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The trade-technology nexus: Economic Security and the Coordination of Dual-Use Controls in ASEAN

Viveganandam Jesudevan*

Abstract

This paper examines ASEAN's strategic role in governing dual-use items and technologies amid intensifying U.S. – China technological competition. It argues that the intersection of trade and security, anchored in the World Trade Organization's concept of economic security, requires ASEAN to encourage the strengthening of domestic legal frameworks, harmonise regional approaches, and engage multilaterally. By addressing challenges such as intangible technology transfers and divergent national controls, ASEAN can enhance resilience, attract investment, and reinforce its credibility as a trusted, rules-based region for innovation. The paper advances a pragmatic framework balancing security imperatives with economic growth and technological openness.

❖ Key words : ASEAN, Economic Security, Dual-Use Technology, Artificial Intelligence (AI), Export Controls, Trade Governance

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I. Overview

Trade and security are increasingly fused in present-day international relations. Traditionally, trade was primarily concerned with tariffs, quotas, and market access, while security addressed the protection of states against military threats.[1] Today, we see a greater convergence under the rubric of economic security, especially as advancements in technologies such as Artificial Intelligence (AI) impacting competitiveness and defence capabilities.

This has caught several ASEAN countries in the geopolitical crosscurrents particularly regarding the conveyance and management of AI chips,[2] raising questions about governance, control, and trust. With APEC stepping up its efforts on trade[3] and investment[4] facilitation amid intensifying technological rivalry, and ASEAN focusing on regional integration within Southeast Asia, this article examines the trade–technology nexus and argues for closer regional cooperation and co-ordination among ASEAN member states on export controls to safeguard legitimate trade.

The World Trade Organization (WTO) defines economic security[5] as the "ability of households, firms, and governments to prevent, prepare for, cope with, and recover from systemic shocks". The WTO captured this shift by positioning economic security as complementary to, rather than in tension with, open trade.

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1) Mona Pinchis-Paulsen, 'Let's Agree to Disagree: A Strategy for Trade-Security' (2022), Vol 25 Issue 4, Journal of International Economic Law, 527

2) *Channel NewsAsia*, "3 Men Charged with Fraud, Cases Linked to Alleged Movement of Nvidia Chips" Channel NewsAsia (Singapore, 27 February 2025) https://www.channelnewsasia.com/singapore/3-men-charged-fraud-nvidia-chips-singapore-china-deepseek-4964721 accessed 30 September 2025

3) APEC Secretariat, Trade Facilitation Brochure (APEC, 2005) https://apec.org/docs/default-source/Publications/2005/12/Trade-Facilitation-Brochure-2005/ApecTrade091105.pdf accessed 30 September 2025. See also APEC, '2025 APEC Minsters Responsible for Trade Joint Statement' (APEC, 16 May 2025) https://www.apec.org/meeting-papers/sectoral-ministerial-meetings/trade/2025-apec-ministers-responsible-for-trade-joint-statement accessed 30 September 2025

4) APEC, 'APEC Backs Global Push for WTO Investment Facilitation for Development Agreement' (APEC, 13 May 2025) https://www.apec.org/press/news-releases/2025/apec-backs-global-push-for-wto-investment-facilitation-for-development-agreement accessed 30 September 2025

5) World Trade Organization. 'World Trade Report 2023: Re-globalization for a Resilient, Inclusive and Sustainable Future' (2023) https://www.wto.org/english/res_e/booksp_e/wtr23_e/wtr23_e.pdf accessed 30 September 2025

For ASEAN this expansive conception has immediate resonance in the digital economy, where technology underpins resilience, productivity, and national autonomy. Indeed, the region's drive toward higher productivity and innovation has placed technology, particularly AI at the centre of national strategies.[6]

Relatedly, advancement in AI depends on specialized semiconductors, which for ease of reference in this paper, I call AI chips. AI, a dual-use technology, and AI chips, as dual-use items, given their both civilian and military application,[7] and have come under increasing scrutiny after unmanned drones were deployed in the Russia-Ukraine war.[8] At the same time, China's reported "Military-Civil Fusion Strategy"[9] has raised concerns that AI chips would enhance its armed forces.[10] The United States[11] views this as a threat to "the trust, transparency, reciprocity, and shared values that underpin international science and technology collaboration and fair global business practices." China however

6) For instance, several ASEAN member states have announced the formation of AI national strategies or working groups or roadmaps. See Singapore: Smart National and Digital Government Office, 'National AI Strategy' (Smart Nation, 12 August 2025) https://www.smartnation.gov.sg/initiatives/national-ai-strategy accessed 30 September 2025, Brunei: Authority of Info-communications Technology Industry of Brunei Darussalam, 'AI Governance and Ethics' (AITA, 2024) https://www.aiti.gov.bn/regulatory/ai-governance-and-ethics accessed 30 September 2025, Cambodia: UNESCO, 'Cambodia Launches AI Readiness Assessment Report to Guide Ethical and Inclusive Digital Transformation' (UNESO, 9 July 2025)
https://www.unesco.org/en/articles/cambodia-launches-ai-readiness-assessment-report-guide-ethical-and-inclusive-digital-transformation accessed 30 September 2025
Indonesia: GovInsider, 'Indonesia Unveils National AI Roadmap' (GovInsider, 2 September 2025)
https://govinsider.asia/intl-en/article/indonesia-unveils-national-ai-roadmap accessed 30 September 2025
Malaysia: MyDIGITAL Corporation, 'About National AI Office' (MyDIGITAL Corporation, 2025)
https://ai.gov.my/ accessed 30 September 2025
Thailand: AI Thailand, 'Thailand national AI strategy and action plan (2022 – 2027)' (AI, Thailand, 2025)
https://www.ai.in.th/en/about-ai-thailand/ accessed 30 September 2025
Vietnam: Ministry of Science and Technology, 'Vietnam's AI Strategy: How to Build a Competitive Edge in AI' (MST, 3 March 2025)
https://beta-en.mic.gov.vn/vietnams-ai-strategy-how-to-build-a-competitive-edge-in-ai-197250303093052827.htm accessed 30 September 202,
Hua X, 'Myanmar drafts national AI strategy, policy' (Xinhuanet.com, 19 February 2025)
https://english.news.cn/20250219/7be9255fc3b14a1796ae6919a693b171/c.html accessed 30 September 2025)
At the time of this paper, official information from Myanmar as well as Laos was not available.
See also, ASEAN, 'ASEAN Responsible AI Roadmap (2025–2030)' (ASEAN, 2025)
https://asean.org/book/asean-responsible-ai-roadmap-2025-2030/ accessed 30 September 2025

7) Institute for Security and Technology, 'AI Chip Export Control Initiative.' (IST, 2025)
https://securityandtechnology.org/ai-chip-export-control-initiative accessed 30 September 2025

8) Alistair MacDonald, 'AI-Powered Drones Swarm Have Now Entered the Battlefield' The Wall Street Journal (2 September 2025)
https://www.wsj.com/world/ai-powered-drone-swarms-have-now-entered-the-battlefield-2cab0f05 accessed 30 September 2025

9) Elsa B. Kania and Lorand Laskai, 'Myths and Realities of China's Military-Civil Fusion Strategy' (Center for a New American Security, 28 January 2021)
https://www.cnas.org/publications/reports/myths-and-realities-of-chinas-military-civil-fusion-strategy accessed 30 September 2025

10) Council on Foreign Relations, 'The Contentious U.S.-China Trade Relationship' (Council on Foreign Relations, 14 April 2025) https://www.cfr.org/backgrounder/contentious-us-china-trade-relationship#chapter-title-0-5 accessed 30 September 2025

11) US Department of State, 'Military-Civil Fusion and the People's Republic of China', (US Department of State, 2020) https://www.state.gov/wp-content/uploads/2020/05/What-is-MCF-One-Pager.pdf accessed 30 September 2025

maintains that such items or technologies are primarily for civilian purposes and are traded by commercial entities. Within ASEAN, several member states[12] have likewise stepped up the use of drones or related training to strengthen their military capability.

Against this backdrop, and amidst intensifying strategic competition between the United States and China, the implications for ASEAN states are significant. ASEAN states are closely linked to both powers and this, in turn has prompted calls for closer alignment of ASEAN foreign and economic policies.[13] Yet ASEAN itself has no coherent strategy for managing these dual-use items or technologies even as these become central to trade and security dynamics. APEC could complement ASEAN's efforts by fostering voluntary dialogue, capacity-building, and information-sharing on technology governance, supply-chain resilience, and best practices related to managing sensitive or dual-use technologies.

This paper posits that ASEAN's role cannot be passive. Through dialogue, ASEAN can encourage its members, for instance, through fora such as the ASEAN Regional Forum (ARF), the ASEAN Political-Security Community (APSC) framework and the ASEAN Defence Ministers' Meeting-Plus (ADMM-Plus), to strengthen domestic legal frameworks and align their approaches voluntarily, demonstrating the region's commitment to responsible stewardship of dual-use technologies without impeding legitimate trade. Additionally, the ASEAN Committee on Science, Technology and Innovation (COSTI) and the ASEAN Digital Ministers' Meeting (ADGMIN) could facilitate cooperation on the technological dimensions of export controls governance. Leveraging these established platforms would allow ASEAN to promote best practices, strengthen national capacities, and engage external partners without creating new institutional burdens. In doing so, member states would also reinforce their adherence to non-proliferation norms, including obligations under United

12) Raissa Robles, 'Philippines steps up future warfare defence with 3D-printed drones, stronger alliances' South *China Morning Post* (3 October 2025) https://www.scmp.com/week-asia/politics/article/3327843/philippines-steps-future-warfare-defence-3d-printed-drones-stronger-alliances accessed 3 October 2025; Tae Yeon Eom, 'The Race for Drone Dominance on the Korean Peninsula' (Asia Pacific Foundation of Canada, 28 July 2025) https://www.asiapacific.ca/publication/race-drone-dominance-korean-peninsula accessed 3 October 2025

13) Communication & Public Diplomacy Division, Ministry of Foreign Affairs, 'Joint Communiqué of the 58th ASEAN Foreign Ministers' Meeting, Kuala Lumpur (MFA, 9 July 2025) https://www.kln.gov.my/web/guest/speeches-statements/-/asset_publisher/statement/content/joint-communique-of-the-58th-asean-foreign-ministers-meeting-kuala-lumpur-9-july-2025?inheritRedirect=false accessed 3 October 2025

Nations Security Council Resolution 1540.

This paper is developed over six parts. It begins by situating the intersection of trade and security within the WTO framework, showing how economic security has become an essential pillar of global trade governance. The analysis then turns to dual-use AI technologies and the proliferation risks they generate, particularly through intangible technology transfers. The third section surveys the implications for ASEAN and the need to balance innovation and safety. The fourth places these issues within the broader setting of U.S.–China technological competition, briefly examines national postures from jurisdictions such as Japan, the EU and Singapore, and the importance of regional leadership and cohesion. Building on this, the fifth section proposes a forward-looking framework for ASEAN's policy development. The conclusion draws together the analysis, offering practical recommendations and reflecting on ASEAN's role in shaping responsible technology governance.

II. The Convergence of Trade and Economic Security

The global trading system rests on two key pillars, predictability and transparency. These pillars, as embodied in WTO agreements, are strained when members invoke Article XXI of the General Agreement on Tariffs and Trade (GATT),[14] which permits measures taken for national security reasons. Once a rarely used tool, the security exception now looms over technology notably in the realm of export controls on semiconductors and AI chips.

Yet, the WTO's limited oversight over national security claims leaves substantial discretion to states, raising the risk that security exceptions erode the stability of trade rules. While ASEAN[15] has been adept at addressing transnational crime and related cross-border issues within its own framework, and APEC[16] has

14) Alexandr Svetlicinii and Xueji Su, 'The Unsettled Governance of the Dual-Use Items under Article XXI(b)(ii) GATT: A New Battleground for WTO Security Exceptions' (2024) Volume 24 Issue 1, World Trade Review, 75

15) ASEAN, 'ASEAN Plan of Action in Combatting Transnational Crime (2026-2035)' (ASEAN, 10 September 2025) https://asean.org/wp-content/uploads/2025/09/04.-ASEAN-Plan-of-Action-in-Combatting-Transnational-Crime-2026-2035.pdf accessed 3 October 2025

16) APEC, 'Secure Trade in the APEC Region' (APEC, October 2021) https://www.apec.org/groups/som-steering-committee-on-economic-and-technical-cooperation/working-groups/co

advanced parallel initiatives at the broader Asia-Pacific level, neither has a dedicated mechanism to manage compliance and risk management concerns associated with dual-use items or technologies.

This debate on economic security and dual-use controls also intersects with ASEAN's broader economic integration agenda. Frameworks such as the ASEAN Economic Community (AEC) Blueprint 2025[17] and the Regional Comprehensive Economic Partnership (RCEP)[18] underscore the region's commitment to trade facilitation, and market access. These instruments, though primarily economic, could serve as useful reference points for promoting transparency, and confidence-building in the governance of dual-use items or technologies.

However, the closest we appear to have come is with the AEC Vision 2025 in ASEAN Political-Security Blueprint for 2025, Paragraph B.5.4 states: "*Promote disarmament and non-proliferation of weapons of mass destruction while enhancing ASEAN capacity to address deliberate/accidental release of hazardous substances/agents of weapons of mass destruction.*"[19] Whether this is either adequate or satisfactory remains open to discussion.

III. ASEAN's Stakes in Stability: Dual-use Goods & Intangible Technology Transfers

For ASEAN, this convergence of trade and security carries heightened significance. Economic security depends on reliable access to technology, diversified supply chains, and sustained investor confidence. At the same time,

unter-terrorism/secure-trade-in-the-apec-region accessed 3 October 2025
APEC, 'APEC's Work in Counter-Terrorism' (APEC, February 2022) https://www.apec.org/topics/counter-terrorism accessed 3 October 2025
APEC, 'APEC Cross-border Privacy Enforcement Arrangement (CPEA)' (APEC, February 2024) https://www.apec.org/groups/committee-on-trade-and-investment/digital-economy-steering-group/cross-border-privacy-enforcement-arrangement accessed 3 October 2025
APEC, 'Anti-Corruption and Transparency' (APEC, January 2025) https://www.apec.org/groups/som-steering-committee-on-economic-and-technical-cooperation/working-groups/anti-corruption-and-transparency accessed 3 October 2025

17) See https://asean.org/book/asean-economic-community-blueprint-2025/ (accessed 24 October 2025)

18) See https://asean.org/our-communities/economic-community/integration-with-global-economy/regional-comprehensive-economic-partnership-rcep/ (accessed 24 October 2025)

19) Seema Gahlaut, 'The Role of ASEAN in Regional STC Development' (2021) Volume 21, Pacific Forum, 16 https://pacforum.org/wp-content/uploads/2021/12/issuesinsights_vol21SR5_STC.pdf accessed 3 October 2025

ASEAN's credibility rests on demonstrating that it can project responsibility for dual-use technologies. The challenge is to reconcile openness with safeguards, ensuring that the tools of our prosperity do not turn into the vector of peril.

"Dual-use" can be generally understood as items or technology capable of being used for military and civilian applications.[20] While the WTO does not specifically define "dual-use", it provides an exception under Article XXI of the General Agreement on Tariffs and Trade (GATT) to regulate dual-use items for national security purposes.[21] AI exemplifies this dual-use character. It enables advancement across medicine, logistics, and finance but can also enhance cyber operations, scams,[22] or operate autonomous weapon systems. This blurring of civilian and military lines extends to other fields such as nuclear and biotechnology where innovation carries proliferation risks. These risks of proliferation[23] now reach beyond states to non-state actors who can exploit commercially available AI chips or tools. The ease, portability and accessibility of AI chips (or AI tools) further compounds national vulnerabilities as terrorists or criminal enterprises can leverage open-sourced or commercially available AI tools, to advance illicit ends.

Against this backdrop, there appears justification for placing restrictions on export of AI chips,[24] particularly where there is a credible risk of military end use.[25] This is because as the military refines the use of AI for armed purposes, the risk of such AI systems being potentially used for illicit purposes also increases.[26] Significantly, AI differs from conventional dual-use items in one

20) Strategic Goods (Control) Act 2002 (2020 Rev. Ed.)
Export Control Joint Unit and Department for Business and Trade, 'Export Controls: Dual-Use Items, Software and Technology, Goods for Torture and Radioactive Sources' (GOV.UK, 7 July 2025) https://www.gov.uk/guidance/export-controls-dual-use-items-software-and-technology-goods-for-torture-and-radioactive-sources#dual-use-items-software-and-technology accessed 3 October 2025.
See also the European Commission, 'Exporting dual-use items' (EC, 2025) https://policy.trade.ec.europa.eu/help-exporters-and-importers/exporting-dual-use-items_en accessed 3 October 2025

21) World Trade Organization, 'Article XXI – Security Exceptions: Analytical Index of the GATT' (WTO, 1995) https://www.wto.org/english/res_e/booksp_e/gatt_ai_e/art21_e.pdf accessed 3 October 2025

22) Aqil Hamzah, 'Criminal syndicates tapping AI to improve scams, human trafficking: Interpol', *The Straits Times* (8 October 2025) https://www.straitstimes.com/singapore/criminal-syndicates-tapping-ai-to-improve-scams-human-trafficking-interpol accessed 8 October 2025

23) United Nations Institute for Disarmament Research, 'Countering the Proliferation of Artificial Intelligence' (UNIDIR, 18 August 2025) https://unidir.org/countering-the-proliferation-of-artificial-intelligence/ accessed 3 October 2025

24) Reuters, 'US Tightens Its Grip on AI Chip Flows across the Globe' (CNA, 13 January 2025) https://www.channelnewsasia.com/business/us-tightens-its-grip-ai-chip-flows-across-globe-4854231 accessed 3 October 2025

25) Jimmy Goodrich, 'Don't Be Fooled, Advanced Chips Are Important for National Security' (RAND Corporation, 10 February 2025) https://www.rand.org/pubs/commentary/2025/02/dont-be-fooled-advanced-chips-are-important-for-national.html accessed 3 October 2025

crucial respect - much of its value is intangible. Algorithms, and training datasets can be transmitted across borders without physical shipment, i.e. as "intangible technology transfers" or "ITT". Cloud-based services further obscure such transfers making them less visible and more difficult to regulate or detect. National control lists, typically designed for tangible items, seldom capture these forms of transfers ex *ante*. Yet, for ASEAN member states, regulating intangible technology transfers is becoming increasingly vital. Without clear legal frameworks states risk becoming conduits for the diversion of sensitive technologies, whilst being ill equipped to impose ex post consequences to serve as an effective deterrent. At the same time, overregulation could stifle innovation and investment.[27] Striking the right balance between security and openness requires foresight, technical expertise, and innovative policymaking capacity.

IV. Responses from other States

The United States (U.S.)

In addition to screening foreign investments,[28] the U.S. continues to rely on an extensive export control regime, supplemented by non-legal measures to safeguard its economic and national interests. The Export Control Reform Act of 2018 gives the U.S. President the authority to implement controls on exports seen as being dual-use[29] in nature. The Biden administration prohibited U.S. investments in entities from China, Hong Kong SAR and Macau that engaged in "certain" AI systems, semiconductors and microelectronics and quantum information technologies.[30] The new Trump administration has ostensibly sought to assert

26) Alfredo Malaret Baldo and others, 'The Arms Trade Treaty: Diversion Analysis Framework' ATT Issue Brief No. 3 (UNIDIR, 2023)
https://unidir.org/wp-content/uploads/2023/05/ATT_Issue_Brief_3-Diversion_Analysis_Framework.pdf accessed 3 October 2025

27) Raluca Csernatoni, "The EU's AI Power Play: Between Deregulation and Innovation." (Carnegie Endowment for International Peace, 20 May 2025)
https://carnegieendowment.org/research/2025/05/the-eus-ai-power-play-between-deregulation-and-innovation?lang=en accessed 3 October 2025

28) US Department of the Treasury, 'The Committee on Foreign Investment in the United States (CFIUS)'
https://home.treasury.gov/policy-issues/international/the-committee-on-foreign-investment-in-the-united-states-cfius accessed 3 October 2025

29) Christopher A. Casey and Paul K. Kerr, 'The U.S. Export Control System and the Export Control Reform Act of 2018' (Congress.gov, 7 June 2021)
https://www.congress.gov/crs-product/R46814 accessed 3 October 2025

economic leverage through tariffs on semiconductor chips.[31] The U.S. export control regime implemented by the U.S. Department of Commerce's Bureau of Industry and Security (BIS) exerts significant extraterritorial reach. Under the Foreign-Direct Product Rules, export controls extend to products produced outside of the US if they are made with US technology or software.[32] BIS has also introduced specific guidelines to the industry in relation to AI chips; Industry Guidance to Prevent Diversion of Advanced Computing Integrated Circuits (13 May 2025),[33] and Policy Statement on Controls that May Apply to Advanced Computing Integrated Circuits and Other Commodities Used to Train AI Models (13 May 2025)[34] which penalizes those who use AI chips or train the same for use in weapons of mass destruction or military intelligence.

U.S. allies[35], including the Netherlands and Japan have since updated their export controls rules[36] to align with Washington's position while others such as the European Union (EU)[37] tread a more cautious line to preserve open access to technology and maintain competitiveness. The cumulative effect of these measures is an increasingly fragmented regulatory environment as countries try to balance economic integration and security imperatives. This can be seen from recent reports where the EU considered the deregulation of its AI Act[38] and as Chinese firms relocate personnel to avoid restrictions.[39] Taken together, these

30) See US Department of the Treasury, 'Treasury Seeks Public Comment on Implementation of Executive Order Addressing U.S. Investments in Certain National Security Technologies and Products in Countries of Concern' (US Department of the Treasury, 9 August 2023) https://home.treasury.gov/news/press-releases/jy1686 accessed 3 October 2025

31) Agencies, 'Trump Says US Will Charge Tariff of About 100% on Semiconductor Imports' (CNA, 7 August 2025) https://www.channelnewsasia.com/world/us-trump-100-tariff-semiconductor-imports-5281476 accessed 3 October 2025

32) Gregory C. Allen and Isaac Goldston, 'Understanding U.S. Allies' Current Legal Authority to Implement AI and Semiconductor Export Controls" (CSIC, 14 March 2025) https://www.csis.org/analysis/understanding-us-allies-current-legal-authority-implement-ai-and-semiconductor-export accessed 3 October 2025

33) Bureau of Industry and Security, 'Industry Guidance to Prevent Diversion of Advanced Computing Integrated Circuits' (BIS, 13 May 2025) https://www.bis.gov/media/documents/ai-counter-diversion-industry-guidance-may-13-2025.pdf accessed 3 October 2025

34) Bureau of Industry and Security, 'Policy Statement on Controls That May Apply to Advanced Computing Integrated Circuits and Other Commodities Used to Train AI Models' (BIS, 13 May 2025) https://www.bis.gov/media/documents/ai-policy-statement-training-ai-models-may-13-2025 accessed 3 October 2025

35) Matthew Eitel, 'No Carrots, Just Sticks: US Bullying Allies on China Chips' (CEPA, 29 July 2024) https://cepa.org/article/no-carrots-just-sticks-us-bullying-allies-on-china-chips/ accessed 3 October 2025

36) Matthew Eitel and William Echikson, 'Netherlands Joins the US Anti-China Tech Chorus' (CEPA, 10 March 2023) https://cepa.org/article/netherlands-joins-the-us-anti-china-tech-chorus/ accessed 3 October 2025

37) Noah Barkin, 'Export Controls and the US-China Tech War: Policy Challenges for Europe' (MERICS, 18 March 2020) https://merics.org/en/report/export-controls-and-us-china-tech-war accessed 3 October 2025

38) Ibid. 26.

39) Reuters, 'ByteDance Chip Design Staff Suddenly Find Out They Report to Singapore Unit, Sources Say' *The Straits Times* (5 September 2025) https://www.straitstimes.com/business/bytedance-chip-design-staff-suddenly-find-out-they-report-to-singapore-uni

developments underscore the global complexity of regulating dual-use technologies.

Japan and the EU

Japan has progressively tightened its export control regulations in line with the U.S. Earlier this year, on 4 April 2025, it amended its Foreign Exchange Order and Export Trade Control Order (Important and Emerging Items, etc) to include a catch-all clause covering AI chips.[40] It will expand the scope of products for which companies are required to confirm the risk of exports being diverted for military use to include chips and drones bound for China, Southeast Asia and elsewhere.[41]

The EU initially took a regulatory lead through its AI Act, but recent signs suggest an inclination to deregulate aspects of it for economic competitiveness.[42]

Singapore

Within ASEAN, Singapore has adopted a multifaceted approach to economic security. Its strategy addresses vulnerabilities while preserving its role as a global trading hub. The Significant Investments Review Act regulates investments in entities deemed critical to national security and economic stability.[43] Entities designated as critical to Singapore's national security interests must, amongst others notify or seek approval from the authorities for ownership changes. This is complemented by sector-based laws for telecommunications, banking, and utilities which enable intervention in sectors vital to the economy[44] while

t-sources-say accessed 3 October 2025

40) Ministry of Economy, Trade and Industry, 'Cabinet Decision on the Cabinet Order to Partially Amend the Foreign Exchange Order' (METI, 4 April 2025) https://meti.go.jp/english/press/2025/0404_001.html accessed 3 October 2025

41) The change will be implemented under the Foreign Exchange and Foreign Trade Act. Businesses must verify whether general-purpose products in six fields designated by Ministry of Economy, Trade and Industry are likely to be used for military purposes and whether the importing party has any history of involvement in weapons manufacturing. See 'Japan's dual-use screening to cover $31bn in machine tool, drone, chip exports'
See Hajime Tsukada, 'Japan's dual-use screening to cover $31bn in machine tool, drone, chip exports' Nikkei Asia (7 October 2025)
https://asia.nikkei.com/economy/trade/japan-s-dual-use-screening-to-cover-31bn-in-machine-tool-drone-chip-exports accessed 7 Oct 2025

42) Ibid. 28.

43) Significant Investments Review Act 2024 (No. 1 of 2024)

44) Ministry of Trade and Industry, 'Speech by Minister Gan Kim Yong at the 39th Singapore Economic Roundtable' (MTI, 9 November 2023)
https://www.mti.gov.sg/Newsroom/Speeches/2023/11/Speech-by-Minister-Gan-Kim-Yong-at-the-39th-Singapore-Economic-Roundtable accessed 3 Oct 2025

maintaining robust oversight over free trade zones and key infrastructure to prevent illicit activities and secure vital trade flows.[45] Singapore also regulates dual-use goods through its Strategic Goods (Control) Act 2002 ("SGCA")[46] and has demonstrated agility in enforcement by invoking its Penal Code 1871 (a criminal statute) when its national control lists were insufficient to tackle emerging challenges.

The recent Nvidia related investigation exemplifies these challenges.

After DeepSeek released its V3 Model in December 2024 and R1 model on 20 January 2025, U.S. authorities[47] began investigating whether DeepSeek circumvented sanctions through third parties in countries like Malaysia, Singapore and the United Arab Emirates. These investigations soon also involved Singapore authorities and it came to light that servers from U firms, Dell and Supermicro, had been sent to Singapore-based companies then exported to Malaysia. The servers may have contained Nvidia chips but it was unclear whether they ended up in Malaysia, or another country. Months later, reports indicated that "Chinese engineers were flying suitcases of hard drives to Malaysia to train their AI models at data centres equipped with advanced Nvidia chips"[48].

In February 2025, in connection with the movement of AI chips, 3 individuals were charged with fraud after 22 raids were conducted by the Singapore Police Force and Singapore Customs. They allegedly made false representations in 2024 that the items would not be transferred to a person other than the "authorised ultimate consignee of end users",[49] which was allegedly untrue. Notably, the

45) Singapore Customs, 'Singapore's Trade Security' (Singapore Customs, 2025) https://www.customs.gov.sg/businesses/trade-security-in-singapore/ accessed 3 Oct 2025

46) The SCGA also regulates the transfer and brokering of strategic goods and strategic goods technology, including export, brokering, transit and transhipment of such goods. For an overview of Singapore's strategic trade control legal framework see V Jesudevan, 'Elaborating a Strategic Trade System of Dual-Use Items - Chapter 4' (European Commission, 11 September 2024 https://cbrn-risk-mitigation.network.europa.eu/news-1/eu-p2p-export-control-programme-releases-manual-elaborating-strategic-trade-system-dual-use-items-2024-09-16_en

47) Reuters, 'US Probing Whether DeepSeek Got Nvidia AI chips Through Singapore, Other Countries: Source' *The Straits Times* (31 January 2025) https://www.straitstimes.com/business/us-looking-if-deepseek-got-nvidia-ai-chips-through-singapore-others accessed 13 September 2025

48) Theedgemalaysia.com, 'Chinese firm training AI models in Malaysia at Nvidia-powered data centres, WSJ reports' (The Edge Malaysia, 18 June 2025) https://theedgemalaysia.com/node/759401 accessed 3 October 2025

49) Channel NewsAsia, '3 men charged with fraud, cases linked to alleged movement of Nvidia chips' (CNA, 27 February 2025) https://www.channelnewsasia.com/singapore/3-men-charged-fraud-nvidia-chips-singapore-china-deepseek-4964721 accessed 3 October 2025

three men were not charged under the SCGA but instead under Singapore's Penal Code 1871 for criminal conspiracy to commit fraud and fraud by false representation.[50] The prosecutions relied on Penal Code provisions concerning fraud, rather than the SCGA which contains 'catch-all' controls because the AI chips involved were ostensibly non-controlled items[51].

Although the Singapore Penal Code provided a legal basis for arrest and prosecution, it did not address the broader systemic issues exposed by the incident, namely, the emerging security and compliance gaps in export control oversight. While there was no evidence linking the case to weapons of mass destruction, it nonetheless highlighted risks of circumvention, need for closer enforcement coordination, and potential national security vulnerabilities. The case also underscored the need to re-examine existing export control mechanisms, including the adequacy of catch-all provisions and the scope of national control lists, which may lag behind evolving dual-use technologies.

Following this incident, Singapore issued an advisory reminding businesses to observe not only domestic laws but also the export-control regimes of other jurisdictions relevant to their operations[52]. Similarly, Malaysia issued a media statement[53], on 14 July 2025, that all "exports, tranships and transits of high performance AI chips of US Origin",[54] would now be subject to a "*Strategic Trade Permit*"[55].

Taken together, these national responses reveal a converging recognition that dual-use technologies, particularly advanced AI chips require more agile and adaptive forms of regulation, which in turn requires active cross-border

50) Ibid. 49.

51) At the material time, the AI Chip (i.e. Nvidia's H800 chips) of concern was not a controlled item.

52) Singapore's Ministry of Trade and Industry and Singapore Customs issued a joint advisory with regards to export controls on advanced semiconductor and AI technologies to ensure that export of AI chips not only complies with Singapore laws but also do not violate export controls of other countries. Ministry of Trade and Industry and Singapore Customs, 'Joint Advisory: Export Controls on Advanced Semiconductor and Artificial Intelligence (AI) Technologies' (Government of Singapore, 4 April 2025) https://www.mti.gov.sg/Newsroom/Press-Releases/2025/04/Joint-Advisory-Export-controls-on-advanced-semiconductor-and-artificial-intelligence-technologies accessed 3 October 2025

53) Ministry of Investment, Trade and Industry (Malaysia), 'Malaysia Regulates Trade of US AI chips" (MITI, 14 July 2025) https://www.miti.gov.my/miti/resources/Media%20Release/[FINAL]_MITI_Press_Stmt_Malaysia_Regulates_Trade_of_US_AI_Chips_2025-07-14.pdf. Accessed 13 September 2025

54) Shannon Teoh, 'Malaysia data centre market shaken by Singapore's chip smuggling probe' The Straits Times (4 March 2025) https://www.straitstimes.com/asia/se-asia/malaysia-data-centre-market-shaken-by-singapores-chip-smuggling-probe?ref=more-on-this-topic. Accessed 13 September 2025

55) Ibid. 54.

co-ordination. The U.S. has led with expansive extraterritorial controls, while partners such as Japan and the European Union calibrate their regimes to balance security with competitiveness. Within ASEAN, Singapore's experience underscores the region's growing engagement with economic security governance and the inherent challenges associated with traditional export controls regulations. Notably, whilst regulatory fragmentation is likely to persist, this very condition ought to prompt ASEAN to promote postures that mitigate security and proliferation risks while sustaining economic growth and shared prosperity.

V. Building Forward-Looking Legal Frameworks and Capabilities

The dynamic nature of ITT demands laws and regulations that are progressive, adaptive and, *enforceable*. It must also be supported by effective post-audit mechanisms. To meet the evolving typologies, catch-all provisions, and sufficient coverage of dual-use goods are essential.

Currently, only three ASEAN members, Singapore,[56] Malaysia, and the Philippines[57], have comprehensive and developed strategic trade control ("**STC**") regimes. Of these countries, Singapore is the only one that has reported court decisions of successfully enforced (and judicially upheld) STC prosecutions. Elsewhere in ASEAN, frameworks are partial or underdeveloped.

Indonesia, despite its large digital economy, lacks a comprehensive system. Thailand regulates nuclear, chemical, and biological materials, but licensing of dual-use goods is at a nascent stage. Laos[58] has passed a 'Decree on the Management of Dual Use Goods', establishing licensing, brokering controls, and an 'Internal Compliance Program standard', but institutional capacity and

56) Singapore Customs, 'A Handbook on the Strategic Trade Scheme' (Singapore Customs, June 2025) https://www.customs.gov.sg/files/businesses/SLMB/STS_Handbook___updated_June_2025.pdf. accessed 13 September 2025. See also Ibid 47 (V Jesudevan, 'Elaborating a Strategic Trade System of Dual-Use Items - Chapter 4' (European Commission, 11 September 2024))

57) Janice Sacedon-Dimayacyac, Elaborating a Strategic Trade System of Dual-Use Items, Chapter 2, on the Philippines, (European Commission, 11 September 2024) https://cbrn-risk-mitigation.network.europa.eu/news-1/eu-p2p-export-control-programme-releases-manual-elaborating-strategic-trade-system-dual-use-items-2024-09-16_en

58) https://www.laotradeportal.gov.la/en-gb/site/display/2755

implementation remain at an early stage. Vietnam on 10 October 2025[59] enacted export control laws but does not regulate ITT. Cambodia, and Myanmar are at early stages of development. This unevenness creates vulnerabilities. Gaps in one jurisdiction may become entry points for diversion, undermining the region's collective credibility.

Harmonisation is therefore not merely desirable but necessary for ASEAN to safeguard critical technological advancements, and to reassure external partners that it can responsibly manage dual-use items or technologies. In this respect, APEC could add value by fostering dialogue on common risk indicators for dual-use items or technologies, promoting mutual understanding of trusted exporter schemes, and encouraging information-sharing arrangements among member economies on diversion risks.

VI. Conclusion

The nexus of trade and technology embodies both opportunities and risks. For ASEAN, the task ahead is to manage dual-use items and technologies responsibly, preserving economic security while safeguarding against misuse.

This requires comprehensive and progressive domestic legal frameworks, credible enforcement, and regional cooperation. ASEAN's convening platforms, from ARF and the ASEAN Political-Security Community to ADMM-Plus and the ASEAN Digital Ministers' Meeting, can be leveraged to build confidence, share expertise, and promote transparency. By taking these steps, ASEAN would not only secure its own economic future but also contribute meaningfully to global governance of technology, ensuring that innovation strengthens resilience and prosperity rather than prompting insecurity and division.

59) Decree No. 259/2025/ND-CP, dated October 10, 2025. Licensing responsibilities are distributed across several ministries, including the Ministry of Industry and Trade (MOIT), the Ministry of Science and Technology (MOST), the Ministry of Construction, and the Ministry of Health. The Decree provides for both per-shipment and term licenses, with the latter requiring exporters to implement a government-certified internal compliance program (ICP). It also outlines the necessary documentation, application procedures, and decision timelines — ranging from 12 to 24 working days, depending on specific circumstances. While the Decree is already in effect, actual license processing is expected to begin around 10 April 2026 via Vietnam's National Single Window system.

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