

Security Alliances in the Indo-Pacific: Examining Their Effectiveness in Addressing the Security Threats

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abstract

The Indo-Pacific has become the primary arena of twenty-first century strategic competition, yet the comparative effectiveness of its regional security alliances remains underexplored. This study evaluates the effectiveness of major alliances and strategic partnerships — particularly the Quad and AUKUS — in responding to contemporary regional security challenges, using a qualitative comparative case study approach drawing on official policy documents, strategic reports, and academic literature. The findings reveal that these alliances have strengthened maritime domain awareness, military interoperability, intelligence sharing, and conventional deterrence. However, their effectiveness is constrained by divergent national strategic priorities, uneven institutional commitment, limited collective enforcement mechanisms, and concerns over regional inclusivity. While cooperation in maritime security, cybersecurity, and humanitarian assistance has grown, coordinated responses to grey-zone activities, economic coercion, and broader strategic competition remain limited. The study concludes that future Indo-Pacific security architecture must prioritize stronger policy coordination, institutional flexibility, and inclusive multilateral cooperation to effectively address the region's evolving security environment.

keywords

indo-pacific security architecture; security alliances; quadrilateral security dialogue (Quad); AUKUS; maritime security; strategic competition.

Introduction

The term “Indo-Pacific,” similar to the earlier concept of the “Asia-Pacific,” represents a geostrategic construct rather than merely a geographical expression. Geographically, the Indo-Pacific refers to the vast maritime region connecting the Indian Ocean and the Pacific Ocean (Tow, 2009). However, the concept carries deeper geopolitical implications. It highlights the growing security interdependence between the Indian and Pacific Oceans and reflects the idea of treating the region as a single strategic theatre of operation. The concept also underlines the increasing significance of maritime spaces as arenas of great-power competition rather than continental zones alone (Hu & others, 2020).

In recent years, the Indo-Pacific has become a central point of global security politics, economic interaction, and strategic rivalry. The increasing importance of the region is closely associated with China's emergence as a major economic and military power, alongside the continuing strategic presence of the United States and its allies. Scholars argue that the Indo-Pacific has evolved into a major theatre of great-power competition, especially as China seeks to expand its regional and global influence through economic initiatives and military modernization. The region contains some of the world's busiest maritime trade routes,

including the South China Sea and the Strait of Malacca, through which a substantial proportion of global trade and energy supplies passes. The strategic significance of these sea lanes has intensified geopolitical competition while simultaneously creating opportunities for regional cooperation. Furthermore, unresolved territorial disputes, especially in the South China Sea, together with increasingly assertive maritime policies, have contributed to rising tensions and security anxieties across the region.

In response to this changing strategic environment, countries in the Indo-Pacific have increasingly relied upon security partnerships and alliances to preserve regional stability and maintain a favourable balance of power. Such alliances function as mechanisms for collective security, deterrence, and strategic coordination in dealing with both traditional and non-traditional threats. The emergence of platforms such as the Quadrilateral Security Dialogue (Quad) and the Australia–United Kingdom–United States (AUKUS) partnership reflects the growing importance of multilateral cooperation among states with converging strategic interests. These alliances contribute to maritime security, intelligence sharing, technological cooperation, and the protection of freedom of navigation across vital sea routes (Medcalf, 2020). In addition to conventional defence cooperation, these arrangements increasingly address issues such as cybersecurity, resilient supply chains, disaster management, and public health challenges. This broader agenda demonstrates the evolving character of security in the Indo-Pacific and emphasizes the necessity of collaborative approaches in managing contemporary regional challenges.

Existing scholarship has examined the strategic rationale, evolution, and geopolitical implications of these security alliances. However, an important gap remains in the literature. Most studies focus on the formation, strategic motivations, or implications of individual alliances, while relatively few provide a comparative assessment of their effectiveness in addressing both traditional and non-traditional security threats. Furthermore, limited attention has been paid to how institutional characteristics—particularly the informal and consensus-based nature of several Indo-Pacific security arrangements—shape their capacity to respond effectively to evolving regional security challenges. Consequently, there remains insufficient understanding of the conditions under which these alliances succeed or fall short in enhancing regional security.

Against this background, this study addresses the following research question

Under what conditions do Indo-Pacific security alliances effectively address traditional and non-traditional regional security threats, and how do institutional characteristics influence their overall effectiveness?

To answer this question, the study undertakes a qualitative comparative analysis of major Indo-Pacific security arrangements, including the Quad and AUKUS. It evaluates their institutional design, strategic objectives, operational mechanisms, and responses to a range of regional security challenges by drawing on official policy documents, strategic reports, and existing scholarly literature.

This article contributes to the existing literature in three important ways. First, it provides a comparative evaluation of major Indo-Pacific security alliances rather

than examining them in isolation, thereby offering a more comprehensive understanding of regional security architecture. Second, it broadens the analytical scope by assessing alliance effectiveness across both traditional and non-traditional security threats, including maritime security, cybersecurity, humanitarian assistance, and strategic competition. Third, the study demonstrates how institutional features such as informality, flexibility, consensus-based decision-making, and varying strategic priorities influence the effectiveness of security cooperation. By integrating these dimensions, the article offers a more nuanced framework for understanding the opportunities and limitations of contemporary Indo-Pacific security alliances and contributes to ongoing debates on regional security governance.

Methods

The present study employs a qualitative and analytical research methodology to examine the effectiveness of security alliances in the Indo-Pacific region in responding to emerging security threats and geopolitical challenges. The research is primarily based on secondary sources of information, including scholarly books, peer-reviewed journal articles, policy papers, strategic reports, official statements, and publications produced by research institutions and think tanks focusing on Indo-Pacific affairs and international security. These sources provide conceptual, theoretical, and empirical insights into the changing security dynamics of the region and the evolving role of strategic alliances.

The study adopts a descriptive and interpretative approach to analyse the strategic significance of major Indo-Pacific security arrangements, particularly the Quadrilateral Security Dialogue (Quad) and the Australia–United Kingdom–United States (AUKUS) partnership. These two alliances have been selected because of their increasing prominence in regional security discourse and their growing role in shaping the Indo-Pacific strategic environment. The research evaluates their effectiveness by examining their contributions toward maritime security, strategic balancing, defence cooperation, technological collaboration, intelligence sharing, cybersecurity, and regional stability.

To provide a theoretical foundation, the study is guided by the Realist tradition in International Relations, especially Structural Realism and Offensive Realism. Structural Realism explains that states operate within an anarchic international system where survival and security remain the primary concerns of national governments. In such circumstances, states seek alliances as balancing mechanisms against rising or threatening powers. Within the Indo-Pacific context, China's rapid economic and military rise has significantly altered the regional balance of power, encouraging countries such as the United States, India, Japan, and Australia to strengthen strategic partnerships.

The study also incorporates the perspective of Offensive Realism, which argues that major powers naturally seek to maximize their influence and secure regional dominance whenever opportunities emerge. This theoretical framework helps explain the intensifying strategic competition between the United States and China and the growing importance of alliances in managing regional power transitions. Additionally, the concept of the "Thucydides Trap" is used to understand the structural tensions that arise when an emerging power challenges an established hegemon,

thereby increasing the possibility of geopolitical rivalry and confrontation (Allison, 2018).

A comparative analytical method has also been employed to identify similarities and differences between the Quad and AUKUS in terms of strategic objectives, operational focus, institutional structure, and security priorities. Particular attention is given to both traditional and non-traditional security dimensions, including maritime disputes, cyber threats, technological competition, supply-chain resilience, and regional strategic coordination.

The study remains limited to the Indo-Pacific region and focuses specifically on contemporary security alliances that have emerged in response to changing geopolitical realities. Since the research is qualitative in nature, it does not rely on statistical techniques or quantitative data analysis. Instead, the emphasis is placed on critical interpretation, theoretical understanding, and strategic assessment of regional security developments and alliance behaviour.

Result and Discussion

The analysis of official policy documents, defence white papers, strategic reports, and recent scholarly literature indicates that China's expanding military capabilities and growing economic influence have significantly reshaped the security environment of the Indo-Pacific. China's increasing defence expenditure, naval modernization, and expansion of maritime operations in the South China Sea and East China Sea have heightened security concerns among regional states. The construction and militarization of artificial islands, frequent naval patrols, and the assertion of extensive maritime claims have intensified territorial disputes and raised concerns regarding freedom of navigation.

The evidence further demonstrates that China's growing strategic presence has accelerated security cooperation among Indo-Pacific states. The revitalization of the Quadrilateral Security Dialogue (Quad), the establishment of AUKUS, and the strengthening of bilateral alliances such as the United States–Japan alliance reflect collective efforts to enhance deterrence, improve maritime domain awareness, expand intelligence sharing, and increase military interoperability. Official strategic documents also reveal greater cooperation in cybersecurity, emerging technologies, humanitarian assistance, and disaster relief.

At the same time, the findings indicate that regional responses remain uneven. While several countries have strengthened security cooperation with the United States and its partners, others continue to pursue strategic autonomy by maintaining diplomatic and economic engagement with China alongside security cooperation with other regional actors. This diversity of strategic preferences has influenced the level of coordination achieved within Indo-Pacific security arrangements.

The findings suggest that China's expanding strategic influence has acted as the principal catalyst for the evolution of the Indo-Pacific security architecture. Rather than functioning solely as military alliances, contemporary security partnerships increasingly serve as flexible strategic frameworks designed to address both conventional and non-traditional security challenges. This supports the argument that evolving regional power dynamics have encouraged the emergence of mini-lateral security arrangements that complement, rather than replace, traditional bilateral alliances.

However, the analysis also demonstrates that the effectiveness of these alliances is constrained by institutional and political factors. The informal and consensus-based nature of arrangements such as the Quad provides diplomatic flexibility but simultaneously limits their capacity for collective decision-making and coordinated responses during periods of heightened strategic tension. Similarly, differences in national interests, economic dependence on China, and varying threat perceptions reduce the ability of member states to formulate unified security strategies.

These findings therefore indicate that while China's growing influence has strengthened strategic cooperation among Indo-Pacific partners, alliance effectiveness depends not only on military capabilities but also on institutional cohesion, political commitment, and convergence of strategic objectives. The evidence reinforces broader debates in International Relations concerning balancing behaviour, institutional effectiveness, and regional security governance, demonstrating that sustainable Indo-Pacific security requires both credible deterrence and deeper multilateral coordination.

Theoretical Understanding of Security Alliances: Realism Perspective

The study of security alliances in the Indo-Pacific can be effectively understood through major theoretical approaches in international relations, particularly Realism and its variants. These perspectives explain why states form alliances, how they respond to emerging threats, and how shifts in power influence global and regional stability. Scholars argue that alliances are formed either on the principle of 'balancing' or 'bandwagoning'. Balancing is alignment with weaker side and bandwagoning means to choose the stronger side. Though, there is a serious flaw in this view but the most agreed view point is that states will ally against the most threatening powers. (Walt, 1985).

One of the foundational approaches in this context is Structural Realism, developed by Kenneth Waltz. According to Waltz, the international system is anarchic, there is no central authority above states, and therefore states must rely on self-help to ensure their survival (N.Waltz, 2010). In such a system, the distribution of power among states determines their behavior. Waltz argues that states tend to form alliances as a balancing mechanism against more powerful or threatening states. In the context of Indo-Pacific, the rise of China can be seen as a shift in the balance of power, compelling other states to form alliances to maintain equilibrium. Therefore, alliances such as the Quadrilateral Security Dialogue and AUKUS can be interpreted as efforts to restore balance in response to China's growing capabilities.

Building on this, Offensive realism, articulated by John J. Mearsheimer, provides a more assertive interpretation of state behavior. Mearsheimer argues that great powers are inherently driven to maximize their relative power and seek regional or global dominance whenever possible. According to this perspective, the rise of China is not merely an economic phenomenon but part of a broader strategic ambition to achieve regional hegemony in Asia. Consequently, the United States and its allies are likely to adopt strategies aimed at containing or balancing China's rise. Security alliances in the broader strategy to prevent any single power from dominating the region. (Mearsheimer, 2014).

Another important theoretical lens is the concept of Thucydides Trap, popularized by Graham Allison. This concept suggests that conflict becomes likely when a rising power challenges an established hegemon. Drawing from the historical example of Peloponnesian war, Allison argues

that structural stress created by power transition often leads to strategic rivalry and potential conflict. (Allison, 2018).

These theoretical perspectives provide a comprehensive framework for understanding the emergence and evolution of security alliances in the Indo-Pacific. Structural realism explains the balancing behavior of states in response to shifting power dynamics. Offensive realism highlights the competitive and power maximizing nature of great powers and the Thucydides Trap highlights the risks associated with power transitions. These perspectives collectively help to explain why alliances such as Quad and AUKUS have become central to maintaining stability and managing security threats in the Indo-Pacific region.

China's Growing Influence and Strategic Competition in the Indo-Pacific

China's rapid rise during the twenty-first century has significantly altered the global balance of power, particularly within the Indo-Pacific region. As China's economic, military, and technological capabilities have expanded, the United States and its allies increasingly perceive China as a strategic challenge to the international order that has largely been shaped by Western leadership since the end of the Second World War (Roper, 2024).

China's economic expansion and trade connectivity have become major sources of its global influence. Sustained economic growth and expanding trade relations have enabled China to emerge as a key trading partner for countries across Asia, Africa, Europe, and Latin America. Initiatives such as the Belt and Road Initiative (BRI) demonstrate China's ambition to reshape global economic connectivity through infrastructure development and financial engagement. Through these initiatives, China has strengthened its economic diplomacy and expanded its strategic presence in multiple regions, including the Indo-Pacific. While China presents the BRI as a project centred on economic cooperation and development, many analysts in the United States view it as a mechanism for expanding China's strategic influence and potentially challenging American dominance (Wong & Downes, 2024).

Alongside economic growth, China has also achieved substantial progress in science, technology, and innovation. The country has invested heavily in sectors such as artificial intelligence, quantum computing, telecommunications, and digital infrastructure. Chinese companies have become major actors within global technology markets, particularly in areas such as 5G telecommunications and digital platforms. These developments have generated concerns in the United States regarding technological competition, cybersecurity, and the growing influence of Chinese technological standards in the Indo-Pacific region (Li et al., 2026).

China has additionally sought to enhance its global influence through new multilateral institutions. The Asian Infrastructure Investment Bank (AIIB) serves as a significant example of China's attempt to play a more prominent role in global economic governance. China's diplomatic outreach is further reflected in its active participation in regional organizations such as the Shanghai Cooperation Organisation (SCO), through which it engages with South and Central Asian countries on issues related to security, economic cooperation, and regional stability (Nye, 2005).

In response to China's expanding influence and growing strategic assertiveness, the United States and its allies have strengthened various security partnerships within the Indo-Pacific. The Quad and AUKUS are among

the most prominent examples of such arrangements. Initially centred primarily on defence and security cooperation, these partnerships have gradually expanded their focus to include maritime security, intelligence sharing, technological collaboration, and strategic coordination in emerging domains.

Strategic Significance of the Quadrilateral Security Dialogue in the Indo-Pacific Security Architecture

The Quadrilateral Security Dialogue, comprising the United States, India, Japan, and Australia, has emerged as a major strategic framework for promoting stability and security in the Indo-Pacific region. Originally conceived as a consultative mechanism among democratic states with shared strategic concerns, the Quad has evolved into a broader platform for cooperation in areas such as regional security, economic development, and multilateral coordination. The growing geopolitical importance of the Indo-Pacific—characterized by maritime disputes, strategic competition, and shifting power relations—has increased the relevance of the Quad within the broader regional security architecture.

One of the Quad's most important contributions lies in promoting maritime security, which remains central to Indo-Pacific stability. The region includes several of the world's most critical sea lanes, particularly the South China Sea and the Strait of Malacca, where freedom of navigation is essential for international trade. According to the United Nations Conference on Trade and Development (UNCTAD), approximately 80–90 percent of global trade by volume is transported by sea, with a major share passing through Indo-Pacific maritime routes. The Strait of Malacca alone carries nearly one-third of global maritime trade and around one-quarter of the world's traded goods, making it one of the most strategically significant chokepoints in the global economy. More than 60,000 vessels pass through the Strait annually, emphasizing its importance for global energy flows and commercial connectivity between Asia, Europe, and the Middle East. These realities explain why maritime security and freedom of navigation remain central concerns for both regional and global powers.

The Quad regularly conducts naval exercises aimed at strengthening interoperability and coordination among member navies. These exercises symbolize a collective commitment to protecting maritime routes and deterring threats such as piracy, smuggling, and unlawful territorial encroachments. The Quad also functions as a platform for addressing strategic concerns arising from China's increasingly assertive behaviour in the South China Sea and East China Sea. China's construction of artificial islands and military installations in disputed maritime areas has heightened concerns regarding regional stability and freedom of navigation. Although the Quad officially denies being an anti-China alliance, many analysts view it as an important balancing mechanism against China's rising influence and assertiveness in the Indo-Pacific (Panda, 2022).

The Quad further strengthens the security capabilities of its members through multiple forms of cooperation. Intelligence sharing and surveillance initiatives, including the Indo-Pacific Maritime Domain Awareness Initiative, assist member states in tracking illegal fishing, smuggling activities, and suspicious naval movements. The Quad also conducts joint naval exercises, coordinated patrols, and capacity-building programmes designed to enhance maritime cooperation (Cooper, 2020; Dunne et al., 2020). The Malabar naval exercises, involving India, the United States, Japan, and Australia, represent a major example of such collaboration (Rajagopalan, 2023). These exercises focus on

maritime operations, anti-submarine warfare, air defence, and disaster response, thereby improving operational coordination among participating navies (Marwah, 2023). They also demonstrate the Quad's commitment to preserving a "free and open Indo-Pacific" and send a strategic message regarding collective support for maritime security and freedom of navigation (Pant & Mattoo, 2021).

Beyond defence cooperation, the Quad has expanded into areas such as cybersecurity, defence technology, and infrastructure development, thereby improving collective responses to emerging security challenges (Mohan & Govella, 2022). The member states also cooperate on counterterrorism initiatives through intelligence sharing, training programmes, and efforts to combat violent extremism and transnational terrorist networks operating in the region (Taneja, 2021).

The Quad additionally contributes to regional economic development and connectivity. Initiatives such as port development projects in Southeast Asia, renewable energy cooperation in Pacific Island states, and digital connectivity programmes in South and Southeast Asia demonstrate the alliance's broader developmental agenda. The Blue Dot Network and the Partnership for Global Infrastructure and Investment seek to promote high-quality infrastructure standards and transparent financing, offering alternatives to China's Belt and Road Initiative. These projects aim to strengthen regional connectivity, improve supply-chain resilience, and support sustainable economic growth in countries such as Vietnam, Indonesia, and several Pacific Island nations (Smith, 2021).

Strategic Significance of the AUKUS Security Partnership in the Indo-Pacific

The AUKUS partnership, involving Australia, the United Kingdom, and the United States, was established in 2021 as a trilateral security arrangement intended to strengthen defence cooperation and maintain strategic stability in the Indo-Pacific region (Goswami, 2022). The partnership consists of two major pillars. The first pillar emphasizes on assisting Australia in acquiring conventionally armed nuclear-powered submarines for the Royal Australian Navy. The second pillar centres on cooperation in advanced technologies and expanded information sharing.

The second pillar specifically aims to enhance collaboration in emerging technologies such as artificial intelligence, quantum technologies, robotics, cyber capabilities, hypersonic systems, autonomous underwater vehicles, and electronic warfare. The objective is to improve technological interoperability and maintain strategic advantages amid intensifying geopolitical competition, particularly with China. Despite bureaucratic and regulatory challenges, progress has already been visible in joint technological trials involving military and civilian personnel from all three countries. Such cooperation has included the exchange of artificial intelligence models and coordinated operations involving AI-enabled systems designed to identify and track targets (Kahn, 2023).

The Australia–United Kingdom–United States (AUKUS) security partnership has strengthened the strategic position of its member states through measurable enhancements in defence capability, force integration, and advanced technology cooperation. The 2023 AUKUS Optimal Pathway commits Australia to acquiring conventionally armed, nuclear-powered submarines (SSN-AUKUS), while establishing the Submarine

Rotational Force–West (SRF-West) at HMAS Stirling in Western Australia from 2027. Under this arrangement, United States Virginia-class and United Kingdom Astute-class submarines will conduct regular rotational deployments, increasing the allied undersea presence and improving operational readiness in the Indo-Pacific (U.S. Department of Defense, 2024).

Evidence of implementation is already visible. Australia, the United Kingdom, and the United States have signed bilateral Memoranda of Understanding to expand personnel exchanges and accelerate Australia's sovereign nuclear-submarine workforce. Australian naval officers and sailors are currently undergoing training with the U.S. Navy and the Royal Navy, while significant investments are being made in naval infrastructure, maintenance facilities, and industrial capacity to support future submarine operations. These developments indicate that AUKUS has moved beyond a political declaration to the practical implementation of long-term military capability development.

Beyond submarine capability (Pillar I), AUKUS has expanded cooperation under Pillar II through joint development of advanced defence technologies, including artificial intelligence, quantum technologies, cyber capabilities, autonomous systems, electronic warfare, hypersonic and counter-hypersonic technologies, and undersea systems. In September 2024, the three governments announced the deployment of artificial intelligence algorithms to process sonar-buoy data for anti-submarine warfare and launched the Maritime Big Play series of experiments to test autonomous and uncrewed maritime systems. These initiatives aim to enhance decision-making speed, improve maritime domain awareness, and strengthen interoperability among the three defence forces (The White House, 2023).

Institutional reforms further demonstrate the alliance's strategic significance. The three governments have introduced export-control reforms, including amendments to the United States International Traffic in Arms Regulations (ITAR), to facilitate licence-free defence trade and accelerate the co-development and co-production of advanced military technologies. Such reforms reduce bureaucratic barriers, strengthen defence-industrial integration, and improve the capacity of the partners to deliver advanced military capabilities more rapidly.

These developments suggest that AUKUS has evolved into a comprehensive defence partnership that combines military capability enhancement, technological innovation, industrial collaboration, and institutional integration. Collectively, these measures are intended to strengthen deterrence, preserve a favourable balance of power, and enhance allied readiness in response to China's expanding military capabilities and increasingly assertive activities in the Indo-Pacific. Nevertheless, Chinese officials continue to characterize AUKUS as a Cold War-style arrangement that could intensify regional militarization and strategic competition, illustrating the divergent interpretations of the partnership within the regional security environment.

AUKUS has strengthened the strategic position of its member states by enhancing maritime defence capabilities in the Indo-Pacific. The alliance is widely interpreted as part of broader efforts by the United States and its allies to respond to China's growing military influence, particularly in the South China Sea. Through enhanced cooperation, AUKUS aims to maintain a favourable balance of power and deter actions that may threaten regional stability. China, however, perceives the partnership as part of a containment strategy directed against its rise, contributing to concerns regarding regional militarization and arms competition.

The formation of AUKUS reflects the belief that

maintaining a balance of power remains essential for preserving stability within the Indo-Pacific (Randev, 2022). The alliance seeks to deter aggressive actions by strengthening defence cooperation and improving military preparedness among its members (Imannuridin et al., 2024). It also complements existing regional arrangements such as the Quad by contributing to a wider network of strategic partnerships designed to reinforce Indo-Pacific security architecture.

AUKUS additionally seeks to safeguard freedom of navigation across vital sea lanes that are essential for international trade and regional stability. By improving maritime capabilities, the alliance aims to prevent disruptions arising from militarization, blockades, or coercive actions in strategically important waters. Furthermore, AUKUS extends beyond conventional military concerns by addressing emerging non-traditional security threats. Cooperation in areas such as cybersecurity, artificial intelligence, autonomous systems, and quantum technologies reflects recognition of the changing nature of security in the digital era. Such collaboration is considered essential for managing increasingly sophisticated technological and cyber threats (Australian Government Department of Defence, 2024).

Non-Traditional Security Threats and the Effectiveness of Indo-Pacific Security Alliances

The analysis indicates that Indo-Pacific security alliances have progressively expanded their agendas beyond conventional military deterrence to address a broader spectrum of non-traditional security threats. Official policy documents and joint communiqués demonstrate that arrangements such as the Quadrilateral Security Dialogue (Quad), AUKUS, and other regional partnerships increasingly recognize cybersecurity, maritime piracy, climate change, disaster relief, and public health emergencies as integral components of regional security (Australian Government Department of Defence, 2024).

Cybersecurity has emerged as one of the principal areas of cooperation. The Quad Leaders' Joint Statements and subsequent initiatives established dedicated working groups on cyber resilience, critical infrastructure protection, ransomware prevention, and secure digital technologies. Member states have coordinated efforts to strengthen cyber capacity-building, improve information sharing, and promote secure telecommunications infrastructure across the Indo-Pacific. Similarly, under AUKUS Pillar II, Australia, the United Kingdom, and the United States have expanded collaboration on cyber capabilities, artificial intelligence, quantum technologies, electronic warfare, and advanced undersea systems to enhance collective resilience against increasingly sophisticated cyber threats (The White House, 2024).

The findings also demonstrate that maritime security and piracy remain significant concerns, particularly in strategic sea lanes that support global trade. The Quad's Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) employs satellite-based technologies and information-sharing mechanisms to improve monitoring of illegal fishing, piracy, smuggling, and other illicit maritime activities. Enhanced maritime surveillance has strengthened the capacity of participating states to detect and respond to threats in the South China Sea, the Indian Ocean, and the wider Indo-Pacific (International Maritime Organization, 2024).

Evidence further indicates that climate change has become an increasingly important security issue within regional cooperation frameworks. Rising sea levels,

extreme weather events, and climate-induced disasters threaten coastal infrastructure, food security, human security, and economic resilience across several Indo-Pacific island states. Recognizing these challenges, the Quad has launched initiatives focusing on climate adaptation, clean energy transition, disaster risk reduction, and resilient infrastructure. These initiatives acknowledge that environmental degradation can exacerbate humanitarian crises, resource competition, and political instability across the region (Intergovernmental Panel on Climate Change, 2023).

The COVID-19 pandemic further demonstrated the importance of public health security as a component of regional security cooperation. In response, the Quad Vaccine Partnership coordinated the production and distribution of safe and effective vaccines across the Indo-Pacific while promoting cooperation in health supply chains, pandemic preparedness, and emergency response mechanisms. These initiatives illustrate that regional security alliances increasingly view health emergencies as transnational threats requiring coordinated multilateral action rather than purely domestic policy responses (World Health Organization, 2023).

The study suggests that Indo-Pacific security alliances are gradually evolving from traditional military partnerships into multi-dimensional security institutions capable of addressing both conventional and non-conventional threats. This evolution reflects the changing nature of regional security, cyberattacks, illegal maritime activities, climate-related disasters, and pandemics increasingly affect national security alongside interstate military competition (Australian Government Department of Defence, 2024).

Nevertheless, the evidence also reveals important limitations. Although alliances have developed numerous initiatives addressing non-traditional threats, implementation remains uneven across issue areas. Cybersecurity cooperation is often constrained by differences in national regulatory frameworks, intelligence-sharing arrangements, and technological capabilities. Climate initiatives largely emphasize policy coordination rather than binding commitments or collective financing mechanisms, limiting their practical impact on vulnerable states. Similarly, maritime security cooperation has improved surveillance and information sharing but remains challenged by overlapping territorial disputes, limited enforcement authority, and differing national priorities. Public health cooperation, while strengthened during the COVID-19 pandemic, has yet to evolve into a permanent institutional framework capable of coordinating responses to future regional health emergencies (WHO, 2023).

These study indicate that the effectiveness of Indo-Pacific security alliances varies according to the nature of the threat. Alliances have demonstrated relatively greater success in enhancing information sharing, technological cooperation, and capacity-building, and maritime domain awareness than in establishing binding collective mechanisms for addressing complex transnational challenges. Consequently, while regional security partnerships have expanded their functional scope beyond traditional defence, further institutionalization, sustained political commitment, and deeper regional cooperation remain necessary to improve their capacity to address the full spectrum of non-traditional security threats in the Indo-Pacific.

Challenges and Constraints in Indo-Pacific Security Cooperation

Despite the expansion of security cooperation in the Indo-Pacific, several structural and institutional constraints

continue to limit the effectiveness of regional security alliances. Although arrangements such as the Quad, AUKUS, have strengthened defence cooperation, intelligence sharing, and maritime security, their ability to respond collectively to regional security challenges remains uneven. Divergent national interests, varying threat perceptions, economic interdependence with China, and the predominantly informal nature of several Indo-Pacific security arrangements continue to constrain policy coordination and collective action.

From the perspective of Structural Realism, China's growing military capabilities and expanding regional influence constitute a systemic external threat that should encourage balancing behaviour among neighbouring states. The revitalisation of the Quad, the establishment of AUKUS, and the strengthening of bilateral alliances are broadly consistent with this expectation, as they reflect efforts to enhance deterrence and preserve the regional balance of power (Mearsheimer, 2001; Walt, 1985; Waltz, 2010). However, the empirical evidence presented in this study demonstrates that balancing behaviour has neither been uniform nor unconditional.

The persistence of internal divergences among Indo-Pacific partners suggests that systemic pressures alone cannot fully explain alliance behaviour. States differ considerably in their perceptions of China's rise, their strategic priorities, and their economic dependence on Beijing. For example, while the United States and Australia have adopted increasingly robust balancing strategies, countries such as India continue to pursue strategic autonomy, avoiding formal alliance commitments despite expanding defence cooperation with like-minded partners. Similarly, several Southeast Asian states seek to balance security cooperation with the United States while simultaneously maintaining strong economic and diplomatic relations with China. These variations indicate that domestic political priorities, economic interests, and regional diplomatic considerations shape alliance behaviour alongside structural incentives.

Furthermore, the institutional design of Indo-Pacific security arrangements influences their overall effectiveness. Unlike formal collective defence organizations such as the North Atlantic Treaty Organization (NATO), the Quad operates through voluntary cooperation and consensus-based decision-making without legally binding mutual defence obligations. While this institutional flexibility enables member states to cooperate across diverse issue areas, it also limits the speed, consistency, and predictability of collective responses during periods of heightened strategic tension. Consequently, institutional informality simultaneously represents both a strength and a constraint within the evolving Indo-Pacific security architecture.

These findings suggest that Structural Realism provides an important explanation for the emergence of balancing behaviour in the Indo-Pacific but offers only a partial account of variations in alliance effectiveness. The evidence indicates that systemic power competition creates incentives for security cooperation; however, the depth and effectiveness of that cooperation are mediated by institutional arrangements, domestic political considerations, economic interdependence, and differing national strategic preferences. Therefore, understanding Indo-Pacific security alliances requires combining structural realist insights with institutional and foreign policy perspectives that account for the complex political and economic dynamics shaping regional security cooperation.

Conclusion

This study examined the effectiveness of major Indo-Pacific security alliances in addressing both traditional and non-traditional security threats and investigated the conditions under which these alliances contribute to regional security. Specifically, it addressed the research question: Under what conditions do Indo-Pacific security alliances effectively respond to traditional and non-traditional regional security threats, and how do institutional characteristics influence their overall effectiveness?

The findings indicate that Indo-Pacific security alliances are most effective when member states exhibit convergent strategic interests, sustained political commitment, high levels of military interoperability, and institutionalized mechanisms for intelligence sharing, technological cooperation, and coordinated policy implementation. Arrangements such as the Quadrilateral Security Dialogue (Quad), AUKUS, and bilateral alliances have strengthened deterrence, maritime domain awareness, cybersecurity cooperation, humanitarian assistance, and disaster response capabilities. However, their effectiveness remains uneven across different security domains. Divergent national priorities, economic interdependence with China, varying threat perceptions, and the largely informal institutional design of several Indo-Pacific partnerships continue to constrain collective decision-making and coordinated responses, particularly in addressing complex transnational challenges such as climate change, cyber threats, maritime piracy, and future public health emergencies.

From a theoretical perspective, this study contributes to the literature on alliance politics and Indo-Pacific security by demonstrating that Structural Realism provides a useful explanation for the emergence of balancing behaviour in response to China's growing strategic influence but does not fully explain variations in alliance cohesion and effectiveness. While systemic power competition creates incentives for states to strengthen security cooperation, the empirical findings show that institutional design, domestic political considerations, economic interdependence, and strategic autonomy significantly influence the extent and effectiveness of balancing behaviour. The study therefore argues that understanding contemporary Indo-Pacific security alliances requires integrating insights from Structural Realism with institutional and foreign policy approaches that better capture the multidimensional nature of regional security cooperation.

Empirically, this research contributes by providing a comparative assessment of major Indo-Pacific security alliances across both traditional and non-traditional security threats rather than focusing on a single alliance or a single security issue. This broader analytical perspective enhances understanding of how evolving regional security arrangements respond to increasingly complex geopolitical and transnational challenges.

Despite these contributions, the study has several limitations. First, the analysis is based primarily on qualitative document analysis of official policy documents, strategic reports, and existing scholarly literature rather than interviews, field research, or quantitative measures of alliance effectiveness. Second, the study focuses on selected security partnerships—particularly the Quad and AUKUS—and therefore does not comprehensively examine all regional security mechanisms operating within the Indo-Pacific. Third, because the regional security

environment continues to evolve rapidly, particularly with respect to emerging technologies and geopolitical competition, some policy developments may change after the completion of this research.

Future research could adopt mixed-methods approaches by combining qualitative analysis with quantitative indicators of alliance performance, defence cooperation, or regional security outcomes. Comparative studies involving additional regional institutions, including ASEAN-led security mechanisms, as well as longitudinal analyses of alliance adaptation to emerging technologies and non-traditional security threats, would further strengthen understanding of the evolving Indo-Pacific security architecture. Such research would contribute to a more comprehensive evaluation of how regional security alliances can adapt to an increasingly dynamic and contested strategic environment.

Author contributions

The authors designed the study, conducted the literature review, collected and analyzed the data, interpreted the findings, and prepared the manuscript. The authors reviewed and approved the final version of the manuscript and accept full responsibility for its content.

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