Chapter 16

Post-2025 ASEAN Connectivity: Challenges and Opportunities

Ruth Banomyong

16.

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1. Introduction

The Association of Southeast Asian Nations (ASEAN) has set ambitious connectivity goals to enhance regional integration, economic growth, and sustainable development (ASEAN, 2016). The Master Plan on ASEAN Connectivity (MPAC) 2025 serves as a comprehensive blueprint guiding ASEAN's efforts to achieve seamless and comprehensive connectivity by 2025. MPAC 2025 identifies five strategic areas to enable connectivity: sustainable infrastructure, digital innovation, seamless logistics, regulatory excellence, and people mobility. The document outlines specific initiatives and projects to address connectivity challenges, such as developing resilient infrastructure, promoting digital ecosystems, creating integrated logistics networks, harmonising regulations, and enhancing mobility through visa-free travel and cultural exchanges.

These initiatives aim to reduce the cost and time associated with the movement of goods and services, improve regulatory frameworks, and foster a stronger ASEAN community. Through enhanced connectivity, ASEAN seeks to build a more cohesive and integrated region, focusing on sustainable and inclusive development to ensure that all ASEAN Member States (AMS) share the benefits. If successfully implemented, MPAC 2025 will contribute to ASEAN's vision of a cohesive, competitive, and prosperous community, addressing current and future connectivity challenges and driving regional progress (Koichi, 2021).

The coronavirus disease (COVID-19) pandemic has significantly impacted ASEAN's connectivity efforts, presenting both challenges and opportunities (Djalante et al., 2020). The pandemic disrupted physical connectivity, causing unprecedented interruptions to transport and logistics networks. Lockdowns, travel restrictions, and border closures hindered the movement of goods and people, exacerbating supply chain disruptions and increasing costs (ADB and UNESCAP, 2021). These disruptions highlighted vulnerabilities in ASEAN's infrastructure and logistics systems, emphasising the need for more resilient and adaptive connectivity solutions.

Institutional and regulatory connectivity also faced setbacks during the pandemic. The sudden shift to remote work and virtual interactions created challenges for the harmonisation of regulations and the implementation of regional agreements (ERIA, 2023). AMS had to quickly adapt to new governance and collaboration methods, often resulting in delays and inefficiencies. The pandemic exposed gaps in existing frameworks and underscored the importance of digital solutions to maintain continuity in regulatory processes and cross-border trade.

Despite these challenges, the COVID-19 pandemic accelerated ASEAN's digital transformation and highlighted the critical role of digital connectivity. Increased reliance on digital technologies for communication, commerce, and service delivery underscored the urgency of developing robust digital infrastructure (Son, 2022). AMS implemented measures to enhance digital trade, e-commerce, and online services, driving innovation and economic resilience. The pandemic thus served as a catalyst for digital innovation, pushing ASEAN to integrate digital connectivity more comprehensively into its connectivity agenda and paving the way for a more digitalised and resilient post-pandemic recovery.

This chapter critically assesses the progress of MPAC 2025, identifies key challenges and gaps in achieving the MPAC 2025 objectives, and proposes a new framework for post-2025 connectivity.

2. MPAC 2025: Objectives and Achievements

This section provides an overview of MPAC's 2025 five strategic areas, with insights into the various activities implemented. Whilst not exhaustive, the overview offers a glimpse into the diversified scope of the MPAC 2025.

2.1. Sustainable Infrastructure

Sustainable infrastructure is a cornerstone of MPAC 2025, focusing on developing and enhancing physical infrastructure that supports long-term economic growth whilst minimising environmental impact (ASEAN, 2016). This strategic area includes the construction and modernisation of roads, railways, airports, and seaports to create a more efficient and interconnected transport network across ASEAN. The goal is to ensure that infrastructure projects are robust and reliable, and environmentally sustainable, incorporating green technologies and practices. By improving physical connectivity, ASEAN seeks to reduce transport costs, facilitate trade, and enhance regional integration, contributing to economic resilience and sustainable development.

MPAC 2025 has made notable progress in enhancing sustainable infrastructure across the region. Key achievements include the improvement of critical road networks under the ASEAN Highway Network (Tang and Bradshaw, 2024), which has reduced travel times and facilitated smoother cross-border transport. ASEAN has embarked on green infrastructure initiatives, smart city projects, and investments in renewable energy sources like solar and wind power to support sustainable development. Although challenges remain in implementation, these initiatives show promise.

The ASEAN Smart Cities Network (ASCN) exemplifies efforts to develop smart and sustainable urban areas across the region, with pilot projects in cities such as Singapore, Bangkok, and Hanoi. This initiative seeks to integrate advanced technologies such as the Internet of Things (IoT), artificial intelligence (AI), and data analytics to improve urban management and enhance the residents' quality of life (Crumpton et al., 2020). The focus on sustainable urban development aims to reduce environmental impact through efficient resource management and green infrastructure. However, the ASCN serves more as a platform for knowledge sharing and collaboration amongst AMS, promoting best practices in smart urban development, rather than facilitating actual coordinated implementation.

2.2. Digital Innovation

Digital innovation is essential for ASEAN's transformation into a digital economy. MPAC 2025 emphasises the development of digital infrastructure, including high-speed internet, cloud computing, and cybersecurity measures, to support the growth of digital services and e-commerce (ASEAN, 2016). The strategic focus aims to bridge the digital divide within the region, ensuring that all AMS can participate in and benefit from the digital economy. ASEAN seeks to enhance productivity, create new business opportunities, and improve access to information and services for its citizens. Integrating digital technologies is critical for enhancing other strategic areas, such as seamless logistics and regulatory excellence.

ASEAN has made significant progress in expanding its digital infrastructure. The rollout of high-speed internet and 5G networks in several AMS has bolstered digital communication and the digital economy (Avirutha, 2021). The ASEAN Digital Integration Framework aims to harmonise digital regulations and foster an environment conducive to digital trade and e-commerce. The growth of regional e-commerce platforms has further driven online transactions, simplifying cross-border commerce for businesses and consumers (Isono and Prilliadi, 2023).

This initiative is expected to drive significant growth in e-commerce by creating a conducive regulatory environment and reducing barriers to digital trade. However, the rapid growth of e-commerce may have been accelerated by the pandemic, as movement restrictions forced people to rely more on online services. The ASEAN Digital Economy Framework Agreement (DEFA) aims to cultivate an innovation ecosystem that encourages startups and small and medium-sized enterprises to leverage digital technologies and expand their market reach. Enhanced regulations for consumer protection and data privacy are still needed if trust in digital transactions is to be achieved. Cross-border collaboration in areas such as cybersecurity and digital payments is slowly developing, but achieving a secure and integrated digital market across the region will take time.

The goal of increasing the number of internet users in ASEAN by 50% is considered on track, with significant strides made in expanding internet access and digital connectivity (ASEAN, 2021). Substantial investments in digital infrastructure by various AMS have contributed to a substantial increase in internet users. However, disparities in internet access persist between urban and rural areas and amongst different AMS. Continued efforts are necessary to bridge this digital divide and ensure equitable access across the region.

2.3. Seamless Logistics

Seamless logistics aims to create an integrated and efficient logistics network that facilitates the smooth movement of goods and services within ASEAN. This strategic focus involves improving customs procedures, streamlining transport and trade facilitation measures, and developing infrastructure that supports logistics operations (ASEAN, 2016). The objective is to reduce the time and cost of moving goods across borders, thereby enhancing trade efficiency and competitiveness. Initiatives in this area include the ASEAN Single Window (ASW), which enables the electronic exchange of trade-related documents amongst AMS, and the harmonisation of logistics standards and regulations. Achieving seamless logistics will strengthen ASEAN's position in global value chains and support overall economic growth.

The ASW is a digital platform designed to streamline customs procedures by enabling the electronic exchange of trade-related documents amongst AMS (UNESCAP, 2015). The initiative has enhanced trade facilitation by reducing processing times and transaction costs, benefiting businesses in the participating countries. The ASW has helped institutional connectivity, encouraging customs authorities across the region to cooperate in international trade processes.

2.4. Regulatory Excellence

Regulatory excellence involves harmonising and simplifying regulations and standards across ASEAN to create a more conducive business environment. This strategic area seeks to reduce regulatory barriers, enhance transparency, and promote good regulatory practices. Key initiatives include aligning technical standards, streamlining licensing and certification processes, and improving regulatory cooperation amongst AMS. ASEAN's goal is to facilitate trade and investment, reduce compliance costs for businesses, and enhance regional economic integration (ASEAN, 2016). Effective regulatory frameworks are crucial to ensuring the smooth implementation of connectivity initiatives and maximising their benefits.

Advancing regulatory excellence involves harmonising standards and establishing mutual recognition arrangements for professional qualifications, which facilitate the movement of skilled labour across AMS. Regulatory reforms and the promotion of good governance have created a more predictable, business-friendly environment that attracts foreign investment and fosters economic growth.

Mutual recognition arrangements enable the recognition of professional qualifications across ASEAN, allowing professionals to practice in other AMS (Fornalé, 2018). The initiative theoretically enhances labour mobility, making it easier for professionals to cross borders, address skill shortages, and boost economic integration. The harmonisation of professional standards and qualifications ensures high-quality services across the region, contributing to economic growth and development in sectors such as engineering, architecture, and accountancy. However, implementation has been hindered by vested interests within various professional sectors in AMS.

Progress has been made towards reducing trade and investment barriers by 25% through agreements such as the ASEAN Trade in Goods Agreement (ATIGA) and the implementation of the ASW (Sukegawa, 2021). However, non-tariff barriers and regulatory inconsistencies remain significant obstacles. The pace of reform varies amongst AMS, affecting the overall impact of regional initiatives. Whilst progress has been made in reducing barriers, achieving the 25% reduction target remains a work in progress, requiring more effective solutions to address remaining regulatory and non-tariff barriers.

2.5. People Mobility

People mobility focuses on facilitating the movement of people within ASEAN for purposes such as tourism, education, and employment. This strategic area includes initiatives to promote visa-free travel and improve immigration procedures (ASEAN, 2016). By simplifying cross-border travel and work, ASEAN aims to foster greater cultural exchange, mutual understanding, and cooperation amongst its citizens. Enhanced people mobility also supports economic integration by addressing labour market needs and enabling the flow of talent and skills. Initiatives such as student exchange programmes and regional tourism campaigns are examples of efforts to boost people-to-people connectivity and strengthen the ASEAN community.

Progress in people mobility is evident through visa-free travel agreements, which have made it easier for ASEAN citizens to travel within the region for tourism, work, and education. These efforts have promoted greater integration and collaboration amongst AMS, reinforcing the ASEAN community, although, in certain countries, the dedicated ASEAN lanes have disappeared.

3. Assessment of MPAC 2025

It is important to use the MPAC framework for assessment, which is built around three connectivity pillars: infrastructure, institutional, and people-to-people connectivity. The following sub-sections discuss the challenges related to each connectivity dimension. The goal of reducing the time and cost of transporting goods and services within ASEAN by 15% has yielded mixed results (Tongzon, 2011).

3.1. Infrastructure Connectivity

A significant challenge in infrastructure development under MPAC 2025 is aligning regional infrastructure priorities with national interests, as the planning processes of each AMS do not always align with the various ASEAN Master Plans (Banomyong, 2008). Each AMS follows its own development agenda, which may not always coincide with regional goals. The misalignment can lead to conflicts in setting priorities and allocating resources, hindering the progress of regional projects. National interests often take precedence over regional objectives, resulting in delays to cross-border projects and slowing the development of essential infrastructure for regional connectivity.

Adequate funding is another significant challenge for infrastructure projects. Many ASEAN countries face budgetary constraints that limit their capacity to invest in large-scale infrastructure projects (Banomyong, 2010). To bridge these funding gaps, some ASEAN countries rely on external financing from international donors, development banks, and private investors. However, this dependence can lead to delays, as funding is often directed towards projects that align with donors' interests, particularly in cases of bilateral aid. Securing external financing can also place a heavy fiscal burden on recipient countries, as seen in the high-speed railway developments in Lao People's Democratic Republic (Lao PDR) and Indonesia.

The existence of missing links in the regional infrastructure network presents a critical challenge, especially in the CLMV (Cambodia, Lao PDR, Myanmar, Viet Nam) countries. Missing links, such as unpaved road segments or incomplete railway connections, disrupt the seamless movement of goods and people across borders, reducing the overall efficiency of the ASEAN connectivity agenda. Completing these missing links often involves overcoming significant geographical and technical barriers, such as difficult terrain, insufficient technical expertise, and inadequate local infrastructure. These barriers can increase project costs and extend timelines, making it difficult to achieve the intended connectivity improvements. For instance, financing the Lao PDR's China railway project, valued at US$5,950 million – approximately 40% of Lao PDR's GDP – is the largest infrastructure project in the country's history and exemplifies these challenges. The average cost of constructing a kilometre of rail is around US$15 million per kilometre. Notably, the cost per kilometre of the Lao PDR–China railway falls slightly below this average. For further details on the costs of other railway construction in the region, see Anggina (2023).

The Trans-ASEAN Gas Pipeline (TAGP) project further illustrates the difficulties in aligning regional and national priorities. The TAGP aims to create a regional gas pipeline network to enhance energy security and connectivity. However, differing national energy policies, regulatory frameworks, and funding challenges have delayed its implementation, demonstrating the complexity of coordinating infrastructure projects (Syah and Mahmud, 2019). Such delays can lead to higher costs, inefficiencies in trade, and missed economic opportunities.

The challenges and constraints in achieving infrastructure connectivity stem from the need to align regional and national priorities, address budgetary constraints, and complete critical missing links. Overcoming these challenges requires stronger regional cooperation, innovative financing solutions, and a commitment to aligned, long-term planning and investment (Fünfgeld, 2019).

3.2. Institutional Connectivity

Institutional connectivity poses a greater challenge to ASEAN than infrastructure connectivity. Whilst infrastructure projects can progress with sufficient funding, institutional connectivity is influenced by political economy, with national priorities often taking precedence. The biggest challenge from a regional perspective is implementing agreed-upon frameworks and policies. Despite numerous agreements and initiatives designed to enhance regional integration, actual execution often falls short due to administrative and bureaucratic hurdles. Such initiatives often become opportunities for ASEAN leaders to stage photo opportunities rather than achieve substantial progress.

AMS face difficulties aligning their national regulations and procedures with regional agreements, leading to inconsistent application and enforcement. Inadequate institutional capacity and resources in some AMS impede the implementation of connectivity initiatives, resulting in delays and inefficiencies, which is why technical assistance is often obtained on a regional level.[1]

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[1]   See the assistance given by the European Union in their Arise Plus project (Arise Plus, 2024)

It is normal for AMS to be reluctant to cede control over certain policy areas or regulatory practices to a supranational authority, which hinders deeper regional economic integration and cooperation. This reluctance stems from a desire to maintain national autonomy and protect domestic interests. This challenge is particularly evident in areas such as customs, trade facilitation, and regulatory harmonisation, where deeper integration requires AMS to closely align their policies (Sheldon, 2008). Balancing national sovereignty with regional commitments often leads to compromises that dilute the effectiveness of regional agreements.

Although many ASEAN agreements have been established to promote institutional connectivity, their impact is often limited by a lack of enforcement mechanisms and compliance monitoring. As an example, whilst the ASW initiative is claimed to be a success, its effectiveness varies across AMS due to differing levels of implementation and adherence to agreed standards. The absence of binding enforcement measures means that non-compliance does not result in penalties, reducing the overall effectiveness of ASEAN agreements. This fragmentation undermines the economic integration goals of MPAC 2025, limiting the potential for regional economic growth and development.

Institutional connectivity faces several challenges and constraints, including implementation difficulties, national sovereignty issues, and the effectiveness of regional agreements. Addressing these challenges requires enhanced cooperation, capacity-building efforts, and the development of robust enforcement and compliance mechanisms that AMS are willing to adhere to.

3.3. People-to-People Connectivity

In the area of student exchanges, funding and resource constraints often limit the scale and reach of the programmes, many of which rely on inconsistent financial support. Additionally, differences in educational systems, accreditation standards, and language barriers pose challenges to the effective implementation and widespread adoption of these exchange programmes. ASEAN would benefit from an ERASMUS type of program that mandates students to spend at least one semester in at least two AMS, alongside the development of an ASEAN Credit Transfer System (Chao, 2023).

ASEAN's people-to-people connectivity faces challenges stemming from cultural and linguistic diversity. Whilst enriching, diversity can create communication challenges and hinder deeper integration. Economic disparities amongst AMS also affect individuals' ability to participate in cross-border activities, with financial barriers limiting travel and exchange opportunities. Regulatory and institutional hurdles can present significant obstacles. The lack of harmonised regulations and policies on people's mobility, such as differing immigration laws and standards for professional qualification recognition, creates barriers. Institutional inertia and the slow pace of implementing regional frameworks further delay the benefits of these connectivity initiatives.

Insufficient infrastructure, particularly in less developed regions of ASEAN, limits the effectiveness of people-to-people connectivity initiatives. Remote and underserved areas do not fully benefit from these programmes, perpetuating regional inequalities and limiting overall connectivity within ASEAN.

Prior to the COVID-19 pandemic, efforts to increase intra-ASEAN tourism by 50% were progressing well, driven by visa-free travel agreements and regional tourism campaigns. However, the pandemic severely disrupted tourism, causing a sharp decline in travel and impacting progress towards this goal. Whilst recovery efforts are ongoing, tourism will need sustained efforts to restore and boost post-pandemic travel to meet the 50% increase target (ASEAN, 2015).

3.4. MPAC 2025 Implementation Gaps

Significant administrative and bureaucratic hurdles are the primary reasons for the implementation gaps in MPAC 2025 (Valockova, 2021). Aligning national regulations and procedures with regional agreements is often complex and time-consuming. Each AMS has its own set of regulations and administrative frameworks, complicating efforts to harmonise them with the regional standards set out in the MPAC 2025. The misalignment leads to inconsistencies in policy application and enforcement, causing delays and inefficiencies in the execution of regional projects.

Another factor contributing to the gaps is the lack of institutional capacity and resources in some ASEAN countries. Effective implementation of the MPAC initiatives requires well-developed institutional frameworks and sufficient resources, both of which are lacking in several AMS. Inadequate funding, a shortage of skilled personnel, and limited technical expertise severely hamper the ability of these countries to implement connectivity projects effectively. This is evident in the case of Brunei Darussalam, Lao PDR, and Malaysia regarding the implementation of the ASEAN Framework Agreement on Multimodal Transport. Disparities in institutional capacity amongst AMS create uneven progress and affect the overall success of MPAC 2025.

AMS are often hesitant to cede control over certain policy areas or regulatory practices to a supranational authority, akin to the European Commission, a step necessary for deeper integration and cooperation. The desire to maintain national autonomy and protect domestic interests has led to reluctance to fully commit to regional agreements (Cockerham, 2010). The reluctance is particularly evident in areas such as customs, trade facilitation, and regulatory harmonisation, where policy alignment is crucial. Balancing national sovereignty with regional commitments often results in compromises that dilute the effectiveness of regional agreements.

The key strategies of the MPAC 2025 have seen varying degrees of progress. Whilst there have been notable achievements in areas such as digital connectivity and initial trade facilitation efforts, challenges remain, including the impact of the COVID-19 pandemic on tourism, regulatory barriers, and disparities in infrastructure development. The implementation gaps stem from a combination of administrative and bureaucratic hurdles, limited institutional capacity and resources, sovereignty concerns, and absence of commitment. To bridge these gaps, continued efforts, sustained political commitment, and strategic investments are needed to fully realise MPAC 2025's goals and ensure the equitable distribution of connectivity benefits across ASEAN. MPAC 2025 should be regarded as a living document, as its objectives will not be achieved by the set deadline, and a new approach is needed to enhance regional connectivity in a more flexible and agile manner.

4. A Proposed Framework for Post-2025 Connectivity

To effectively address evolving challenges and opportunities in the post-2025 era, ASEAN must adopt a dynamic and flexible approach to developing its connectivity strategy. Table 16.1 shows the guiding principles proposed for post-2025 ASEAN connectivity.

Table 16.1. Post-2025 ASEAN Connectivity Guiding Principles

Principle 1	• Develop Adaptive Planning and Implementation
Principle 2	• Enable Inclusive and Participatory Processes
Principle 3	• Focus on Sustainability and Resilience
Principle 4	• Leverage Emerging Technologies

ASEAN = Association of Southeast Asian Nations.

4.1. Principle 1: Adaptive Planning and Implementation

Developing an adaptive framework for ASEAN's connectivity strategy is essential to ensure that connectivity initiatives remain effective and relevant amidst evolving trends, technological advancements, and shifting regional dynamics. This framework should allow for regular updates and adjustments, thereby accommodating new developments and addressing unforeseen challenges. Integrating continuous monitoring and feedback mechanisms will help identify emerging trends and technological breakthroughs that can enhance connectivity projects. Flexible planning processes should be included, enabling swift responses to changing circumstances, such as economic shifts or geopolitical developments. This adaptability will help maintain the relevance of the region's connectivity strategy and enhance its resilience, ensuring it can withstand and recover from disruptions. Such a framework would support the long-term sustainability and success of regional connectivity efforts by fostering an environment of continuous improvement and innovation.

Jelenc et al. (2020) highlight the Plan-Do-Check-Out (PDCA) as a valuable tool for managing strategy deployment and fostering a culture of continuous improvement. ASEAN's new connectivity strategy should embed and endorse the PDCA method across all AMS.

Table 16.2 presents a proposed adaptive framework for regional connectivity based on a PDCA method.

Table 16.2. Regional Connectivity Adaptive Framework

Dimensions	Activities
Continuous monitoring and feedback mechanisms	• **Data collection and analysis.** Establish a robust system for collecting data on key performance indicators related to connectivity activities. This includes metrics on infrastructure usage, digital service adoption, regulatory compliance, and socio-economic impacts. • **Feedback loops.** Implement regular feedback loops with key stakeholders, including government agencies, private sector partners, local communities, and international organisations, ensuring that the experiences and insights of those directly affected by the connectivity activity inform ongoing adjustments.
Flexible planning process	• **Scenario planning.** Develop multiple scenarios based on potential future trends and uncertainties. This allows ASEAN policymakers to anticipate various outcomes and prepare flexible responses, considering technological advancements, economic shifts, and geopolitical changes. • **Modular project design.** Structure connectivity initiatives in a modular way, enabling components to be added, removed, or modified without disrupting the entire initiative. For example, phased implementation plans for infrastructure projects can allow adjustments based on emerging needs and resources.
Iterative implementation	• **Pilot projects.** Initiate small-scale pilot projects to test new concepts and technologies, serving as learning opportunities to refine approaches before broader implementation. • **Phased scaling.** Scale successful pilot projects iteratively, starting with local implementations, then expanding regionally, and applying best practices and lessons learned to other areas.
Responsive governance and coordination	• **Adaptive governance structures.** Create governance structures that can quickly respond to new information and changing conditions, including flexible regulatory frameworks and cross-sectoral coordination bodies capable of adjusting policies and priorities. • **Regular review and adjustment.** Schedule regular reviews of all connectivity initiatives to assess progress and make necessary adjustments, informed by collected data and stakeholder feedback, ensuring alignment with current realities and future projections.
Leveraging technology and innovation	• **Technology watch.** Establish a technology watch function to monitor advancements that could impact connectivity projects, focusing on areas such as artificial intelligence, the Internet of Things, and digital infrastructure. • **Innovation hubs.** Create innovation hubs to foster the development and deployment of cutting-edge technologies, providing support and funding for startups and small and medium-sized enterprises working on innovative connectivity solutions.
Stakeholder engagement and capacity building	• **Inclusive engagement**. Ensure continuous engagement with stakeholders, including marginalised and underserved communities, to gather a wide array of perspectives and needs. • **Capacity-building programmes.** Implement programmes to enhance the skills and knowledge of national authorities, project managers, and other stakeholders, ensuring they are equipped to contribute effectively to the adaptive framework.

Adopting this adaptive framework would enable ASEAN's regional connectivity strategy to remain dynamic, resilient, and responsive to the ever-changing landscape of technological, economic, and social developments.

4.2. Principle 2: Enable Inclusive and Participatory Processes

Engaging a wide range of stakeholders – including governments, the private sector, civil society, and local communities–is crucial for the success of ASEAN's connectivity strategy. This inclusive approach ensures that diverse perspectives and expertise are considered, leading to more holistic and effective solutions. Governments can provide regulatory support and public funding, whilst the private sector can offer technical expertise and investment. Civil society organisations can advocate for the needs of marginalised groups and monitor project impacts, ensuring accountability and transparency. Local communities, as the ultimate beneficiaries, offer invaluable insights into the on-the-ground realities and cultural nuances that can make or break the success of an initiative (Wells et al., 2021). This comprehensive engagement helps build trust and buy-in from all parties, which is essential for the long-term sustainability of ASEAN's connectivity strategy and its various initiatives.

4.3. Principle 3: Focus on Sustainability and Resilience

ASEAN must prioritise the development of green infrastructure to minimise environmental impact and enhance the climate resilience of connectivity projects. This involves integrating renewable energy sources, such as solar and wind power, to reduce dependence on fossil fuels and reduce greenhouse gas emissions. Incorporating energy-efficient technologies, such as LED lighting and smart grid systems, can further reduce the environmental footprint of infrastructure projects. Sustainable land-use practices, including the preservation of natural habitats and the creation of green spaces, help maintain ecological balance and protect biodiversity. Beyond environmental benefits, these initiatives must contribute to building resilient systems that can withstand and quickly recover from disruptions, such as natural disasters, economic shocks, and technological failures. By designing infrastructure that is both green and resilient, projects can ensure the continuity of connectivity and its benefits even under adverse conditions (Corfee-Morlot et al., 2012). This comprehensive approach not only addresses immediate environmental concerns but also promotes long-term sustainability and adaptability, making communities more robust and better prepared for future challenges.

4.4. Principle 4: Leverage Emerging Technologies

ASEAN must harness the power of digital technologies, such as AI, IoT, blockchain, and big data analytics, as these are crucial for enhancing connectivity in modern infrastructure projects. These technologies enable the deployment of smart transportation systems that optimise traffic flow and reduce congestion, digital trade platforms that streamline cross-border transactions, and real-time data monitoring and analysis tools that provide critical insights for proactive decision-making. ASEAN must foster innovation ecosystems to support the continuous development and deployment of these cutting-edge technologies (Pangarkar and Vandenberg, 2022). This involves providing adequate funding and infrastructure for startups and tech companies, as well as creating a conducive regulatory environment that encourages innovation and experimentation. ASEAN and its private sector partners can drive technological advancements that not only enhance connectivity but also stimulate economic growth and competitiveness. This dual approach ensures that the benefits of digital transformation are fully realised, leading to more intelligent, efficient, and resilient connectivity solutions.

4.5. Integration of MPAC 2025 with Other ASEAN Initiatives

Aligning ASEAN's connectivity strategy with the broader economic integration goals of the ASEAN Economic Community is crucial. The alignment should prioritise reducing trade barriers, harmonising regulations, and promoting the free flow of goods, services, capital, and skilled labour. Such alignment enhances the efficiency and competitiveness of the ASEAN single market, creating a more integrated regional economy. Collaboration across various economic sectors, including transport, energy, finance, and the digital economy, should be fostered to ensure cohesive and interconnected operations. Aligning sector-specific policies and standards facilitates seamless cross-border activities, driving economic growth and integration.

Leveraging the trade facilitation provisions of the Regional Comprehensive Economic Partnership (RCEP) can further enhance regional connectivity through streamlined customs procedures, improved logistics infrastructure, and the promotion of digital trade platforms. These efforts facilitate faster and more efficient cross-border trade. Aligning connectivity projects with RCEP's investment promotion goals can attract regional and global investors. Creating a conducive regulatory environment and offering investment incentives will help finance infrastructure development and promote economic resilience.

A holistic approach to connectivity initiatives is necessary for effective integration across different sectors and governance levels. This includes aligning national, regional, and local projects to create a seamless and interconnected infrastructure network. Establishing mechanisms for inter-agency coordination, such as joint task forces, coordinating committees, and inter-ministerial working groups, ensures coherent and coordinated implementation of connectivity projects. Promoting inclusive growth and development is also critical, with a focus on equitable access to opportunities and resources, particularly for marginalised and underserved communities. Investment in rural infrastructure, digital inclusion programmes, and capacity-building initiatives, along with the implementation of social and environmental safeguards, ensures that connectivity projects are sustainable and benefit all segments of society.

The new framework for post-2025 connectivity has been proposed, designed to be dynamic, flexible, and integrated with other key ASEAN initiatives. By adopting adaptive planning and implementation, fostering inclusive and participatory processes, emphasising sustainability and resilience, and leveraging emerging technologies, ASEAN can enhance regional connectivity and promote sustainable and inclusive growth. However, certain conditions must be met before a new regional connectivity plan can be developed and implemented.

5. Key Conditions for Post-2025 ASEAN Connectivity

To achieve seamless and comprehensive connectivity in the ASEAN region post-2025, several essential conditions must be met. These include aligning regulations and standards across AMS to remove barriers to trade and investment, establishing robust financial support through an ASEAN Connectivity Fund, and strengthening institutional capabilities with regional capacity-building programmes. Prioritising sustainable infrastructure projects that minimise environmental impact, ensuring digital inclusion across all areas, enhancing the role and capacity of ASEAN bodies, and promoting inclusive stakeholder engagement are also vital. Implementing a robust monitoring and evaluation framework with clear indicators and benchmarks is necessary to track progress and ensure transparency. Addressing these conditions will enable ASEAN to overcome current challenges, enhance regional connectivity, and achieve sustainable and inclusive growth in the post-2025 era.

The foremost condition for successful ASEAN connectivity is the harmonisation of regulations and standards across AMS. Regulatory discrepancies create barriers to trade, investment, and cross-border operations, hindering regional integration. ASEAN should establish a dedicated task force with supranational authority to align customs procedures, technical standards, and licensing requirements, significantly reducing these barriers. Developing a comprehensive roadmap for regulatory alignment, with regular reviews and updates to maintain compliance with international best practices, will facilitate smoother cross-border operations and make the ASEAN single market a reality.

Funding is crucial for the development and maintenance of connectivity infrastructure. Creating an ASEAN Connectivity Fund that pools resources from AMS, international donors, and private investors can provide the financial backing necessary for regional connectivity projects. This fund can serve as a catalyst for large-scale infrastructure development, ensuring that the financial constraints of individual AMS do not hinder progress.

Improving institutional capabilities across ASEAN is vital for the successful management and implementation of the post-2025 ASEAN connectivity strategy. Launching a regional capacity-building programme to provide training and technical assistance to government agencies and local authorities will enhance their ability to handle large-scale projects. Partnerships with international organisations and educational institutions can deliver targeted training in areas such as project management, regulatory compliance, and emerging technology usage. Strengthening institutional capacity will ensure that AMS are well-equipped to manage complex connectivity initiatives.

Enhancing the role and capacity of regional institutions is crucial for better coordination amongst AMS. Strengthening bodies such as the ASEAN Secretariat and the ASEAN Coordinating Committee on Connectivity, through increased delegation of authority, will facilitate effective oversight and advancement of the region's connectivity agenda. Providing these bodies with the necessary resources and authority will enable them to coordinate efforts and drive progress more efficiently. Joint task forces composed of representatives from relevant ministries and agencies across AMS can address specific connectivity challenges, ensuring focused and coordinated action.

Last but not least, the development of a regional monitoring and evaluation framework with clear indicators and benchmarks is essential to maintain transparency and regular assessments of connectivity initiatives. Cultivating a culture of continuous improvement, which has been lacking in ASEAN thus far, will be key to achieving sustained progress.

6. Conclusion

The MPAC 2025 has laid a solid foundation by identifying five strategic areas: sustainable infrastructure, digital innovation, seamless logistics, regulatory excellence, and people mobility. Significant strides have been made, notably in enhancing digital infrastructure and promoting green technologies in infrastructure projects.

However, the implementation of MPAC 2025 has not been without its hurdles. The COVID-19 pandemic has both hindered and accelerated connectivity efforts, revealing gaps in physical infrastructure and institutional frameworks whilst simultaneously pushing for digital transformation. The region has faced challenges such as the misalignment of regional and national priorities, funding constraints, and regulatory inconsistencies.

To address these challenges and capitalise on new opportunities, the proposed framework for post-2025 connectivity emphasises adaptive planning, inclusive and participatory processes, sustainability and resilience, and leveraging emerging technologies. This approach aims to ensure that ASEAN's post-2025 connectivity strategy remains dynamic and responsive to evolving regional and global contexts.

Key conditions for the success of ASEAN's post-2025 connectivity include regulatory harmonisation, enhanced funding mechanisms, capacity building, and the strengthening of regional institutions. By addressing these critical areas, ASEAN can enhance its regional connectivity, promote sustainable and inclusive growth, and build a more integrated and resilient community.

Whilst commendable progress has been made under MPAC 2025, continuous efforts and strategic adjustments are essential to overcome current limitations and achieve long-term connectivity goals. The proposed adaptive framework and the key conditions outlined in this paper can serve as a roadmap for ASEAN to navigate future challenges and opportunities, ensuring the region's connectivity ambitions are met in a sustainable and inclusive manner.

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