ASEAN LEGAL INSIGHTS
https://e-journal.uum.edu.my/index.php/aseanli

How to cite this article:
Labanieh, M. F., Yusoff, Z., M., Ayub, Z., A., A., Wahab, H., A., & Sharifuddin, M., D., K. (2024). The Artificial Intelligence (AI) Readiness in ASEAN Countries: The Government Policies and Frameworks. *ASEAN Legal Insights*, *1* (September), 68-76. https://doi.org/10.32890/aseanli2024.1.5

THE ARTIFICIAL INTELLIGENCE (AI) READINESS IN ASEAN COUNTRIES: THE GOVERNMENT POLICIES AND FRAMEWORKS

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Received: 5/2/2024 Revised: 29/12/2024 Accepted: 12/1/2024 Published: 20/10/2024

ABSTRACT

The Fifth Industrial Revolution (5.IR) transforms people's lives, making strong legal frameworks crucial. This article examines artificial intelligence (AI) readiness in ASEAN countries, specifically Malaysia, Thailand, and Singapore, by focusing on the government policies and frameworks of AI. A doctrinal legal analysis methodology was used to evaluate each country's legal infrastructure, identifying gaps and suggesting proper solutions. Findings show significant variations in AI readiness. Specifically, Singapore demonstrates leadership in AI preparation through its sophisticated regulatory frameworks, robust data protection laws, and proactive policies. Malaysia shows moderate progress in developing a strategic vision for AI but faces difficulties in enforcing regulations. Thailand has guidelines for AI ethics but lacks legislation and enforcement. The study suggests several strategies to improve the readiness of these countries for AI. They should develop comprehensive AI Acts, establish regulatory sandboxes, and form AI ethics committees. Creating AI innovation hubs would support startups with resources and training. International collaboration on AI research and standards should be promoted through global partnerships and forums, cross-border initiatives, exchange programmes, and shared technology infrastructure to foster effective, flexible policies and boost public confidence in AI technologies.

Keywords: Artificial intelligence (AI), ASEAN countries, fifth industrial revolution.

INTRODUCTION

AI encompasses a wide array of concepts, comprising “machine intelligence,” “intelligent agents,” “intelligent behaviour,” “intelligent systems,” and “algorithms.” Historically, McCarthy (2007) first introduced the term AI in 1956, defining it as "the science and engineering of making intelligent machines" (McCarthy, 2017). AI was defined as machines capable of thinking, reasoning, and making decisions akin to humans. This understanding has since evolved to encompass the notion of general human-level AI, which involves acting and interpreting the world in a manner similar to human beings (Russell et al. 2003). In short, AI possesses the capacity to execute cognitive tasks akin to humans and is capable of solving issues in novel ways that may have eluded human comprehension. The 5. IR is described as an evolving environment where disruptive technologies, such as AI, significantly alter how people live and work (Legal 500, 2022). Consequently, AI is not merely a futuristic concept but a prevalent technology integrated across various sectors for multiple purposes. A clear example of AI in use includes virtual assistants (VAs), such as Alexa and Siri, which employ facial recognition to unlock smartphones (Triggs, 2019), and self-driving cars (Micron, 2022). Some of the key advantages of AI are seen in its ability to perform repetitive tasks faster and more efficiently than humans, enabling them to be more productive. Therefore, AI has been heralded as a means to reduce costs while enhancing the quality of services, productivity, and operational efficiencies (Iansiti, & Lakhani, 2020). In addition, AI systems do not experience fatigue or lose focus like humans, resulting in fewer errors (Callahan, 2024). When programmed properly, AI can reduce errors to nearly zero. Robotic surgery systems have the capability to carry out intricate surgeries with exceptional accuracy and precision, hence enhancing patient safety (UPM, 2024). However, the utilisation of AI gives rise to ethical considerations around privacy and the possibility of misapplication (Vats, 2024). Furthermore, AI systems have the capacity to sustain or intensify biases that exist within their training data, resulting in unjust or biased and discriminatory consequences (Ferrara, 2023).

AI is expected to have a significant impact on the economic development of countries. According to a recent analysis by PwC, the projected impact of AI on the global economy is expected to grow by fourteen per cent (14%) by 2030, which is equivalent to a staggering fifteen point seven (15.7) trillion USD (Alsheibani et al. 2018). A recent analysis by PwC predicts that China and the United States would have the largest economic benefits from AI, with expected increases in their GDP of twenty-six point one per cent (26.1%) and fourteen point five per cent (14.5%), respectively (Alsheibani et al. 2018). AI has already had significant economic effects, especially in the financial services, healthcare, and information and communication technology (ICT) sectors (Purdy & Daugherty, 2016). Prominent contenders in the AI sector, including Google, Amazon, IBM, Facebook, and Apple (Jang, 2017), are actively pursuing a competitive edge and expanding their market presence through pioneering developments in AI (Infosys, 2016).

In the context of this article, the Association of Southeast Asian Nations (ASEAN) has recognised the critical role that AI and advanced technologies play in driving economic growth, enhancing productivity, and fostering innovation within the region. Consequently, ASEAN has embarked on several initiatives and agreements aimed at promoting the development and adoption of AI and related technologies among its member states. One of the key initiatives is the ASEAN Guide on AI Governance and Ethics (ASEAN Guide on AI Governance and Ethics, 2024). It was released in 2024. This non-binding framework provides guidelines for ASEAN countries to develop their national AI policies and regulations. The document delineates seven (7) fundamental principles such as “transparency,” “fairness,” “security,” “reliability,” “human centricity,” “privacy,” and “accountability” for responsible AI development. The document provides suggestions for activities at both the national

and regional levels, such as the creation of an ASEAN working group dedicated to the regulation of AI. Additionally, ASEAN released the ASEAN ICT Masterplan 2025 (AIM2025) (ASEAN Digital Masterplan 2025, 2024). It is the updated digital transformation roadmap for ASEAN. It includes explicit goals around AI capabilities and adoption and calls for member states to introduce appropriate regulatory structures to support the digital economy, including for AI (ASEAN Digital Masterplan 2025, 2024).

Regardless of the above, within the ASEAN region, the performance of countries in AI readiness varies significantly. These disparities underscore the varying degrees of commitment and development in AI adoption among these nations (Oxford Insights, 2023). Therefore, this article aims to examine AI readiness in ASEAN countries, specifically Malaysia, Thailand, and Singapore, by focusing on the government policies and frameworks of AI. This is due to several critical factors. First, these three countries were chosen for the reasons that they are ahead of other countries in the ASEAN region to pioneer the legal framework and initiatives relating to AI development and regulation. For instance, Among Asian countries, Singapore is seen as being a front-runner in AI readiness, while countries like Malaysia and Thailand are emerging in the legislative and regulatory environment for AI. In doing this, the article seeks to look closely at these nations in order to understand their individual legal environment, credible within the confines of the space and time constraints in question. Secondly, expanding the scope to all ASEAN countries in a single paper could dilute the depth of the discussion and make it difficult to capture the nuances of legal readiness in each country.

The importance of this article lies in its in-depth examination of ensuring that AI technologies are integrated effectively and ethically into public services, enhancing their efficiency and responsiveness. It allows governments to identify gaps, ensuring they are well-prepared to address ethical and legal concerns. Moreover, assessing AI readiness helps to bridge the digital divide, promote equitable access to AI benefits, and position governments for meaningful international collaboration.

RESEARCH METHODOLOGY

This article examines the readiness of ASEAN countries, specifically Malaysia, Thailand, and Singapore, for artificial intelligence (AI) integration from a legal perspective. A doctrinal legal analysis methodology was used to evaluate each country's legal infrastructure, identifying gaps and suggesting proper solutions. The rationale for selecting this research methodology lies in the nature of doctrinal legal research, which is fundamentally aimed at discovering, explaining, analyzing, and systematically presenting facts, principles, concepts, or the functioning of certain laws or legal institutions, with the goal of generating new knowledge or proposing changes and reforms (Yaqin, 2007). This approach contributes to the consistency, certainty, and continuity of legal principles while fostering the development of legal doctrines (Vibhute & Aynalem, 2009). Consequently, this design facilitates the synthesis and alignment of various perspectives on the phenomenon under study, ensuring that the findings have lasting significance and value. Furthermore, both primary and secondary data were collected using a library-based approach. Both types of data were critically and analytically examined through a content analysis approach to ensure a comprehensive and in-depth understanding of the subject matter.

THE GOVERNMENT POLICIES AND FRAMEWORKS OF AI IN MALAYSIA

Malaysia has been actively exploring the potential of AI and taking steps to harness its benefits while addressing the associated risks and challenges. The nation has implemented numerous national-level laws and frameworks to direct the advancement and implementation of AI technology. For example, Malaysia has introduced the Malaysia AI Roadmap, which was created by the Ministry of Science, Technology and Innovation (MOSTI) and presents the government's plan for AI advancement and implementation in Malaysia (MOSTI, 2024). The roadmap delineates Malaysia's approach to expedite the acceptance and responsible advancement of AI.

In addition, Malaysia introduced the National 4IR Policy in 2021 with the objective of turning Malaysia into a technologically advanced economy driven by innovation. This will be achieved by harnessing the power of 4IR technologies, such as AI (Radhi, 2021). By 2030, this strategy establishes goals to enhance the quality of life, strengthen local capacities, and utilise technologies to protect ecological integrity. In addition, the Malaysian government has been actively advocating for the integration of AI in government services (Lau, 2024). Federal government and state governments also used AI in sentencing (Miwil, 2021). This has the potential to improve the fairness and consistency of sentencing decisions. Nevertheless, there are apprehensions regarding the use of AI in the legal field, namely around the responsibility for AI decision-making and the possibility of AI reinforcing biases (Rajendra & Thuraisingam, 2022). Finally, it is worth noting that in 2024, the first AI faculty in Malaysia at Universiti Teknologi Malaysia (UTM) was launched (Rajaendram, 2024). This faculty would likely spearhead groundbreaking research projects, driving innovation and contributing to global AI advancements. Besides, it would offer advanced courses in AI, keeping students abreast of the up-to-date improvements in the field.

Regardless of the above, it is imperative to highlight that in Malaysia there is an absence of specific AI legislation. Malaysia currently relies on a patchwork of existing laws and regulations to address issues related to AI, such as intellectual property laws. In light of this the applicability of copyright, patent, and trademark laws to AI-generated content and inventions is still being debated, as the existing laws may not adequately address the unique characteristics of AI (Labanieh, 2024). Therefore, the MOSTI is working towards developing a comprehensive regulatory framework to govern AI in the country. This includes plans to enact an "AI Bill" that would address issues like data privacy, transparency, accountability, and cybersecurity (Bower Group Asia, 2023).

THE GOVERNMENT POLICIES AND FRAMEWORKS OF AI IN THAILAND

Thailand has been actively promoting the development and adoption of AI technology as part of its national strategy. The country has introduced several initiatives and policies to create an ecosystem that fosters AI innovation while addressing the associated legal and regulatory challenges.

The Thai Cabinet approved the National AI Strategy and Action Plan (2022-2027) in 2022. The main objectives are to elevate Thailand's AI Readiness Index to the top 50 worldwide by 2025, ensure that at least six hundred thousand (600,000) Thai citizens are knowledgeable about AI legislation and ethics, and generate business and societal benefits of forty-eight (48) billion THB (about $1.32 billion) using AI by 2027 (AI Thailand Community, 2024). Furthermore, Thailand drafted the AI Business Law. This draft was introduced by the Office of the National Digital Economy and Society Commission (ONDE) (Baker McKenzie, 2023). It aims to regulate AI system business operations and prevent potential harm

to the public. The key aspects include the classification of AI businesses, market entry and registration requirements, transparency obligations, and monitoring and compliance assessment (Norton Rose Fulbright, 2023). Simultaneously, the Electronic Transactions Development Agency (ETDA) initiated a public hearing on the draft of the AI Promotion Act (AI Promotion Law). The AI Promotion Law encompasses the following facets: The topics included in the document are “AI Sandbox”, “Data Sharing”, “AI Standard”, “Contract Standard”, and “Risk Assessment” (Norton Rose Fulbright, 2023).

Regardless of the above, in the absence of specific AI legislation, Thailand currently relies on a combination of existing laws and regulations to address AI-related issues, such as product liability laws. Thailand's product liability rules impose responsibility on makers, distributors and importers for faulty items, which might potentially extend to AI systems (Supasitthumrong, 2022). However, determining liability for AI-generated faults can be challenging due to the involvement of multiple parties in the creation of AI systems (Baker McKenzie, 2023a). Furthermore, the tort laws prescribe strict liability for controllers of dangerous objects or machinery, which could potentially be applied to AI systems. However, the lack of clarity in defining who should be held responsible for AI-related harms remains a challenge (Baker McKenzie, 2023a). Additionally, Thailand's Ministry of Digital Economy and Society (DES), in collaboration with Mahidol University and Microsoft Thailand, has drafted its first set of AI ethics guidelines in 2019. The draft guidelines emphasise that AI technology must cater to Thailand's competitiveness and sustainable development, comply with laws and international standards, and be developed with accountability and responsibility to ensure security and data protection (Dig.Watch, 2019). However, the guidelines have faced some criticism for being biased towards benefiting industry and private sector compliance with international standards, rather than prioritising public safety and protection (Asia Society Policy Institute, 2024). There are also concerns about the lack of genuine public involvement in drafting the guidelines (Asia Society Policy Institute, 2024).

THE GOVERNMENT POLICIES AND FRAMEWORKS OF AI IN SINGAPORE

Singapore has adopted a thorough and well-planned approach to enhancing its AI capabilities. The Singapore government has allocated more than S$1 billion (US$743 million) for AI development in the following five (5) years, with the aim of enhancing the country's status as a leading worldwide centre for business and innovation (Asean Briefing, 2024). Singapore effectively governs AI by employing a combination of sector-specific and voluntary frameworks, prioritising innovation and fostering a business-friendly atmosphere. Notable regulatory bodies in Singapore are the Infocomm Media Development Authority (IMDA), the Personal Data Protection Commission (PDPC), and the Monetary Authority of Singapore (MAS).

In 2017, AI Singapore (AISG) launched the "AI for Everyone" (AI4E) programme. The objective is to elucidate the complexities of AI and render it accessible to the general populace, rather than solely to technical specialists (AI Singapore, 2024). In 2019, Singapore introduced the National AI Strategy (NAIS) with the aim of promoting AI innovation and implementation throughout the economy. In 2023, the plan (NAIS 2.0) was revised to tackle current issues and better optimise Singapore's social and economic abilities by leveraging AI. In 2022, the Infocomm Media Development Authority (IMDA) and the Personal Data Protection Commission (PDPC) introduced AI Verify, which is the first-ever framework and toolkit for evaluating AI governance. The primary feature of AI Verify is a voluntary self-assessment tool that enables organisations to evaluate and showcase the responsible and reliable deployment of their AI systems (Aiverify Foundation, 2024). Additionally, the Advisory Guidelines were issued by PDPC in 2024, following a public consultation in 2023. The Guidelines offer explicit

guidance on the application of the Personal Data Protection Act (PDPA) to the utilisation of personal data in the creation, implementation, and acquisition of AI systems that generate recommendations, forecasts, or decisions (Evans, 2024). The Guidelines encompass three primary phases of AI system implementation. Initially, the process involves the stages of creation, evaluation, and monitoring. The second aspect is the deployment of products or services to consumers, while the third aspect is the acquisition of goods or services between businesses (Tan, et al., 2024) (Clydeco, 2024). Furthermore, it is important to mention that on May 30, 2024, the Singaporean government announced the Model AI Governance Framework for Generative AI (GenAI Framework). The objective is to encourage the conscientious advancement and implementation of generative AI while facilitating creativity. The table below provides a summary of the important points of the GenAI Framework (Clydeco, 2024).

Table 1

Summary of the Important Points of the GenAI Framework (Prepared by the Authors)

Key Area	Description
Accountability	Establishing an appropriate incentive framework for AI deployers, system developers, and cloud providers to ensure their accountability towards end-users.
Data	Ensuring the accuracy and reliability of data and dealing with controversial training data in a practical manner.
Trusted Development and Deployment	Improving clarity regarding fundamental safety measures by implementing industry-leading standards.
Incident Reporting	Developing an incident management system to promptly notify, address, and enhance ongoing processes.
Testing and Assurance	Our goal is to ensure the credibility of our work by subjecting it to third-party testing and establishing universally accepted criteria for evaluating artificial intelligence.
Security	Tackling emerging danger vectors resulting from generative AI models.
Content Provenance	Offering clarity regarding the origin of content serves as valuable indicators for end-users to discern AI-generated content.
Safety and Alignment R&D	Enhancing international collaboration on AI safety research to enhance the alignment of AI models with human intention and values.
AI for Public Good	Utilising AI to promote the welfare of the general population by making access more equitable, enhancing the use of AI in the public sector, enhancing the skills of workers, and creating AI systems in a manner that is environmentally and socially responsible.

CONCLUSION

The Fourth Industrial Revolution (4IR) transforms people's lives, making strong legal frameworks crucial. This article examines AI readiness in ASEAN countries, specifically Malaysia, Thailand, and Singapore, by focusing on the government policies and frameworks of AI. A doctrinal legal analysis methodology was used to evaluate each country's legal infrastructure, identifying gaps and suggesting

proper solutions. Findings show significant variations in AI legal readiness. Specifically, Singapore demonstrates leadership in AI preparation through its sophisticated regulatory frameworks, robust data protection laws, and proactive policies. Malaysia has made moderate advancements in formulating a strategic vision for AI but encounters challenges in effectively implementing rules. Thailand has established recommendations for the ethical use of artificial intelligence (AI); however, it currently lacks specific legislation and enforcement mechanisms. The report proposes various tactics to augment the legal preparedness of these nations. Initially, it is imperative to establish a comprehensive strategy that encompasses legislative frameworks, ethical issues, and international alignment. Malaysia, Singapore, and Thailand have initiated efforts to tackle the legal and regulatory dimensions of AI. These countries aim to create a comprehensive AI Act that clearly defines the legal obligations for the development and implementation of AI. Additionally, it is advisable to establish a regulatory sandbox specifically for AI advancements. This would enable corporations to experiment with AI solutions in a supervised setting, while regulators evaluate the potential consequences. By doing so, lawmakers and regulators would be able to acquire valuable insights that may be used to develop efficient and adaptable regulations.

Malaysia and Thailand ought to develop AI ethics committees in order to supervise AI projects, guarantee compliance with ethical norms, and address public apprehensions. By identifying and addressing any ethical difficulties early in the creation process, this could enhance public trust in AI technology and reduce the risk associated with their implementation.

Furthermore, it is imperative to establish an AI innovation hub in order to provide assistance to start-ups and small and medium-sized enterprises (SMEs). Engaging in such action would provide significant advantages. These hubs specifically offer crucial resources such as advanced computing equipment and specific education programmes. Collaboration across borders on AI research and standards should be promoted. This can be accomplished by forming alliances with international organisations, engaging in AI conferences and discussions, initiating collaborative research projects across borders, implementing exchange programmes, and utilising common technological resources.

ACKNOWLEDGEMENT

This article is part of a research funded by the Ministry of Higher Education Malaysia under the Fundamental Research Grant Scheme (FRGS) on “AI and Civil Liability”

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