Assessing the Potentials and Pitfalls of AI Surveillance in Maritime Security: A Case Study on the Philippines

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Introduction

The Philippines, which is an archipelagic state with over 7,000 islands and situated in the heart of the South China Sea, faces a multitude of maritime challenges that may hinder the growth and development of the country. The challenges include illegal fishing, smuggling, piracy, environmental hazards like typhoons, as well as geopolitical tensions in the South China Sea. Therefore, to tackle these challenges, the Philippines must navigate effectively by deploying technologies and policies useful to combating these issues and ensuring that its maritime sovereignty and rights are protected.

At the same time, Artificial Intelligence (AI) has recently emerged as a transformative tool, and it has been integrated into several sectors, including education, defense, and national security. Within the Philippines' maritime security context, AI presents an opportunity to enhance Maritime Domain Awareness (MDA), potentially revolutionizing

the country's maritime security. Nevertheless, the deployment of such systems must be critically assessed.

This paper argues that although AI offers significant promises for enhancing maritime security, its practical application in the Philippines is hindered by sovereignty issues, legal concerns, and institutional fragmentation across relevant national agencies. This analysis begins by examining the strategic maritime context of the Philippines, followed by an introduction to the emerging use of AI in the maritime domain with a brief overview of some relevant AI tools. It then proceeds to assess the potential and pitfalls of employing AI surveillance in maritime security, concluding with a synthesis of key findings.

The Strategic Maritime Context of the Philippines

The Philippines' maritime geography provides both strategic benefits and vulnerabilities. The South China Sea, known locally as the West Philippine Sea (referring to the areas that fall under the Philippines' EEZs),[1] is one of the world's most crucial maritime routes between the Pacific and Indian oceans, facilitating significant commercial shipping and military significance by linking East Asia to Europe and the Middle East.[2] The Philippines is also home to a resource-rich marine ecosystem, characterized by competing and complementary resource usage.[3] Consequently, this archipelagic state occupies a geostrategically significant position within the broader Indo-Pacific maritime security architecture. Nonetheless, there are two sides to the same coin. While the Philippines enjoys substantial benefits from its strategic location, it also faces paramount challenges.

On a broader scale, the country's location in the heart of Southeast Asia's peninsular and insular territories encompasses porous borders, deeply rooted coastal towns, and

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[1] Joseph Pedrajas, "West Philippine Sea or South China Sea? Here's the Difference," Manila Bulletin, February 22, 2023, https://mb.com.ph/2023/2/22/west-philippine-sea-or-south-china-sea-heres-the-difference.

[2] Alexander S. Rafal, "Maritime Security and the Protection of Philippine Territorial Waters," *APJAET - Journal Asia Pacific Journal of Advanced Education and Technology* 3, no. 3 (August 19, 2024), https://doi.org/10.54476/apjaet/44864.

[3] Jay Batongbacal, "The Philippines' Conceptualization of Maritime Security," Asia Maritime Transparency Initiative, November 4, 2021, https://amti.csis.org/philippine-conceptualization-of-maritime-security/.

a wide range of maritime activities, relations, histories, and customs dating back to pre-colonial times.[4] This constitutes a wide range of problems. For the Philippines, traditional and non-traditional challenges exist. On the traditional front, the South China Sea dispute is one of the most prominent geopolitical issues. It is most notable with China over maritime features like the Spratly Islands and Scarborough Shoal. It is challenging for the Philippines to tackle this issue because China is deploying maritime militias and coast guard vessels too close to the Philippines' EEZs.[5] The vast size of the Philippines' EEZs also makes monitoring and law enforcement particularly challenging, especially in remote areas.

Beyond geopolitical tensions, illicit fishing, piracy, transnational crimes, smuggling, human trafficking, marine pollution, and environmental degradation are some issues that this nation has to tackle.[6] To illustrate, a report made by the Philippine Coast Guard cited uses of cyanide, poison, dynamite/blast fishing by some foreign fishermen.[7] This can severely deplete fish stocks and food security for coastal communities. Not only does it affect food security, but the usage of poison and cyanide may also affect the surrounding biodiversity and marine life, as well.

Owing to these mounting maritime challenges, the Philippines has strengthened defense cooperation with its strategic ally, the United States. While the Enhanced Defense Cooperation Agreement (EDCA) was originally signed in 2014,[8] it was only under President Marcos Jr. in 2024 that the pact was revitalized and given sharper strategic relevance in response to China's growing assertiveness in the South China Sea. The EDCA's new provision would add four additional sites to the five Philippine

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[4] Ibid.

[5] Hasim Turker, "Maritime Chessboard: The Geopolitical Dynamics of the South China Sea," Geopolitical Monitor, August 24, 2023, https://www.geopoliticalmonitor.com/maritime-chessboard-the-geopolitical-dynamics-of-the-south-china-sea.

[6] Vinita Singh Chhetri, "Philippines Maritime Sovereignty: Challenges and Strategies," Diplomatist, 2024, https://diplomatist.com/2024/09/27/philippines-maritime-sovereignty-challenges-and-strategies/.

[7] Joseph Pedrajas, "Foreign Fishermen Leave Destruction in Marine Environment in West PH Sea — PCG Official," *Manila Bulletin*, October 17, 2024, https://mb.com.ph/2024/10/17/foreign-fishermen-leave-destruction-in-marine-environment-in-west-ph-sea-pcg-official.

[8] Bureau of Political-Military Affairs. 2022. "U.S. Security Cooperation with the Philippines." United States Department of State. October 7, 2022. https://www.state.gov/u-s-security-cooperation-with-the-philippines/.

military sites.[9] The country also acquired the NovaSAR-1 satellite, developed by Surrey Satellite Technology for the Synthetic Aperture Radar (SAR) and Automatic Identification System (AIS) project, as well as Innovative Terrestrial Monitoring and Maritime Surveillance. This would provide simultaneous S-band SAR imaging and AIS data for its MDA.[10] The decision to host more military sites and acquire more cutting-edge technologies to utilize in the maritime domain reflects Manila's intention to assert a visible deterrence to foreign incursions into its waters. These initiatives demonstrated that Philippine maritime security is no longer confined to diplomatic rhetoric but is increasingly anchored in both strengthened alliances and advanced monitoring capabilities.

Emerging Roles and the Promises of AI in Maritime Surveillance

Traditional tools used in maritime surveillance

Foundational technologies used in maritime surveillance are the Automatic Identification System (AIS) and radar systems. AIS supplies data for the government to identify vessels, their locations, and their movements, allowing for better navigation of safety and the avoidance of collisions. Radar systems can track ships by reflecting electromagnetic waves off objects.[11] These traditional systems rely heavily on manpower and manual monitoring, making them vulnerable to human limitations such as fatigue, distractions, limited ability to fuse data streams, slower response to errors and problems compared to machines, and operational errors.[12] In such a high-stakes maritime environment, these limitations compromise situational awareness and may exacerbate the risks of accidents. Innovations are necessary to address the complex

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[9] Renato Cruz De Castro, "Exploring the Philippines' Evolving Grand Strategy in the Face of China's Maritime Expansion: From the Aquino Administration to the Marcos Administration," *Journal of Current Southeast Asian Affairs* 43, no. 1 (February 26, 2024), https://doi.org/10.1177/18681034241234670.

[10] R. Vicente et al., "EARTH OBSERVATION APPLICATIONS for GOAL 14: IMPROVING MARITIME DOMAIN AWARENESS USING SYNTHETIC APERTURE RADAR IMAGING with AUTOMATIC IDENTIFICATION SYSTEM in the PHILIPPINES," *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* XLIII-B3-2020 (August 21, 2020): 215–19, https://doi.org/10.5194/isprs-archives-xliii-b3-2020-215-2020.

[11] Anusha Guru, "AI in Maritime Surveillance: Uses, Risks, and Considerations," orfonline.org (OBSERVER RESEARCH FOUNDATION (ORF), July 31, 2025), https://www.orfonline.org/expert-speak/ai-in-maritime-surveillance-uses-risks-and-considerations.

[12] Ibid.

nature of maritime threats, and these constraints offer a blank space that AI aims to fill.

What is artificial intelligence?

Artificial intelligence is a field that builds systems capable of perception, pattern recognition, prediction, and decision-making that can affect real or virtual surroundings.[13] Many modern AI systems (machine-learning models) adapt to new data, which can change outputs over time. Unlike conventional technologies, certain AI tools possess adaptive capabilities, enabling them to learn continuously through each usage. As they are retrained or exposed to new data, their outputs may evolve. While this dynamic offers significant benefits, it also presents challenges for validation and explainability.[14] AI applications are emerging as a transformative force in MDA and danger detection, enabling the analysis of large amounts.[15]

Globally, AI maritime surveillance is pioneered by systems like SeaVision, a system hosted by the United States Department of Transportation. SeaVision is a web-based situational awareness tool that helps users monitor and share information to improve maritime operations and security, and foster collaborations within the maritime community.[16] In the Philippines, AI-related MDA has been largely introduced through bilateral and multilateral agreements. For instance, through the U.S. Indo-Pacific Command, up to 95 million USD has been provided to the Maritime Security Consortium, which enables the fast deployment of modern equipment without the decades-long acquisition cycles typical of traditional military procurement.[17] The Philippines is also revolutionizing its "Porcupine Defense" by deploying various autonomous platforms around its 7,000-island archipelago. These autonomous

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[13] ASEAN. 2024. "ASEAN Guide on AI Governance and Ethics Contents." https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

[14] Ibid.

[15] Kashif Talpur et al., "AI in Maritime Security: Applications, Challenges, Future Directions, and Key Data Sources," *Information* 16, no. 8 (August 2025): 658, https://doi.org/10.3390/info16080658.

[16] Department of Transportation. n.d. "SeaVision: A Maritime Situational Awareness Tool." Info.seavision.volpe.dot.gov. https://info.seavision.volpe.dot.gov/.

[17] Robbin Laird, "The Porcupine Defense: How the Philippines Is Revolutionizing Maritime Security with 'Small, Cheap, and Independent' Capabilities - Second Line of Defense," Second Line of Defense, August 5, 2025, https://sldinfo.com/2025/08/the-porcupine-defense-how-the-philippines-is-revolutionizing-maritime-security-with-small-cheap-and-independent-capabilities.

platforms are equipped with advanced ISR capabilities, creating persistent MDA. Land-based anti-ship missiles and mobile maritime platforms create multiple attack vectors. The strategy also alters the cost-benefit calculus of maritime aggression by holding at risk Chinese-manned vessels with Unmanned Surface Vessels and Starlink.[18] Although the application of AI in the Philippines' maritime domain is in the pilot stage, the roles of AI are expected to grow in scope and sophistication.

The Potentials of Artificial Intelligence in the Maritime Domain

In the maritime domain, AI enables states to observe from satellites, which makes monitoring and surveillance easier in activities such as research, security, or defense.[19] AI in maritime safety can navigate and avoid collisions with objects, optimize routes, predict weather, monitor vessels' health in real-time, and have an automated decision-making process.[20] Additionally, AI can prevent and respond to crimes at sea, such as theft, smuggling, and piracy, by detecting, monitoring, and analyzing. For instance, drones can be used to count the number of people on a ship and analyze their actions and behaviors to prevent possible attacks.[21]

In naval operations, AI and autonomous systems are transforming maritime capabilities, particularly through the deployment of Unmanned Surface Vessels (USVs) and Unmanned Underwater Vehicles (UUVs). USVs and UUVs differ mainly in environment and missions. The term USV refers to any vessel that operates on the surface of water without a crew. This kind of vessel can utilize advanced intelligence, reconnaissance (ISR), and even missile payloads.[22] UUVs, on the other hand, refer to unmanned, untethered vehicles used to conduct underwater searches.[23] These two

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[18] Ibid.

[19] Valerio Fontana et al., "Artificial Intelligence Technologies for Maritime Surveillance Applications," *IEEE International Conference on Mobile Data Management (MDM)*, June 1, 2020, 299–303, https://doi.org/10.1109/mdm48529.2020.00067.

[20] Maritimescrimes. 2025. "The Role of AI in Maritime Safety and Security - MariTimes Crimes." MariTimes Crimes. February 4, 2025. https://maritimescrimes.com/2025/02/04/the-role-of-ai-in-maritime-safety-and-security/.

[21] Ibid.

[22] Joe Steele, "USVs vs UUVs: A Deep Dive into Unmanned Maritime Systems," Supreme Integrated Technology, August 8, 2025, https://supremeintegratedtechnology.com/blog/usvs-vs-uuvs-deep-dive..

[23] NOAA Ocean Exploration. 2020. "What Is an AUV? - NOAA Ocean Exploration." NOAA Ocean Exploration. September 29, 2020. https://oceanexplorer.noaa.gov/ocean-fact/auv/.

kinds of vessels are crucial in the maritime domain. By performing high-risk jobs like surveillance, mine detection, and reconnaissance, USVs and UUVs can lower the risks to humans.[24] UUVs are central to modern mine countermeasure (MCM) programs. A primary example would be the U.S. Navy's Fleet-class USV (MCM USV). The MCM USV's core abilities include the ability to be launched and recovered by Littoral Combat Ships, vessels of opportunity (VOOs), and from shore sites, thereby increasing operational safety by allowing the host platform to operate further away from threats. It also provides for mine sweeping, mine hunting, and mine neutralization, further ensuring the safety of the crew.[25] AI is also increasingly used in port security and cargo management. The digitalization of ports has led to the development of algorithms for monitoring activities, and AI systems are also being developed to protect against cyberattacks.[26]

A concrete Philippine example of AI utilization is the Global Maritime Crime Program (GMCP) of the United Nations Office on Drugs and Crime (UNODC). GMCP has assisted its member states by piloting and introducing modern MDA technologies and associated training. On Bongao Island in the Philippines, the UNODC installed a Terrestrial-based Passive Radio Frequency (RF) Sensor system, introducing state-of-the-art technology for identifying dark vessels. The sensor can detect radio emissions from vessels in the Sulu Sea, which allows geolocation of transmitting platforms. In a multi-sensor configuration, RF geolocation—when it is integrated with AIS, synthetic aperture radar (SAR), and optical imagery—can reveal the presence, location, and direction of vessels, including ones that have disabled their AIS. However, identification and legal attribution generally require subsequent verification through additional means.[27] This demonstrates that the Philippines stands to gain significantly

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[24] Jihoon Yu, "The Strategic Implications of AI on Maritime Security," RealClearDefense, December 19, 2024, https://www.realcleardefense.com/articles/2024/12/20/the_strategic_implications_of_ai_on_maritime_security_1079942.html.

[25] America's Navy. 2025. "Mine Countermeasures Unmanned Surface Vehicle (MCM USV)." Www.navy.mil. July 2, 2025. https://www.navy.mil/Resources/Fact-Files/Display-FactFiles/Article/2167996/mine-countermeasures-unmanned-surface-vehicle-mcm-usv/.

[26] Jihoon Yu, "The Strategic Implications of AI on Maritime Security."

[27] Neil Walker, "Maritime Domain Awareness Technology: A Game-Changer to Strengthening Maritime Border Management," Border Security Report, June 13, 2023, https://www.border-security-report.com/maritime-domain-awareness-technology-a-game-changer-to-strengthening-maritime-border-management/.

from deploying AI in its maritime security and thereby strengthening its maritime domain.

The Pitfalls of Artificial Intelligence in Maritime Surveillance

Despite the benefits of AI surveillance, its deployment in the Philippines is fraught with some challenges. The challenges are sovereignty, legal concerns, a lack of a regional AI governance framework, and institutional fragmentation in the country.

Sovereignty at risk

While AI offers promises in maritime security, its implementation in the Philippines raises questions about national and data sovereignty. For Southeast Asian states, especially the Philippines, this dilemma is acute due to the country's reliance on foreign hyperscalers. When surveillance technology is managed externally, there may be a risk of geopolitical manipulation. The Philippine government's digital transformation relies heavily on foreign hyperscale cloud providers to improve the economy and tackle socioeconomic challenges. The foreign cloud vendors that the country is relying on are Huawei, Alibaba, and Amazon Web Services. Although this is not in the maritime security domain, the reliance on two foreign systems poses the risks of national sovereignty and operational security, as well as emphasizing the need for a more thorough legislative framework to control cloud security and guarantee digital sovereignty.[28]

In the MDA, the Philippines is relying heavily on foreign assistance, with Japan as the primary donor. For instance, back in 2020, the Philippine Department of National Defense (DND) partnered with Mitsubishi Electric Corporation to purchase the Horizon 2 Air Surveillance Radar System for the Philippine Air Force.[29] And since 2021, the Philippines has been utilizing the U.S. Department of Transportation's SeaVision maritime program. Presently, the Philippine Coast Guard (PCG), Navy, Bureau of Fisheries and Aquatic Resources, and the National Coast Watch Center are all utilizing

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[28] Gatra Priyandita, "The Philippines Must Consider Security of Hyperscalers | the Strategist," The Strategist, June 19, 2025, https://www.aspistrategist.org.au/the-philippines-must-consider-security-of-hyperscalers/.

[29] SCSPI. 2024. "Assessment of the Philippines' Maritime Domain Awareness Capabilities." South China Sea Strategic Situation Probing Initiative. October 30, 2024. https://www.scspi.org/en/dtfx/assessment-philippines%E2%80%99-maritime-domain-awareness-capabilities.

SeaVision.[30] Based on a joint statement on the U.S.-Philippines Space Dialogue, the delegations from both countries recognized the possibilities for enhanced collaboration in leveraging space for MDA, particularly through SeaVision's initiative, which can assist the Philippines in monitoring and documenting vessels in the Philippine waters and EEZs, ensuring the safety of seafarers, protecting the environment, and combating IUU fishing.[31] While such partnerships proved useful to the country, concerns have been raised about the control of critical maritime information. Governments might worry about becoming reliant on foreign systems that could be withdrawn or weaponized in response to political changes.

Overdependency can also manifest via vendor lock-in or an opaque algorithm model. This argument rests on the observations that most major AI models and toolchains are concentrated in American and Chinese firms, creating geopolitical dependencies. The host countries cannot audit or modify those models. To exemplify, the issues of Chinese AI models offer far-reaching ramifications. Chinese AI systems are highly modernized, but utilizing them could create a kind of geo-strategic lock-in. That is, as a nation develops and implements such systems, it becomes increasingly dependent on them, making the transition to alternative sources or suppliers both challenging and costly.[32] Although Western AI systems may offer fewer risks to the host countries, the notion of ceding control of their maritime domain to a foreign actor should be considered carefully. As an archipelagic state, the Philippines must maneuver strategically to ensure that its national interests and sovereignty are not compromised.

Simultaneously, while sovereignty concerns emphasize the harsh truth of the country's vulnerability to foreign dependency and geopolitical leverage, the challenge is not just strategic but also legal. Even if the sovereignty issue is secured, there is still another layer of complexities within the Philippines, which is the legal concerns regarding AI usage.

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[30] Ibid.

[31] Office of the Spokesperson. 2024. "Joint Statement on U.S.-Philippines Space Dialogue - United States Department of State." United States Department of State. May 13, 2024. https://2021-2025.state.gov/joint-statement-on-u-s-philippines-space-dialogue/.

[32] Alvin Camba and Jessica C Liao, "Coded Dependence: How China's AI Expansion Is Locking in Southeast Asia," Thediplomat.com (The Diplomat, June 20, 2025), https://thediplomat.com/2025/06/coded-dependence-how-chinas-ai-expansion-is-locking-in-southeast-asia/.

Legal concerns and the lack of a regional AI governance framework

AI surveillance systems in the Philippines processing personal and identifiable data raise legal obligations under the Philippines' Data Privacy Act (R.A. 10173). The National Privacy Commission (NPC) advisory applies the DPA's principles (transparency, accountability, fairness, accuracy, and respect for data subjects' rights) to AI systems that are processing personal data while also describing practical safeguards and alternative measures where direct notice or full explanations are infeasible.[33] While this guideline provides a useful and comprehensive framework for addressing the legal implications of AI, it still has some limitations.

Firstly, the Advisory assumes that AI deployers could provide clear, continuous transparency to data subjects. However, this is not the case in the maritime surveillance context. AI in the maritime domain typically processes data such as AIS records, satellite images, and signals from other areas, and oftentimes, informing data subjects in real-time is nearly impossible in the vast maritime domain. This guidance may pose complications for the use of AI, particularly in areas such as national security and law enforcement, where real-world scenarios are often more complex. Additionally, the guidance fails to mention foreign AI systems. It is a harsh reality that this country depends on foreign technologies, such as satellites and analytic platforms. How would this guideline apply to those AI systems? Would they abide by the Philippine national law or the origin country's laws? This omission of foreign systems poses concerns for data sovereignty and control over maritime intelligence.

Additionally, these domestic legal constraints are further exacerbated by ASEAN's issuance of a non-binding guide on AI Governance and Ethics in February 2024.[34] While the document outlines key principles and good practices, it lacks enforceable

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[33] National Privacy Commission. 2024. *NPC Advisory No. 2024–04 (19 December 2024): Guidelines on the Application of Republic Act No. 10173 (Data Privacy Act of 2012), Its Implementing Rules and Regulations, and the Issuances of the Commission to Artificial Intelligence Systems Processing Personal Data*. Pasay City: National Privacy Commission. Accessed February 2025. https://privacy.gov.ph/wp-content/uploads/2025/02/Advisory-2024.12.19-Guidelines-on-Artificial-Intelligence-w-SGD.pdf.

[34] ASEAN. 2024. "ASEAN Guide on AI Governance and Ethics Contents." https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf. Office of the Spokesperson. 2024. "Joint Statement on U.S.-Philippines Space Dialogue - United States Department of State." United States Department of State. May 13, 2024. https://2021-2025.state.gov/joint-statement-on-u-s-philippines-space-dialogue/.

mechanisms, allowing member states to have divergent practices. Since this initiative is a non-binding framework, it does not establish collective standards or enforcement procedures. Despite the document title of "guide," it will not supersede existing legislation; rather, it continues to serve as a "guideline" for government and non-government stakeholders seeking to use AI ethically. It will not be able to impose sanctions if a member state decides to adopt a different approach to creating AI technologies.[35] Despite shared concerns over sovereignty, privacy, and data sharing, this framework enables ASEAN countries to develop divergent policies and approaches to the issue of AI usage.

Institutional fragmentation challenges

Institutional fragmentation could be the biggest limitation in the application of AI in the maritime domain. Multiple agencies can collect, own, and act on maritime data. The Philippine Navy (PN) acts on defense,[36] the Philippine Coast Guard (PCG) acts on maritime law enforcement and safety,[37] and the Bureau of Fisheries and Aquatic Resources (BFAR) manages the development, improvement, and conservation of the country's fisheries and aquatic resources.[38] Each one of these agencies operates under a different command structure and reports to different authorities, creating a barrier to information and intelligence sharing.

Realizing this problem, President Marcos signed Executive Order No.57,[39] which aims to strengthen the Philippines' maritime security and its domain awareness. This order, signed in March 2024, established a National Maritime Council (NMC), which

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[35] Bama Andika Putra, "Governing AI in Southeast Asia: ASEAN's Way Forward," *Frontiers in Artificial Intelligence* 7 (August 30, 2024), https://doi.org/10.3389/frai.2024.1411838.

[36] EC-OMB Corruption Prevention Project, "EC-OMB Corruption Prevention Project Integrity Development Review of the AFP-Philippine Navy Development Academy of the Philippines Final Report as of," 2007, https://www.ombudsman.gov.ph/docs/statistics/2007_afp-pn_summary.pdf.

[37] Supreme Court E-Library, "REPUBLIC ACT NO. 9993 - an ACT ESTABLISHING the PHILIPPINE COAST GUARD as an ARMED and UNIFORMED SERVICE ATTACHED to the DEPARTMENT of TRANSPORTATION and COMMUNICATIONS, THEREBY REPEALING REPUBLIC ACT NO. 5173, as AMENDED, and for OTHER PURPOSES - Supreme Court E-Library," Judiciary.gov.ph, 2019, https://elibrary.judiciary.gov.ph/thebookshelf/showdocs/2/17034.

[38] Bureau of Fisheries and Aquatic Resources, "Functions | BFAR," Bureau of Fisheries and Aquatic Resources, n.d., https://region9.bfar.da.gov.ph/functions/.

[39] Office of the President of the Philippines, *Executive Order No. 57, s. 2024: Institutionalizing the Artificial Intelligence Strategy of the Philippines* (Manila, May 30, 2024), https://aipalync.org/storage/documents/main/eo-57-s-2024_1717062833.pdf

integrated the PN, the PCG, the Philippine National Police, the BFAR, among many others.[40] However, a year after the council was established, the NMC has not produced any tangible framework to streamline the work of the different agencies. The inability of the NMC to unite Philippine maritime authorities undermines the country's ability to defend its waters.[41] Instead of creating a streamlined workflow across different agencies, the NMC failed to deliver its promises. The current maritime governance arrangement in the Philippines reveals several operational gaps, which include the absence of a clearly designed lead agency to respond to incidents at sea, inconsistent standard operating procedures across the institutions, and the lack of established data-sharing protocols between those agencies. When problems arise, these gaps may contribute to overlapping mandates, delays in reporting, and fragmented responses to maritime problems.

If Manila cannot fill those gaps, the operational value of AI systems is likely reduced. Even if the most advanced AI systems in the world are used, they cannot make up for institutional capability and fragmentation in the country. Unless a more effective and streamlined workflow is established in the NMC, the Philippines may risk building technologically advanced AI systems in its maritime domain that are ineffective.

Although both sovereignty concerns and institutional fragmentation pose worries to the country, the latter poses a much more critical issue. While sovereignty concerns may emerge over time, the fragmented institutions leave an obvious blind spot in regulating AI tools, which poses a significant barrier to effective usage and management despite technological advancements.

Conclusion

The Philippines' geographic location in the South China Sea makes maritime defense both a necessity and a challenge. While the location boasts the critical essence of trade, especially with its extensive EEZs, it also presents challenges. The integration of artificial intelligence into the maritime domain allows the Philippines to have

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[40] Ibid.

[41] Jonathan Walberg and Ethan Connell, "How the Philippines Can Counter China's South China Sea Aggression," Thediplomat.com (The Diplomat, April 23, 2025), https://thediplomat.com/2025/04/how-the-philippines-can-counter-chinas-south-china-sea-aggression.

enhanced detection and monitoring at sea. Nevertheless, the application of AI in maritime security also presents a few challenges for the Philippines. The issue of sovereignty will always be a concern for the Philippines if it over-depends on foreign AI models. Additionally, an ambiguous legal framework, a lack of a cohesive ASEAN regional framework, as well as entrenched institutional fragmentation in the domestic politics of the country significantly limit the full effectiveness of AI deployment. While Manila continues to remain engaged with external partners —reflecting the country's commitment to improve its own maritime domain —concerns about the advanced but underutilized systems persist. The Philippines must recognize that AI tools are not magic, and their effective utilization depends on creating cohesive and coordinated agencies within the country and establishing clear rules both at the national and regional levels. Moving forward, Manila should consider prioritizing its own domestic capacity building by strengthening the NMC and streamlining the work across different agencies to ensure no overlap. Additionally, Manila should devise a more coherent national framework, the Philippines' Data Privacy Act. Only when the country has a well-grounded framework can it lead the regional discussion on AI ethics and legal concerns. This approach—step-by-step, domestic coordination first and regional leadership second would prove to be strategic for next year's Philippines' ASEAN chairmanship. With the current chairmanship of ASEAN, the Philippines aims to utilize AI in three pillars, such as security, economics, and social development.[42] We can only hope that its utilization will be successful under the Philippine leadership.

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[42] Katrina Domingo, "PH Launches ASEAN 2026 Chairmanship with Focus on AI | ABS-CBN News," *ABS-CBN*, November 14, 2025, https://www.abs-cbn.com/news/nation/2025/11/14/ph-launches-asean-2026-chairmanship-with-focus-on-ai-2155.

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