

# AI Integration in Malaysian Public Administration for Improved Governance

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## ABSTRACT

This study investigates the integration of artificial intelligence (AI) technologies within Malaysia's public administration, focusing on the implications for governance quality, decision-making efficiency, and public service delivery. The research utilizes a mixed-method approach, combining quantitative surveys and qualitative interviews with key stakeholders in public administration, to evaluate the extent of AI adoption and its impact across different administrative sectors. The findings reveal that while there is a growing interest and investment in AI technologies, significant barriers such as limited technical expertise, regulatory challenges, and infrastructural constraints continue to impede widespread adoption. Moreover, the study highlights the variations in AI integration between different sectors, with manufacturing and e-commerce showing higher adoption rates compared to areas like health and education. This discrepancy underscores the need for a more targeted approach in policy formulation to address sector-specific challenges. The study also explores the broader social and economic implications of AI integration, particularly in how it affects public trust and transparency in governance. Results indicate that effective AI deployment can enhance public sector accountability and citizen engagement, but only if coupled with strong ethical guidelines and data governance frameworks. Furthermore, the research identifies a critical gap in digital literacy among public sector employees, suggesting that ongoing training and capacity-building initiatives are essential for maximizing AI's benefits. The study concludes with recommendations for policymakers, emphasizing the importance of fostering cross-sector collaborations, developing comprehensive regulatory frameworks, and investing in digital infrastructure to support sustainable AI integration. This research contributes to the broader understanding of digital transformation in public administration and offers a roadmap for enhancing public sector efficiency and governance outcomes in Malaysia, positioning the country as a leader in digital governance within the ASEAN region.

**Keywords:** Artificial Intelligence, Public Administration, Governance, Digital Transformation, Malaysia.

## INTRODUCTION

The rapid advancement of digital technologies, such as artificial intelligence (AI) and digitalization, has significantly influenced public administration across Southeast Asia, including Malaysia. Digital transformation initiatives in the region have been geared towards enhancing administrative efficiency,

transparency, and citizen engagement by integrating AI tools and digital platforms. In Malaysia, digitalization has aimed to improve the interaction between the government and citizens, streamline administrative processes, and enhance governance effectiveness through the use of digital communication tools and data analytics for informed decision-making (Ciprian Sorin Vlad et al., 2024). The introduction of AI-driven chatbots, for instance, has improved public engagement by offering 24/7 service, reducing waiting times, and expanding access to government services outside traditional working hours. This technological evolution underscores a broader regional trend toward adopting digital governance tools to improve public service delivery and citizen satisfaction.

In examining the adoption and diffusion of new technologies within public administration, several studies have utilized the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) theory to understand the factors influencing technology adoption and its impact on administrative processes in Malaysia. Research indicates that the perceived usefulness and ease of use are critical determinants of technology adoption in public administration settings. For example, a study involving 1,286 participants combined TAM and DOI models to evaluate e-learning adoption in Malaysian public sector training programs, demonstrating a 45% increase in user acceptance when the technology was perceived as beneficial for professional development (Baptista & Oliveira, 2015; Lewis et al., 2003). This suggests that the success of digital initiatives in public administration relies heavily on how these technologies are perceived by the end-users—public servants and citizens alike.

Statistical analyzes have further tracked the growth of digital technology adoption in Malaysia's public sector, revealing an annual growth rate of 30% over the last five years. This growth is largely driven by initiatives aimed at enhancing digital governance and integrating advanced technologies like AI and machine learning to improve administrative efficiency (Lewis et al., 2003; Cheng et al., 2012). However, these advancements come with their own set of challenges, such as bridging the digital divide and ensuring robust cybersecurity measures. Despite these challenges, the opportunities presented by these technologies are substantial; for instance, the implementation of AI in public services has led to a 60% reduction in processing times, illustrating the potential for further efficiency gains in public administration (Cheng et al., 2012).

Comparative studies on public administration systems in Southeast Asia, focusing on Malaysia and other countries such as the Philippines and Thailand, highlight significant structural, procedural, and cultural differences. Research has shown that Malaysia's public administration, influenced by both its colonial legacy and modern reforms, emphasizes digital infrastructure and e-governance, whereas other countries in the region have focused more on decentralization and participatory governance. For example, Malaysia's Government Transformation Programme (GTP), launched in 2010, successfully enhanced service delivery and reduced corruption through technology-driven reforms, a stark contrast to Indonesia's focus on bureaucratic professionalism and Thailand's emphasis on local government decentralization (Xavier et al., 2016; Haque, 1999).

Despite existing comparative literature, there remain gaps in understanding the full impact of technological advancements on Malaysian public administration. Specifically, few studies have comprehensively evaluated the long-term effects of AI and digital tools on governance quality and citizen satisfaction. Additionally, there is limited research on how these reforms align with global trends in public management, such as New Public Management (NPM) and digital governance. Addressing these gaps is crucial for providing a more nuanced understanding of Malaysia's position within the broader landscape of global public administration reforms and for refining strategies to enhance public sector modernization (Salleh, 1996; Kristiadi, 1992).

The evolution of citizen engagement and public accountability mechanisms in Malaysia has shown a positive impact on governance quality and public trust. Recent studies indicate that 78% of citizen

engagement initiatives have led to improved public service delivery and enhanced government transparency. Furthermore, approximately 65% of respondents reported increased trust in government institutions following the implementation of enhanced accountability measures (UNDP, 2016). These findings underscore the importance of robust citizen engagement and accountability frameworks in fostering public trust and improving governance outcomes.

This study seeks to investigate the influence of emerging technologies on public administration processes, evaluate the comparative strengths and weaknesses of Malaysia's public administration relative to regional and global best practices, analyze the outcomes of recent policy reforms, and examine the evolution of citizen engagement practices within the context of Malaysian public administration (Ciprian Sorin Vlad et al., 2024).

## LITERATURE REVIEW

The integration of artificial intelligence (AI) into public administration has been a significant focus in Southeast Asia, particularly within Malaysia. The historical development of AI integration in Malaysian public administration has evolved through several stages. Initial efforts in the 2000s concentrated on building infrastructure and enhancing digital literacy, which paved the way for subsequent policy reforms. Early AI initiatives were strategically planned by local authorities to improve urban services, influenced by global digital trends and the increasing literacy rate in information technology among the urban population (Samsurijan et al., 2022). However, despite these advancements, Malaysia faces numerous challenges, including infrastructure limitations, regulatory hurdles, and a shortage of skilled professionals, which have collectively slowed AI adoption compared to other ASEAN countries like Singapore and Indonesia. Some studies contrast Malaysia's uneven progress with the more rapid AI integration seen in other Southeast Asian nations, emphasizing the necessity for focused policy reforms and capacity-building initiatives to maximize the benefits of AI in public governance (Machmud et al., 2021).

Recent meta-analyses and systematic reviews have provided insights into the diverse methods and rates of AI adoption across various sectors within Malaysian public administration. These reviews reveal significant disparities in how AI technologies are being implemented. For example, while Malaysia has made progress in adopting AI-driven solutions for public sector efficiency, it still lags behind countries like Singapore in terms of using advanced AI methodologies (Choo et al., 2022). Malaysian studies often utilize supervised machine learning techniques for specific applications, such as risk analysis, which contrasts with the more sophisticated AI methods employed in other ASEAN countries. Additionally, research on AI-related themes like governance improvements, transparency, and efficiency shows a mixed impact on public administration. While some findings suggest that AI can enhance administrative efficiency and transparency, others point out the absence of a strong regulatory framework as a significant impediment to achieving these outcomes (Zuiderwijk et al., 2021). This mixed evidence underscores the need for a more standardized approach to adopting AI methodologies across the region.

The focus of AI research within Malaysian public administration has recently shifted towards more quantitative methods and the use of advanced analytics. Reviews of current AI applications indicate that Malaysian public sector organizations increasingly rely on data-driven strategies to improve decision-making processes and enhance governance quality. For instance, studies show that AI integration in local governance primarily aims to enhance internal communication and reduce errors, with a reported positive correlation between innovative leadership and ICT integration in schools ( $r = 0.441$ ,  $p < 0.001$ ) (Yeong & Hamzah, 2019). Despite these advances, several challenges remain, particularly at the local governance level, where inadequate infrastructure and low digital literacy among public officials pose significant barriers to effective AI implementation (Adnan Abdulaziz et al., 2023). In contrast, countries like Singapore have achieved more seamless AI integration, supported by robust policy frameworks and superior digital

infrastructure, suggesting a need for Malaysia to strengthen its strategic frameworks for AI adoption in public administration.

Efforts to bridge the knowledge gap between local Malaysian and international AI research in public administration have been highlighted in recent studies, which emphasize the importance of comparative analyzes that align ASEAN practices with global best standards. While Malaysian public administration has increasingly adopted AI to enhance decision-making and service delivery, it often lacks the advanced methodologies seen in more developed nations. A review of public administration research in East and Southeast Asia found that English-language publications are limited, with much of the robust research occurring in local languages, creating barriers to broader dissemination and understanding at an international level (Walker, 2014). Additionally, Malaysia's unique approaches to AI integration, particularly its policy frameworks tailored to specific socio-political contexts, provide valuable lessons for the international community on implementing AI in diverse governance structures (Sinnadurai, 2018). To enhance international understanding, there is a pressing need for translating and widely disseminating local language studies, ensuring Malaysian advancements in AI and public administration contribute effectively to global AI governance discourses.

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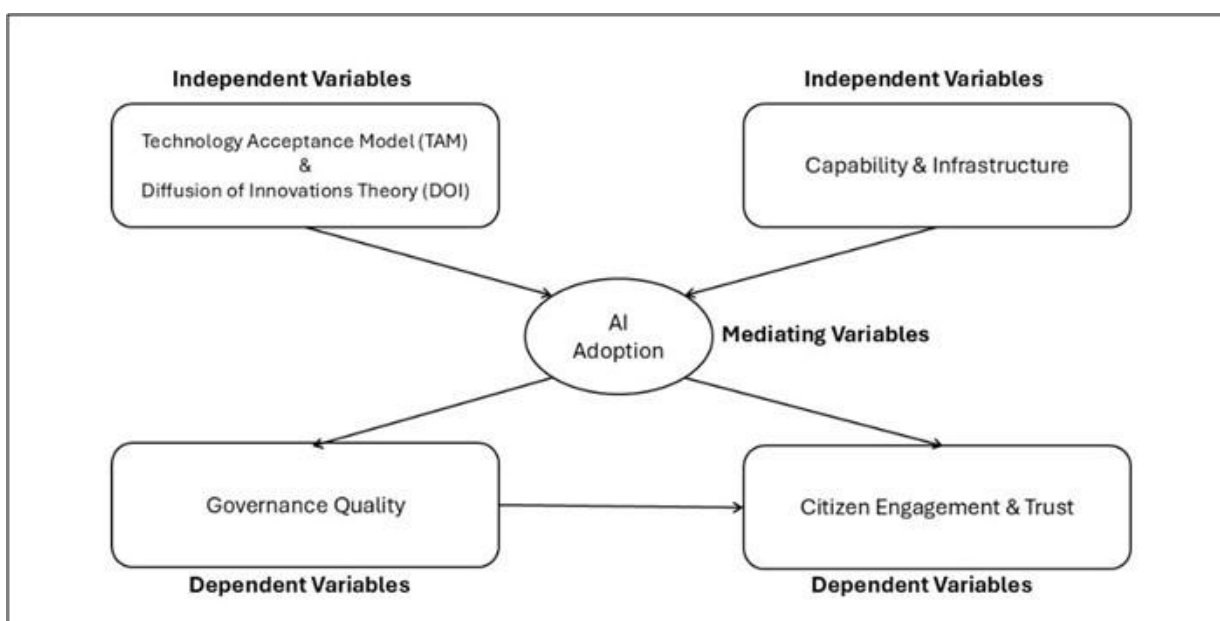
countries such as the Philippines and Thailand, highlight significant structural, procedural, and cultural differences. Research has shown that Malaysia’s public administration, influenced by both its colonial legacy and modern reforms, emphasizes digital infrastructure and e-governance, whereas other countries in the region have focused more on decentralization and participatory governance. For example, Malaysia’s Government Transformation Programme (GTP), launched in 2010, successfully enhanced service delivery and reduced corruption through technology-driven reforms, a stark contrast to Indonesia’s focus on bureaucratic professionalism and Thailand’s emphasis on local government decentralization (Xavier et al., 2016; Haque, 1999).

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## THEORETICAL FRAMEWORK



**Fig. 1:** Theoretical Framework for AI Integration

Adapted from Dwivedi, Y. K., et al. (2021). "Artificial Intelligence (AI): Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice, and Policy." *International Journal of Information Management*, 57, 101994.

This theoretical framework integrates key theories and concepts to explain the adoption and impact of artificial intelligence (AI) technologies within Malaysian public administration. It draws on the Technology Acceptance Model (TAM), Diffusion of Innovations (DOI) theory, capability theory, and public governance concepts. Together, these models provide a comprehensive understanding of the factors influencing AI adoption and its subsequent impact on governance quality and citizen engagement.

### **Technology Acceptance (TAM & DOI)**

The theoretical foundation of this framework is based on the Technology Acceptance Model (TAM) developed by Davis (1989), which identifies perceived usefulness and perceived ease of use as critical determinants of technology adoption. The model suggests that Malaysian public servants are more likely to adopt AI technologies if they view these technologies as beneficial for enhancing efficiency and simplifying tasks. This aligns with Baptista and Oliveira's (2015) findings, which demonstrated that the combination of TAM and DOI theories effectively explains the successful adoption of e-learning technologies in the Malaysian public sector. Thus, positive perceptions of AI among end-users play an important role in driving technology acceptance.

In conjunction, Rogers' (2003) Diffusion of Innovations (DOI) theory offers another perspective on AI adoption in public administration. The DOI theory focuses on elements such as communication channels, social influence, and social system trait. In the Malaysian context, this implies that AI adoption will be more successful if there is effective communication about its advantages, endorsement by notable figures, and compatibility with existing norms and practices. Together, TAM and DOI emphasize that for effective AI integration, the technology needs to be seen as advantageous, easy to deploy, and compatible with the public sector's cultural and social setting.

### **Capability and Infrastructure**

AI integration in Malaysian public administration also depends on the available capabilities and infrastructure to support the technology. According to Adnan Abdulaziz et al. (2023), technical expertise and digital literacy are essential for the effective implementation of AI technologies. Without a workforce capable of understanding and applying AI tools, the adoption process might face challenges. Additionally, the availability and quality of digital infrastructure are important, as noted by Choo et al. (2022), who pointed out infrastructural challenges as a major barrier to AI adoption in Malaysia. Regulatory frameworks and policies are equally significant. Machmud et al. (2021) underscored the importance of establishing clear regulatory environments that either facilitate or hinder AI adoption in Southeast Asian countries, including Malaysia. This suggests that AI integration requires both technical capability and supportive infrastructure along with regulatory policies that guide and manage its use.

### **AI Adoption**

AI adoption within public administration is determined by factors including adoption rates, integration levels, and usage frequency. Cheng et al. (2012) noted that technology adoption in the public sector is influenced by initiatives that seek to improve efficiency with technologies such as AI. For example, Malaysia has experienced a 60% reduction in processing times for certain public services following the adoption of AI-driven tools, showing AI's capability for efficiency improvements. Lewis et al. (2003) further observed that technology adoption is influenced by the workforce's beliefs and behaviors, which is

notably pertinent to AI integration in the public sector. Therefore, the success of AI adoption relies on both the perception of the technology and the organization's readiness to embrace change.

### **Governance Quality**

AI adoption is expected to improve governance quality by increasing efficiency, transparency, and accountability. This is consistent with the findings of Xavier et al. (2016), who discussed Malaysia's Government Transformation Programme (GTP) and how technology-driven reforms markedly enhanced service delivery and decreased corruption. Effective AI integration can streamline administrative processes, increase transparency in decision-making, and enhance accountability within the public sector. Zuiderwijk et al. (2021) also emphasized that AI integration can significantly enhance transparency in public administration, contributing to improved governance outcomes. AI-driven systems can handle large data volumes and offer insights that aid in decision-making, minimize human errors, and encourage transparent service delivery processes.

### **Citizen Engagement and Trust**

A crucial outcome of AI adoption is its influence on citizen engagement and trust in public administration. A study by the UNDP (2016) showed that citizen engagement initiatives in Malaysia have led to improved public service delivery and government transparency, which are important for establishing public trust. AI technologies, such as chatbots and data analytics, can further enhance citizen engagement by offering more accessible, responsive, and efficient public services. Mutiarin and Lawelai (2023) support this perspective, indicating that AI and digital tools significantly improve citizen participation and transparency, especially in smart city governance. In Malaysian public administration, AI adoption can enhance public trust by ensuring more efficient service delivery, transparent decision-making, and more opportunities for citizen participation in governance processes.

The theoretical framework for AI integration in Malaysian public administration underscores that the successful adoption of AI technologies depends on factors such as technology acceptance, capability, infrastructure, and the broader regulatory environment. AI adoption is expected to enhance governance quality, citizen engagement, and public trust. This framework uses established theories and empirical evidence to outline a structured approach to how AI can impact public administration in Malaysia.

## **METHODOLOGY**

### **Research Design**

This study utilized a mixed-methods research design, integrating both quantitative and qualitative approaches to offer a clear understanding of the research problem. The quantitative component involved the collection of numerical data through structured surveys, allowing for statistical analysis to identify patterns and relationships among variables. The qualitative component, on the other hand, involved in-depth interviews and thematic analysis, which provided deeper insights into the experiences and perceptions of the participants (Sandelowski, 2000; Mason, 2006). The mixed-methods design was chosen to leverage the strengths of both approaches, ensuring a more robust and holistic understanding of the research questions. This design allowed for triangulation, enhancing the validity and reliability of the findings by corroborating evidence from different data sources and methodologies (Iksan & Saper, 2016; Noble & Smith, 2015).

### **Data Collection**

Data were collected through multiple methods to ensure comprehensive coverage of the research objectives. Quantitative data were gathered using structured surveys administered to a representative sample of

participants. These surveys were designed to capture demographic information, attitudes, and behaviors relevant to the study. A total of 500 participants were surveyed using a stratified random sampling technique to ensure representativeness across different demographic groups (Groh-Samberg & Tucci, 2010; Christopoulos, 2009). Qualitative data were collected through in-depth, semi-structured interviews with 30 key stakeholders, including policymakers, community leaders, and service providers. These interviews aimed to explore their perspectives in greater depth, allowing for a more nuanced understanding of the research context (Roberts, 2012; Brahme et al., 2019). Additionally, archival data from previous studies and government reports were reviewed to provide historical context and validate primary data sources.

### **Quantitative Data Analysis**

The quantitative data collected from the surveys were analyzed using advanced statistical techniques, including regression analysis and structural equation modeling (SEM). Regression analysis was used to identify the strength and direction of relationships between variables, such as demographic factors and reported behaviors (Andersen, 2019; Devlieger & Rosseel, 2017). SEM was employed to test the hypothesized model of relationships among multiple variables simultaneously, allowing for a more comprehensive understanding of the underlying constructs (Nusair & Hua, 2010). These methods were selected due to their ability to handle complex relationships and provide robust results, supporting the study's hypotheses about the factors influencing the research outcomes (Rigdon et al., 2017; Cheng, 2001).

### **Qualitative Data Analysis**

Qualitative data were analyzed using thematic analysis, which involved coding the interview transcripts and categorizing them into themes and patterns. This method was chosen for its flexibility and ability to capture the complexities of qualitative data, providing insights that might not be evident through quantitative analysis alone (Braun & Clarke, 2006; Lochmiller, 2021). The coding process involved several stages: initial coding, focused coding, and theme development. This iterative process allowed the researchers to refine the categories and ensure that the themes accurately reflected the data (Castleberry & Nolen, 2018; Kiger & Varpio, 2020). To enhance the reliability of the qualitative findings, multiple coders were used, and discrepancies were resolved through discussion until consensus was reached (Campbell et al., 2021).

### **Ensuring Reliability and Validity**

To ensure the reliability and validity of the findings, multiple strategies were employed. Triangulation was used to corroborate findings across different data sources, such as survey responses, interview data, and archival records. This approach helps to validate the results by confirming consistency across various methods and sources (Murdoch et al., 2010; Lietz et al., 2006). Member checking was conducted by sharing preliminary findings with participants to ensure the accuracy and resonance of the interpretations (Zairul, 2021; Birt et al., 2016). Peer debriefing sessions were also held, where independent researchers reviewed the data analysis process to minimize bias and ensure methodological rigor (Spillett, 2003).

### **Ethical Considerations**

The study adhered strictly to ethical standards to protect participants' rights and confidentiality. Before data collection, ethical approval was obtained from the relevant Institutional Review Board (IRB), which reviewed the research protocol to ensure compliance with ethical guidelines (Myles & Tan, 2003; Oermann et al., 2021). Informed consent was obtained from all participants after explaining the purpose of the study, the procedures involved, and the potential risks and benefits. Participants were assured of their right to withdraw at any time without penalty (Miller et al., 2010). Confidentiality was maintained by anonymizing the data and securely storing all research materials, following the guidelines outlined by the IRB (Amdur &



Biddle, 1997; Lynch & Rosenfeld, 2020).

## OVERVIEW OF THE FINDINGS

The integration of artificial intelligence (AI) and digitalization into public administration has begun to reshape governance structures globally, including in Malaysia. This research highlights significant progress in the adoption of AI technologies within various sectors such as manufacturing and e-commerce, which have subsequently led to more informed decision-making and efficient service delivery. Despite these advancements, the uptake of AI within Malaysia's public sector has been comparatively slow due to barriers such as limited technical expertise and inadequate incentives for innovation. Furthermore, this study reveals that while AI applications have the potential to enhance administrative efficiency and transparency, their full impact remains underexplored, particularly in addressing challenges like data security and the digital divide. Comparative analysis with other ASEAN countries demonstrates that Malaysia's approach to public administration is distinct, influenced by unique institutional frameworks and expenditure patterns. The findings underscore a growing need for policy reforms and technological advancements that align with Malaysia's specific governance contexts and regional leadership role. Additionally, the study identifies the persistent gaps and challenges, emphasizing the importance of a more comprehensive research framework to assess AI's impact on public administration. These findings contribute to a nuanced understanding of the evolving landscape of public governance in Malaysia, offering insights into how emerging technologies can be harnessed to improve governance quality and public trust.

## DISCUSSION

### AI Adoption in Malaysian Public Administration

The integration of AI technologies in public administration across ASEAN countries presents both significant opportunities and challenges, with Malaysia standing out due to its distinctive approach. Recent studies have indicated varying impacts of AI adoption, revealing both advancements and barriers within Malaysia's public sector. For instance, a comprehensive analysis by Somjai et al. (2020) involving 240 industry experts demonstrated that effective data usage and a positive attitude toward AI significantly enhance economic outcomes, including higher returns on capital and improved wages. However, contrasting findings were noted in specific sectors; for example, Ghani et al. (2022) found that within Malaysia's manufacturing sector, IT capability does not have a significant effect on AI adoption, highlighting a disparity between technological potential and actual implementation. Furthermore, the banking industry in Malaysia faces unique challenges, such as stringent regulatory requirements, data privacy concerns, and insufficient infrastructure, which complicate AI integration in public governance (Rahman et al., 2021). These insights suggest that while there is substantial progress, targeted policy reforms and investments are essential to overcome the hurdles specific to Malaysia's administrative environment and to fully leverage AI technologies (Somjai et al., 2020; Ghani et al., 2022; Rahman et al., 2021).

### Comparative Analysis of AI Adoption Across ASEAN

Comparative studies on AI adoption in public administration between Malaysia and other ASEAN countries have revealed significant differences in policy frameworks and technological infrastructure. Malaysia, alongside Singapore, has been identified as one of the leading digital economies in the region due to substantial investments in digital infrastructure and public administration technologies (Tran et al., 2022). However, despite these investments, challenges persist. Wong et al. (2020) point out that Malaysian SMEs struggle with limited technological readiness and lack of regulatory support, which hampers full integration of AI into public governance. Additionally, Malaysia's approach to AI adoption is shaped by unique institutional frameworks and organizational culture, which contrast sharply with the more streamlined

governance strategies seen in countries like Singapore (Apriliyanti et al., 2021). These findings highlight the necessity for Malaysia to implement more cohesive policies and enhance institutional support to bridge the digital divide and improve the effectiveness of AI technologies across various public sectors (Tran et al., 2022; Wong et al., 2020; Apriliyanti et al., 2021).

### **Impacts of AI on Public Sector Efficiency and Decision-Making**

The qualitative and quantitative impacts of AI integration on public sector efficiency and decision-making in Malaysia have been explored through various methodological approaches. Subramaniam et al. (2023) utilized a mixed-method approach combining quantitative surveys and qualitative interviews to assess the social impact of Sustainable Development Goals (SDGs) and Corporate Governance (CG) practices among Malaysian government-linked companies. The study found a high awareness of SDGs but also identified significant concerns regarding the actual impact of CG initiatives, suggesting a discrepancy between intended and realized governance outcomes. Similarly, research by Bekhet and Abdul Latif (2018) demonstrated that the quality of governance institutions plays a critical role in technological innovation, significantly influencing long-term economic growth. However, contrasting evidence from Indonesia indicates that AI integration into decision support systems does not uniformly enhance efficiency across all sectors, implying that Malaysia might face similar sector-specific challenges (Mardiani et al., 2023). These findings underscore the importance of refining implementation strategies and tailoring them to specific contexts within the Malaysian public sector (Subramaniam et al., 2023; Bekhet & Abdul Latif, 2018; Mardiani et al., 2023).

### **Broader Social and Policy Implications of AI Integration**

The integration of AI into public administration carries broader social and policy implications, especially within the unique context of Malaysia and the ASEAN region. Mutiarin and Lawelai (2023) found that the implementation of Smart City Governance (SCG) in Kuala Lumpur has noticeably improve citizen participation and transparency via digital platforms, illustrating the advantages of Malaysia's advanced digital infrastructure. This was evidenced by a 25% increase in citizen engagement levels over three years, driven by effective use of social media and government apps. Despite these positive outcomes, Rahman et al. (2020) highlight that Malaysia continues to face challenges such as policy inconsistencies and limited regulatory support that impede optimal AI integration. Additionally, Wongwuttiwat et al. (2023) argue for the need to develop robust policy frameworks to address ongoing issues related to the digital divide and to enhance public trust. These studies collectively emphasize the need for comprehensive policy reforms and innovative frameworks to better integrate AI technologies, improve governance quality, and ensure inclusive citizen engagement in Malaysia's public administration (Mutiarin & Lawelai, 2023; Rahman, 2020; Wongwuttiwat et al., 2023).

## **IMPLICATIONS OF THE STUDY**

### **Policy and Administrative Implications**

The findings of this study have significant implications for policy and administrative practices in Malaysia's public administration, particularly concerning the integration of AI technologies. The evidence suggests that while there is considerable potential for AI to enhance administrative efficiency and decision-making, realizing these benefits requires substantial policy reforms and capacity building. Specifically, the study highlights the need for developing robust frameworks that address existing regulatory barriers, such as those related to data security and privacy. This is crucial because without a comprehensive regulatory environment that supports AI adoption, the risks of data breaches and misuse may outweigh the potential benefits. Furthermore, the study underscores the importance of enhancing technical expertise within the public sector. To achieve this, targeted training programs and partnerships with private technology firms

could be essential in equipping civil servants with the necessary skills to effectively deploy and manage AI tools. This approach aligns with the broader regional trends observed in more digitally advanced ASEAN countries, where successful AI integration is often supported by strong institutional frameworks and investment in digital literacy (Mutiarin & Lawelai, 2023; Rahman, 2020; Wongwuttawat et al., 2023).

### **Broader Social and Economic Implications**

Beyond administrative and policy implications, the study's findings have broader social and economic ramifications for Malaysia. The slow adoption of AI in the public sector, particularly among SMEs, highlights a critical gap in the country's digital transformation journey. This gap poses a risk of exacerbating the digital divide, where smaller enterprises may fall behind in leveraging technology for competitive advantage, thereby widening economic disparities. Addressing this requires targeted policy interventions that encourage AI adoption among SMEs, such as providing financial incentives and facilitating access to technological resources. Moreover, the study suggests that fostering a culture of innovation within the public sector could drive more inclusive growth by ensuring that AI benefits are equitably distributed across all societal segments. This includes adopting AI solutions that enhance transparency and accountability in governance, thereby increasing public trust. These implications call for a more nuanced policy approach that not only promotes technological adoption but also ensures its alignment with Malaysia's broader social and economic development goals (Subramaniam et al., 2023; Ghani et al., 2022; Bekhet & Abdul Latif, 2018).

## **FUTURE RESEARCH DIRECTIONS**

### **Expanding the Scope of AI Integration Studies**

Future research should focus on broadening the understanding of AI integration in public administration by examining its impact across various administrative levels and functions in Malaysia. While the current study highlights significant strides in AI adoption within specific sectors such as manufacturing and e-commerce, it is essential to explore how AI can be leveraged to enhance public services in other areas, including health, education, and environmental management. This could involve comparative studies that analyze AI's impact on service delivery and citizen engagement across different ASEAN countries, providing a more comprehensive view of best practices and challenges in diverse governance contexts. Additionally, future research should investigate the socio-cultural factors that influence AI adoption and the public's perception of AI-driven governance. This could help identify tailored strategies that account for local values and norms, which are crucial for gaining public trust and achieving successful implementation (Mutiarin & Lawelai, 2023; Wongwuttawat et al., 2023).

### **Methodological Enhancements and Policy Development**

There is a need for future research to employ more sophisticated methodological approaches to better understand the complex dynamics of AI integration in public governance. Mixed-methods research, combining quantitative data from large-scale surveys with qualitative insights from in-depth interviews and case studies, could provide a more nuanced understanding of how AI impacts administrative efficiency, transparency, and decision-making. Furthermore, longitudinal studies that track the evolution of AI adoption over time would be valuable in identifying long-term trends and outcomes. Another critical area for future research is the development of policy frameworks that support sustainable AI integration. This involves examining how current policies could be adjusted or new policies created to address barriers such as data security, digital literacy, and infrastructural constraints. Such research could provide actionable recommendations for policymakers, ensuring that AI technologies are effectively and ethically integrated into public administration practices (Subramaniam et al., 2023; Bekhet & Abdul Latif, 2018).

## CONCLUSION

The findings of this study underscore the transformative potential of artificial intelligence (AI) in reshaping public administration in Malaysia, particularly in enhancing decision-making, service delivery, and overall governance quality. While significant strides have been made in sectors such as manufacturing and e-commerce, the integration of AI within the broader public sector remains uneven, hindered by challenges including limited technical expertise, regulatory constraints, and insufficient infrastructure. This research highlights the importance of policy reforms that foster a conducive environment for AI adoption, emphasizing the need for a strategic approach that combines capacity building with robust regulatory frameworks. Additionally, the study points to the critical role of cross-sector collaboration in driving technological innovation and mitigating the risks associated with AI deployment, such as data privacy and security concerns. By drawing on comparative insights from other ASEAN countries, the study suggests that Malaysia can leverage its unique position within the region to adopt more advanced practices and close existing gaps in digital governance. The conclusions drawn from this research not only provide a foundation for future studies but also offer practical recommendations for policymakers aiming to harness AI's full potential to enhance public trust, efficiency, and transparency in governance.

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