

ASEAN Smart City Network Cooperation for Digital Inclusion: A Comparative Study of Indonesia and Malaysia

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ABSTRACT

The ASEAN Smart City Network (ASCN) represents a significant regional initiative aimed at harnessing technology and innovation to drive sustainable urban development. This study conducts a comparative analysis of ASCN implementation in Indonesia and Malaysia, examining the initiatives at the constitutional, organizational, and operational levels through Hill and Hupe's multi-level governance framework. By analyzing primary policy documents and secondary data sources, the research reveals diverse approaches and priorities between the two countries. Indonesia focuses on empowering MSMEs and enhancing public services through digital platforms, while Malaysia emphasizes urban data management and sustainable transportation. The findings underscore the importance of regional cooperation, national coordination, and local participation in driving smart city progress. The study contributes to the field by offering a nuanced understanding of the complex dynamics shaping ASCN implementation in two key ASEAN member states. It generates valuable policy implications and highlights the potential of ASCN as a platform for knowledge exchange and collaboration. The comparative lens and multi-level governance framework provide a foundation for future research on smart city development in the rapidly urbanizing ASEAN region.

Keywords: ASEAN Smart Cities Networks, Multi-Level Governance, Comparative Analysis

INTRODUCTION

Social inclusion within the ASEAN region presents a complex landscape marked by significant disparities in income, access to essential services, and opportunities for marginalized groups. Despite the region's robust economic growth—averaging around 5% annually before the COVID-19 pandemic—the benefits of this growth have not been evenly distributed across all sectors of society (World Bank, 2020).

Social inclusion in the ASEAN region is a multifaceted challenge, marked by significant disparities in income, access to essential services, and opportunities for marginalized groups. Despite impressive economic growth in many ASEAN countries, these benefits have not been uniformly distributed. Income inequality remains a persistent issue, with countries like Malaysia and Thailand exhibiting high Gini coefficients of 0.407 and 0.374 (World Bank, 2019), respectively, signaling substantial wealth gaps. While urban centers in ASEAN countries have generally thrived, rural areas and marginalized communities, including ethnic minorities, women, and people with disabilities, often find themselves excluded from the benefits of this growth.



Educational attainment is another area where social inclusion is lacking. In rural Cambodia (Chantou, 2023), only 40% of children complete primary education, compared to nearly 90% in urban centers, a disparity further exacerbated by limited access to digital education, especially in remote areas. Similarly, healthcare access varies significantly, with countries like Laos facing maternal mortality rates of 185 deaths per 100,000 live births, compared to Singapore's 10 deaths per 100,000 live births. These disparities are further compounded by the urban-rural divide, where rural communities often lack basic services such as clean water, electricity, and adequate transportation, limiting their economic opportunities and perpetuating cycles of poverty.

The digital divide is a critical issue that exacerbates social exclusion in the region. While urban areas have embraced digital transformation, rural areas remain disconnected, with only 55% of the ASEAN population having access to the internet (ASEAN Secretariat, 2020). This lack of connectivity restricts access to essential digital services such as online education, telemedicine, and e-government services, leaving large segments of the population excluded from the benefits of the digital economy. Amid these challenges, the ASEAN Smart Cities Network (ASCN) emerges as a promising solution. Launched in 2018, the ASCN aims to harness technology and innovation to build smart, sustainable cities that promote inclusive growth. The network's focus on enhancing the quality of life for all citizens, regardless of their socioeconomic status, directly addresses the social inclusion gaps prevalent in the region.

One of the key strategies of the ASCN is to promote smart mobility solutions that improve accessibility for people with disabilities and other vulnerable groups. For example, in Jakarta, smart city initiatives have focused on improving public transportation and affordable housing, directly benefiting low-income communities. Similarly, digital governance projects in cities like Singapore have made public services more transparent and accessible, reducing the bureaucratic hurdles that often disproportionately affect the underprivileged.

According to the ASCN Framework published by ASEAN, there are six key focus areas in the development of smart cities in the region. The first focus area, *Civic and Social Focus*, emphasizes enhancing social harmony, cultural diversity, and community spirit by leveraging smart solutions to achieve social cohesion, eliminate discrimination, and preserve the cultural authenticity and heritage of cities. The second focus area, *Health and Well-being*, is centered on applying innovative solutions to improve citizens' overall welfare by optimizing key services such as healthcare, housing, and education, while ensuring equitable access for all. The third focus area, *Safety and Security*, is committed to addressing urban security issues by adopting technologies that enhance the security of vital resources, strengthen cybersecurity, and improve public safety through city *Environment*, aims to build a high-quality environment by utilizing technologies to maintain a clean and sustainable ecosystem, promote the responsible use of natural resources, and bolster resilience against disaster risks and climate change impacts. The fifth focus area, *Built Infrastructure*, focuses on investing in smart infrastructure,



including energy, water utilities, transportation, and buildings, to meet the diverse needs of urban populations. Lastly, the sixth focus area, *Industry and Innovation*, encourages the use of new technologies to enhance competitiveness and productivity, particularly for micro, small, and medium enterprises (MSMEs), by promoting entrepreneurship, trade, workforce upskilling, and supporting research and technology incubation. These six focus areas work in tandem to create sustainable, inclusive, and resilient smart cities across the ASEAN region.

Regionalism, as conceptualized by Nye (1971), refers to the process of cooperation and integration among countries within a specific geographic area, aimed at achieving shared goals and addressing common challenges. This phenomenon involves the formation of regional organizations, agreements, and initiatives that foster collaboration across various sectors, including economics, politics, security, and culture. Underpinning regionalism is the notion that neighboring countries share geographical, cultural, historical, and economic ties, which can be leveraged for collective benefits.

In international relations, regionalism has emerged as a significant force in global governance, providing a platform for addressing transnational issues (Hurrell, 1995). The European Union exemplifies successful regionalism, where economic integration has led to broader political and social cooperation. However, the effectiveness of regional cooperation often depends on factors such as political will, compatibility of national interests, and institutional capacity (Breslin & Higgott, 2003).

Within this context, the Association of Southeast Asian Nations (ASEAN) stands out as a prominent example of regionalism in the Asia-Pacific region. Founded in 1967, ASEAN has evolved to foster integration across multiple sectors, guided by principles such as non-interference and consensus-building, often referred to as the "ASEAN Way" (Acharya, 2001). Despite challenges, ASEAN's regionalism has made significant strides in addressing both traditional and non-traditional security threats, while expanding its influence through engagement with external partners (Narine, 2002).

A key concept in understanding the dynamics of regionalism is the theory of spillover effects, as proposed by Haas. Spillover refers to the process by which integration in one area creates pressures and opportunities for further integration in other areas. This occurs as initial cooperation generates functional, political, and social dynamics that make it necessary or beneficial to extend integration into additional domains (Haas, 1958). In the context of ASEAN, spillover effects have driven the expansion of cooperation from limited, technical focuses to broader political and social integration.

The ASEAN Smart Cities Network (ASCN) serves as a prime example of both regionalism and spillover effects within ASEAN. Launched in 2018, the ASCN aims to promote sustainable urban development across Southeast Asia by leveraging technology and innovation. While primarily focused on urban development and smart technologies, the ASCN's activities have spillover effects into other areas, such as economic growth, social inclusion, and environmental sustainability. As cities collaborate on smart initiatives,



they generate economic opportunities, foster greater political and social integration, and encourage regional collaboration on issues like climate change and disaster management, illustrating the multifaceted nature of regional cooperation (ASEAN Secretariat, 2018).

The ASEAN Smart Cities Network (ASCN) has been the subject of numerous studies, with researchers examining its potential benefits, implementation challenges, and broader implications for urban development and regional integration in Southeast Asia. Several studies highlight the positive aspects and potential of the ASCN. Tan et al. (2021) offer a comprehensive analysis of the network, emphasizing Singapore's crucial role in facilitating transboundary learning. They identify key enablers for knowledge exchange, including effective branding, political will, and private sector involvement. Similarly, Katigbak & Credo (2022) view the ASCN as a transformative initiative promoting sustainable urban development through city diplomacy and regional integration. They argue that the network empowers local governments to participate in international decision-making, enhancing urban resilience and fostering collaborative regional solutions.

However, a growing body of literature critically examines the ASCN's implementation and potential drawbacks. Crumpton et al. (2021) scrutinize the network's heavy reliance on technology, highlighting vast disparities in implementation capacities and smart city technologies across ASEAN. They emphasize the need for stronger governance roles and increased civic participation in the implementation process. Kong & Woods (2021) further this critique by exploring the challenges of "technocratic regionalism" in the ASCN. They argue that the network's technology-driven strategies, aimed at integrating diverse urban landscapes, may actually exacerbate socio-spatial inequalities, particularly due to infrastructural disparities and the dominant role of private sector participation. Another critique comes from de Jonge (2023) who adds another critical perspective, focusing on human rights concerns within ASCN projects. This study notes that smart city initiatives often prioritize economic goals at the expense of disadvantaged groups, potentially increasing social inequalities rather than reducing them.

While existing literature provides valuable insights into the ASEAN Smart Cities Network (ASCN), there is a notable gap in understanding the multi-level governance processes involved in implementing ASCN initiatives. Previous studies have focused on broad regional implications or specific technological aspects, but there's limited research applying a comprehensive governance framework to analyze ASCN implementation across different levels of government and various stakeholders. This study addresses this gap by applying Hill and Hupe's multi-level governance framework to the ASCN context. Hill and Hupe's approach distinguish between three levels of governance action - constitutional, directional, and operational - which allows for a more nuanced understanding of how ASCN policies are formulated, directed, and implemented across different governmental levels and among various actors.



Therefore, we aim to investigate the implementation of the ASEAN Smart Cities Network (ASCN) in Indonesia and compare it with the neighboring country, Malaysia. This comparative study seeks to understand the extent to which ASCN initiatives have been adopted and integrated into the urban development strategies of these two nations, both of which play critical roles in the ASEAN region. By analyzing key indicators such as smart mobility, digital governance, and inclusive urban planning, this research will provide insights into the successes and challenges faced by Indonesia and Malaysia in achieving their smart city objectives. Furthermore, the study will explore how these countries have addressed the unique social, economic, and technological challenges within their respective contexts, offering a nuanced understanding of the ASCN's impact on regional urbanization. Also, by applying Hill and Hupe's framework in a comparative study of Indonesia and Malaysia, this research aims to contribute a more sophisticated understanding of the governance dynamics within the ASCN. It will offer both theoretical insights and practical implications for policymakers and urban planners in the ASEAN region. The findings will provide valuable lessons for other ASEAN member states and contribute to the broader discourse on smart city development in Southeast Asia.

METHODS

This study employs a comparative policy analysis approach to examine the implementation of the ASEAN Smart Cities Network (ASCN) initiatives in Indonesia and Malaysia. This method allows for an in-depth analysis of how these two key ASEAN member states have adopted and integrated ASCN strategies into their urban development policies, while also highlighting the unique challenges and successes in each context. Our data collection process involves a comprehensive review of official ASCN documents, national urban development policies, and smart city implementation plans from both Indonesia and Malaysia. This includes government reports, policy briefs, official statements, and legislative documents related to ASCN initiatives. Additionally, we will analyze existing quantitative and qualitative data on smart city indicators for selected cities in Indonesia and Malaysia, drawing from reputable sources such as government statistical agencies, international organizations, and academic research centers.

The analysis will be guided by the policy implementation framework developed by Hill and Hupe (2002), which provides a multi-layered perspective on policy implementation. T We have tailored this framework to align with the governance structures relevant to ASCN implementation across three levels: Constitutional (International), Organizational (State), and Operational (Local). At the Constitutional level, we examine the overarching ASEAN framework and international agreements that shape ASCN initiatives. The Organizational level focuses on how national governments in Indonesia and Malaysia implement ASCN initiatives, while the Operational level assesses the on-the-ground implementation of specific ASCN projects in selected cities. Using this adapted framework, we systematically compare the policy implementation processes in Indonesia and Malaysia, focusing on key areas such as smart mobility policies, digital governance strategies, inclusive urban planning policies, technological infrastructure



development plans, multi-stakeholder engagement mechanisms, and policy challenges and adaptation strategies. We employ thematic analysis to identify patterns and themes in the policy documents and secondary data, allowing us to compare and contrast the approaches taken by Indonesia and Malaysia in implementing ASCN initiatives.

While this methodology aims to provide a nuanced understanding of ASCN policy formulation and implementation in two significant ASEAN member states, we acknowledge certain limitations. The study is restricted to two countries within ASEAN and may not be fully representative of the entire network. Moreover, reliance on secondary data and official documents may not capture all nuances of policy implementation, and the ongoing nature of ASCN implementation means that some initiatives may be in early stages, potentially limiting the availability of long-term impact data. Despite these constraints, this research seeks to offer valuable insights into the successes, challenges, and potential areas for improvement in the network's approach to fostering smart and sustainable urban development in Southeast Asia.

RESULTS

Overview of Asian Smart Cities Networks Implementation

Launched in 2018, the ASEAN Smart Cities Network (ASCN) is envisioned to improve the life of citizens across ASEAN by utilizing technology as an enabler. The three main goals are to enhance cooperation on smart city development, deliver commercially viable projects, and allow collaboration with outside partners (ASCN BOOK)

According to ASEAN Smart Cities Networks Monitoring & Evaluation Report 2023 document, ASCN aims to advance smart city development across the region through city projects and regional cooperation initiatives. As of August 2023, 86 smart city projects are being implemented within ASCN. Among them, 77.9% are currently underway, 19.8% are in the planning phase, and 2.3% are completed. Specifically, Indonesia has 15 projects in three cities: Banyuwangi, Jakarta, and Makassar; while Malaysia has 14 projects in four cities: Johor Bahru, Kota Kinabalu, Kuala Lumpur, and Kuching. This distribution apparently reflects diversified approaches adopted by both countries for their smart city initiatives.

a. Constutional Level Analysis

At the constitutional level, the ASEAN Smart Cities Framework was developed as a nonbinding guide, endorsed by ASCN at its inaugural meeting in July 2018 and adopted by ASEAN Leaders in November 2018. This framework articulates ASEAN's approach to smart and sustainable urbanization, providing a common vision for the diverse member states and balancing technological advancements with local context. There are several international partnerships with ASEAN's External Partners, including dialogue partners like Japan, Korea, and the US, as well as development partners like Germany. Furthermore, the involvement of international organizations such as the World Bank,



Asian Development Bank, and UNDP in supporting ASCN initiatives demonstrates the international cooperative framework underpinning the network.

b. Organizational Level Analysis

Both Indonesia and Malaysia have nominated cities to be part of the ASCN pilot project, suggesting national-level commitment to smart city development. In Malaysia, the Iskandar Regional Development Authority (IRDA) plays a key role in coordinating smart city efforts in Johor Bahru, and the nomination of multiple cities including Johor Bahru, Kuching, Kota Kinabalu, and Kuala Lumpur to the network, indicating a level of national involvement in local initiatives. For example, in Malaysia, the Sarawak Multimedia Authority (SMA) is leading efforts to develop a comprehensive flood-related database for more accurate flood modeling and prediction. This suggests some level of state coordination in implementing smart city initiatives. For Indonesia, the nomination of multiple cities (Jakarta, Makassar, and Banyuwangi) to the ASCN suggests a broader national strategy for smart city development across different regions of the country.

c. Operational Level Analysis

The Operational level provides the most detailed information on smart city implementation in Malaysian and Indonesian cities. In Malaysia, there are attempts toward the development of an Integrated Urban Water Management Blueprint and an Urban Observatory tool by the city of Johor Bahru; these demonstrate local-level initiative towards the realization of ASCN goals. Some of the projects include telemedicine and integrated health services in Makassar, creation of job opportunities in Jakarta through the linkage of research institutions with businesses, and Banyuwangi's digital marketplace to support small businesses. These will help exemplify how cities in both countries customize the concept of smart cities to serve local needs and face local challenges. Other forms of local partnership emerge, exemplified by the collaboration between Banyuwangi and e-learning platforms or Jakarta with application-based transport services. While these examples indicate limited insights in terms of operational-level implementation, they also point to potential challenges on data integration, infrastructure development, and balancing rapid urbanization with sustainable growth. In the end, the available information provides a strong foundation for grasping the Constitutional and Operational level of ASCN implementation in Malaysia and Indonesia. It indicates areas for further research at the Organizational level that allows comprehending fully the national strategies and inter-ministerial coordination mechanisms of the two countries.

d. ASCN Jakarta – Kuala Lumpur Focus Area Comparison

Jakarta and Kuala Lumpur, as the capitals of their respective nations, demonstrate significant commitment to advancing smart city initiatives aimed at enhancing the quality of life for their citizens. The implementation of various projects in these cities focuses on improving infrastructure, fostering industrial innovation, and providing more



efficient and transparent public services. This analysis delves into the primary focus areas of these cities within the context of the ASEAN Smart Cities Network (ASCN).

In Jakarta, a central focus of smart city development is fostering industrial innovation through the JakPreneur program. This initiative plays a critical role in supporting micro, small, and medium enterprises (MSMEs) by providing training, mentorship, licensing, marketing support, financial reporting assistance, and access to capital. JakPreneur also strengthens collaboration with technology companies, financial institutions, and educational organizations to build and sustain an entrepreneurial ecosystem. Since its launch in February 2020, JakPreneur has successfully registered over 350,000 MSMEs, underscoring its substantial impact on local economic empowerment (Media Jaya, 2020).

Conversely, Kuala Lumpur emphasizes industrial innovation through initiatives such as the Kuala Lumpur Urban Observatory/G-Asset. G-Asset serves as a central platform for managing and disseminating urban data, supporting effective decision-making and city management. This platform enables collaboration among various stakeholders to integrate social, economic, and physical data necessary for urban planning. The initiative also supports the further development of an urban observatory, which acts as a data hub for various sectors in Kuala Lumpur.

In the infrastructure sector, both Jakarta and Kuala Lumpur focus on developing more efficient and sustainable transportation systems. Jakarta's JakLingko project aims to integrate various public transportation modes to enhance accessibility and reduce travel time within the city. This project aligns with Jakarta's efforts to alleviate congestion and improve urban mobility through the use of advanced transportation technologies.

Meanwhile, Kuala Lumpur has launched the GoKL Journey Planner, an integrated journey planning tool for public transportation users. This project aims to facilitate the mobility of residents by providing real-time information on routes, arrival times, and transportation options. The effort not only seeks to enhance the convenience of public transportation users but also aims to reduce the reliance on private vehicles, which contribute to traffic congestion and pollution.

Jakarta and Kuala Lumpur also prioritize enhancing public and social services as part of their smart city transformations. JAKI, a mobile application and platform in Jakarta, facilitates public access to government services and provides real-time information on city management, including complaint and feedback mechanisms. This application enables residents to directly voice their concerns, which can then be addressed by the city government more promptly and efficiently. This initiative reflects Jakarta's commitment to improving transparency and accountability in public service delivery.

Kuala Lumpur has undertaken a similar approach with the development of the Kuala Lumpur Integrated Submission System, designed to streamline the submission process for documents and applications related to urban planning and development. This system



supports increased bureaucratic efficiency and accelerates government response times, thereby reinforcing good governance. In the environmental sector, both cities demonstrate a strong dedication to sustainability. Kuala Lumpur's Bicycle Friendly City initiative is aimed at promoting cycling as a viable mode of transportation by developing supportive infrastructure. This project aligns with Kuala Lumpur's vision to reduce carbon emissions and create a healthier and cleaner environment.

Also, Jakarta continues to innovate in waste management through programs like Smart Bin, which use smart technologies to monitor and manage waste bins throughout the city. This initiative aims to improve waste collection efficiency and minimize environmental impact of ineffective waste management. The smart city development efforts in Jakarta and Kuala Lumpur reflect a holistic approach that combines industrial innovation, sustainable infrastructure, and enhanced public and social services. Through the implementation of various projects, these cities strive not only to increase efficiency and effectiveness in urban management but also to engage citizens and ensure environmental sustainability. The strategies adopted by Jakarta and Kuala Lumpur can serve as models for other ASEAN cities that are also working to develop their smart city initiatives. Regional collaboration and knowledge sharing among these cities will be key to achieving sustainable urban development across the ASEAN region.

DISCUSSION AND IMPLICATIONS

The comparative analysis of ASEAN Smart City Network (ASCN) implementation in Indonesia and Malaysia reveals several key insights and implications for smart city development in the ASEAN context. First, the study highlights the importance of a multilevel governance approach in understanding the dynamics of ASCN implementation. The constitutional, organizational, and operational levels each play crucial roles in shaping the direction and progress of smart city initiatives. The ASEAN Smart City Framework provides a guiding vision at the constitutional level, while national strategies and citylevel projects drive implementation at the organizational and operational levels respectively. This multi-level perspective offers a more comprehensive understanding of the complex interplay of actors and processes involved in ASCN.

Second, the comparative lens between Indonesia and Malaysia underscores the diversity of approaches and priorities in smart city development within ASEAN. While both countries have made significant strides in advancing ASCN initiatives, they have done so in different ways. Indonesia has focused on empowering MSMEs and enhancing public services through digital platforms, while Malaysia has emphasized urban data management and sustainable transportation. These differences reflect the unique socio-economic contexts and development objectives of each country.

At the same time, the analysis also reveals common challenges and opportunities across both countries. Infrastructure development, data integration, and balancing rapid urbanization with sustainability remain key issues in both Indonesia and Malaysia. The study suggests that regional collaboration and knowledge sharing through platforms like



ASCN can help address these shared challenges and promote best practices. The findings also have important implications for policymakers and city leaders in ASEAN. The study highlights the need for robust national strategies and coordination mechanisms to support smart city development. Governments should invest in digital infrastructure, foster public-private partnerships, and build local capacities to drive ASCN implementation. At the city level, leaders must adopt a participatory approach that engages citizens and stakeholders in the design and implementation of smart city projects.

Moreover, the research underscores the potential of ASCN as a platform for regional cooperation and knowledge exchange. By sharing experiences and lessons learned, cities can accelerate their smart city journeys and avoid costly mistakes. ASEAN can play a key role in facilitating this collaboration and providing technical assistance to member states. However, the study also reveals some limitations and areas for future research. The focus on just two countries provides a limited picture of ASCN implementation across the diverse ASEAN region. Future studies could expand the comparative analysis to include more member states and cities. Additionally, the reliance on secondary data and the early stage of many ASCN projects limits the depth of operational-level insights. As ASCN initiatives mature, researchers should conduct primary data collection and impact assessments to better understand their outcomes and challenges.

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