance-their-long-standing-partnership-for-mutual-benefit/>
- (2022b), Chairman's Statement of the 40th and 41st ASEAN Summits. <https://asean.org/wp-content/uploads/2022/11/01-Chairmans-Statement-of-the-40th-and-41st-ASEAN-Summits-rev.pdf>
- (2023), 'ASEAN Legal Instruments', <https://agreement.asean.org/>
- Bain & Company (2018), *Advancing towards ASEAN Digital Integration: Empowering SMEs to Build ASEAN's Digital Future*, [https://www.bain.com/contentassets/37a730c1f0494b7b8dac3002fde0a900/report\\_advancing\\_towards\\_asean\\_digital\\_integration.pdf](https://www.bain.com/contentassets/37a730c1f0494b7b8dac3002fde0a900/report_advancing_towards_asean_digital_integration.pdf)
- Baldwin, R. (2011), '21st Century Regionalism: Filling the Gap between 21st Century Trade and 20th Century Trade Rules', *World Trade Organization (WTO) Staff Working Papers*, No. ERSD-2011-08, Geneva: WTO, [https://www.wto.org/english/res\\_e/reser\\_e/ersd201108\\_e.pdf](https://www.wto.org/english/res_e/reser_e/ersd201108_e.pdf)
- Baldwin, R. (2016), *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: Belknap Press.
- Banna, H. and M.R. Alam (2021), 'Impact of Digital Financial Inclusion on ASEAN Banking Stability: Implications for the Post-COVID-19 Era', *Studies in Economics and Finance*, 38(2), pp.504–23, <https://doi.org/10.1108/SEF-09-2020-0388>

- Basaev, Z.V. (2019), 'The Digitalisation of the Economy: Russia in the Context of Global Transformation', *The World of New Economy*, 12(4), pp.32–8, <https://doi.org/10.26794/2220-6469-2018-12-4-32-38>
- Bazarhanova, A. and K. Smolander (2020), 'The Review of Non-Technical Assumptions in Digital Identity Architectures', *Proceedings of the 53rd Hawaii International Conference on System Sciences*, pp.6407–6417, <https://hdl.handle.net/10125/64527>
- Bellon, M., J. Chang, E. Dabla-Norris, S. Khalid, F. Lima, E. Rojas, and P. Villena (2019), 'Digitalization to Improve Tax Compliance: Evidence from VAT e-Invoicing in Peru', *IMF Working Paper* WP/19/231.
- Bhatti, S.H. et al. (2022), 'Big Data Analytics Capabilities and MSME Innovation and Performance: A Double Mediation Model of Digital Platform and Network Capabilities', *Annals of Operations Research*, <https://doi.org/10.1007/s10479-022-05002-w>
- Bliedy, D., S. Mazen, and E. Ezzat (2018), 'Cost Model for Establishing a Data Center. International Journal of Computer Science', *Engineering and Applications*, 8(2/3/4), pp.11–30. <https://doi.org/10.5121/ijcsea.2018.8402>
- Bouncken, R.B., S. Kraus, and N. Roig-Tierno (2021), 'Knowledge- and Innovation-Based Business Models for Future Growth: Digitalized Business Models and Portfolio Considerations', *Review of Managerial Science*, 15(1), pp.1–14, <https://doi.org/10.1007/s11846-019-00366-z>
- Bukht, R. and R. Heeks (2017), 'Defining, Conceptualising and Measuring the Digital Economy', *Development Informatics Working Papers*, No. 68, Manchester, UK: University of Manchester, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3431732](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3431732)
- Casado-Aranda, L.A., F. Liébana-Cabanillas, and J. Sánchez-Fernández (2018), 'A Neuropsychological Study on How Consumers Process Risky and Secure E-Payments', *Journal of Interactive Marketing*, 43(1), pp.151–64, <https://doi.org/10.1016/j.intmar.2018.03.001>
- Cashmore, A. and N. Crosta (2022), 'Technology and Disability: Trends and Opportunities in the Digital Economy in ASEAN', *Economic Research Institute for ASEAN and East Asia (ERIA) Research Project Reports*, No. 14, Jakarta: ERIA.
- Chen, Z. (2007), 'A Scenario for Identity Management in Daidalos', paper presented at the Fifth Annual Conference on Communication Networks and Services Research, Fredericton, New Brunswick, Canada, 14–17 May, <https://doi.org/https://doi.org/10.1109/CNSR.2007.6>
- Chia, S.Y. (2016), 'ASEAN Economic Integration and Physical Connectivity', *Asian Economic Papers*, 15(2), pp.198–215, [https://doi.org/10.1162/ASEP\\_a\\_00438](https://doi.org/10.1162/ASEP_a_00438)
- Chung, J. (2014), 'Philippine Internet Slowest in ASEAN', 29 Jul, *Korea Herald*, <https://www.koreaherald.com/view.php?ud=20140729000465>
- Cong, L.W., X. Yang, and X. Zhang (2021), 'SMEs amidst the Pandemic and Reopening: Digital Edge and Transformation', *The SC Johnson College of Business Applied Economics Working Papers*, <https://thedocs.worldbank.org/en/doc/d7ae353de7f8ca67f9f9d794caa14711-0050022022/original/SMEs-Amidst-the-Pandemic-and-Reopening.pdf>
- Corning, G.P. (2022), 'ASEAN and the Regime Complex for Digital Trade in the Asia-Pacific', *Journal of World Trade*, 56(6), pp.915–38, <https://doi.org/10.54648/TRAD2022038>

- Dessemond, E. G. (2019), 'Restoring competition in "winner-took-all" digital platform markets', UNCTAD *Research Paper* No.40, [https://unctad.org/system/files/official-document/ser-rp-2019d12\\_en.pdf](https://unctad.org/system/files/official-document/ser-rp-2019d12_en.pdf)
- Economic Research Institute for ASEAN and East Asia (ERIA) (2019), *Study on MSMEs Participation in the Digital Economy in ASEAN: Nurturing ASEAN MSMEs to Embrace Digital Adoption*, Jakarta, <https://www.eria.org/uploads/media/Books/2019-October-ERIA-ASEAN-Study-On-MSMEs-Participation.pdf>
- (2022), *The Comprehensive Asia Development Plan 3.0 (CADP 3.0): Towards Integrated, Innovative, Inclusive, and Sustainable Economy*, Jakarta, <https://www.eria.org/uploads/media/Books/2022-CADP-3/CADP-3.0-full-report-new3.pdf>
- European Union (EU) (2021), 'ASEAN and EU Work Together towards Establishing an ASEAN Digital Index', press release, 24 May, [https://www.eeas.europa.eu/eeas/asean-and-eu-work-together-towards-establishing-asean-digital-index\\_en](https://www.eeas.europa.eu/eeas/asean-and-eu-work-together-towards-establishing-asean-digital-index_en)
- G20 Digital Economy Task Force (2016), G20 Digital Economy Development and Cooperation Initiative. <https://www.mofa.go.jp/files/000185874.pdf>
- Gagliardi, J. P., A. Ruiz, and J. Renaud (2008), 'Space Allocation and Stock Replenishment Synchronization in a Distribution Center', *International Journal of Production Economics*, 115(1), pp.19–27. <https://doi.org/10.1016/j.ijpe.2008.04.006>
- Gilani, K., E. Bertin, J. Hatin, and N. Crespi (2020), 'A Survey on Blockchain-Based Identity Management and Decentralized Privacy for Personal Data', paper presented at the *2nd Conference on Blockchain Research and Applications for Innovative Networks and Services (BRAINS)*, Paris, 28–30 September.
- Gojek (2023), 'GoFood Terms of Use', <https://www.gojek.com/en-id/terms-and-condition/gofood/>
- Goodman, M.P. and M. Wayland (2022), *Securing Asia's Subsea Network*. [bit.ly/3nL07Tb](https://bit.ly/3nL07Tb)
- Google, Temasek, and Bain & Company (2021). *e-Economy SEA 2021 — Roaring 20s: The SEA Digital Decade*, [https://www.bain.com/globalassets/noindex/2021/e\\_economy\\_sea\\_2021\\_report.pdf](https://www.bain.com/globalassets/noindex/2021/e_economy_sea_2021_report.pdf)
- (2022), *e-Economy SEA 2022 — Through the Waves, Towards a Sea of Opportunity*, [https://www.temasek.com.sg/content/dam/temasek-corporate/news-and-views/resources/reports/e\\_Economy\\_SEA\\_2022\\_report.pdf](https://www.temasek.com.sg/content/dam/temasek-corporate/news-and-views/resources/reports/e_Economy_SEA_2022_report.pdf)
- Haini, H. (2021), 'Examining the Impact of ICT, Human Capital and Carbon Emissions: Evidence from the ASEAN Economies', *International Economics*, 166, pp.116–25, <https://doi.org/10.1016/j.inteco.2021.03.003>
- Halaweh, M. (2017), 'Intention to Adopt the Cash on Delivery (COD) Payment Model for E-Commerce Transactions: An Empirical Study', paper presented at the 16th IFIP TC8 International Conference, Bialystok, Poland, 16–18 June, [https://doi.org/10.1007/978-3-319-59105-6\\_54](https://doi.org/10.1007/978-3-319-59105-6_54)
- Hapsari, I. (2018), 'Moderating Role of Size in the Effect of Loan to Deposit Ratio and Non Performing Loan toward Banking Financial Performance', paper presented at the 5th International Conference on Community Development, Quezon City, Philippines, 19–20 July.
- Huang, B., W. Liu, T. Wang, X. Li, H. Song, and A. Liu (2019), 'Deployment Optimization of Data Centers in Vehicular Networks', *IEEE Access*, 7, pp.20644–63. <https://doi.org/10.1109/ACCESS.2019.2897615>
- Huawei and Oxford Economics (2017), *Digital Spillover: Measuring the True Impact of the Digital Economy*, <https://www.huawei.com/minisite/gci/en/digital-spillover/index.html>

- Indira, A. and B. Kusumasari (2020), 'Boosting Logistics in Indonesia and Vietnam through Staged Development of the Single Window System: A Government Innovation', *Public Policy and Administration*, 19(4), pp.92–113, <https://doi.org/10.13165/VPA-20-19-4-07>
- Intentilia, A.A.M., P.E. Haes, and G. Suardana (2022), 'Utilizing Digital Platforms for Diplomacy in ASEAN: A Preliminary Overview', *COMMUSTY Journal of Communication Studies and Society*, 1(1), pp.1–7. <https://doi.org/10.38043/commusty.v1i1.3685>
- International Telecommunication Union (ITU), Economic Impact of Broadband, Digitization and ICT Regulation, <https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Economic-Contribution.aspx>
- (2022), *The Affordability of ICT Services 2021*, Geneva, [https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2021/ITU\\_A4AI\\_Price\\_Brief\\_2021.pdf](https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2021/ITU_A4AI_Price_Brief_2021.pdf)
- Ismail, A.F.M.F. et al. (2022), 'Artificial Intelligence in Healthcare Business Ecosystem: A Bibliometric Study', *International Journal of Online and Biomedical Engineering*, 18(9), pp.100–14, <https://doi.org/10.3991/ijoe.v18i09.32251>
- Jovanović, M., J. Dlačić, and M. Okanović (2018), 'Digitalization and Society's Sustainable Development – Measures and Implications', *Zbornik Radova Ekonomskog Fakultet Au Rijeci*, 36(2), pp.905–28, <https://doi.org/10.18045/zbefri.2018.2.905>
- Jugurnath, B., P. Hemshika, and S. Štraupaitė (2023), 'Fintech Challenges and Opportunities in Banking', *Journal of Management*, 39(1), pp.47–57, <https://doi.org/10.38104/vadyba.2023.1.05>
- Khan, N., M.I. Qureshi, H. Ahmad, and N.H. Al-Kumaim (2020), 'A Systematic Review on Emergence of Digital Marketing in ASEAN Region', *Journal of Computational and Theoretical Nanoscience*, 17(2), pp.570–82, <https://doi.org/10.1166/jctn.2020.8727>
- Kim, W.J. (2022), 'AI-Integrated Science Teaching through Facilitating Epistemic Discourse in the Classroom', *Asia-Pacific Science Education*, 8(1), pp.9–42, <https://doi.org/10.1163/23641177-bja10041>
- Kimura, F. (2018), 'Unbundlings and Development Strategies in ASEAN: Old Issues and New Challenges', *ERIA Discussion Paper Series*, No. 14, Jakarta: ERIA, <https://www.eria.org/uploads/media/ERIA-DP-2017-14.pdf>
- Knickrehm, M, B. Berthon, and P Daugherty (2016), *Digital disruption: The growth multiplier*, Accenture Strategy.
- Kusumastuti, A. and A. Nuryani (2020), 'Digital Literacy Levels in ASEAN (Comparative Study on ASEAN Countries)', paper presented at the 13th International Interdisciplinary Studies Seminar, Malang, Indonesia, 30–31 October, <https://doi.org/10.4108/eai.23-10-2019.2293047>
- Lane, N. (2019), 'Understanding the Digital Economy: Data, Tools, and Research', White House, [https://clintonwhitehouse4.archives.gov/WH/EOP/OSTP/html/99\\_6\\_9.html](https://clintonwhitehouse4.archives.gov/WH/EOP/OSTP/html/99_6_9.html)
- Lauriks, S. et al. (2007), 'Review of ICT-Based Services for Identified Unmet Needs in People with Dementia', *Ageing Research Reviews*, 6(3), pp.223–46, <https://doi.org/10.1016/j.arr.2007.07.002>
- Lee, M.H. et al. (2018), 'How to Respond to the Fourth Industrial Revolution, or the Second Information Technology Revolution? Dynamic New Combinations between Technology, Market, and Society through Open Innovation', *Journal of Open Innovation: Technology, Market, and Complexity*, 4(3). <https://doi.org/10.3390/joitmc4030021>

- Lima, A., M. Júnior, R. Nascimento, and F. Neto (2022), 'Digital Business Transformation Methodologies: A Quasi-systematic Review of Literature', *Annals of Computer Science and Information Systems*, 32, pp.217–21. <https://doi.org/10.15439/2022F29>
- Marsan, G.A. and A. Sey (2021), 'Women's Participation in the Digital Economy: Improving Access to Skills, Entrepreneurship, and Leadership Across ASEAN', ERIA Policy Brief 2020-09.
- Maebara, K., A. Yamaguchi, T. Suzuki, and A. Imai (2022), 'A Qualitative Study on the Function of Information and Communication Technology Utilization in Teaching Students with Intellectual Disabilities: Implications for Techniques of Teaching/Job Coaching', *Journal of Intellectual Disability-Diagnosis and Treatment*, 10(1), pp.13–20, <https://doi.org/10.6000/2292-2598.2022.10.01.2>
- Marcinkevicius, G. and M. Vilkas (2023), 'The Affordances of Digital Technologies for Business Processes Integration', *Journal of Systems and Information Technology*, 25(1), pp.74–90, <https://doi.org/10.1108/JSIT-06-2022-0149>
- Mendoza, X.L.D. and J.B. Tadeo (2023), 'Analysis of Micro, Small, Medium Enterprises: The Cases of Singapore, Malaysia, Philippines, Thailand and Vietnam', *Journal of Management, Economics, and Industrial Organization*, 7(1), pp.1–15, <https://doi.org/10.31039/jomeino.2023.7.1.1>
- Ministry of Trade and Industry, Singapore (2023), 'Digital Economy Agreements', <https://www.mti.gov.sg/Trade/Digital-Economy-Agreements>
- (2022), 'The UK–Singapore Digital Economy Agreement (UKSDEA)', <https://www.mti.gov.sg/Trade/Digital-Economy-Agreements/UKSDEA>
- (2020), 'Singapore-Australia Digital Economy Agreement', <https://www.mti.gov.sg/Trade/Digital-Economy-Agreements/The-Singapore-Australia-Digital-Economy-Agreement>
- Mirakyan, D.G. (2021), 'Digitalization Processes Development in ASEAN Regional Integration Association', *International Trade and Trade Policy*, 7(1), pp.101–12, <https://doi.org/https://doi.org/10.21686/2410-7395-2021-1-101-112>
- Mizan, N.S.M., M.Y. Ma'arif, N.S.M. Satar, and S.M. Shahar (2019), 'CNDS-Cybersecurity: Issues and Challenges in ASEAN Countries', *International Journal of Advanced Trends in Computer Science and Engineering*, 8(1.4 S1), pp.113–19, <https://doi.org/10.30534/ijatcse/2019/1781.42019>
- Mogaji, E., T.O. Soetan, and T.A. Kieu (2021), 'The Implications of Artificial Intelligence on the Digital Marketing of Financial Services to Vulnerable Customers', *Australasian Marketing Journal*, 29(3), pp.235–42, <https://doi.org/10.1016/j.ausmj.2020.05.003>
- Moretti, E. (2012), *The New Geography of Jobs*, New York: Harper Business.
- Mueller, L.M. (2019), 'ASEAN Centrality under Threat – The Cases of RCEP and Connectivity', *Journal of Contemporary East Asia Studies*, 8(2), pp.177–98, <https://doi.org/10.1080/24761028.2019.1691703>
- Najib, M. and F. Fahma (2020), 'Investigating the Adoption of Digital Payment System through an Extended Technology Acceptance Model: An Insight from the Indonesian Small and Medium Enterprises', *International Journal on Advanced Science Engineering and Information Technology*, 10(4), p.1702–8.
- Narmanov, U. (2021), 'Role and Importance of the Digital Economy in the Development of Innovative', *Linguistics and Culture Review*, 6(S1), pp.121–33, <https://doi.org/10.21744/lingcure.v6ns1.1957>



- Nengsi, F. (2019), 'Women's Participation in the Digital Economy in ASEAN', *Islamic World and Politics*, 3(1), pp.516–36.
- Nizam, R., Z.A. Karim, T. Sarmidi, and A.A. Rahman (2020), 'Financial Inclusion and Firms Growth in Manufacturing Sector: A Threshold Regression Analysis in Selected ASEAN Countries', *Economies*, 8(4), <https://doi.org/10.3390/ECONOMIES8040080>
- Ookla, Speedtest, <https://www.speedtest.net>
- Organisation for Economic Co-operation and Development (OECD) (2016), *Rebooting Public Service Delivery: How Can Open Government Data Help to Drive Innovation?* Paris, <https://www.oecd.org/gov/Rebooting-Public-Service-Delivery-How-can-Open-Government-Data-help-to-drive-Innovation.pdf>
- (2020), *A Roadmap toward a Common Framework for Measuring the Digital Economy*, Paris, <https://www.oecd.org/sti/roadmap-toward-a-common-framework-for-measuring-the-digital-economy.pdf>
- (2022), *Tax Administration 3.0 and the Digital Identification of Taxpayers: Initial Findings*, Paris, <https://www.oecd.org/tax/tax-administration-3-0-and-the-digital-identification-of-taxpayers-3ab1789a-en.htm#:~:text=This%20report%2C%20Tax%20Administration%203.0,related%20to%20cross%2Dborder%20processes.>
- Osinde, N.O., J.B. Byiringiro, M.M. Gichane, and H. Smajic (2019), 'Process Modelling of Geothermal Drilling System using Digital Twin for Real-time Monitoring and Control', *Designs*, 3(3), pp.1–12. <https://doi.org/10.3390/designs3030045>
- Paganelli, E. and A. Polzonetti (2007), 'The e-Government Digital Credentials', *International Journal of Electronic Governance*, 1(1), pp.17–37, <https://doi.org/10.1504/IJEG.2007.014341>
- Piccarozzi, M., B. Aquilani, and C. Gatti (2018), 'Industry 4.0 in Management Studies: A Systematic Literature Review', *Sustainability*, 10(10). <https://doi.org/10.3390/su10103821>
- Poel, K., W. Marneffe, and W. Vanlaer (2016), 'Assessing the Electronic Invoicing Potential for Private Sector Firms in Belgium', *International Journal of Digital Accounting Research*, 16, DOI:10.4192/1577-8517-v16\_1
- Polyakova, T.A. (2021), 'The Concept and Legal Nature of Digital Maturity', *Gosudarstvo i Pravo*, 9, p.107. <https://doi.org/10.31857/S102694520016732-6>
- Pratamasari, A. (2020), 'Cybersecurity and Custom Regulations as Trade Barriers in ASEAN e-Commerce: Case of Indonesian e-Commerce', *Global Strategis*, 14(1), <https://doi.org/https://doi.org/10.20473/jgs.14.1.2020.1-16>
- Purnama, Y.P. (2018), 'Fixed Broadband Penetration and Economic Growth', *Journal of Telecommunications and the Digital Economy*, 6(3), pp.1–16, <https://doi.org/10.18080/jtde.v6n3.151>
- Reale, F. (2021), 'Mission-Oriented Innovation Policy and the Challenge of Urgency: Lessons from Covid-19 and beyond', *Technovation*, 107, <https://doi.org/10.1016/j.technovation.2021.102306>
- Rocha, M. (2022), 'Policy Forum: How Canada Could Benefit from E-Invoicing for GST/HST Purposes', *Canadian Tax Journal*, 70(2), pp.361–73. <https://doi.org/https://doi.org/10.32721/ctj.2022.70.2.pf.rocha>
- Ruijter, E. and A. Meijer (2020), 'Open Government Data as an Innovation Process: Lessons from a Living Lab Experiment', *Public Performance and Management Review*, 43(3), pp.613–35, <https://doi.org/10.1080/15309576.2019.1568884>

- Salamova, A., L. Khatsieva, and K.U. Gishlakaeva (2021), 'Organization Management in the Digital Economy', paper presented at the 2nd Conference on Sustainable Development: Industrial Future of Territories, Yekaterinburg, 24 September.
- Sari, Y. (2023), 'Sharia e-Commerce in Indonesia: Sharia Peer to Peer Lending', *Review of Islamic Social Finance and Entrepreneurship (RISFE)*, 2(1), pp.90–102, <https://doi.org/10.20885/RISFE>
- Saunavaara, J. and M. Salminen (2023), 'Geography of the Global Submarine Fiber-Optic Cable Network: The Case for Arctic Ocean Solutions', *Geographical Review*, 113(1), pp.1–19. <https://doi.org/10.1080/00167428.2020.1773266>
- Sefrina, M. (2023), 'Understanding the ASEAN Digital Economy Framework Agreement: A Means to Support ASEAN Integration', *ERIA Policy Briefs*, No. 1, Jakarta: ERIA, <https://www.eria.org/uploads/media/policy-brief/FY2023/Understanding-the-ASEAN-Digital-Economy-Framework-Agreement.pdf>
- Setiawan, B., et al. (2021), 'User Innovativeness and Fintech Adoption in Indonesia', *Journal of Open Innovation: Technology, Market, and Complexity*, 7(3), p.188, <https://doi.org/10.3390/joitmc7030188>
- Sey, A. and S. Kingsley (2022), 'Women and Leadership in the ASEAN Digital Economy: Mapping the Rhetorical Landscape', *ERIA Discussion Paper Series*, No. 464, Jakarta: ERIA, <https://www.eria.org/uploads/media/discussion-papers/FY22/Women-and-Leadership-in-the-ASEAN-Digital-Economy-Mapping-the-Rhetorical-Landscape.pdf>
- Thuy, N. (2020), 'Vietnam applies automatic customs management system at Noi Bai Airport', Hanoi Times. <https://hanoitimes.vn/vietnam-applies-automatic-customs-management-system-at-noi-bai-airport-314372.html>
- Tong, S.Y., Y. Li, and T.Y. Kong (2021), 'Exploring Digital Economic Agreements to Promote Digital Connectivity in ASEAN', *ERIA Discussion Paper Series*, No. 24, Jakarta: ERIA, <https://www.eria.org/uploads/media/discussion-papers/ERIA-Research-on-COVID-19/Exploring-Digital-Economic-Agreements-to-Promote-Digital-Connectivity-in-ASEAN.pdf>
- Tran, L.Q.T., D.T. Phan, and M.T. Nguyen (2022), 'Digital Economy: A Comparative Study in ASEAN', *Theory, Methodology, Practice*, 18(2), pp.83–92, <https://doi.org/10.18096/tmp.2022.02.05>
- Troilo, G., L.M. De Luca, and P. Guenzi (2017), 'Linking Data-Rich Environments with Service Innovation in Incumbent Firms: A Conceptual Framework and Research Propositions', *Journal of Product Innovation Management*, 34(5), pp.617–39, <https://doi.org/10.1111/jpim.12395>
- Tsaples, G. and J. Papathanasiou (2022), 'Digital Transformation and Sustainable Development for Private and Public Organizations: Barriers and Opportunities', Conference paper on the 27th International Scientific Conference Strategic Management and Decision Support Systems in Strategic Management.

- United Nations Conference on Trade and Development (UNCTAD), (2017), *Information Economy Report 2017: Digitalization, Trade and Development*, Geneva, [https://unctad.org/system/files/official-document/ier2017\\_en.pdf](https://unctad.org/system/files/official-document/ier2017_en.pdf)
- (2022), *Digital Economy Report Pacific Edition 2022: Towards Value Creation and Inclusiveness*, Geneva, <https://unctad.org/publication/digital-economy-report-pacific-edition-2022>
- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), (2020), *Regional Integration for Sustainable Development in Asia and the Pacific: ESCAP Digital and Sustainable Regional Integration Index and Indicator Framework: DigiSRII 1.0*.
- United States Agency for International Development (USAID) and US-ASEAN Connect (2021), *ASEAN Digital Integration Index*, <https://asean.org/wp-content/uploads/2021/09/ADII-Report-2021.pdf>
- Wang, G. and Z. Cao (2021), 'An Empirical Study on the Trade Impact of Cross-Border e-Commerce on ASEAN and China under the Framework of RCEP', paper presented at the International Conference on Economic Innovation and Low-Carbon Development, Qingdao, China, 28–30 May, <https://doi.org/10.1051/e3sconf/202127501039>
- Wayuparb, S. et al. (2014), *Intra-ASEAN Secure Transactions Framework*, Bangkok: Ministry of ICT, <https://www.mdes.go.th/law/download/1289>
- Weerakkody, V. et al. (2017), 'Open Data and Its Usability: An Empirical View from the Citizen's Perspective', *Information Systems Frontiers*, 19(2), pp.285–300, <https://doi.org/10.1007/s10796-016-9679-1>
- World Bank (2019), *The Digital Economy in Southeast Asia: Strengthening the Foundations for Future Growth*, Washington, DC, [bit.ly/3zWQoh4](https://bit.ly/3zWQoh4)
- Yang, L. and Y. Zhang (2020), 'Digital Financial Inclusion and Sustainable Growth of Small and Micro Enterprises – Evidence Based on China's New Third Board Market Listed Companies', *Sustainability*, 12(9), 3733, <https://doi.org/10.3390/su12093733>
- Yang, Q. et al. (2022), 'Recommendations for Ethical and Responsible Use of Artificial Intelligence in Digital Agriculture', *Frontiers in Artificial Intelligence*, 5, <https://doi.org/10.3389/frai.2022.884192>
- Yean, T.S. (2021), 'Digital Commitments in ASEAN's Free Trade Agreements', *Yusof Ishak Institute Perspective*, No. 163, Singapore: ISEAS–Yusof Ishak Institute, [https://www.iseas.edu.sg/wp-content/uploads/2021/11/ISEAS\\_Perspective\\_2021\\_163.pdf](https://www.iseas.edu.sg/wp-content/uploads/2021/11/ISEAS_Perspective_2021_163.pdf)

# Appendix



## Topics and Actions of Five Digital Integration Framework Documents in ASEAN

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
<b>Priority Area 1: Facilitating Seamless Trade</b>				
<b>Trade Facilitation</b>				
<p>Action:</p> <ol style="list-style-type: none"> <li>1. Ratify the ASEAN Trade in Goods Agreement (ATIGA).</li> <li>2. Fully operationalise the ASW.</li> <li>3. Implement ASEAN-Wide Self-Certification (AWSC)</li> <li>4. Ratify the ASEAN Framework Agreement on Facilitation of Goods in Transit (AFAFGIT).</li> <li>5. Ratify the AAEC.</li> <li>6. Review the elements of the ASEAN e-commerce framework, and develop an ASEAN agreement on e-commerce.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Ratify the ATIGA, and enter it into force.</li> <li>2. Continue to upgrade ASEAN+1 FTAs to seek further liberalisation, where possible, and deepen and broaden economic integration.</li> <li>3. Enhance ATIGA provisions with a view to increase intraregional trade and investment, including incorporating provisions into the ATIGA to strengthen supply chain connectivity and resilience; continue to upgrade ASEAN+1 FTAs to adopt more trade facilitative measures; and seek further liberalisation, where possible, to enhance economic integration.</li> <li>4. Develop work plans for inclusion of the origin self-certification mechanism in the upgrade of ASEAN+1 FTAs.</li> <li>5. Expand the ASW system to cover all international ports or points of entry in 10 AMS by the end of 2021.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Encourage inward investment in digital and ICT.</li> <li>2. Facilitate compliance, and secure the benefits of telecommunications services and e-commerce in line with relevant ASEAN trade agreements.</li> <li>3. Support trade digitalisation through seamless and efficient flow of e-trade documents (e.g. invoices) and goods within ASEAN.</li> <li>4. Assess the net benefits of Industry 4.0 technologies into trade facilitation processes.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Establish ASEAN Single Window connections to ASEAN's Dialogue Partners, while ASEAN continues parallel work to expand the number of trade documents to be exchanged electronically.</li> <li>2. Provide insights on the emerging trends in the global digital economy, identifying priority areas, international best practices, and initiatives for the effective implementation of the ASEAN Agreement on Electronic Commerce to promote e-commerce in the region as well as to help AMS boost their economic growth through e-commerce for the post-pandemic period. Identify and establish interoperable standards that support trade facilitation and digitalisation, including for smart manufacturing and supply chain solutions.</li> <li>3. Develop and adopt common e-invoicing standards to facilitate business transactions.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Support Establishment of the ASEAN Authorized Economic Operator Mutual Recognition Arrangement (AAMRA).</li> <li>2. Improve collaboration amongst public-private e-commerce facilitators.</li> <li>3. Expand the use of paperless trade by driving single window interoperability across ASEAN and beyond.</li> <li>4. Align AMS with the UNESCAP Framework Agreement on Facilitation of Cross-Border Paperless Trade.</li> <li>5. Conduct a technical study on ASW interoperability with ASEAN dialogue partners.</li> <li>6. Supplement interoperability with a technical guide for the ASW.</li> <li>7. Conduct annual business surveys to include questions on paperless trade tool utilisation.</li> <li>8. Share information on cross-border digital trade revenue laws.</li> </ol>

ASEAN Digital Integration Framework Action Plan 2019–2025	ASEAN Comprehensive Recovery Framework and Its Implementation Plan	ASEAN Digital Masterplan 2025	Bandar Seri Begawan Roadmap	Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce
	<ol style="list-style-type: none"> <li>6. Maximise the use of the ASEAN-Wide Self-Certification (AWSC) to further enhance the utilisation of ATIGA commitments, and promptly address implementation issues faced by traders and relevant stakeholders.</li> <li>7. Develop guidelines for smart ports to promote digitalisation at the ship-port interface and to minimise personal interaction and paper-based exchange.</li> <li>8. Adopt the ASEAN Declaration on Digital Tourism in view of the necessity to apply digital technology and innovation in tourism development to enhance competitiveness, facilitate growth, develop sustainable tourism, and provide opportunities and capabilities for related stakeholders in the tourism sector.</li> <li>9. Encourage Digital Trade Connect – ASEAN Business Advisory Council's 2019 Legacy Project.</li> <li>10. Sign the RCEP agreement.</li> <li>11. Ratify and implement the <i>ASEAN Agreement on Electronic Commerce</i>.</li> <li>12. Exchange trade-related documents with dialogue partners</li> </ol>			

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

### Customs Procedures

Action:	Action:	Action:	Action:
<ol style="list-style-type: none"> <li>1. Simplify clearances, procedures, documentation, and returns in line with WTO and WCO guidelines.</li> <li>2. Implement Authorized Economic Operators (AEO) programme.</li> <li>3. Implement an ASEAN AEO-mutual recognition arrangement with corresponding output and timeline.</li> <li>4. Review the simplification of customs procedures, including through exchange of e-certificates, at land and air borders for e-commerce deliveries.</li> <li>5. Develop national websites providing comprehensive updated information on customs procedures, taxes, and duties for e-commerce delivery.</li> <li>6. Review the de minimis threshold and duty drawback procedures for e-commerce deliveries and product returns.</li> </ol>	<ol style="list-style-type: none"> <li>1. Expand the ASW system for electronic exchange of other trade-related documents, such as ASEAN Customs Declaration Document (ACDD), e-phytosanitary (e-Phyto) certificate, e-animal health (e-AH) certificate, and e-food safety (e-FS) certificate.</li> <li>2. Address unnecessary Non-Tariff Measures (NTMs) holistically.</li> <li>3. Create a framework to address cost and effectiveness of existing NTMs in ASEAN (NTM Toolkit).</li> </ol>	<ol style="list-style-type: none"> <li>1. Accelerate the full implementation and promote the use of the ASEAN Customs Transit System (ACTS).</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify and quantify the impact of customs procedures on efficient cross-border e-commerce.</li> </ol>

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

#### **Broadband Accessibility**

<p>Action:</p> <ol style="list-style-type: none"> <li>1. Identify gaps in internet access, affordability, and network interoperability.</li> <li>2. Promote affordable access to international mobile roaming services in ASEAN.</li> <li>3. Provide broadband access to rural and underserved areas.</li> <li>4. Adopt an ASEAN framework to provide affordable intra-ASEAN mobile voice, SMS, and data-roaming services.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Provide broadband access to remote, rural, and underserved areas through the implementation of the next generation Universal Service Obligation (USO 2.0) framework.</li> <li>2. Promote transparent and affordable international mobile data-roaming services, with a view to further enhance regional integration and to benefit consumers in the region.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Move towards best practice permission and access rights for local and national infrastructure, including submarine cable repair.</li> <li>2. Ensure adequate international internet connectivity.</li> <li>3. Ensure increased and harmonised spectrum allocation across the region.</li> <li>4. Establish a centre of excellence for best-practice rural connectivity.</li> <li>5. Reduce regional business travel costs by lowering common roaming rates for mobile data services across ASEAN.</li> <li>6. Reduce affordability barriers to getting online.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Accelerate the full implementation and promote the use of the ASEAN Customs Transit System (ACTS).</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Identify and quantify the impact of customs procedures on efficient cross-border e-commerce.</li> </ol>
---	---	--	--	--

#### **E-Commerce Platform Fostering**

<p>Action:</p> <ol style="list-style-type: none"> <li>1. Develop ASEAN guidelines on accountability and responsibilities of online intermediaries (i.e. platform providers).</li> <li>2. Develop coordination mechanisms to enhance enforcement of intellectual property rights in the digital environment.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Build a more robust intellectual property system in the region to contribute to enhancing the AEC (i.e. ASEAN Intellectual Property Rights Action Plan, 2016–2025) to support and meet businesses' needs.</li> <li>2. Explore the development of a platform to harness the contribution of creative industries towards innovations, generating livelihoods and supporting economic development in AMS.</li> <li>3. Organise an annual ASEAN Online Sales Day to promote and facilitate cross-border e-commerce.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Promote e-commerce in ASEAN, enhance last-mile fulfilment cooperation, and improve competitiveness in the digital economy.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Improve intellectual property services of AMS as well as management and access to intellectual property-related information and databases via a centralised digital portal.</li> <li>2. Access updated intellectual property resources and information.</li> <li>3. Conduct intellectual property training programmes, including through a virtual ASEAN academy.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Ensure intellectual property protection in the digital setting through review of ongoing activities and capacity building development.</li> <li>2. Conduct annual business surveys to include questions on the perceived adequacy and effectiveness of existing intellectual property rights protection and enforcement in an online or digital setting.</li> </ol>
--	---	--	---	--

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

4. Develop coordination mechanisms to enhance enforcement of intellectual property rights in the digital environment. (Inherited from DIFAP)

### **E-Commerce Legal Framework**

Action:

1. Conduct voluntary internal and peer reviews of national laws/regulations on e-commerce.
2. Provide comprehensive updated information on domestic e-commerce-related laws and regulations.

Action:

1. Voluntary internal and peer reviews of national laws/regulations on e-commerce.

Action:

1. All AMS to adopt laws and regulations governing electronic transactions, considering applicable international conventions or model laws relating to e-commerce.
2. Strengthen AMS ability to implement laws and regulations governing electronic transactions based on international conventions or model laws.
3. Ensure all AMS have laws that accept the legal validity of a signature even when the signature is in electronic form.
4. Create law-reporting schemes under which AMS provide national plans to align e-transaction laws and regulations with any prescribed UNCITRAL legislative texts.
5. Conduct law incorporation workshops with AMS to solve common problems in adopting the UN Convention on Electronic Communications in domestic law and regulations.
6. Conduct capacity-building programmes for relevant AMS authorities requiring technical and legal assistance in the implementation of e-transaction laws.



<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

7. Conduct annual business surveys that include questions on businesses' perceptions on whether electronic or online transactions have equivalent commercial treatment to offline transactions.

### Digital Industry Competition

Action:

1. Build and strengthen capacity of competition authorities to identify/detect and to address anti-competitive activities in the digital industry.

Action:

1. Deepen collaboration between ICT and competition regulatory authorities across ASEAN on the ICT sector and digital economy.
2. Monitor developments in regulation of digital platforms in other jurisdictions.

Action:

1. Establish an ASEAN-wide approach to addressing competition issues in e-commerce and the digital environment.
2. Develop an ASEAN investigation manual on competition policy and law for the digital economy.
3. Conduct annual business surveys to measure the perceived adequacy of existing competition laws and policies in the e-commerce sector, with particular attention to the views of MSMEs.

### ASEAN Logistics Services to Facilitate E-Commerce

Action:

1. Coordinate with relevant ASEAN sectoral bodies and logistics service providers to identify measures to improve ASEAN logistics services' support for e-commerce.

Action:

1. Moderate an information-sharing forum on e-commerce logistics best practices including exploring prospects for a new rapid e-commerce time release study (TRS) for e-commerce goods.

### Digital Identity

Action:

1. Encourage adoption of digital identities of business and consumers.
2. Conduct a workshop to exchange information, best practices on standards, and compatibility of digital identities.

Action:

1. Explore how to introduce digital identities in each AMS in a way that safeguards civil liberties.

Action:

1. Establish ASEAN-wide unique business identification numbers (UBIN) and further work on business digital identities.

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

**Priority Area 2: Protecting Data While Supporting Digital Trade and Innovation**

**Data Protection**

Action:	Action:	Action:	Action:	Action:
<p>1. Harmonise domestic data protection policies, strengthen the data ecosystem, achieve legal and regulatory alignment of data regulations and governance frameworks, and foster data-driven innovation across AMS in line with the <i>ASEAN Framework on Personal Data Protection (PDP)</i> and best practices of the advanced economies.</p> <p>2. Consider establishing an ASEAN data classification scheme to define and categorise data and establish their level of sensitivity that will determine corresponding safeguards when data are used, shared, or transferred across borders.</p> <p>3. Encourage the free flow of cross-border data for conducting business objectives while respecting domestic laws and regulations.</p> <p>4. Develop a ASEAN framework on digital data governance by engaging actively with industry to design high-standard, workable data management policies that protect security and privacy while also enabling business use and regulatory access domestically and across borders.</p>	<p>1. Develop an ASEAN data management framework under the <i>ASEAN Framework on Digital Data Governance</i>.</p> <p>2. Build capacity for authorities responsible for data protection in implementing data management and cross-border data flow frameworks.</p> <p>3. Enhance the implementation of the ASEAN Data Management Framework and Cross-Border Data Flow Mechanism comprising ASEAN Model Contractual Clauses and Certification under the ASEAN Framework on Digital Data Governance.</p>	<p>1. Identify improvements in legal and regulatory measures on the management of the protection of data and other data-related activities that could be harmful.</p> <p>2. Continue to identify opportunities to harmonise digital regulation to facilitate cross-border data flows.</p>	<p>1. Promote and monitor the adoption of the implementing guidelines of the ASEAN Data Management Framework, and recognise the <i>ASEAN Model Contractual Clauses</i> as important tools in data governance and facilitation of cross-border data flow.</p>	<p>1. Monitor emerging issues related to data protection and privacy.</p> <p>2. Conduct law incorporation workshops with AMS to solve common problems in adopting data protection laws that protect the personal information of the users of e-commerce, and consider international principles, guidelines, and criteria.</p>

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

### Cybersecurity

Action:	Action:	Action:	Action:	Action:
<p>1. Establish a regional coordination mechanism amongst cybersecurity agencies to share best practices, exchange information on policies, and cooperate in response to cybersecurity incidents, as tasked by ASEAN leaders in the ASEAN Leaders' Statement on Cybersecurity Cooperation.</p>	<p>1. Develop the ASEAN Cybersecurity Cooperation Strategy, 2021–2025.</p> <p>2. Cooperate ensure cyber resilience amongst ASEAN central banks in accordance with the Digital Technology Network and ASEAN ASEAN Cybersecurity Resilience and Information Sharing Platform (CRISP).</p>	<p>1. Enable trust through greater and broader use of online security technologies.</p> <p>2. Build trust through enhanced security for finance, health care, education, and government.</p> <p>3. Improve coordination and cooperation for regional computer incident response teams.</p>	<p>1. Establish an ASEAN Regional CERT as a mechanism to facilitate incident response coordination and information exchanges amongst AMS CERTs to ensure a safer regional cyberspace for digital transformation.</p> <p>2. Implement the memorandum of understanding of the ASEAN CRISP to complement the work on digitalisation by promoting cybersecurity through information exchange on cyber threats and cybersecurity best practices.</p>	<p>1. Establish a cooperation mechanism amongst competent authorities to facilitate prompt investigation and resolution of fraudulent incidents related to e-commerce transactions.</p> <p>2. Build the capacities of national entities responsible for cybersecurity.</p> <p>3. Create an action plan for the implementation of the ASEAN Cybersecurity Cooperation Strategy, 2021–2025.</p> <p>4. Develop guidelines for the implementation of the ASEAN Cybersecurity Coordinating Committee. (ASEAN Cyber-CC)</p> <p>5. Create the ASEAN Self-Assessment Toolkit on Cybersecurity Capacity.</p> <p>6. Develop a progress reporting scheme under which AMS report progress and compliance with the <i>ASEAN Plan of Action in Combating Transnational Crime</i>.</p> <p>7. Establish an ASEAN cybersecurity forum.</p>

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

**Personal Data/Privacy Protection**

Action:

1. Identify best practices in personal data protection (PDP) to promote the implementation of the *ASEAN Framework on Personal Data Protection*.

Action:

1. Encourage all AMS to adopt measures that protect the personal information of e-commerce users that are aligned with the *ASEAN Framework on Personal Data Protection* and consider international principles, guidelines, and criteria.
2. Strengthen AMS ability to actively engage relevant stakeholders to ensure implemented laws and regulations effectively protect the personal information of e-commerce users.
3. Create the ASEAN Business Self-Assessment Toolkit on Personal Data Protection and Data Security Standards for Businesses.
4. Review the questionnaire for ASEAN Consumer Empowerment Index to include consumer's confidence on personal data protection in ecommerce settings.
5. Elaborate ASEAN B2G and B2B data-sharing principles and guidelines.

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

### Electronic Authentication

Action:

1. Study suitable mechanisms for authentication of e-signatures and trade documents, based on internationally recognised practices.
2. Voluntarily adopt e-authentication mechanisms for cross-border e-trade documents.

Action:

1. Use digital solutions to issue, endorse, store, display, and verify digital COVID-19 test and vaccination certificates to provide assurance of the authenticity of test and vaccination records to facilitate certificate verification, ensure proper health protocols are followed, build confidence in travel, and advance digitalisation efforts, by taking into consideration relevant official guidelines set by the World Health Organization (WHO). To this end, the Task Force on the Operationalization of the ASEAN Travel Corridor Arrangement Framework (TFATCAF) should work towards enabling a common approach on verifying the authenticity of digital certificates taking into consideration, where relevant, official guidelines set by WHO. This approach could encompass the verification of COVID-19 PCR test results, COVID-19 vaccination certifications, and other health status-related documents that may be required.

Action:

1. Ensure all AMS maintain, or adopt as soon as practicable, measures based on international norms for the use of interoperable e-authentication technologies.
2. Ensure stakeholder socialisation and compliance with e-authentication approaches.
3. Create a law-reporting scheme under which AMS provide a national plan to align its e-signatures laws and regulations with any of the prescribed UNCITRAL legislative texts.
4. Conduct law incorporation workshops with AMS to solve common problems in adopting UNCITRAL model laws and possibly other international conventions like the UN Convention on Electronic Communications in domestic law and regulations.
5. Conduct annual business surveys to include questions on businesses' perceptions on whether e-signatures have equivalent legal treatment as offline ones.

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

6. Publish a collaborative repository list of approved and/or other commonly utilised entity authentication technologies.
7. Publish and adopt guidance on authentication levels of assurance of e-authentication methods and technologies.
8. Create a framework for interoperability of e-authentication technologies.
9. Develop an interoperability pilot project to create mutual recognition between two or more AMS of chosen authentication approaches.
10. Conduct capacity-building workshops to address knowledge and expertise gaps on e-authentication in alignment with the agreement.

### Priority Area 3: Enabling Seamless Digital Payments

#### Safe, Secure, Efficient, and Interoperable E-Payment Systems

<p>Action:</p> <ol style="list-style-type: none"> <li>1. Support an open ecosystem to enable regulated payment service providers and operators to operate efficiently and to compete fairly, subject to controls to mitigate risks of disruption to payment systems or to financial stability. This is expected to encourage payment service providers and operators to invest and innovate payment solutions for both consumers and merchants.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Implement an interoperable cross-border real-time retail payment system based on the <i>ASEAN Payments Policy Framework for Cross-Border Real-Time Retail Payment Systems</i>.</li> <li>2. Enable digital payment infrastructure.</li> <li>3. Create the ASEAN e-Payment Readiness Index.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Focus on the development of an ASEAN interoperable QR code framework by 2022.</li> <li>2. Implement interoperable cross-border real-time retail payment system based on the <i>ASEAN Payments Policy Framework for Cross-Border Real Time Retail Payment Systems</i> and its implementing policy guidelines with at least two AMS in 2021, and additional jurisdictions thereafter (three AMS in 2022, four AMS in 2023, and at least five AMS in 2024).</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Cooperate in considering readiness for the implementation of safe, secure, efficient, and interoperable e-payment systems.</li> <li>2. Accelerate progress on e-payment solutions by building on existing ASEAN initiatives.</li> <li>3. Develop solutions to remove emerging digital payment obstacles.</li> <li>4. Coordinate with other sectoral bodies to ensure that discussion on the ASEAN E-Payments Readiness Index.</li> </ol>
--	---	--	---

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
<p>2. Promote the use of safe, efficient, and affordable e-payment and payment innovation to support regional payment integration.</p> <p>3. Develop guidelines on e-payment solutions that cover security requirements and privacy principles.</p> <p>4. Develop a work plan to foster interoperability between real-time retail payment systems by adopting international standards.</p>				<p>5. Conduct annual business surveys to include questions on the safety, security, efficiency, and interoperability of cross-border e-payment systems.</p>

#### Priority Area 4: Broadening Digital Talent Base

##### Digital Education and Skills

Action:	Action:	Action:
<p>1. Prepare ASEAN readiness for industrial transformation to Industry 4.0 by enhancing cooperation amongst AMS in common targeted industries.</p> <p>2. Define specific ICT/digital skills requirements and road maps for MSMEs.</p> <p>3. Enhance human capital development in ASEAN for embracing Industry 4.0.</p> <p>4. Develop skills at all levels to maximise competency in e-commerce for relevant industry regulators, consumer protection officials, and law enforcement officials.</p>	<p>1. Define learning outcomes related to the promotion of digital and 21st century skills.</p> <p>2. Generate evidence on thematic areas such as understanding 21<sup>st</sup> century skills development through the education system; pathways for girls' empowerment through 21st century skills and innovation, industry, digitalisation and youth engagement; development of typologies for public-private partnerships for skills development; and impact of social and environmental factors on the educational attainment of adolescents.</p> <p>3. Promote media literacy and information literacy to combat fake news.</p>	<p>1. Develop regional mechanisms to encourage skills in integrated and end-to-end services.</p> <p>2. Continue to support the advancement and harmonisation of ICT qualifications across ASEAN.</p> <p>3. Promote development of advanced digital skills, such as coding, hackathons, and innovative challenges.</p> <p>4. Ensure that citizens and businesses have the skills and motivation to use digital services.</p> <p>5. Encourage deeper adoption and use of vertical digital services.</p>

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
<p>5. Disseminate to businesses, especially MSMEs, best practices in the use of the internet for the improvement of their business, including essential tools for business management, as well as information on the available training providers and their range of courses.</p> <p>6. Provide education to the public with regard to safe use of the internet, on the availability of self-regulatory options, screening and filtering technologies, and dispute resolution mechanisms.</p>	<p>4. Consult on human rights and the impact of Industry 4.0 in the context of pandemics and health emergencies.</p> <p>5. Develop online learning for tourism professionals through the ASEAN Tourism Professional Registration System.</p> <p>6. Engage the private sector for possible capacity-building training/workshops on digital tourism.</p> <p>7. Promote innovative digital finance and digital financial literacy.</p> <p>8. Provide digital-related contents on the ASEAN SME Academy, and widen the outreach of the academy.</p> <p>9. Implement Go Digital ASEAN, a collaborative initiative by the ASEAN Coordinating Committee on MSMEs (ACCMSME) and The Asia Foundation with support from Google.org</p> <p>10. Propose a project on developing digital approaches to ensure inclusive education delivery for CLMV.</p> <p>11. Develop cross-border school models and action plans to provide increased education access for marginalised children.</p>			



<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
	<ol style="list-style-type: none"> <li>12. Promote greater access to higher education, information, and learning opportunities through the ASEAN Cyber University initiative.</li> <li>13. Support the development of teacher competencies with respect to remote teaching and learning</li> <li>14. Strengthen efforts to build ICT capacity and capabilities through crosscutting initiatives, including vulnerable groups.</li> <li>15. Promote increased investment in remote learning.</li> </ol>			

#### **Consumer Protection**

<p>Action:</p> <ol style="list-style-type: none"> <li>1. Integrate e-commerce considerations into ASEAN high-level consumer protection principles.</li> <li>2. Conduct regular consumer rights awareness training for consumers and consumer associations.</li> <li>3. Develop a framework of cross-border cooperation in addressing consumer protection issues.</li> <li>4. Participate in the UN Intergovernmental Experts Consumer Protection Law (IGE Consumer Protection).</li> <li>5. Participate in the UN Intergovernmental Experts Consumer Protection Meetings.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Develop e-learning modules on consumer protection.</li> <li>2. Develop training modules to apply good consumer protection practices.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Promote consumer protection and rights in relation to e-commerce.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Create a law-reporting scheme under which AMS determine a plan of action to ensure that existing consumer protection laws and regulations contain clear references to e-commerce.</li> <li>2. Integrate e-commerce considerations in the <i>Handbook on ASEAN Consumer Protection Laws and Regulations</i>.</li> <li>3. Conduct capacity-building activities on consumer law and e-commerce, looking into online scams, and online consumer law investigation training.</li> </ol>
--	--	---	---

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

#### Code of Conduct for Online Business

<p>Action:</p> <ol style="list-style-type: none"> <li>1. Develop guidelines/ codes of good online business practices based on self-regulation best practices.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Promote the application of the Code of Good Online Business Practice.</li> <li>2. Foster the application of the Guidelines on Accountability and Responsibilities of E-Marketplace Providers.</li> </ol>
--	---

#### Alternative Dispute Resolution/Online Dispute Resolution Availability

<p>Action:</p> <ol style="list-style-type: none"> <li>1. Establish alternative dispute resolution (ADR) mechanisms, including online dispute resolution systems, to facilitate the resolution of claims over e-commerce transactions, with special attention to low-value or cross-border transactions based on the best practice for fair, easy-to-use, transparent, and effective ADR mechanisms.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Enhance capacity of MSMEs in alternative dispute resolution including settlement of disputes through mediation.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Develop and implement an ASEAN online dispute resolution mechanism for cross-border consumer complaints.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Strengthen knowledge and facilitate discussions on alternative dispute resolution mechanisms to address e-commerce issues.</li> <li>2. Create a law-reporting scheme under which AMS provide national plans of action to ratify/adopt international alternative dispute resolution-related legislative texts.</li> <li>3. Conduct law incorporation workshops with AMS to solve common problems in adopting international alternative dispute resolution-related legislative text.</li> </ol>
--	---	--	--

#### Regional/International Cooperation

<p>Action:</p> <ol style="list-style-type: none"> <li>1. Develop ASEAN guidelines on cross-border B2B complaints.</li> <li>2. Develop informal/formal mechanisms for cross-border cooperation such as a memorandum of understanding.</li> <li>3. Interact with international organisations regularly to enhance understanding and learn best practices.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Develop the Consolidated Strategy on Industry 4.0 for ASEAN.</li> <li>2. Develop ASEAN guidelines on the utilisation of digital technologies for the food and agricultural sector.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Facilitate the adoption of region-wide telecommunications regulation best practices by market players to provide regulatory certainty.</li> <li>2. Reduce the carbon footprint of telecommunications operators in ASEAN.</li> <li>3. Adopt regional policy to deliver best practice guidance on AI governance and ethics, IoT, and technology.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Review the progress in implementing the DIF, assist AMS in identifying regulatory gaps, and suggest a way forwards on accelerating digital transformation across sectors in line with COVID-19 recovery efforts and strengthening resilience for the digital era.</li> </ol>	<p>Action:</p> <ol style="list-style-type: none"> <li>1. Encourage application of the ASEAN Cross Border Data Flow Mechanism (CBDFM).</li> <li>2. Keep the CBDFM model contractual clauses in compliance with international and other regional requirements and best practices to ensure cross-border interoperability of data transfers beyond the ASEAN or prepare additional data transfer guidelines, if needed.</li> </ol>
--	--	--	---	---

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
		<ul style="list-style-type: none"> <li>4. Help make key government departments more productive through their internal use of ICT and e-services.</li> <li>5. Improve the cohesion of AMS by making key government e-services interoperable across the ASEAN region.</li> </ul>	<ul style="list-style-type: none"> <li>2. Promote technology exchange and transfer across the region to have enough capacity for ASEAN integration and inclusive growth.</li> </ul>	<ul style="list-style-type: none"> <li>2. Identify and eliminate or minimise data localisation requirements imposed as conditions for business operation in accordance with existing international agreements.</li> <li>3. Adjust the scope of work on technology neutrality beyond 2025.</li> </ul>

### Priority Area 5: Fostering Entrepreneurship

#### Digitalisation of ASEAN MSMEs

Action:	Action:
<ul style="list-style-type: none"> <li>1. Provide policy directions for formalisation and promotion schemes for digitalised micro enterprises.</li> <li>2. Establish and promote a digital service hub that will enhance the trade supply chain and improve the competitiveness of ASEAN SMEs in a low-cost manner — planned for completion by 2021 in the ASEAN Strategic Action Plan for SME Development, 2016-2025, and continue efforts to simplify business registration process to enable less costly and faster business formation.</li> <li>3. Promote MSME participation in e-commerce platforms, many of which have opened MSMEs to global markets, making them micro-multinationals that engage actively in micro-supply chains.</li> <li>4. Enhance existing platforms to include the functionalities of the digital service hub.</li> </ul>	<ul style="list-style-type: none"> <li>1. Share information on business-related policies and measures introduced by AMS in response to COVID-19.</li> <li>2. Develop innovative and scalable start-ups as part of efforts to address/adapt to new normal business conditions.</li> <li>3. Explore the development of an ASEAN SME recovery facility as a multi-contributor and co-financing platform to provide financing facility and accelerate the recovery of SMEs in ASEAN.</li> <li>4. Conduct an in-depth assessment to identify challenges and recommendations to support the awareness and adoption of relevant technology and digital tools amongst MSMEs, and support their integration into global value chains, including establishing mechanisms to help them increase exports.</li> </ul>

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
5. Conduct capacity-building programmes for MSMEs to participate in e-commerce platforms.	5. Deploy the new ASEAN Access, which focusses on providing information to international-oriented SMEs. 6. Implement the <i>Action Agenda on Digitalisation of ASEAN MSMEs through Capacity Building Initiatives</i> to increase technology adoption amongst MSMEs, by providing access to skills and knowledge, technology solutions, and experts.			

#### Priority Area 6: Coordinating Actions and Review

##### Implementation and Coordination of the DIF

Action:	Action:	Action:	Action:	Action:
<ol style="list-style-type: none"> <li>1. Develop the DIFAP 2019–2025.</li> <li>2. Review and revise the role of the ACCEC to include coordinating and tracking of the implementation of the DIF.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop a framework for strategic partnerships with relevant ASEAN sectoral bodies, +3 countries, dialogue partners, international organisations, and other stakeholders to promote good governance and accelerate an agile civil service in digital era.</li> <li>2. Mainstream digitalisation to all priority areas of the <i>ASEAN Cooperation on Civil Service matters (ACCSM) Work Plan (2021–2025)</i>.</li> <li>3. Develop concrete initiatives to help businesses in their digital transformations in the area of smart manufacturing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop a framework that encourages the development and growth of digital start-ups in ASEAN.</li> <li>2. Establish ASEAN-wide indicators of the level of use of e-government services in line with ITU requirements.</li> <li>3. Help AMS improve the quality of their e-government e-services.</li> <li>4. Make the economic case for prioritising ADM 2025 actions.</li> <li>5. Assess the economic case for facilitating use of digital services that would help recovery from the COVID-19 pandemic.</li> </ol>	<ol style="list-style-type: none"> <li>1. Strengthen the ACCEC to monitor, coordinate effectively, and expedite the implementation of the DIFAP, <i>Work Plan for AAEC</i>, and BSBR.</li> </ol>	<ol style="list-style-type: none"> <li>1. Encourage all AMS to share information on cross-border digital trade revenue laws.</li> </ol>

<i>ASEAN Digital Integration Framework Action Plan 2019–2025</i>	<i>ASEAN Comprehensive Recovery Framework and Its Implementation Plan</i>	<i>ASEAN Digital Masterplan 2025</i>	<i>Bandar Seri Begawan Roadmap</i>	<i>Work Plan on the Implementation of ASEAN Agreement on Electronic Commerce</i>
--	---	--------------------------------------	------------------------------------	--

4. Harmonise digital trade standards in priority areas identified in Digital Trade Standards and Conformance Working Group (DTSCWG)'s Work Programme contributing to digital trade and digital economy.
5. Identify priorities for digital trade standards to promote cross-border digital trade transactions in ASEAN.

#### Review Mechanism

Action:	Action:	Action:
<ol style="list-style-type: none"> <li>1. Review and update elements or initiatives and other sectoral bodies identified in the DIFAP.</li> <li>2. Develop a monitoring and reporting mechanism to measure the implementation of the DIFAP and progress in developing the ASEAN digital economy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Conduct a comprehensive review of the <i>ASEAN Digital Integration Framework</i> and ASEAN DIFAP through the ADII.</li> <li>2. Review and update initiatives to implement ASEAN Work Program on E-commerce (AWPEC).</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-evaluate the implementation strategy under the DIFAP to ensure its relevancy and responsiveness to the post-COVID-19 world, and re-examine implementation timelines including accelerating delivery of outputs under the DIFAP as necessary especially in the areas of digital trade, digital payments, and entrepreneurship, and incorporating new priorities drawing from emerging developments in the digital ecosystem.</li> </ol>

AAEC = ASEAN Agreement on Electronic Commerce; AAMRA = ASEAN Authorized Economic Operator Mutual Recognition Arrangement; ACCEC = ASEAN Coordinating Committee on Electronic Commerce; ACCMSME = ASEAN Coordinating Committee on E-Commerce and Digital Economy; ACDD = ASEAN Customs Declaration Document; ACTS = ASEAN Customs Transit System; ADM = ASEAN Digital Masterplan; AEC = ASEAN Economic Community; AEO = authorised economic operators; AFAFGIT = Agreement on Facilitation of Goods in Transit; AI = artificial intelligence; AMS = ASEAN Member State; ASW = ASEAN Single Window; ASWSC = ASEAN Single Window Steering Committee; ATIGA = ASEAN Trade in Goods Agreement; AWPEC = ASEAN Work Programme on Electronic Commerce; AWSC = ASEAN-Wide Self-Certification; B2B = business-to-business; B2G = business-to-government; BSBR = Bandar Seri Begawan Roadmap; CBDFM = cross-border data flow management; CERT = computer emergency response team; CLMV = Cambodia, Lao People's Democratic Republic, Myanmar, Viet Nam; CRISP = Cybersecurity Resilience and Information Sharing Platform; DIF = Digital Integration Framework; DIFAP = Digital Integration Framework Action Plan; FTA = free trade agreement; ICT = information and communications technology; IoT = internet of things; ITU = International Telecommunication Union; NTM = non-tariff measure; RCEP = Regional Comprehensive Economic Partnership; SMEs = small and medium-sized enterprises; UNCITRAL = United Nations Commission on International Trade Law; USO = universal service obligation; WCO = World Customs Organization; WHO = World Health Organization; WTO = World Trade Organization.

