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US-India: An Interconnected Future

BY

ANDREW GORDAN & TYLER LISSY

Motwani Jadeja Foundation

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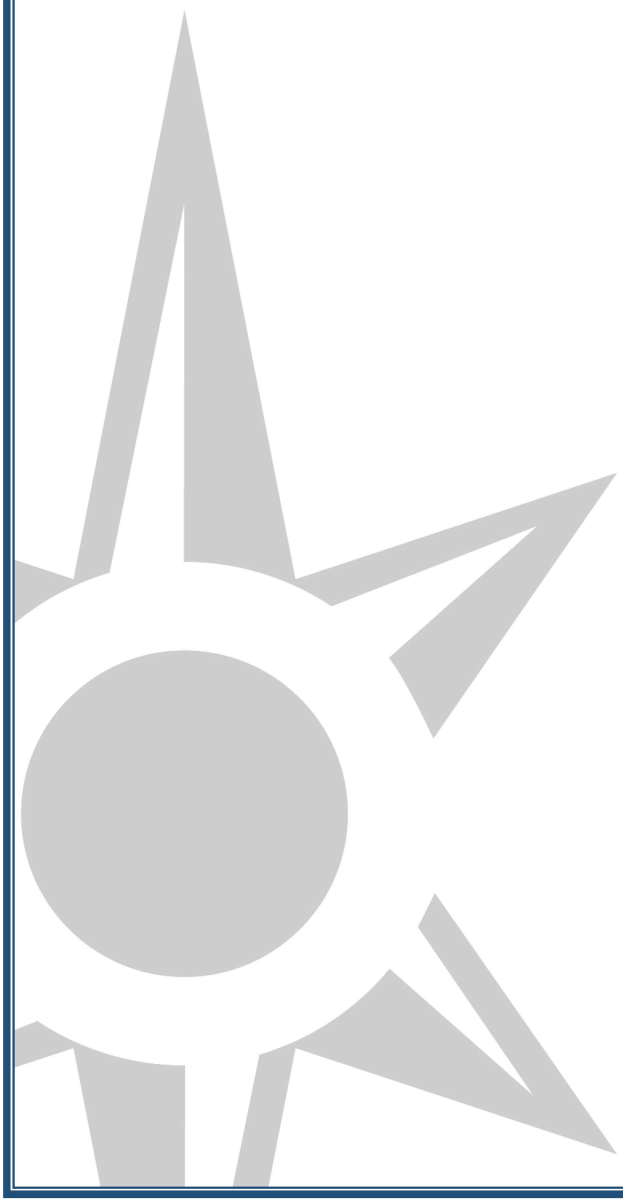

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Introduction

By Akhil Ramesh
Director of India Program & Economic Statecraft Initiative, Pacific Forum

Pacific Forum's recent engagement with India reflects a deliberate effort to move beyond textbook study and toward immersive, experience-based learning. Through a generous grant from the Motwani Jadeja Family Foundation, the Motwani Jadeja Fellowship research initiative was designed not merely as an academic exercise, but as a structured exploration of India's strategic, economic, and technological landscape through direct dialogue and on-the-ground observation.

By traveling to Mumbai, Hyderabad, and Delhi, the delegation sought to understand the country's evolving role in the Indo-Pacific through conversations with those shaping it in real time—industry leaders driving innovation, think tank scholars influencing policy debates, and academics interpreting India's domestic and geopolitical transformations.

In Mumbai, discussions with business leaders and policy analysts highlighted India's expanding role as a financial and commercial hub, as well as the regulatory and structural reforms shaping its growth trajectory. Hyderabad offered insight into India's emergence as a technology and innovation center, where interactions with entrepreneurs, researchers, and technology executives underscored the country's ambitions in digital infrastructure, defense technology, and start-up ecosystems. In Delhi, meetings with leading think tanks and academic institutions provided critical perspectives on India's foreign policy priorities, strategic autonomy, and its approach to regional security challenges.
Together, these engagements revealed the interconnected nature of India's domestic development and its external strategy.

This report represents Pacific Forum's broader effort to study regions not as abstract case studies, but as living systems best understood through direct engagement. Rather than relying solely on secondary literature or classroom analysis, the program emphasizes experiential learning—testing assumptions, refining research questions, and building networks through sustained, in-person dialogue. By embedding fellows in conversations across sectors and cities, Pacific Forum advances a model of regional study grounded in immersion, practical exposure, and policy-relevant inquiry.

Taken together, the papers produced under this initiative advance a coherent argument about the strategic logic underpinning US–India defense and technology cooperation. They demonstrate that defense collaboration is no longer confined to symbolic exercises or arms sales, but is steadily evolving toward interoperability, joint production, and institutionalized coordination that reflects a deepening alignment of interests. By situating these developments within broader regional security dynamics, the papers highlight how defense ties serve as both a deterrent framework and a stabilizing pillar in the Indo-Pacific.

At the same time, the research underscores that the long-term durability of the partnership will depend on technology cooperation—particularly in areas such as semiconductors, critical supply chains, and emerging technologies. By examining India's domestic industrial ambitions alongside US strategic priorities, the papers argue that meaningful collaboration must align economic competitiveness with national security objectives.

Ultimately, the collection makes the case that defense and technology are not parallel tracks but mutually reinforcing domains, forming the backbone of a next-generation US–India partnership grounded in shared strategic purpose and co-development rather than dependency.

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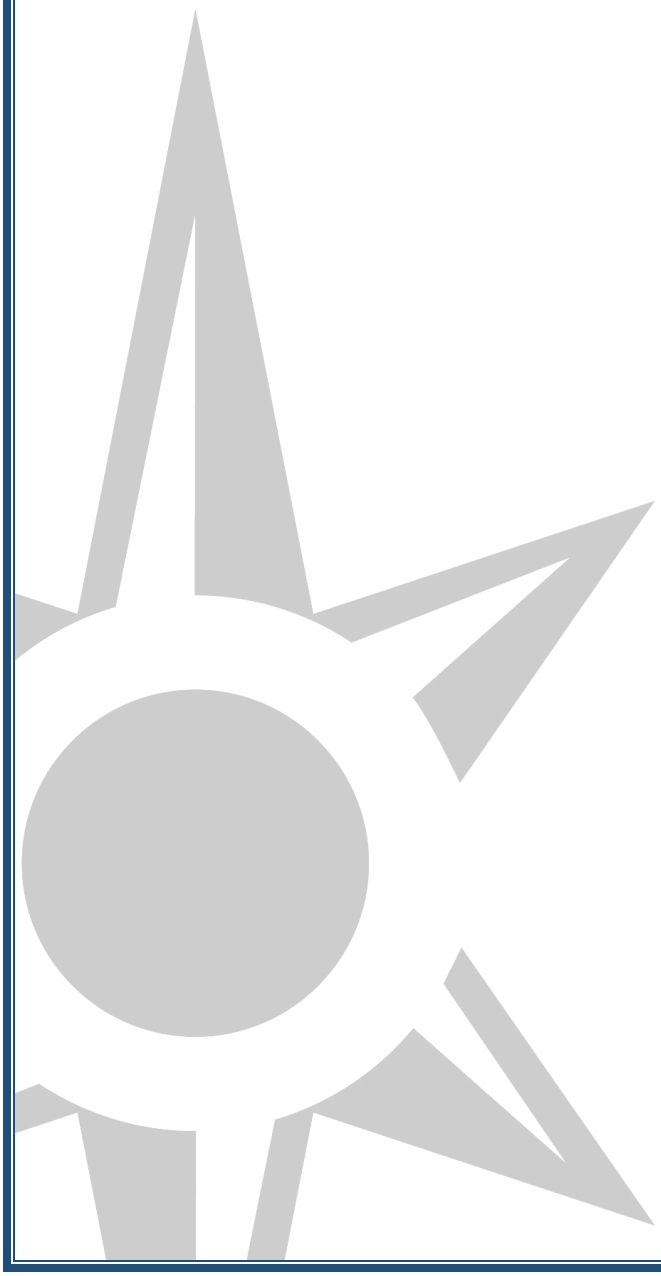
The Internationalization of India's Unified Payments Interface

By
Andrew Gordan



Introduction

Indian Prime Minister Narendra Modi's longest overseas trip of 2025 took place over one week in early July.[1] He visited five countries across the Global South—Ghana, Trinidad and Tobago, Argentina, Brazil, and Namibia—delivering speeches in national assemblies, inking numerous bilateral documents, and receiving the Key to the City of Buenos Aires.[2]

Perhaps the most striking feature of the Indian leader's foreign trip, however, was the ubiquity of one agenda item: digital payments. Modi invoked digital payments—or, but more often and, India's Unified Payments Interface (UPI)—on every leg of his July trip.[3] This consistent messaging underscores the recent emergence of the internationalization of UPI as an important objective of Indian foreign policy.

This paper offers insights into the Indian policy of UPI internationalization, including: (1) essential background on digital public infrastructure (DPI) in India and around the world; (2) analysis of motivations and models for UPI expansion, drawing on qualitative and quantitative data compiled from diverse government and non-government sources; and (3) the significance of UPI internationalization for global political economy and technology, especially with respect to the US-India relationship.

The study ultimately suggests a three-pronged approach to UPI internationalization by the Indian government, which variously pursues (1) overseas acceptance of UPI payments, (2) overseas licensing of UPI technical architecture, and (3) cross-border integration between domestic UPI and other international digital payments systems. The Indian government executes this approach in partnership with a wide range of public and private partners, building new functionality for its indigenous digital payments system related to tourism, remittances, and cross-border retail. The study also indicates three central motivations for the internationalization of UPI: economic benefit, international status and solidarity, and digital sovereignty.

The internationalization of UPI represents a worthwhile case study of three intersecting trends in global politics, including the impact of emerging technologies on strategic competition, the rapidly shifting nature of the world economy, and the interaction between rising powers—like India—and an international system increasingly under strain. This paper aims to provide international analysts and policymakers charting the evolution of the global economic and technological order with greater awareness of an underappreciated facet of the foreign economic and technology policy of India—a country determined to help shape the next era of international politics.

Background

Digital Public Infrastructure

India's UPI represents just one example of a broader category of systems, collectively known as "digital public infrastructure" (DPI). Much like physical infrastructure, digital public infrastructure are foundational systems that enable interactions—only DPI facilitates interactions in the *digital* world. In contrast to private digital infrastructure, DPI aims to serve the *public* interest by improving inclusion and access to the digital world. Importantly, however, the development and governance of DPI systems exhibit heterogeneity—not every system is wholly state-developed, -owned, and -operated. Despite this variation, a few key principles typically guide the conception, construction, and deployment of DPI: (1)

[1] "PM's Visits," PMIndia. Accessed on Jan. 14, 2026. https://www.pmindia.gov.in/en/pm-visits/page/2/

[2] "PM's Address to the National Assembly of Namibia," PMIndia (July 9, 2025). https://www.pmindia.gov.in/en/news_updates/pms-address-to-the-national-assembly-of-namibia/; "Joint Statement: India and Brazil - Two Great Nations with Higher Purposes," Ministry of External Affairs, Government of India (July 8, 2025). https://www.mea.gov.in/bilateral-documents.htm?dtl/39783; "PM Modi Honoured With 'Key To The City Of Buenos Aires' During Argentina Visit," *NDTV* (July 6, 2025). https://www.ndtv.com/world-news/pm-modi-honoured-with-key-to-the-city-of-buenos-aires-during-argentina-visit-8831241

[3] "English Translation of Press Statement by Prime Minister during Joint Press Statement with the President of Ghana," Press Information Bureau, Government of India (July 3, 2025). https://www.pib.gov.in/PressReleseDetail.aspx?PRID=2141691&reg=3&lang=2; "Joint Statement on the Official Visit of Prime Minister to The Republic of Trinidad and Tobago," Ministry of External Affairs, Government of India (July 4, 2025). https://www.mea.gov.in/bilateral-documents.htm?dtl/39760/Joint_Statement_on_the_Official_Visit_of_Prime_Minister_to_The_Republic_of_Trinidad_and_Tobago; "Prime Minister meets with President Javier Milei of Argentina," PM's Office (July 6, 2025). https://www.pib.gov.in/PressReleasePage.aspx?PRID=2142576&reg=3&lang=2; "English Translation of Press Statement by Prime Minister during Joint Press Statement with the President of Brazil," Ministry of External Affairs, Government of India (July 8, 2025). https://www.mea.gov.in/Speeches-Statements.htm?dtl/39777/English_Translation_of_Press_Statement_by_Prime_Minister_during_Joint_Press_Statement_with_the_President_of_Brazil_July_08_2025; "Both countries just warming up, will score faster and more: PM Modi in historic address at Namibian Parliament," *DD News* (July 10, 2025). https://ddnews.gov.in/en/the-best-days-of-india-namibia-relations-are-ahead-of-us-pm-modi/

interoperability, or openness; and (2) security and trust. These central paradigms enable successful examples of DPI to serve as *many* people as *safely* as possible.[4]

Digital public infrastructure represents a large system with many parts—just as physical infrastructure networks are undergirded by a base layer of roads, railways, waterways, etc., DPI ecosystems often rely on a few core components: (1) *digital identification* plays a critical role by regulating access to the digital world through user verification; (2) *digital payments* architectures manage the flow of money; and (3) *data exchange* frameworks manage the flow of information. Crucially, many other layers can be built upon these foundational building blocks, forming what's known as a DPI "stack" with enormous, varied functionality.[5]

Countries around the world have increasingly recognized the value of developing—or at least adopting—such a technology stack. As a result, although many systems remain in early stages of development or user adoption, DPI has in recent years become relatively widespread: one comprehensive database suggests that 64 countries have "DPI-like" digital identification systems, while digital payments and data exchange systems are each found in around 100 countries.[6]

The Indian Case

Over the past decade, India has emerged as a global leader in the development and adoption of digital public infrastructure—a remarkable feat, given that the proliferation of DPI systems has been disproportionately concentrated in high-income countries, especially in Europe.[7] India achieved this success through concerted government initiative. Although India's DPI push began in the late 2000s, the pace quickened in the 2010s under the government of Prime Minister Narendra Modi; in 2015, he launched the "Digital India" program, formally recognizing DPI as a priority area for public policy.[8] A decade later, the "India Stack"[9] has blossomed into a robust digital ecosystem with extensive functionality and wide public adoption.

The first component added to the India Stack was *digital identification*. In 2009, the Indian government established the Unique Identification Authority of India (UIDAI); in 2010, they launched *Aadhar*, a single 12-digit number—secured with biometric and demographic data—that serves as valid proof of identity and address for Indian nationals across public and private applications.[10] In line with the core principle of inclusion, the Indian government introduced *Aadhar*-enabled welfare delivery in 2012. Today, a range of other products like electronic "Know Your Customer" (e-KYC) and "e-Sign" are built upon *Aadhar* identification, with many private intermediaries offering APIs. To give a sense of scale, the Indian government claims that over 99 percent of adult Indians are enrolled—or nearly 1 billion people.[11]

UPI constitutes the payments pillar of the India Stack—the next section will bring the digital payments architecture into focus. India currently lacks a general purpose data exchange layer, such as the gold standard X-Road system developed in Estonia.[12] However, the DigiLocker platform does provide for access, signing, and sharing of verified government documentation with public and private actors[13]; the Indian government has also taken steps to bolster data protection legislation, especially through the Digital Personal Data Protection Act (2023), which established a class of regulated "consent managers" who intermediate data exchange between individuals and businesses.[14] Beyond core

[4] Krisstina Rao and David Eaves, "What is Digital Public Infrastructure and why does it matter?" World Economic Forum (Dec. 19, 2024). https://www.weforum.org/stories/2024/12/can-digital-public-infrastructure-help-guide-the-transformation/

[5] Romina Bandura, Madeleine McLean, and Sarosh Sultan, "Unpacking the Concept of Digital Public Infrastructure and Its Importance for Global Development," CSIS (Dec. 20, 2023). https://www.csis.org/analysis/unpacking-concept-digital-public-infrastructure-and-its-importance-global-development

[6] "The Digital Public Infrastructure Map," UCL Institute for Innovation and Public Purpose (2025). Accessed on Jan. 9, 2026. https://dpimap.org/

[7] J. Fetter, K. Rao, and D. Eaves, "2025 State of Digital Public Infrastructure Report: A Look at Measurement and Prevalence as DPI Transitions from Experiment to Scale," *IIPP Policy Report*, UCL Institute for Innovation and Public Purpose (2025). https://dpimap.org/iipp-state-of-dpi-report-2025.pdf

[8] Bianca Vazquez Toness and Bibhudatta Pradhan, "Modi's Digital India Push Wins $70 Billion in Investment Pledges," *Bloomberg* (July 1, 2015). https://www.bloomberg.com/news/articles/2015-07-01/modi-s-digital-india-plan-wins-70-billion-spending-vows

[9] "India Stack," iSPIRT. Accessed on Jan. 9, 2026. https://indiastack.org/

[10] "What is Aadhar," UIDAI. Accessed on Jan. 14, 2026. https://uidai.gov.in/en/my-aadhaar/about-your-aadhaar.html

[11] "UIDAI Achieves 111 Crore Mark on Aadhaar Generation Unique Identity Covers to Over 99 Percent Adult Residents of India," Press Information Bureau, Government of India (Jan. 27, 2017). https://www.pib.gov.in/newsite/PrintRelease.aspx?relid=157709&reg=3&lang=2

[12] Sunanda Marak, "X-Road Technology: A digital backbone of Estonia's Cyber security and DPI," Future Shift Labs (May 29, 2025). https://futureshiftlabs.com/x-road-technology-a-digital-backbone-of-estonias-cyber-security-and-dpi/

[13] "DigiLocker," Digital India. Accessed on Jan. 14, 2026. https://www.digitalindia.gov.in/initiative/digilocker/

[14] Charmian Aw and Roshni Patel, "India publishes consent management rules under Digital Personal Data Protection Act," Hogan Lovells (June 11,

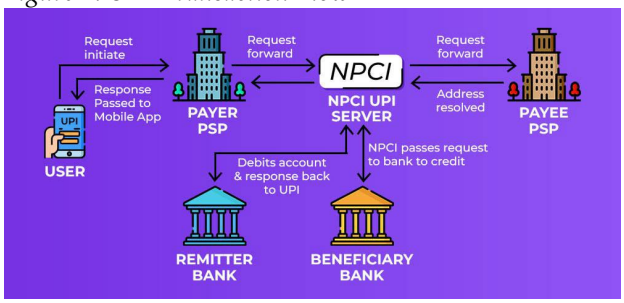
systems like *Aadhar* and UPI, India's DPI ecosystem continues to grow, incorporating platforms like the Open Credit Enablement Network, the Open Network for Digital Commerce, and electronic National Agriculture Market, to name just a few.

Unified Payments Interface (UPI)

The focus of this study, however, is the Unified Payments Interface, the payments pillar of the India Stack, which was launched in 2016. Before moving on to the phenomenon of internationalization, the domestic journey of UPI—and how it has radically reshaped the Indian economy—deserves some attention.

First, how does the system work? Most importantly, the National Payments Corporation of India (NPCI) essentially operates a central clearinghouse for real-time digital payments. The user initiates a payment request, which is then forwarded to NPCI by a payment service provider (PSP). The NPCI server forwards the request to the recipient's PSP, which returns the recipient's bank account details. NPCI then pushes a debit request to the user's bank and a credit request to the recipient's bank. Finally, NPCI returns a response—indicating a successful or unsuccessful transaction—to the user via their PSP. This process—represented visually in Figure 1—occurs in just seconds, and transactions are initiated with just the payee's UPI ID or, more commonly, a QR code.[15]

Figure 1: UPI Transaction Flow[16]



NPCI maintains UPI as an open architecture, which enables third parties such as PSPs and banks to build out their own applications; NPCI also maintains strict data regulations and has traditionally directly subsidized the system to maintain zero transaction fees for end users, paying payment facilitators 0.15 percent per transaction up to INR ₹2,000 ($$22.16). However, after achieving scale through widespread UPI adoption, the Indian government has looked to phase out these subsidies, cutting incentive allocations in the Union Budget from INR ₹3,500 crore ($388 million) in FY 2023-24 to just INR ₹437 crore in FY 2025-26. [17] Reserve Bank of India Governor Sanjay Malhotra noted earlier this year that the current subsidized model is ultimately unsustainable.[18]

Undoubtedly, though, such incentives—and the proliferation of the so-called "JAM trinity" of bank accounts, *Aadhar* identification, and mobile phones [19]—laid the foundation for the impressive public adoption of UPI in India. The rapid rise of the digital payments platform has been astonishing. In 2022, UPI recorded 89.5 billion transactions, which accounted for 46 percent of the global total of digital transactions.[20] According to the Indian government, as of this year, NPCI has surpassed Visa as the largest processor of digital payments in the world. [21] In August 2025 alone, UPI accounted for over 20 billion transactions with a total value of around $280 billion—that represents a dramatic increase from just 1.6 billion transactions five years earlier in August 2020.[22]

2025). https://www.hoganlovells.com/en/publications/india-publishes-consent-management-rules-under-digital-personal-data-protection-act

[15] "UPI: Overview," NPCI. Accessed on Jan. 14, 2026. https://www.npci.org.in/product/upi

[16] "How Does UPI Work?" GeeksforGeeks (July 23, 2025). https://www.geeksforgeeks.org/blogs/how-does-upi-work/

[17] Ajinkya Kawale, "Budget muted on UPI, RuPay debit card incentives; sops down by 78%," *Business Standard* (Feb. 2, 2025). https://www.business-standard.com/budget/news/budget-muted-on-upi-rupay-debit-card-incentives-sops-down-by-78-125020101552_1.html

[18] "Can UPI Stay Free Forever?" *Economic Times Online* (Aug. 6, 2025). https://economictimes.indiatimes.com/industry/banking/finance/can-upi-stay-free-forever-rbi-governor-sanjay-malhotra-says-someone-has-to-pay-the-cost/articleshow/123137032.cms?from=mdr

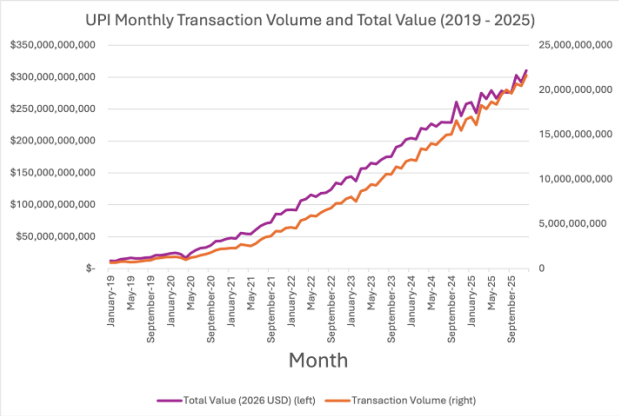
[19] Shamika Ravi, "Is India ready to JAM?" Brookings Institution (Aug. 27, 2018). https://www.brookings.edu/articles/is-india-ready-to-jam/

[20] "India dominating digital payment landscape with 89.5 million transactions in 2022," *DD News* (June 10, 2023). https://ddnews.gov.in/en/india-dominating-digital-payment-landscape-with-89-5-million-transactions-in-2022/

[21] "India's UPI Revolution," Press Information Bureau, Government of India (July 20, 2025). https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154912&ModuleId=3&reg=3&lang=2

[22] "Product Statistics: UPI," NPCI. Accessed on Jan. 14, 2026. https://www.npci.org.in/product/upi/product-statistics

Figure 2: UPI Monthly Transaction Volume and Total Value (2019 – 2025)[23]



One important caveat—although UPI accounts for over 80 percent of digital transactions in India, the platform only accounts for 9 percent of the total value of such transactions, indicating that users (for now) mainly turn to UPI for relatively small retail transactions.[24]

Lastly, even in the Indian case, where the development of DPI has certainly been state-led, the ecosystem is nevertheless *not* state-dominated. Rather than the government application, private companies lead the way in the payment service provider sector, with PhonePe (ultimately owned by Walmart) and Google Pay capturing most of the market. [25] This trend helpfully illustrates the heterogeneity of DPI ecosystems and the way they can provide opportunities for rather than sideline private enterprise.

UPI Internationalization

Following on from the overwhelming domestic success of the digital payments architecture, the Indian government has increasingly incorporated UPI internationalization into its foreign policy. The following sections draw on original research to map out (a) the different models for UPI internationalization; (b) the varied functionality, or "use cases," of cross-border UPI; (c) the spectrum of partners mobilized the by the Indian government;and (d) some tentative thoughts—derived from the empirical record—on motivations underlying UPI internationalization. In addition to this discussion, the figures below visually represent important dimensions of UPI internationalization.

Figure 3: Table — UPI Internationalization (December 2025)[26]

Country	Acceptance	Licensing	Linkage
Bhutan	X		
France	X		
Maldives	X		
Mauritius	X		
Namibia		X	
Nepal	X		
Peru		X	
Qatar	X		
Singapore	X		X
Sri Lanka	X		
Trinidad and Tobago		X	
United Arab Emirates	X		

Figure 4: Map — UPI Internationalization (December 2025)[27]

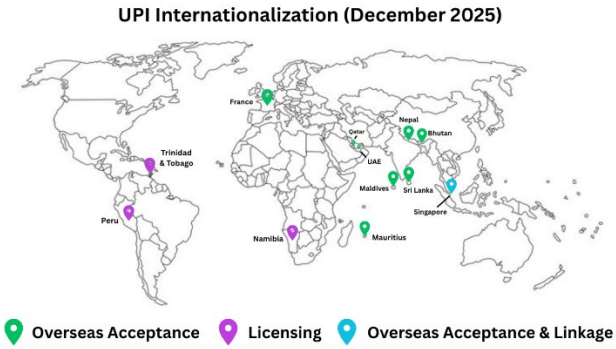


Figure 5: Timeline of UPI Internationalization[28]

[23] Author's own. Data: "UPI Product Statistics," NPCI, Accessed on Jan. 18, 2026. https://www.npci.org.in/product/upi/product-statistics

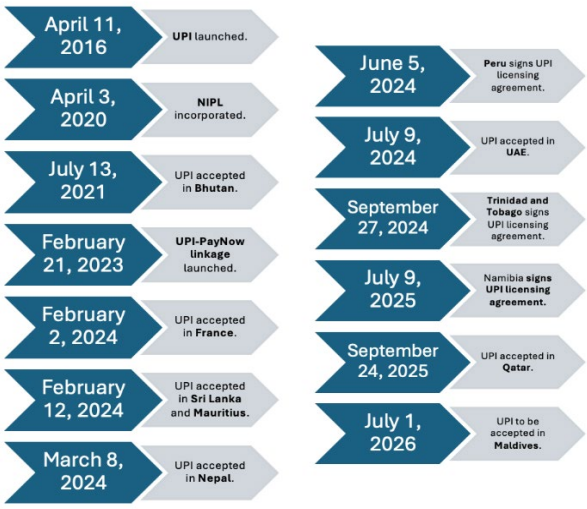
[24] Subrata Panda, "Higher adoption of UPI leads to lower cash demand, RBI study shows," *Business Standard* (Sept. 25, 2025). https://www.business-standard.com/economy/news/higher-adoption-of-upi-leads-to-lower-cash-demand-rbi-study-shows-125092401530_1.html

[25] "UPI transactions cross 20 billion in August; PhonePe, Google Pay lead market," *DD News* (Sept. 9, 2025). https://ddnews.gov.in/en/upi-transactions-cross-20-billion-in-august-phonepe-google-pay-lead-market/

[26] Author's own.

[27] Author's own.

[28] Author's own.



Models

This study identifies three principal models for UPI Internationalization: (1) overseas acceptance; (2) overseas licensing; and (3) cross-border integration with overseas digital payments systems.

(1) The first model—*overseas acceptance*—was the initial approach pursued by the Indian government and remains the most widespread. As of January 2026, UPI is officially accepted in nine (9) other countries: Bhutan, France, the Maldives, Mauritius, Nepal, Qatar, Singapore, Sri Lanka, and the United Arab Emirates. [29] NPCI has also secured limited acceptance in Southeast and East Asia through an agreement with the private payments firm Liquid Group. [30] The overseas acceptance model enables payment via UPI at some merchants by Indian citizens abroad in those nine countries, easing traditional challenges with overseas credit card acceptance and foreign exchange. For overseas UPI payments, transaction settlement occurs between the participants' banks or the countries' central banks, depending on the nature of the agreement. Despite the expansion of overseas UPI acceptance over the past five years, this model faces a core challenge: overseas acceptance depends—just as it did during domestic efforts to scale the payments platform—on *adoption*, this time by overseas merchants and Indians abroad in those countries. These dynamics are mutually reinforcing—if either group is unaware of the opportunity for overseas UPI payments or unwilling to employ UPI over alternatives, the incentives for the other side collapse. This difficulty helps explain why, in some countries with overseas UPI acceptance, actual adoption remains limited to a few merchants in high-profile retail areas targeted by government initiatives. As a result, utilization of overseas UPI pathways can be shockingly low: for instance, despite receiving 94,280 Indian tourists in 2024 [31], Bhutan saw just 1,550 UPI transactions that year with a total value of under USD $75 thousand. [32]

(2) The second—and quite different—model to internationalize India's digital payments architecture is through *overseas licensing*. As of January 2026, the Indian government has

[29] "Finance Minister Smt Nirmala Sitharaman and Finance Minister of Bhutan Mr Lyonpo Namgay Tshering jointly launch BHIM–UPI in Bhutan," Ministry of Finance, Government of India (July 21, 2021). https://www.pib.gov.in/PressReleasePage.aspx?PRID=1735075&reg=3&lang=2; "Lyra Network revolutionizes global payments with UPI transactions in France," Lyra (Feb. 2, 2024). https://www.lyra.com/in/lyra-network-revolutionizes-global-payments-with-upi-transactions-in-france/; "Maldives President introduces UPI payment service to boost economy," *The Hindu* (Oct. 21, 2024). https://www.thehindu.com/news/international/maldives-president-introduces-upi-payment-service-to-boost-economy/article68778206.ece; "Media Release: Mauritius and India launch RuPay and Unified Payments Interface Linkage," Bank of Mauritius (Feb. 12, 2024). https://www.bom.mu/media/media-releases/media-release-mauritius-and-india-launch-rupay-and-unified-payments-interface-linkage; "UPI now accepted in Nepal: How it works and other key details," *Hindustan Times* (March 11, 2024). https://www.hindustantimes.com/business/upi-now-accepted-in-nepal-how-it-works-and-other-key-details-101710144313638.html; "Indian travellers can now use UPI payments across Qatar," *Economic Times* (Sept. 24, 2025). https://economictimes.indiatimes.com/nri/invest/upi-now-accepted-in-qatar-qatar-duty-free-becomes-first-merchant/articleshow/124089072.cms?from=mdr; "PM Narendra Modi and Prime Minister of Singapore Lee Hsien Loong participate in the Virtual Launch of UPI-PayNow Linkage between India and Singapore," Prime Minister's Office (Feb. 21, 2023). https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1900976&reg=3&lang=2; Naandika Tripathi, "PhonePe launches cross-border UPI payments in Sri Lanka," *Forbes India* (May 15, 2024). https://www.forbesindia.com/article/news/phonepe-launches-crossborder-upi-payments-in-sri-lanka/93103/1; "UPI poised for widespread adoption in UAE as QR code payments become mainstream," *DD News* (July 3, 2024). https://ddnews.gov.in/en/upi-poised-for-widespread-adoption-in-uae-as-qr-code-payments-become-mainstream/

[30] "Pay via UPI in 10 more countries," *Times of India* (Sept. 14, 2021). https://timesofindia.indiatimes.com/business/india-business/pay-via-upi-in-10-more-countries/articleshow/86184175.cms

[31] Sonam Chuki, "Bhutan gets 145,065 tourists in 2024," *The Bhutanese* (Jan. 1, 2025). https://thebhutanese.bt/bhutan-gets-145065-tourists-in-2024/#:~:text=India%20continues%20to%20assert%20its,total%20tourist%20arrivals%20in%20Bhutan.

[32] "Annual Payment Systems Report 2024," Royal Monetary Authority of Bhutan (2024). https://www.rma.org.bt/media/Publication/Payments%20&%20Settlement%20Systems/Annual%20Payment%20System%20Report%202024.pdf

inked agreements to license the UPI architecture to three (3) other countries: Namibia, Peru, and Trinidad and Tobago.[33] In this model, the NPCI shares the UPI architecture with a designated public financial institution and provides logistical support for the establishment of a real-time digital payments system in the recipient country. Because licensing arrangements (and the eventual establishment of domestic digital payments platforms in recipient countries) have longer time horizons, the trajectory of this model remains somewhat unclear. However, overseas licensing deserves close consideration in the future, as the approach reflects India's active efforts to shape the future of economic and technological order in its image.

(3) The third—and least common—model for UPI internationalization involves the integration of UPI and other national digital payments systems. As of January 2026, the Indian government has achieved such a linkage with only one (1) other system: Singapore's PayNow. [34] Under this arrangement, Indian UPI users can send money to Singaporean PayNow users by entering the recipient's mobile number; conversely, PayNow users can send money to Indian UPI users by entering the recipient's UPI ID. Importantly, the ability to perform UPI-PayNow transactions is limited by the number of banks in each country participating in such transactions—accordingly, the Indian government has made a concerted push to rally Indian banks to participate in the UPI-PayNow linkage, bringing the total to nineteen (19) in July 2025.[35] In some ways, this model represents the most important category of UPI internationalization, as cross-border integration of real-time digital payments systems reshapes the *international* economic order in ways overseas acceptance and licensing do not. As such, observers should expect the Indian government to seek further linkages—discussions already appear underway to strike such an agreement with Nepal.[36] In addition, recent reports indicate that the Indian government is in talks to establish a linkage between UPI and Chinese private digital payments platform Alipay, which would represent a significant development for the global digital payments landscape.[37]

Outside of these three models for internationalization, another trend merits attention: the expansion of access to UPI for non-resident Indians (NRIs). Originally, UPI transactions could only be conducted from within India via UPI IDs linked to Indian phone numbers. Increasingly, however, Indians living abroad (with Indian bank accounts) can participate in UPI transactions from outside the country using their overseas phone number. This ability has been extended to NRIs in the United States, the United Kingdom, Canada, Australia, Hong Kong, Oman, and Saudi Arabia, so long as they hold an account with a participating bank.[38] No money flows across borders, but this arrangement also expands the international footprint of UPI.

Functions and Partners

Together, these models for UPI internationalization enable a range of present and potential functionality. First, overseas UPI acceptance can boost financial convenience for Indian tourists traveling abroad, allowing them to utilize familiar and fuss-free applications to make purchases in other countries. Such functionality is amplified by the dramatic increase in Indians traveling abroad over the past several decades—from 1991 to 2022, that number

[33] "NPCI, Namibian Central Bank enter licensing agreement to develop a UPI-like instant payment system: MEA," *Economic Times* (July 9, 2025). https://economictimes.indiatimes.com/tech/technology/npci-namibian-central-bank-enter-licensing-agreement-to-develop-a-upi-like-instant-payment-system-mea/articleshow/122348071.cms?from=mdr; "NPCI International and the Central Reserve Bank of Peru Partner to Develop UPI-Like Real-Time Payments System in Peru," NIPL (June 5, 2024). https://www.nipl.com/uploads/NIPL_BCRP_to_develop_UPI_like_system_in_Peru_52f54a85da.pdf; Jaspreet Kalra, "India payments authority inks deal to develop payments system for Trinidad and Tobago," *Reuters* (Sept. 27, 2024). https://www.reuters.com/world/india/india-payments-authority-inks-deal-develop-payments-system-trinidad-tobago-2024-09-27/

[34] "UPI-PayNow," NIPL. Accessed on Jan. 11, 2026. https://www.nipl.com/how-it-works/frequently-asked-questions/upipaynow

[35] "NPCI International Expands UPI-PayNow Linkage to Drive Cross-Border Remittances," NIPL (July 16, 2025). https://www.nipl.com/uploads/NPCI_International_Expands_UPI_Pay_Now_Linkage_to_Drive_Cross_Border_Remittances_eafe4d399a.pdf

[36] "Payment Systems Oversight Report, FY 2023/24," Nepal Rastra Bank (January 2025). https://www.nrb.org.np/contents/uploads/2025/01/Payment-Oversight-Report-2023-24.pdf

[37] Nikunj Ohri, "India in talks about allowing Alipay+ link to its instant payment systems, sources say," *Reuters* (Feb. 2, 2026). https://www.reuters.com/world/china/india-govt-central-bank-talks-with-alipay-integrate-its-instant-payment-systems-2026-02-02/

[38] "UPI for NRIs," ICICI Bank. Accessed on Jan. 14, 2026. https://www.icici.bank.in/nri-banking/money-transfer/money2india/upi

jumped from under 2 million to over 20 million.[39] As the Bhutan case demonstrates, however, adoption remains a significant challenge; not every accepting country reports the volume of UPI-based transactions, rendering the overall adoption picture somewhat opaque. Second, and more significantly, cross-border linkages can enable low-friction remittances. Over 35 million Indian citizens and "persons of Indian origin" (PIOs) live overseas[40]; they contributed over USD $137 billion in personal remittances to the Indian economy in 2024.[41] With 650 thousand overseas Indians in Singapore, the expanded UPI-PayNow linkage will offer the first opportunity for UPI internationalization to reshape Indian remittance pathways. In the same vein, UPI access for NRIs boosts domestic consumption by facilitating easier purchases of Indian goods and services from abroad. Third, overseas merchant acceptance generates new opportunities for international e-commerce, especially as cross-border digital retail demand surges in India.[42] Government-level agreements alongside integration with global digital payments firms, such as PayPal and Google Pay International,[43] will deliver benefits to Indian consumers.

This range of existing functionality highlights the value of UPI internationalization, but—as it expands acceptance, licensing, and linkages to more countries—the Indian government will surely look to harness new use cases. For one, a push for higher value cross-border UPI transactions could be on the agenda. In the domestic context, the Indian government has sought to encourage UPI usage beyond small-ticket purchases through policies like transaction limit increases[44], aiming to displace credit cards as the preferred tool for high-value transactions.[45] Moving beyond small retail usage would magnify the impact of an internationalized UPI system. Another potential pathway to unlock new functionality for the UPI system would be to couple licensing and linkage efforts; after, countries licensing UPI architecture to develop their own digital payments systems are likely to have greater technical, regulatory, and political synergies. Rather than negotiating cross-border integration with other countries' systems on a case-by-case basis, such an approach could deliver immediate benefits to licensing countries and accelerate the construction of a global digital payments network anchored by UPI architecture.

To execute the internationalization of UPI, the Indian government has worked with a remarkable range of actors, demonstrating their willingness to engage with every level of the global economic order. Of course, agreements with central banks underpinned early efforts at international UPI expansion, including in regional countries like Nepal and Bhutan. Private payments firms have also emerged as critical partners in the process of UPI internationalization, both because of their (often) existing global footprints and trusted relationships with businesses. For instance, arrangements with the Liquid Group have facilitated limited UPI acceptance in Southeast and East Asian countries[46]; as previously mentioned, global payments firms PayPal and Google Pay International have bolstered the application of UPI for cross-border e-commerce. However, beyond these traditional public and private stalwarts of the financial sector, the Indian government has also sought out creative partnerships with other private firms to expand functionality and build awareness of UPI's growing global footprint. UPI's foray into France is a perfect example—NPCI successively partnered with the Eiffel Tower[47] and Galeries Lafayette[48], a famous

[39] "India Tourism Statistics 2023," Ministry of Tourism, Government of India (March 2023). https://tourism.gov.in/sites/default/files/2025-03/India%20Tourism%20Statistics%202023-English%20%281%29.pdf

[40] "Population of Overseas Indians," Ministry of External Affairs, Government of India. Accessed on Jan. 11, 2026. https://www.mea.gov.in/population-of-overseas-indians.htm

[41] "Personal remittances, received (current US$) – India," World Bank. Accessed on Jan. 11, 2026. https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT?locations=IN

[42] "India Cross-border B2C E-commerce Market Report 2025-2030," Yahoo! Finance (Sept. 18, 2025). https://finance.yahoo.com/news/india-cross-border-b2c-e-080100245.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAHROYNeAMUDePstL0loUIF-cDG4QdJ9F5PxsAmRrFSPh7hlcVcyEIvMMe5sBwAngaumOJNrRtG0Dm6RGT2xnY_oZ1dpLgQT2o4SObF7sUCZmaNYeicetesZ0HbYPUTw0dFafdqP3u_eNyw60dlQbTipeNHStJq8oryaiHb4slLHi

[43] "PayPal to launch cross-border platform with link to India's UPI payments system," Reuters (July 23, 2025). https://www.reuters.com/world/india/paypal-launch-cross-border-platform-with-link-indias-upi-payments-system-2025-07-23/; "UPI International," Google. Accessed on Jan. 11, 2026. https://support.google.com/pay/india/answer/13949170?hl=en

[44] "UPI users can now make high-value transactions up to ₹10 lakh per day," *DD News* (Sept. 15, 2025). https://ddnews.gov.in/en/npci-raises-daily-upi-payment-limit-on-p2m-transactions-to-%E2%82%B910-lakh/

[45] "High-value buying shifts to credit cards, UPI for everyday payments amid decline in debit card usage: Report," *Times of India* (December 19, 2025). https://timesofindia.indiatimes.com/business/india-business/high-value-buying-shifts-to-credit-cards-upi-for-everyday-payments-amid-decline-in-debit-card-usage-report/articleshow/126070974.cms

[46] "Pay via UPI in 10 more countries," *Times of India* (Sept. 14, 2021). https://timesofindia.indiatimes.com/business/india-business/pay-via-upi-in-10-more-countries/articleshow/86184175.cms

[47] Rozebud Gonsalves, "Eiffel Tower now accepts UPI payments from Indian tourists," *ET Online* (Feb 2, 2024). https://economictimes.indiatimes.com/nri/visit/eiffel-tower-now-accepts-upi-payments-from-indian-tourists/articleshow/107369244.cms?from=mdr

[48] "Unified Payments Interface (UPI) became live at the flagship store of the world-renowned Galeries Lafayette in Haussmann, Paris," Embassy of India, France & Principality of Monaco (July 4, 2024). https://www.eoiparis.gov.in/section/press-releases/unified-payments-

luxury shopping center, to roll out site-specific UPI acceptance at high-profile launches. Of course, successful internationalization efforts often hinge on working with a combination of effective partners: the Lyra Group, a French payments firms, helped implement these tourist-oriented UPI acceptance initiatives.[49]

Motivations

Following on from the empirical record, the plausible motivations for UPI internationalization merit investigation—this line of inquiry helps situate this case study within the broader logics of Indian foreign policy. Certainly, there is much *economic benefit* to be gained from the global expansion of UPI. At the smaller level, overseas UPI acceptance moves Indian citizens closer to a frictionless financial world, reducing uncertainty and eliminating potentially onerous fees and exchange rates. But more importantly, the potential for UPI internationalization to reshape cross-border remittance pathways could deliver massive savings to Indians working overseas. With USD $137 billion in personal remittances to India sent at an average cost of—according to the World Bank—6.49 percent of total value[50], the potential economic benefits from UPI-enabled cross-border remittances could stretch into the billions. To realize these gains, though, the Indian government would have to secure linkage arrangements with top sending countries and work to improve bank participation and transaction limits.

Importantly, however, economic benefit represents just one rationale for UPI internationalization: the pattern of the payment platform's global expansion—especially against the wider backdrop of Indian foreign policy—also reveals *international status and solidarity* as key motivations. According to Indian External Affairs Minister S. Jaishankar, India under Modi has "set out to deliberately raise its global profile" by, among other things, "ambitiously invest[ing] in building linkages and connectivity" and cultivating a "unique brand" on the global stage.[51] UPI internationalization serves such efforts by advancing India as a world leader at the intersection of emerging technology and the evolving international economic order. The patterns of UPI internationalization also map neatly onto the Indian government's particular leadership aspirations. For instance, several of the earlier efforts to expand UPI's global footprint targeted regional countries, including Nepal and Bhutan, dovetailing with the Modi government's "Neighbourhood First" foreign policy. More broadly, UPI internationalization meshes with Indian aspirations to be a "Voice of the Global South"[52]; in particular, the licensing model—which has sought to deliver digital payments technology to a diverse set of countries across Global South regions—exemplifies this undercurrent in Indian foreign policy. Thus, in addition to economic benefit, the internationalization of UPI bolsters narratives of Indian rising power that emphasize leadership status and solidarity with the countries of the majority world—both long-standing pillars of Indian international political thought reinvigorated under Modi.

Lastly, the global expansion of UPI also contributes to Indian strategic objectives related to *digital sovereignty*, or the "ability to have control over your own digital destiny,"[53] which has come to dominate Indian tech policy, especially related to artificial intelligence (AI).[54] In Modi's 2025 Independence Day address, he issued a clarion call to the youth of India to build "our own platforms"; in fact, he pointed specifically to UPI as the prime example of Indian digital sovereignty in action.[55] In this context, the expansion of UPI into a robust, globalized financial network maximizes the utility of one of India's flagship sovereign digital systems. Furthermore, the licensing of the UPI architecture for other countries' national digital payments systems positions India as a net provider of digital sovereignty to partners across the globe, potentially a genuine public good in an era of growing strategic competition over

interface-upi-became-live-at-the-flagship-store-of-the-world-renowned-galeries-lafayette-in-haussmann-paris/

[49] "UPI in France: NIPL announces acceptance of Unified Payments Interface in France," Lyra (Feb. 2, 2024). https://www.lyra.com/in/wp-content/uploads/sites/8/2024/04/UPI-in-France-NIPL-announces-acceptance-of-Unified-Payments-Interface-in-France.pdf

[50] "Remittance Prices Worldwide," World Bank. Accessed on Jan. 12, 2026. https://remittanceprices.worldbank.org/

[51] Pp. 93, 116. S. Jaishankar, *The India Way*, Harper Collins (2020).

[52] "Voice of Global South Summit 2023," Ministry of External Affairs, Government of India. Accessed on Jan. 13, 2026. https://www.mea.gov.in/voice-of-global-summit.htm

[53] Sean Fleming, "What is digital sovereignty and how are countries approaching it?" World Economic Forum (Jan. 10, 2025). https://www.weforum.org/stories/2025/01/europe-digital-sovereignty/

[54] "Transforming India with AI," PIB Headquarters, Government of India (Oct. 12, 2025). https://www.pib.gov.in/PressReleasePage.aspx?PRID=2178092&reg=3&lang=2

[55] "English rendering of the text of Prime Minister Shri Narendra Modi's address from the ramparts of Red Fort on the occasion of 79th Independence Day," Prime Minister's Office, Government of India (Aug. 15, 2025). https://www.pib.gov.in/PressReleasePage.aspx?PRID=2156749&reg=3&lang=2#:~:text=Today%2C%20be%20it,in%20your%20capability

technology. In this sense, the pursuit of *digital sovereignty* and *international status and solidarity* motivating UPI internationalization are mutually reinforcing.

Global Landscape

Naturally, the Indian government's efforts to internationalize UPI do not exist in a vacuum; rather, they should be placed against the broader landscape of global digital payments systems, strategic competition over emerging technology, and contestation for the future of the international economic order. As a preliminary effort to connect UPI internationalization to these wider phenomena, this section (a) adopts a comparative lens, offering glimpses of parallel internationalization efforts amid digital payments competition, and (b) discusses several important implications of global UPI expansion for the US-India relationship.

Comparative Internationalization

No discussion of national real-time digital payments systems can exclude Pix, the Brazilian state-developed and -operated digital payments platform. Pix is often hailed alongside UPI as an incredible success story of DPI for financial inclusion.[56] Much like UPI, the platform's growth has been remarkable, reaching nearly 8 billion monthly transactions just five years after the system's launch in 2020.[57] In comparison to the Indian case, the Brazilian government's efforts to internationalize the Pix system compare favorably on *overseas acceptance*, but fall relatively short on *licensing* and *linkage*. To achieve overseas acceptance, the Brazilian central bank partnered with prominent financial technology firm PagBrasil to facilitate Pix acceptance abroad.[58] Beginning with Uruguay, the Brazilian company worked with international payments partners to expand Pix's global footprint: now, Brazilian travelers can use Pix at merchants across the Americas and Europe, including in Argentina, Colombia, Mexico, Chile, Paraguay, the United States, Spain, Portugal, and the Netherlands.[59] Despite this rapid growth of overseas acceptance, Brazil has not secured analogous system-to-system linkages; the country may be biding its time before joining an actualized version of the Bank of International Settlements' Project Nexus, a multilateral digital payments linkage pilot program with a successful trial in Southeast Asia.[60] Similarly, Brazil has not pursued the licensing approach to internationalization employed by the Indian government. These divergences perhaps highlight India's relatively greater ambition to assume leadership on emerging technology and financial inclusion, particularly in the Global South.

The experience of China, a global juggernaut of financial technology, with digital payments also merits attention. In contrast to countries like India and Brazil, the Chinese digital payments ecosystem largely developed on the initiative of private enterprise, with fintech giants like Alipay and WeChat Pay proliferating wildly popular digital wallets in the domestic market. This early pattern of development triggered concerns about "walled gardens," with dominant digital payments firms eschewing interoperability to discourage competition[61], but—at the urging of the Chinese government—such companies have since largely committed to greater openness.[62] The internationalization of Chinese digital payments has largely also followed a private-led model; this approach has led to early, innovative private sector partnerships, such as the February 2019 agreement between WeChat Pay and US pharmacy chain Walgreens.[63] With encouragement from the Chinese state, Alipay and WeChat Pay have made conscious efforts to capture cross-border e-commerce.[64] Such efforts have been quite successful, with platforms like WeChat Pay expanding merchant acceptance to 64

[56] "Brazil's Instant Payment Success Story," Citigroup (Nov. 7, 2025). https://www.citigroup.com/global/insights/brazil-instant-payment-success-story

[57] "Pix Statistics," Banco Central do Brasil. Accessed on Jan. 14, 2026. https://www.bcb.gov.br/en/financialstability/pixstatistics

[58] "International Pix," PagBrasil. Accessed on Jan. 14, 2025. https://www.pagbrasil.com/international-pix/

[59] Arthur Sampaio, "International Pix: A Revolution in Payments Expanding Across Latin America," PagBrasil (Nov. 30, 2024). https://www.pagbrasil.com/blog/pix/international-pix-a-revolution-in-payments-expanding-across-latin-america/

[60] "Project Nexus: enabling instant cross-border payments," Bank of International Settlements (Aug. 27, 2025). Accessed on Jan. 14, 2026. https://www.bis.org/about/bisih/topics/fmis/nexus.htm

[61] Paul McLellan, "The Great Firewall of China," *Cadence* (March 13, 2018). https://community.cadence.com/cadence_blogs_8/b/breakfast-bytes/posts/walled-gardens-china-and-facebook

[62] Rita Liao, "China roundup: Beijing is tearing down the digital 'walled gardens,'" TechCrunch (Sept. 18, 2021). https://techcrunch.com/2021/09/18/china-roundup-beijing-is-tearing-down-the-digital-walled-gardens/

[63] "WeChat Pay and Alipay are now targeting the 3 million Chinese travelers visiting the US every year," Usbek *&* *Rica* (March 16, 2019). https://usbeketrica.com/fr/article/wechat-pay-and-alipay-are-now-targeting-the-3-million-chinese-travelers-visiting-the-u-s-every-year

[64] Zhang Yuzhe, Ding Feng, and Qing Na, "China's booming cross-border e-commerce pits Alipay, WeChat Pay against the world," ThinkChina (Jan. 17, 2025). https://www.thinkchina.sg/economy/chinas-booming-cross-border-e-commerce-pits-alipay-wechat-pay-against-world

countries and 25 currencies.[65] Certainly, this pattern of internationalization—with its focus on global e-commerce dominance—diverges sharply from the Indian and Brazilian cases, which demonstrated priorities related to architecture proliferation and overseas acceptance, respectively. That said, if not on real-time digital payments, the Chinese government has positioned itself as a global leader in disruptive financial technologies, including through its use of digital currencies and the Cross-Border Interbank Payment System.[66]

Importantly, beyond nations with existing systems, countries contemplating the adoption of a digital payments system, or another type of DPI system, represent critical sites of contestation in the global landscape. Given that technical differences typically abound between different systems in the same genre[67] and that (at least some) DPI exporters care deeply about achieving status as providers of digital public goods, this variation should matter to all parties. DPI adoption stories are often messy and do not necessarily involve state actors. Tonga's digital identification system, for instance, was developed using technology from an Indian non-profit specializing in DPI and implemented by a Sri Lankan contractor.[68] Clearly, though, countries invested in the proliferation of specific systems must seriously consider questions like: what options are available to countries looking to adopt DPI systems, and how do they choose among them? As DPI adoption accelerates, the answer will undoubtedly shape the global landscape.

Implications for US-India Relations

Even as US-India ties moved from strength to strength in the past decade—a turbulent 2025 notwithstanding—UPI, and DPI more broadly, have been relatively underdiscussed in the relationship. On the one hand, the Indian government's efforts to internationalize UPI and spotlight state-led DPI could plausibly represent a pain point in the bilateral. After all, the global expansion of payments systems like UPI is often framed as a challenge to established global financial players, including US corporations like Visa and MasterCard, whose legacy card-based networks, fee structures, and security and interoperability concerns have generated friction with UPI-like systems.[69] The international proliferation of DPI systems could also expose regulatory divergences between the United States and India, especially as experts point to disagreements over data and digital trade rules as one cause of stalled bilateral trade negotiations.[70] Perhaps more fundamentally, the entrenched US aversion to perceived government control over the financial sector—seen most recently in the introduction of the Anti-CBDC State Surveillance Act[71]—could lead some US stakeholders to look unfavorably on India's global DPI ambitions.

But digital payments and DPI could just as easily represent an area for fruitful US-India cooperation. As analysts often note, a mutual interest in competition with China has undergirded accelerating US-India alignment in recent years; this interest includes shared concerns about strategic technological contestation, leading to successive flagship initiatives like iCET and TRUST.[72] The internationalization of sovereign, secure DPI architectures like UPI could be viewed through this lens, as a means to counter the creation of a "Digital Silk Road" dominated by the Chinese tech stack.[73] Cooperation on financial technologies also appears natural, given the foundation of strong business-to-business ties in the technology sector and the growing overall commercial relationship. More to the point, the United States in fact has much to learn from the Indian experience with UPI. North America has

[65] "The globalization process of WeChat Pay," Silkpay (Jan. 31, 2025). https://www.silkpay.eu/blog/the-globalization-process-of-wechat-pay

[66] Barry Eichengreen, "Sanctions, SWIFT, and China's Cross-Border Interbank Payments System," CSIS (May 20, 2022). https://www.csis.org/analysis/sanctions-swift-and-chinas-cross-border-interbank-payments-system

[67] Ed. José Aurazo, Jon Frost, and Anneke Kosse, "Faster digital payments: global and regional perspectives," Bank of International Settlements (December 2024). https://www.bis.org/publ/bppdf/bispap152.pdf

[68] Lu-Hai Liang, "Tonga reveals MOSIP and VS One World foundations of DPI success," Biometric Update (June 17, 2025). https://www.biometricupdate.com/202506/tonga-reveals-mosip-and-vs-one-world-foundations-of-dpi-success

[69] Manish Singh, "India's digital payments strategy is cutting out Visa and MasterCard," *TechCrunch* (Jan. 9, 2025). https://techcrunch.com/2025/01/09/india-rupay-upi-payment-push-is-cutting-out-visa-and-mastercard/; "Digital Payments: The Global Rise of Cardless Transactions," Visa Consulting & Analytics (2025). https://corporate.visa.com/content/dam/VCOM/corporate/services/documents/vca-digital-payments-rise-of-cardless-transactions.pdf; "Why Visa and Mastercard Credit Cards Don't Work with UPI Yet," Paytm (Nov. 12, 2025). https://paytm.com/blog/credit-card/why-visa-and-mastercard-credit-cards-dont-work-with-upi-yet/

[70] Ajay Srivastava, "Why India-US Trade Deal is Delayed," *Rediff* (Jan. 14, 2026). https://www.rediff.com/news/column/why-india-us-trade-deal-is-delayed/20260114.htm

[71] "H.R.1919 - Anti-CBDC Surveillance State Act," US Congress. Accessed on Jan. 14, 2026. https://www.congress.gov/bill/119th-congress/house-bill/1919

[72] Rudra Chaudhuri, "What is the India–United States TRUST Initiative?" Carnegie India (April 22, 2025). https://carnegieendowment.org/posts/2025/04/what-is-the-india-united-states-trust-initiative?lang=en

[73] "Assessing China's Digital Silk Road Initiative," Council on Foreign Relations. Accessed on Jan. 14, 2026. https://www.cfr.org/china-digital-silk-road/

seen much slower adoption of digital payments than India or the broader Indo-Pacific region; Indian insights on building secure digital infrastructure and developing public trust could prove helpful to US efforts to facilitate consumer adoption of emerging technologies. [74] Given these incentives for collaboration, the United States and India should incorporate the co-development and internationalization of sovereign, secure digital infrastructure into the bilateral agenda.

Conclusion

The internationalization of UPI shows no sign of slowing—a report released at the 2025 Global Fintech Fest in Mumbai hinted at expansion to 20 countries by 2029. [75] This study provides a guide to the trajectory of UPI's expanding global footprint, advancing three distinct models—*overseas acceptance, licensing,* and *linkage*—alongside a robust discussion of the use cases, partnerships, and motivations associated with the Indian government's worldwide UPI agenda. The report also attempts to place the internationalization of UPI in context with (a) the experiences of other important players like Brazil and China and (b) the US-India relationship. Ultimately, the study hopes to offer analysts, policymakers, and private sector stakeholders with greater awareness of an important, representative trend in Indian foreign economic and technology policy. Future research—especially informed by greater access to data on cross-border UPI transactions—will aid in evaluating the scale and success of UPI internationalization. Later studies should also bring the field of global digital payments competition into sharper focus with more comprehensive comparison. Such inquiries will be necessary to make sense of a rising India's foreign policy in an age of global economic flux

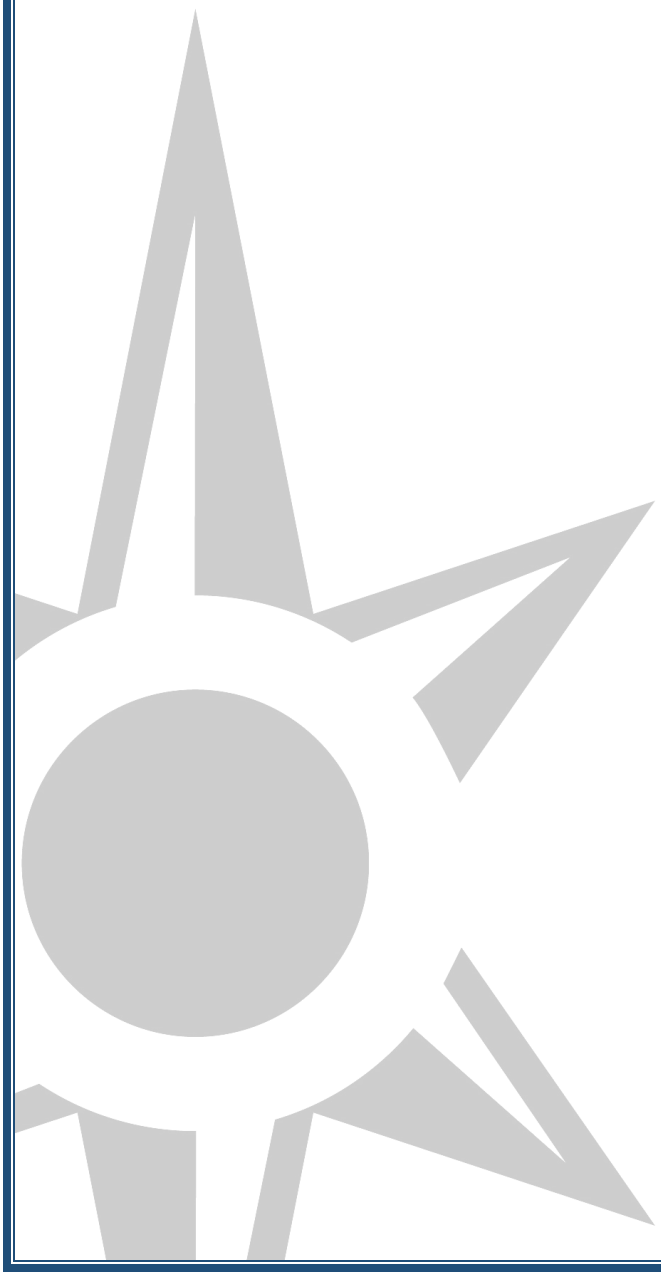
[74] Andrew Gordan, "What India can teach the US about digital finance," *Asia Times* (July 25, 2025). https://asiatimes.com/2025/07/what-india-can-teach-the-us-about-digital-finance/

[75] "UPI – The Global Benchmark for Digital Payments," NIPL and BCG (October 2025). https://web-assets.bcg.com/73/e5/e11f0db54da18a31a7cb55c1bef2/upi-the-global-benchmark-for-digital-payments.pdf

PACIFIC FORUM
INTERNATIONAL

India's Defense Modernization and US-India Relations: A Critical Overview

By
Tyler Lissy



Introduction

India's defense modernization efforts, accelerated under Prime Minister Modi's leadership and including procurement reforms, technology partnerships, and new institutions like the Chief of Defense Staff, are not only transforming its domestic military capabilities but also reshaping the security architecture of the Indo-Pacific region. With the US-India COMPACT enhancing the importance of bilateral interoperability, India's modernization has implications for regional deterrence and alliance dynamics. This project will assess India's drive for indigenous defense production, analyze the degree to which defense reforms are closing India's capability gaps relative to major military powers, and evaluate how India's evolving self-reliance posture affects India's strategic calculations between regional and world powers. In particular, the project will explore how the US-India partnership could bolster India's indigenization efforts. The findings will contribute to a broader understanding of India's trajectory as a rising security actor in a multipolar world.

Background

Before Prime Minister Modi, India's defense capabilities evolved through post-colonial restructuring, Cold War nonalignment, and responses to regional conflicts. Immediately following independence in 1947, the Indian government found it was imperative to solve developmental issues at home and avoid Cold War alliances, pursuing the policy of non-alignment. India's non-alignment movement (NAM) was originally constructed by Jawaharlal Nehru, aiming to preserve freedom of action as India attempted surviving power politics as a newly sovereign state.[1] Non-alignment allowed India to justify acquiring military assets from both the Soviet Union and the West and to maintain relations with sanctioned states like Iran and Russia, it also bred distrust among key partners.

Nehru's neutral vision and limited military spending led to early vulnerabilities, notably in the 1962 war with China.[2] Subsequent decades saw increased defense spending, a strategic partnership with the Soviet Union, and the development of nuclear deterrence. Key events like the 1971 war, the 1974 Pokhran test, and the 1999 Kargil conflict paralleled such changes, shaping India's military doctrine.[3] However, India's refusal to join global arms control regimes, such as the NPT and CTBT, and its unpredictable voting patterns at the UN have reinforced perceptions of unreliability.[4] Critics, including US and EU officials, argue that India's cooperation with the West has been driven more by shifting circumstances than enduring conviction.[5] With regards to India's defense capabilities, a lack of long-term commitments and a heavy reliance on foreign defense goods set domestic standards back. With the election of Prime Minister Narendra Modi in 2014, India's foreign policy became more assertive and pragmatic, introducing the theme of strategic autonomy and "Atmanirbhar Bharat," or Self-Reliant India. Sweeping defense reforms have focused on structural modernization, indigenization, and strategic integration. Key measures include the appointment of India's first Chief of Defense Staff (CDS) and the creation of the Department of Military Affairs in 2019, the overhaul of defense procurement through the Defense Acquisition Procedure 2020, and the rollout of the Agnipath recruitment scheme in 2022 to address pension burdens and rejuvenate the force.[6] These ambitions reflect broader foreign policy goals in Modi's administration, including the "India first" and "neighborhood first" approaches to promote domestic development and regional security.[7] Strengthening India's defense apparatus also coincides with losing its "image of being a 'perpetual naysayer' in global politics," striving to lead rather than follow.[8]

Simultaneously, India's conception of strategic autonomy has evolved, with many policymakers now seeking deeper defense ties with the United States, not as a constraint, but as a way to bolster its

[1] Rajen Harshe, "India's Non-Alignment: An Attempt at Conceptual Reconstruction," *Economic and Political Weekly* 25, no. 7/8 (1990): 399–405.
[2] Harshe, "India's Non-Alignment."
[3] Ibid.
[4] Anil Anand, "Indian Non-Alignment 2.0: Defensible Duplicity," *Australian Institute of International Affairs*, accessed June 23, 2025, https://www.internationalaffairs.org.au/australianoutlook/indian-non-alignment-2-0-defensible-duplicity/.
[5] Anand, "Indian Non-Alignment 2.0."
[6] Manoj Joshi, "Embracing Reform: India's Defense Policy under Modi," in The Hoover Institution's Survey of India, ed. Šumit Ganguly and Dinsha Mistree (Stanford, CA: Hoover Institution Press, 2025), 138–39, https://www.hoover.org/research/hoover-institutions-survey-india.
[7] Harsh V. Pant, ed., "A Decade of Modi's Foreign Policy: India Shows the Way," Special Report no. 228 (Observer Research Foundation, May 2024, 4-5), https://www.orfonline.org/research/a-decade-of-modi-s-foreign-policy-india-shows-the-way.
[8] Pant, "A Decade of Modi's Foreign Policy."

own sovereignty and counterbalance China's growing regional influence.[9] Therefore, it is vital that any analysis contextualizes India's defense modernization with its relationship with the US, offering insight into how bilateral cooperation enhances India's strategic autonomy while shaping regional security dynamics and influencing the balance of power in the Indo-Pacific.

Purpose and Scope of the Study

This study examines how India's defense modernization has strengthened its national defense posture and enhanced its capacity to contribute to regional security in the Indo-Pacific. It assesses whether domestic modernization initiatives have closed key capability gaps and translated into tangible strategic and deterrent power, while evaluating the implications for alliance structures, balancing behavior, and deterrence dynamics. Central to the analysis is the role of the US-India defense partnership in shaping indigenous defense development and India's broader strategic posture, as well as the impact of modernization on India's position in global politics.

By analyzing India's defense modernization initiatives, bilateral US-India defense agreements, and broader Indo-Pacific strategic frameworks, the study explores India's evolving role as a balancer, partner, or independent pole in the regional order. It incorporates case studies of India's responses to recent border crises with China to assess how indigenous capabilities influence strategic decision-making, complemented by comparative analysis with other states to contextualize India's defense trajectory. The project aims to contribute to policy and academic debates on the future of US-India security cooperation and India's long-term positioning within the Indo-Pacific security architecture.

This research offers a distinct contribution to the field by linking India's internal defense reforms with their external strategic impact in the Indo-Pacific, an angle often treated in isolation.[10] While studies typically focus on procurement inefficiencies, institutional inertia, or bilateral ties, this project integrates these elements to assess how India's pursuit of strategic self-reliance under Modi reshapes its deterrence posture and great-power alignments. The project highlights external security scenarios as much as internal defense reforms, to show how India selectively invests resources and time to meet its security needs. Furthermore, India's defense reforms are analytically coupled with US cooperation and collaboration, offering an expanded view into potential future defense capabilities for India.

Policy analysis

Comparative Defense Capabilities: India and the United States

Scholarly literature on divergences in the US-India defense relationship often emphasizes mismatches in capabilities, geography, and interoperability.[11] In terms of capabilities, analysts note the stark difference in resources allotted to defense: the United States invests heavily in advanced warfighting technologies, while India often prioritizes its military as a source of employment and nation-building. Civil-military governance also differs, as the US incorporates joint-service planning and civilian oversight more systematically, while India has been slower to institutionalize dialogue between civilian leaders and military services. Technology development reflects another divergence, with the US leveraging private-sector integration and allied collaboration to balance performance and capability, whereas India pursues a more rigid focus on indigenous development, often sidelining private firms and foreign partnerships.

Geographic perspectives on security further complicate the partnership.[12] India's priorities are shaped by its contested borders and its immediate neighborhood, leading to an emphasis on deterrence and conflict management in the near abroad. By contrast, the US defines security expansively, addressing far-flung challenges as preemptive measures against global domino effects in international politics. From an interoperability perspective, US doctrine emphasizes the force-multiplying effects of aggregated capabilities, joint operations, and integrated basing. While recent advances in communications technologies and

[9] Jeff M. Smith, "Strategic Autonomy and US-Indian Relations," War on the Rocks, Nov. 6, 2020, https://warontherocks.com/2020/11/strategic-autonomy-and-u-s-indian-relations/.
[10] See Joshi, "Embracing Reform."
[11] Sameer Lalwani, "US-India Divergence and Convergence on Defense Operationalization Concepts," Council on Foreign Relations, June 5, 2025, https://www.cfr.org/article/us-india-divergence-and-convergence-defense-operationalization-concepts.
[12] Lalwani, "US-India Divergence and Convergence."

equipment compatibility have expanded opportunities for cooperation, India's emphasis on strategic autonomy, supplier diversification, and self-reliance continues to shape the scope and depth of defense integration, resulting in a more selective approach to interoperability.

India's Defense: Strategy and Administration
Prime Minister Modi's Viksit Bharat 2047, unveiled with the symbolic weight of India's centenary of independence in mind, envisions a self-reliant and prosperous economy valued at $30 trillion.[13] Viksit Bharat (Developed India) 2047 is a governmental vision to make India a completely developed nation, focusing on the Yuva (Youth), Garib (Poor), Mahilayen (Women), and Annadata (Farmers). Marking the 79th Independence Day, Modi declared that India has entered a new phase of reform, highlighting governance simplification through the repeal of 1,500 outdated laws, the elimination of more than 40,000 compliances, and citizen-friendly initiatives such as faceless tax assessment and the Indian Justice Code. He emphasized empowering entrepreneurs and micro, small, and medium enterprises (MSMEs) by lowering compliance costs and legal risks, while also establishing a Task Force for Next-Generation Reforms to further streamline business regulation.[14] Modi promised Next-Generation Goods and Services Tax(GST) reforms to ease the tax burden on citizens, reaffirming India's long-term vision of building resilience, inclusivity, and global competitiveness as it moves toward 2047.[15]

Atmanirbhar Bharat functions as political messaging and a policy framework, representing a sector-specific roadmap that feeds directly into the broader Viksit Bharat vision.[16] It lays out a phased pathway for India to evolve from achieving defense self-reliance by 2032, to becoming a global exporter by 2038, and ultimately to leading in critical niche technologies by 2045. Each phase acknowledges India's present challenges, from technological dependencies and skill deficits to production capacity and brand recognition, and emphasizes the importance of strategic partnerships, especially with the United States, to address them. Atmanirbhar Bharat and Viksit Bharat 2047 converge in their shared ambition to position India as a globally competitive, resilient, and self-reliant power by the centenary of independence.

The convergence lies in how both visions align economic growth with capacity development. Viksit Bharat establishes the macroeconomic framework, while Atmanirbhar Bharat situates defense as a strategic driver of that growth through innovation, infrastructure, and global collaboration. Together, they prioritize investment in R&D, talent development, regulatory reform, and infrastructure as essential pillars for a prosperous, self-reliant India. In this sense, Atmanirbhar functions as both a contributor to and a test case for Viksit Bharat's broader aspirations, demonstrating how sector-specific transformation can reinforce the national trajectory toward becoming a developed, globally influential power by 2047.

India's strategic policy documents reveal a consistent effort to adapt military doctrine to emerging threats while aligning with long-term self-reliance goals. The Indian Maritime Security Strategy (2015) complements this land-centric vision by laying out a comprehensive framework for maritime capability development.[17] Its core objective is to build and sustain the requisite force levels to safeguard India's maritime security.[18] Thrust areas include indigenization for self-reliance, modular and standardized platforms, expanded maritime domain awareness, and network-centric operations. The strategy also emphasizes enhanced reach, power projection, sea control, and force protection, supported by joint operations, special forces, and a strong logistics and infrastructure base.[19] By integrating new and evolving technologies, the strategy positions the Indian Navy as both a defensive shield and a forward-projecting force capable of securing India's interests in the wider Indian Ocean Region.

The Joint Doctrine of the Indian Armed Forces (2017) provides an overarching framework by

[13] "Viksit Bharat 2047: Vision for a Developed Nation," Viksit India, accessed Nov. 1, 2025, https://viksitindia.com/.
[14] "PM's I-Day Address: A Vision for Reform, Self-Reliance, and Empowering Every Indian," Prime Minister of India, Aug. 15, 2025, https://www.pmindia.gov.in/en/news_updates/pms-i-day-address-a-vision-for-reform-self-reliance-and-empowering-every-indian/.
[15] "PM's I-Day Address."
[16] "Atmanirbhar, Agrani, and Atulya Bharat 2047: India's Defense Industrial Sector Vision 2047," (KPMG, May 29, 2025), https://kpmg.com/in/en/insights/2025/05/indias-defence-industrial-sector-vision-2047.html.
[17] Sanjay Singh J. et al., eds., *Ensuring Secure Seas: Indian Maritime Security Strategy*, Naval Strategic Publication 1.2, (New Delhi: Indian Navy, 2015), https://bharatshakti.in/wp-content/uploads/2016/01/Indian_Maritime_Security_Strategy_Document_25Jan16.pdf.
[18] Singh et al., *Ensuring Secure Seas*.
[19] Singh et al., *Ensuring Secure Seas*.

shifting India's military posture from a threat-based to a capability-based model.[20] It focuses on two key dimensions: force structuring and force development.[21] Force structuring involves inter-service synergy, manpower optimization, and the rationalization of resources, while force development addresses defense acquisitions and procurement policies.[22] Striking a balance between indigenous production and foreign purchases is presented as essential to building autonomy while modernizing at pace. Taken together, these documents reflect a unified trajectory: developing multi-domain and joint capabilities, enhancing indigenous production, and pursuing modernization that integrates technology with strategic self-reliance.

The Land Warfare Doctrine (2018), an advanced military strategy for the Indian Army, identifies future challenges such as collusive threats, internal instabilities, and the blurring of contact and non-contact zones in multi-domain warfare.[23] It stresses the need for techno-centric combat and swift, robust responses, with capability development focused on optimizing force structures, human resource training, and scaling. To address the possibility of multi-front conflicts, the doctrine advances concepts such as integrated battle groups and interoperable reserves.[24] It also underscores information warfare, cyber, electronic, and psychological, as central in "no war, no peace" scenarios, highlighting the role of perception and cyber dominance as battle-winning factors.[25]

In his Jan. 1 statement outlining India's 2025 defense objectives, Defense Minister Rajnath Singh emphasized the need to build a technologically advanced, combat-ready, and multi-domain force.[26] He highlighted the importance of jointness and integration through initiatives such as integrated theater commands, while also prioritizing capabilities in new domains including cyber, space, and emerging technologies.[27] He also noted that simplifying acquisitions can make them more time-sensitive, strengthening public-private defense partnerships to break existing silos and enhancing India's credibility as a defense exporter.[28] Alongside leveraging expertise for modernization, he stressed the importance of veteran welfare and instilling national pride in India's ability to achieve indigenization to global standards.[29]

These priorities fit within the framework of Viksit Bharat, which includes reforming structures, reducing bureaucratic barriers, and building a coherent national security strategy. Singh's vision points toward establishing India's "joint warfighter" through greater inter-service integration and jointness, in line with Modi's push for integrated theater commands. At the same time, both leaders recognize that meaningful reform requires institutional change, particularly overcoming entrenched bureaucratic practices and regional or service-specific rivalries that function like caste-like divisions within the defense establishment. Together, their approaches emphasize marrying technological modernization with organizational reform to produce a more unified and agile Indian military that is regionally effective and increasingly credible on the global stage.

Indian Defense Allocations

India's defense modernization over the past decade reflects a remarkable surge in both scale and ambition, driven by strategic policies, political resolve, and initiatives like Make in India, iDEX, and the establishment of Defense Industrial Corridors. Defense production reached a record ₹1.27 lakh crore ($14.3 billion) in FY 2023-24 (174% increase since 2014-2015), and exports hit ₹23,622 crore in FY 2024-25, demonstrating strong growth and a shift toward indigenous manufacturing.[30] Public and private sector participation through MSMEs and startups has expanded, fostering innovation across platforms such as the light combat helicopter (LCH) Prachand, Advanced Medium Combat Aircraft (AMCA), Advanced Towed Artillery Gun system (ATAGS), and advanced naval systems.[31] Initiatives like Positive Indigenization Lists, Self-Reliant

[20] Ministry of Defense, *Joint Doctrine: Indian Armed Forces* (New Delhi, Integrated Defense Staff, 2017), https://bharatshakti.in/wp-content/uploads/2015/09/Joint_Doctrine_Indian_Armed_Forces.pdf.
[21] Ministry of Defense, *Joint Doctrine: Indian Armed Forces*.
[22] Ministry of Defense, *Joint Doctrine: Indian Armed Forces*.
[23] Indian Army, *Land Warfare Doctrine* (2018), https://www.ssri-j.com/MediaReport/Document/IndianArmyLandWarfareDoctrine2018.pdf.
[24] Indian Army, *Land Warfare Doctrine*.
[25] Indian Army, *Land Warfare Doctrine*.
[26] Press Information Bureau "Ministry of Defense Declares 2025 as 'Year of Reforms,'" press release, Jan. 1, 2025, https://www.pib.gov.in/www.pib.gov.in/Pressreleaseshare.aspx?PRID=2089184.
[27] Press Information Bureau, "Ministry of Defense Declares 2025 as 'Year of Reforms.'"
[28] Ibid.
[29] Ibid.
[30] Santosh Kumar et al., *Make in India Powers Defense Growth*, Explainer no. 01, Make in India (Defense) (Research Unit; Press Information Bureau; Government of India, 2025), http://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154071.
[31] Kumar et al., *Make in India Powers Defense Growth*.

Initiatives through Joint Action (SRIJAN), and liberalized foreign direct investment (FDI) policies underscore the government's intent to reduce imports, enhance self-reliance, and position India as a rising global supplier of defense equipment.[32] The integration of women in the armed forces, the development of cutting-edge technologies including AI and quantum systems, and a steady increase in domestic procurement reflect a comprehensive approach to modernizing military capabilities while also boosting economic growth.[33]

While these achievements are impressive, however, they might be too optimistic. Record production and rising exports do not necessarily equate technological parity with leading global militaries, and many indigenized systems still rely on imported components. For instance, the most recent international arms transfers analysis shows that India's share of global arms imports was second only to Ukraine between 2020-2024.[34] The growing participation of private firms and MSMEs, while fostering innovation, faces challenges in quality, scale, and global competitiveness. Programs such as AMCA are likely to encounter technical and financial hurdles, and operational successes in counterterrorism or internal security, while tactically significant, do not automatically translate into long-term conventional warfighting readiness. Even ambitious projections for 2029 production and export targets, while indicative of India's strategic vision, remain dependent on sustained institutional, technological, and industrial performance.[35]

The 2025-2026 Union Budget frames India's economic growth around four engines, MSMEs, investment, exports, and financial reforms, which ultimately support the long-term trajectory of India's defense sector.[36] For MSMEs, revised classification criteria and enhanced turnover thresholds will broaden access to resources, while the introduction of customized credit cards for micro enterprises and a ₹10,000 crore Fund of Funds for startups can directly stimulate innovation in defense-linked supply chains.[37] Given that MSMEs already contribute significantly to defense manufacturing under Atmanirbhar Bharat, these measures expand the ecosystem of smaller firms capable of supplying components, software, and services critical to defense self-reliance and indigenization.

The budget's push on investment also strengthens defense modernization indirectly, by expanding the technological, digital, and industrial foundations on which military capability increasingly depends. Broadband expansion to schools and health centers under the Bharatnet project not only supports social development but also builds the digital backbone for dual-use infrastructure, essential in an era of cyber and information warfare.[38] The ₹20,000 crore ($2.25 billion) R&D and Innovation initiative, the proposed Deep Tech Fund of Funds, and expanded PM Research Fellowships at IITs and IISc will enhance India's technological base, particularly in AI, robotics, and other emerging domains prioritized by the armed forces.[39] Coupled with public-private partnerships in infrastructure, these measures accelerate the development of testing facilities, logistics hubs, and defense industrial corridors, directly feeding into capacity-building for future joint operations and indigenous production. Together, the budget not only drives broad-based economic growth but also provides the fiscal and institutional framework necessary for defense industrialization, global competitiveness, and alignment with the long-term vision of Viksit Bharat 2047.

The Defense Services Estimates for 2025-26 confirm the government's narrative of rising institutional support for modernization and indigenization but also reveal enduring structural constraints.[40] Net revenue expenditure has grown to ₹3.11 lakh crore, with all three services seeing increased allocations: the Army at ₹2.07 lakh crore, the Navy at ₹38,149 crore, and the Air Force at ₹53,700 crore.[41] Research and Development has been allocated ₹11,893 crore, a modest but notable increase, while funding for "Stores" across services highlights investment in

[32] Ibid.
[33] Santosh Kumar et al., "India's Defense Leap," Explainer no. 10, 11 Years of Government, June 10, 2025, http://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154617.
[34] Mathew George et al., *Trends in International Arms Transfers, 2024* (SIPRI, 2025), https://www.sipri.org/publications/2025/sipri-fact-sheets/trends-international-arms-transfers-2024.
[35] Kumar et al., "India's Defense Leap."
[36] Press Information Bureau, "Summary of Union Budget 2025-26, press release, Feb. 1, 2025 https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/feb/doc202521492801.pdf.
[37] Press Information Bureau, "Summary of Union Budget 2025-26."
[38] Press Information Bureau, "Summary of Union Budget 2025-26."
[39] Ibid.
[40] Ministry of Finance – Budget Division, *Expenditure Budget 2025-2026* (Government of India, 2025), 74, https://www.indiabudget.gov.in/doc/eb/sbe20.pdf.
[41] Ibid.

logistics and maintenance, critical for sustaining both indigenized and imported platforms.[42] The Agnipath scheme's rising allocations, particularly the Army's jump to ₹9,414 crore, underlines institutional support for structural reforms. These figures reinforce PIB claims of greater commitment to readiness, industry partnerships, and capability-building.[43] most recently, the defense ministry's spending request included a 20% increase in the allotted $75.36 billion allotted for fiscal 2026/27.[44]

Yet the Estimates also underscore the persistent imbalances within India's defense budgeting. Personnel costs remain overwhelming, with over ₹1.13 lakh crore devoted to Army salaries alone, leaving less space for modernization and advanced capability development.[45] While R&D allocations are rising, they remain small in proportion to overall spending, constraining India's ability to close technological gaps with advanced militaries. Gen. Kapil Aggarwal (Retd) noted that despite record allocations, India's defense budget as a share of GDP has declined to 1.85%, and capital expenditure is routinely underutilized or reappropriated at the revised estimate stage.[46] This structural imbalance, where revenue spending dominates at the expense of modernization, limits the transformative potential of rising budgets. Remedies suggested including the creation of a dedicated modernization fund and raising R&D spending closer to global norms, as India's ~0.75% of GDP falls far below the 1.8% global average.[47]

Research, development, and technological innovation arm

Initially, the Defense Research and Development Organization (DRDO) struggled to deliver the transformative innovation envisioned under the *Make in India* push, with its record marked more by incrementalism than breakthrough achievements.[48] Even when celebrated with awards and public recognition, many of its outputs, such as the USHUS-2 sonar and ring laser gyroscope, represented modest upgrades to decades-old technologies rather than cutting-edge advancements.[49] This pattern has reinforced the perception that DRDO remains oriented toward replication and slow evolution rather than pioneering global-class systems. Thus, despite some progress, DRDO continued to embody India's broader difficulty in translating ambitions for self-reliance into consistently world-class technological outcomes.

A credible analysis from American business magazine *Forbes* last April contrasts this notion, showing how DRDO is aligning its portfolio with lessons from contemporary conflicts like the Russia-Ukraine war.[50] Indigenous drones such as Trinetra and Archer-NG, precision-guided munitions like Gaurav and SAAW, and counter-drone systems including the VSHORAD missile and directed-energy weapons point to a deliberate prioritization of asymmetric and cost-effective solutions.[51] By fielding both small quadcopters and long-range UAVs, DRDO is diversifying India's drone ecosystem in ways that enhance battlefield flexibility and export potential. This evolution underscores India's strategic intent to carve out space as a credible supplier in the rapidly expanding global drone and counter-drone market, while simultaneously reducing dependence on imports.

At the same time, "DRDO 2.0" captures a deeper institutional shift in India's defense innovation ecosystem. The move away from conventional platforms toward next-generation warfare technologies, directed energy, photonics, quantum systems, and AI, signals recognition that India cannot simply chase global leaders in traditional areas but must leapfrog into emerging domains.[52] By letting private industry handle more conventional systems under the Defense Capital Procurement Procedure (DCPP) model, DRDO is repositioning

[42] Ibid.
[43] Ibid.
[44] Nikunj Ohri et al., "Exclusive: India to Ease Rules to Boost Foreign Investment in Domestic Defence Firms, Sources Say," India, Reuters, Jan. 16, 2026, https://www.reuters.com/world/india/india-ease-rules-boost-foreign-investment-domestic-defence-firms-sources-say-2026-01-16/.
[45] Ministry of Finance; Government of India, *Notes on Demands for Grants*.
[46] Lt Gen Kapil Aggarwal (Retd), "India's Defense Budget 2025: What It Means for National Security," MRO Channel Forum, March 4, 2025, https://www.mrochannelforum.com/indias-defence-budget-2025-what-it-means-for-national-security/.
[47] Aggarwal, "India's Defense Budget 2025."
[48] Ajai Shukla, "Three Years after Modi Rattled DRDO, Little Has Changed," *Business Standard*, March 25, 2017, https://www.business-standard.com/article/economy-policy/three-years-after-modi-rattled-drdo-little-has-changed-117032500839_1.html.
[49] Shukla, "Three Years after Modi."
[50] Vikram Mittal, "India Is Testing New Defense Technologies That Mirror Russia and Ukraine," *Forbes*, April 23, 2025, https://www.forbes.com/sites/vikrammittal/2025/04/23/india-is-testing-new-defense-technology-that-mirror-russia-and-ukraine/.
[51] Mittal, "India Is Testing New Defense Technologies That Mirror Russia and Ukraine."
[52] "DRDO 2.0: From Lasers to AI, Top Defense R&D Official Shares the Big 'pizza' Plan for India's next-Gen Warfare," *The Economic Times*, July 1, 2025, https://economictimes.indiatimes.com/news/defence/drdo-2-0-from-lasers-to-ai-top-defence-rd-official-shares-the-big-pizza-plan-for-indias-next-gen-warfare/articleshow/122176893.cms.

itself as the spearhead of deep-tech research.[53] Operational deployments of indigenous systems like the BrahMos and Akash, coupled with photonic radar and high-powered lasers, show both continuity in successful programs and bold experimentation in new ones.[54]

In combination, these two shifts indicate that DRDO is attempting to transform from a slow-moving, procurement-centric body into a catalyst of high-end innovation and dual-use capability development. This dual track, meeting immediate operational needs while investing in disruptive technologies, suggests India is building a layered defense industrial base that can both address near-term threats and position itself as a long-term global competitor. If sustained, this shift could finally bridge the gap between India's long-standing ambition for self-reliance and the global recognition of its defense sector as a serious innovator, not just an imitator.

Public-Private Collaboration: Procurement and Acquisition

The Defense Acquisition Procedure (DAP) 2020 represented a watershed in India's modernization strategy by breaking the long-standing dominance of Defense Public Sector Undertakings (DPSUs) in procurement.[55] With the introduction of categories like *Buy (Indian–IDDM)*, which prioritized systems designed, developed, and manufactured domestically, and the layered Make I/II/III frameworks, the policy deliberately widened the aperture through overlapping framework types.[56] This shift has allowed startups, MSMEs, and major private firms greater participation in acquisition. Make I initiated up to 70% government funding for prototypes, Make II incentivized industry-funded import substitution, and Make III enabled technology transfer from foreign OEMs with local manufacturing.[57] Together, these categories institutionalized competition, compelled DPSUs to shed complacency, and created structured entry points for smaller innovators. In doing so, DAP 2020 signaled a deliberate shift away from state-centered procurement toward a diversified industrial base, blending legacy infrastructure with private-sector dynamism.

Beyond procurement mechanics, DAP 2020 sought to institutionalize innovative pipelines and embed private-sector energy into long-term defense planning. Programs such as *Innovations for Defense Excellence (iDEX)* were directly integrated into acquisition processes, providing startups not only with funding but also with access to live problem statements from the armed forces.[58] The policy further eased FDI thresholds, mandated higher indigenous content in contracts, and promoted co-development partnerships between Indian industry and foreign OEMs in high-value areas such as aircraft, submarines, and next-generation combat systems. By replacing one-off imports with joint development and local manufacturing, the reforms laid the groundwork for a hybrid ecosystem: the scale and experience of DPSUs fused with the efficiency, innovation, and risk appetite of the private sector. This hybrid model advances India's twin objectives of self-reliance under Atmanirbhar Bharat and competitiveness in the global defense market.

At roughly the same time, the Srijan Defense Portal marked a strategic shift from import dependence to indigenous innovation by digitally linking the armed forces, DPSUs, and private industry to indigenize listed items.[59] Its impact has been substantial, with over 36,000 defense items uploaded and 14,000 indigenized, driving defense production to ₹1.51 lakh crore ($17 billion) in FY 2024-25, growing more than 200% since 2014-15.[60] By integrating 19 organizations, 16 DPSUs, 3 Service HQs, and 16,000 MSMEs (now contributing 23% of total output), the portal has deepened industrial participation while helping exports surge 34-fold to ₹23,622 crore ($2.66 billion), strengthening India's Act East policy and global defense partnerships.[61] Srijan reinforces strategic autonomy by reducing reliance on foreign suppliers and fostering indigenous R&D, enhancing both national security and India's credibility as a defense partner. However, these advancements must continue to evolve in tandem with the changing needs of India's

[53] "DRDO 2.0."
[54] Ibid.
[55] Ministry of Defence, *Defense Acquisition Procedure 2020* (Government of India, 2020), https://www.mod.gov.in/dod/sites/default/files/DAP2030new.pdf.
[56] Ibid.
[57] Ibid.
[58] Ibid.
[59] Sohil Sinha, "Srijan Defense Portal: PM Modi's Vision For Swadeshi Innovation And Strategic Autonomy In Defense," CNN-News18, Aug. 15, 2025, https://www.news18.com/opinion/opinion-srijan-defence-portal-pm-modis-vision-for-swadeshi-innovation-and-strategic-autonomy-in-defence-9506585.html.
[60] Sinha, "Srijan Defense Portal."
[61] Sinha, "Srijan Defense Portal."

defense apparatus, which has begun through a holistic evaluation process.

In June 2025, the Ministry of Defense launched a comprehensive review of the DAP 2020, issuing a public call for stakeholder-led suggestions from PSUs, private firms, think tanks, academia, and service personnel, with submissions open until July 5.[62] The review targets reducing acquisition timelines, fostering indigenous R&D, integrating next-generation technologies, easing trial and post-contract processes, clarifying procedural ambiguities, and attracting foreign OEM participation. This effort comes amid mounting frustrations over procurement cycles stretching up to seven years, despite DAP's formal two-year prescription, across more than 500 planned acquisition schemes in the next 15 years.[63] By moving away from nomination-based procurement toward competitive pricing, already visible in shipbuilding and the AMCA program, the MoD aims to align procedural reforms with India's strategic goals, with reviews still under progress.[64]

Given that the formal review of India's defense acquisition framework has only just begun, with people tracking the matter insisting on anonymity in public commentary and the final report still ongoing, any analysis of reforms must be seen as forward-looking rather than definitive.[65] The goal at this stage is less to predict the exact contours of reform and more to highlight how existing initiatives can be translated into tangible action. Streamlining procurement timelines, empowering private players and startups, embedding next-generation technologies into acquisitions, and clarifying IP and indigenization rules are all widely acknowledged as priorities, but their real value lies in whether they can be institutionalized into enforceable procedures, budget allocations, and transparent oversight. By framing these opportunities now, even before the review concludes, stakeholders can begin aligning expectations and shaping industry responses, ensuring that policy announcements are met with ready-made pathways for implementation rather than further delays.

India's progress toward self-reliance does not eliminate the need for foreign collaboration; rather, it reorients it toward selective, high-value partnerships. Projects like Remotely Piloted Aircraft (RPA) and advanced electronic warfare systems require ecosystem-wide expertise, and US defense firms are natural collaborators for critical technologies, interoperability, and ensuring global market competitiveness. Domestic innovation platforms such as Srijan and iDEX create entry points for US companies to engage Indian startups and MSMEs, blending US technical depth with India's cost-effective, scalable production capacity.

US-India Defense Cooperation

Since being designated a Major Defense Partner in 2016 and achieving Strategic Trade Authorization Tier 1 status in 2018, US-India defense cooperation has deepened across trade, education, and joint operations.[66] Defense trade has surged from near zero in 2008 to over $20 billion by 2020, underpinned by enabling agreements like LEMOA, COMCASA, and ISA that facilitate both Foreign Military Sales and Direct Commercial Sales of advanced platforms.[67] Beyond hardware, the partnership extends to UN peacekeeping training and professional military education through IMET, fostering leadership development and interoperability. Joint exercises such as Tiger Triumph, Malabar, and RIMPAC, combined with US-funded maritime security initiatives, further reinforce India's role in regional stability and disaster response, embedding the relationship within a broader Indo-Pacific security architecture.[68]

On July 1, 2025, US Defense Secretary Pete Hegseth and Indian External Affairs Minister S. Jaishankar reached a verbal agreement to advance a new defense framework, setting the stage for formally signing a ten-year roadmap for the Major Defense Partnership.[69] The discussions focused on

[62] "Govt Launches Overhaul of Defense Acquisition Procedure," Bharat Shakti, June 19, 2025, https://bharatshakti.in/defence-reform-2-0-government-initiates-major-overhaul-of-defence-acquisition-procedure/.
[63] "India Aims to Slash Arms Procurement Time to Under Two Years," Indian Defense Research Wing, July 18, 2025, https://idrw.org/india-aims-to-slash-arms-procurement-time-to-under-two-years/.
[64] Rahul Singh, "India Working to Cut Arms-Buying Timeline," Hindustan Times, July 17, 2025, https://www.hindustantimes.com/india-news/india-working-to-cut-arms-buying-timeline-101752691560131.html.
[65] Singh, "India Working to Cut Arms-Buying Timeline."
[66] Bureau of Political-Military Affairs, "US Security Cooperation with India," fact sheet, United States Department of State, Jan. 20, 2025, https://www.state.gov/u-s-security-cooperation-with-india/.
[67] Bureau of Political-Military Affairs, "US Security Cooperation with India."
[68] Bureau of Political-Military Affairs, "US Security Cooperation with India."
[69] C. Todd Lopez, "US, India Talk 10-Year Cooperative Framework, Defense Cooperation, Shared Priorities," *DOD News*, US Department of War, July 1, 2025, https://www.war.gov/News/News-

completing pending major defense sales, expanding industrial cooperation through co-production and interoperability initiatives, and anchoring future collaboration in platforms like the upcoming US-India Defense Acceleration Ecosystem Summit.[70] While both sides emphasized the strength of the relationship, Jaishankar underscored that more can be done to fully realize its potential, particularly in aligning defense trade with long-term strategic and industrial objectives.

According to a recent CRS report, India has contracted over $24 billion in US defense purchases since 2008, covering platforms like C-17 transport aircraft, P-8I maritime patrol planes, Apache and Chinook helicopters, and M777 howitzers, making the US one of India's top suppliers.[71] While Russia accounted for 59% of India's defense imports between 2008 and 2024, its share fell to 36% in 2020-24, reflecting diversification and greater opportunities for US defense trade, alongside France (12%) and Israel (9%).[72] Beyond arms transfers, broader security cooperation has deepened, with India joining the US-led Combined Maritime Forces in 2023 and co-hosting major defense expos like Aero India and DefExpo, platforms that showcase advanced US and Indian defense technologies and signal growing strategic alignment.[73]

Tiger Triumph is the only US-India tri-service (Army, Navy, Air Force) exercise, focused on humanitarian assistance and disaster response (HA/DR) and enhancing interoperability in the Indian Ocean region.[74] The 2025 edition marked the first use of emerging technologies, including satellite data applications and unmanned systems for situational awareness and crisis response. It also featured the inaugural US-India industry and government forum on autonomous systems, advancing the new Autonomous Systems Industry Alliance (ASIA) and setting the stage for future integration. The exercise brought together about 3,000 personnel, four ships, and seven aircraft for large-scale, multi-domain operations.[75]

The RAND-ORF 2025 conference displayed that US-India defense cooperation must evolve beyond transactional arms sales toward structural industrial integration, even as recent US-India trade frictions (tariffs, US deficit concerns, India's BRICS and Russian oil ties) add

pressure to the broader relationship.[76] These tensions could hinder progress in high-value co-development programs requiring sensitive technology transfers, since Washington may hesitate to deepen defense-industrial exposure if trust is undercut by geopolitical or economic divergences. They may also slow discussions on major procurement frameworks where economic "fairness" narratives intersect with large financial outlays.

However, the August 2+2 Intersessional Dialogue underscored the resilience of US-India defense relations, bringing together senior State Department and Indian defense and external affairs officials to chart the next phase of cooperation.[77] Both sides reaffirmed plans to sign a new ten-year Major Defense Partnership Framework, building on COMCASA, defense technology collaboration, operational coordination, and information sharing. The dialogue emphasized a shared commitment to advancing Indo-Pacific security through the Quadrilateral Security Dialogue ("Quad") and to deepening interoperability and strategic alignment across all defense domains.

Building on the momentum of the 2+2 Intersessional Dialogue, US-India defense ties strengthened further in October despite broader trade frictions. On Oct. 31, during the ASEAN Defense Ministers' Meeting, Secretary of War Pete Hegseth and Defense Minister Rajnath Singh signed a new 10-year US-India Defense Framework, the third since 2005, advancing security coordination, information sharing, and
defense technology cooperation.[78] The agreement, delayed from August, reaffirmed both sides' long-

Stories/Article/Article/4232258/us-india-talk-10-year-cooperative-framework-defense-cooperation-shared-prioriti/.

[70] Lopez, "US, India Talk 10-Year Cooperative Framework."

[71] US Library of Congress, Congressional Research Service, *India-US: Major Arms Transfers and Military Exercises*, by Alan Kronstadt, IF12438 (2025), https://www.congress.gov/crs-product/IF12438.

[72] US Library of Congress, *India-US*

[73] Ibid.

[74] Lt. Cmdr. Seth Koenig, "US-Indian Forces Go High-Tech at Tiger Triumph 2025," *Commander, US Pacific Fleet*, April 10, 2025, https://www.cpf.navy.mil/Newsroom/News/Article/4151944/us-indian-forces-go-high-tech-at-tiger-triumph-2025/.

[75] Koenig, "US-Indian Forces Go High-Tech."

[76] John V. Parachini et al., *Conference Proceedings on US-Indian Security and Defense Industrial Cooperation in the Asia-Pacific*, (RAND and Observer Research Foundation, 2025), https://www.rand.org/pubs/conf_proceedings/CFA2613-3.html.

[77] Office of the Spokesperson, "US-India 2+2 Intersessional Dialogue," media note (United States Department of State, Aug. 26, 2025), https://www.state.gov/releases/office-of-the-spokesperson/2025/08/u-s-india-22-intersessional-dialogue/.

[78] Shakeel Sobhan, "US, India Hail New 10-Year Defense Pact Despite Tensions," Deutsche Welle, Oct. 31, 2025, https://www.dw.com/en/us-india-hail-new-10-year-defense-pact-despite-tensions/a-74564655.

term strategic commitment toward defense relations and reinforces the enduring security priorities for the two countries.

Alongside inter-governmental relations expressed through official agreements, one must also consider how the relationship has evolved across public-private cooperation. As a part of the US Chamber of Commerce, the US-India Business Council is a highly credible organization that advocates on behalf of an inclusive and successful bilateral trade environment. By engaging directly with Indian officials and private players while representing American OEMs and investors, USIBC can assess both the domestic impact of reforms on self-reliance and the international implications for trade, technology transfer, and joint ventures, making its perspective balanced and credible from both sides. The organization's credibility is only enhanced in its recent commitment to the relationship despite tariff complications, citing the economies as inherently complementary in providing "significant mutual benefits."[79]

The previously mentioned 2025 defense reforms show strong alignment with the 2024 TAG-USIBC recommendations, addressing key areas like cutting procurement timelines, streamlining trials, and empowering startups and MSMEs through fast-track channels.[80] They also emphasize next-generation technologies, including AI, robotics, and survivability systems, while promoting foreign OEM participation via joint ventures, technology transfer, and offsets.[81] Clarification of acquisition procedures, including Indigenous Content calculations and legal ambiguities, has been initiated, though full resolution on IP and liability frameworks remains pending.[82] Overall, while substantial progress has been made, practical implementation and systemic evaluation of these reforms are still evolving.

The Confederation of Indian Industry (CII)-KPMG report on India's defense industrial vision anticipated many of the pain points later echoed by TAG-USIBC and addressed in the 2025 reform cycle.[83] Both highlighted the need to streamline procurement by cutting timelines and reducing bureaucratic bottlenecks that had historically stretched Request for Proposal (RFP)-to-contract processes to 7-8 years.[84] DAP 2020 gestured toward defined timelines but, as the CII-KPMG study noted, implementation was weak. The 2025 reforms, however, demonstrate a stronger alignment with stakeholder expectations by introducing strict deadlines, reducing duplicative trials, and targeting 24-week procurement cycles for critical systems, an evolution that directly addresses the concerns first captured in 2020. Similarly, the emphasis on private sector empowerment and startup participation through Make categories and iDEX finds continuity: what the 2020 report flagged as underutilized mechanisms has, by 2025, evolved into dedicated fast-track channels and incentives.[85]

Yet the analysis also shows areas where structural gaps remain. The CII-KPMG report, like TAG-USIBC in 2024, underscored that India would need to go beyond process reform to incentivize indigenous R&D, clarify IP regimes, and establish export support mechanisms. While the 2025 reforms introduce measures for innovation (AI, robotics, survivability systems) and improve foreign OEM participation through JVs and ToT, they stop short of adopting structured subsidies and progressive indigenization timelines. In this sense, India's procurement and acquisition framework has made clear progress in cutting red tape and opening doors to private players but still lags in creating the deep institutional incentives that would transform procurement into sustainable industrial capability.

Thinking strictly in terms of defense, India's pursuit of a diverse set of suppliers for indigenous modernization, rather than deepening bilateral ties, risks weakening its security and the broader balance of power. Achieving Indo-Pacific security requires sustained US-India engagement, even if their geopolitical contexts differ. India's hedging against potential future US retrenchment focuses too narrowly on domestic American politics and overlooks how US-China competition makes

[79] "Time to Redouble Efforts, Not Pull Apart, Says US-India Business Council Amid US-India Tariff Row," *The Hindu*, Aug. 7, 2025, https://www.thehindu.com/business/Economy/time-to-redouble-efforts-not-pull-apart-says-us-india-business-council-amid-us-india-tariff-row/article69904269.ece.

[80] Pushan Das and Gopal Nadadur, *India's Defence Acquisition Procedure: Policy Recommendations* (US-India Business Council, 2024), https://theasiagroup.com/wp-content/uploads/2024/09/TAG-USIBC-Policy-Report-Defence-Print.pdf.

[81] Das and Nadder, *India's Defence Acquisition Procedure*."

[82] Ibid.

[83] KPMG and Confederation of Indian Industry, *Atmanirbhar, Agrani, and Atulya Bharat 2047: India's Defense Industrial Sector Vision 2047* (2025), https://assets.kpmg.com/content/dam/kpmgsites/in/pdf/2025/05/indias-defence-industrial-sector-vision-2047.pdf.

[84] Ibid.

[85] Ibid.

"keeping America first" inseparable from empowering major partners, especially India. The 2025 US National Security Strategy underscores this shift, prioritizing a regional sphere of influence while explicitly highlighting partnerships with India as central to balancing power in the Indo-Pacific.[86] Neither country can avoid this shift, and an official alliance is unnecessary, what is needed is an elevation of defense ties.

To advance indigenous defense modernization, India must understand that US interests inherently favor a rising, secure India. Likewise, Washington must grasp New Delhi's enduring hesitancy toward deeper alignment and work within that framework. Strategic autonomy and strategic alignment are not mutually exclusive; with deliberate exchanges of consideration, they can reinforce each other. A deepened US-India defense relationship can force regional actors (Pakistan and China) to rethink their strategic calculus. In the long term, cooperative pragmatism can produce an India that is stronger in defense, power, and independence, while a deepened US partnership secures the Indo-Pacific against adversaries' ambitions.

Recent Indo-Pacific Defense Perspectives: US and India at Shangri-La 2025

At the 2025 Shangri-La Dialogue, the US reaffirmed the Indo-Pacific as its priority theater, signaling an unambiguous deterrence stance on Taiwan while using softer, less parallel language on the South China Sea.[87] Washington pressed Asian allies and partners toward defense spending levels of up to 5% of GDP, framing this not only as deterrence but also to sustain US defense sales, though such pressure risks pushing states toward Beijing if seen as transactional.[88] Geopolitically, Defense Secretary Hegseth stressed pragmatic cooperation on shared interests while avoiding prescriptive rhetoric on ideology or sovereignty. His call to "help allies/partners strengthen defense capabilities" referred to capacity-building and training, whereas "rebuilding defense-industrial bases" pointed to expanding US domestic production and supply chains, together intended to re-establish credible deterrence across the region.[89]

In April 2025, INDOPACOM Commander Adm. Samuel Paparo reaffirmed the Indo-Pacific as the US's priority theater, framing China, North Korea, and Russia's unprecedented modernization and growing cooperation as interconnected regional threats.[90] He outlined a "deterrence, crisis, conflict" approach: maintaining combat-ready forces west of the international dateline, integrating allies and partners, securing early leverage in crises, and in outright conflict, denying adversaries' strategic goals, where "victory" is more about preserving a favorable balance of power while safeguarding sovereignty for regional states.[91] His emphasis on information integration, all-domain combat power, and alliance-based legitimacy was paired with posture initiatives like agile forward presence, distributed force basing, and enhanced military construction, all aimed at complicating adversary planning and ensuring rapid crisis response.[92]

At the Shangri-La Dialogue, Gen. Anil Chauhan framed India's defense innovation within the broader Indo-Pacific strategic context, stressing that the region's shifting security environment demands agility and technological adaptation.[93] He pointed out unmanned systems, proxy actors, and rapid advances in AI, sensors, and weapon systems as reshaping warfare and raising the stakes for deterrence and crisis response in the Indo-Pacific.[94] India, he argued, is meeting these challenges by drawing on its strong academic base while using initiatives like iDEX to integrate private and academic R&D into defense innovation.[95]

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[86] "National Security Strategy of the United States of America," November 2025, https://www.whitehouse.gov/wp-content/uploads/2025/12/2025-National-Security-Strategy.pdf.
[87] David K. Young and John Gardner, "Policy Backgrounder: US Policy in the Indo-Pacific: The 2025 Shangri-La Dialogue," The Conference Board, June 5, 2025, https://www.conference-board.org/research/ced-policy-backgrounders/us-policy-in-the-indo-pacific-the-2025-shangri-la-dialogue.
[88] Pete Hegseth, "United States' New Ambitions for Indo-Pacific Security," (speech, Singapore, May 31, 2025), International Institute for Strategic Studies, https://www.iiss.org/events/shangri-la-dialogue/shangri-la-dialogue-2025/plenary-sessions/first-plenary/.
[89] Pete Hegseth, "United States' New Ambitions for Indo-Pacific Security."
[90] Adm. Samuel J. Paparo, "Statement of Admiral Samuel J. Paparo, Commander, US Indo-Pacific Command, US Indo-Pacific Command Posture," in *US Military Posture and National Security Challenges in the Indo-Pacific Region: Hearing before the House Armed Services* (Washington D.C.: US House of Representatives, 2025), 5-7, https://www.congress.gov/event/119th-congress/house-event/118137.
[91] Paparo, "Statement of Admiral Samuel J. Paparo."
[92] Ibid.
[93] General Anil Chauhan, "Defense Innovation Solutions for Future Challenges," (speech, May 31, 2025), International Institute for Strategic Studies, https://www.iiss.org/globalassets/media-library---content--migration/files/shangri-la-dialogue/2025/transcripts-final/ss1/sld2025_special-session-1_general-anil-chauhan_as-delivered.pdf.
[94] Chauhan, "Defense Innovation Solutions for Future Challenges."
[95] Ibid.

Indigenous trials and tests

Testing and evaluation deserve distinct attention within defense modernization because they reconcile the tension between safety and the pace of innovation. By enforcing rigorous processes and clear standards, testing ensures that effectiveness and safety can complement rather than undermine one another. Credibility rests on this balance, as thorough evaluation not only safeguards human lives but also builds domestic and international confidence, reduces long-term costs, and strengthens reputation. To achieve this, testing must prioritize functionality, mechanisms, environmental performance, fatigue, and reliability under failure conditions.

For instance, the Arjun Mk-1A main battle tank, initially ordered by the Indian Army in September 2021 with deliveries planned from 2024 and completion by 2027, has faced significant delays.[96] Production of the older German-manufactured MTU engine proved problematic, prompting a switch to a new engine that will not enter full-scale production until 2028 and requires modifications to meet tank standards.[97] As a result, the delivery schedule has been postponed to late 2028 or early 2029, reflecting ongoing challenges in aligning indigenous development timelines with operational requirements.

The Tejas Mk1A, whose first flights occurred in 2024, is set to replace India's aging MiG-21 fleet with advanced avionics, AESA radar, electronic warfare systems, and higher indigenous content, with 83 aircraft ordered and an additional 97 cleared as HAL scales up production despite engine delays.[98] Positioned as a cost-effective competitor to global fighters like the JF-17, Gripen, and F-16, the Tejas Mk1A underpins India's strategic goal of modernizing its air force while opening avenues for exports to countries such as Argentina, Egypt, and Malaysia, and serves as a precursor to future variants like the Mk2 and AMCA.[99] More recently, five Mk1As were successfully cleared for firing and critical weapons evaluations, with the news suggesting a markable shift in expedited processes from manufacturing to deployment without the sacrifice of rigorous testing.[100]

On March 11, 2024, DRDO successfully tested the Agni-V with MIRV capability under Mission Divyastra, making India one of the few nations with this technology.[101] While officially a 5,000 km intermediate-range ballistic missile, weight reductions and indigenous subsystems suggest it could reach 7,000-8,000 km, with 4-12 warheads plus decoys enhancing its deterrence against China's nuclear arsenal and signaling capability to Pakistan.[102] Additional flight tests are planned before operational deployment, alongside development of the Agni-VI MIRV and India's sea-based deterrent, which remains the most survivable component of its second-strike capability. Lastly, HAL's Light Combat Helicopter (LCH) Prachand, in development for over a decade, is now slated for initial deliveries in 2028.[103] The platform reflects India's push for indigenous airpower capable of countering regional threats, with China reportedly monitoring and reacting to its development, signaling Beijing's cautious attention to India's growing domestic defense capabilities, even if some of the reported responses remain unverified.[104]

Indigenization efforts: China and South Korea

India's indigenization efforts reflect a deliberate, multi-layered approach that balances state control, public sector capabilities, and private sector participation. This starkly contrasts with China's highly centralized, state-driven approach, where conglomerates like NORINCO and AVIC dominate

[96] Raunak Kunde, "Arjun Mk1A Delivery Schedule Revised to 2028-2029 Following Engine Selection," Indian Defence Research Wing, March 2, 2025, https://idrw.org/arjun-mk1a-delivery-schedule-revised-to-2028-2029-following-engine-selection/.
[97] Kunde, "Arjun Mk1A Delivery Schedule Revised."
[98] Divyam Sharma, "Saga Of Tejas - Fighter Jet That Will Replace The Mighty MiG-21," NDTV, July 22, 2025, https://www.ndtv.com/india-news/saga-of-tejas-mk1a-the-fighter-jet-that-will-replace-the-mighty-mig-21-indian-air-force-8926205.
[99] Bodhideep Roy, "HAL's Tejas vs Global Fighters: How Competitive Is India's Indigenous Jet?," DefenceXP, Feb. 5, 2025, https://www.defencexp.com/hals-tejas-vs-global-fighters-how-competitive-is-indias-indigenous-jet/.
[100] "HAL Confirms Five Tejas Mk1A Fighters Ready for Induction," Indian Defense Research Wing, Jan. 29, 2026, https://idrw.org/hal-confirms-five-tejas-mk1a-fighters-ready-for-induction/.
[101] Rajeswari Pillai Rajagopalan, "Maiden Test for India's Agni-5 MIRV Missile," *The Diplomat*, March 15, 2024, https://thediplomat.com/2024/03/maiden-test-for-indias-agni-5-mirv-missile/.
[102] Antoine Levesques, "India Shows Its Deterrent Holds Chinese Cities at Risk," International Institute for Strategic Studies, April 19, 2024, https://www.iiss.org/online-analysis/missile-dialogue-initiative/2024/04/india-shows-its-deterrent-holds-chinese-cities-at-risk/.
[103] "HAL Light Combat Helicopter (LCH)," *Airforce Technology*, April 18, 2024, https://www.airforce-technology.com/projects/hallghtcombathelicop/#menu.
[104] Liu Zhen, "India's Prachand Combat Helicopter 'Unable to Compete' with China's Z-10: Report," *South China Morning Post*, May 19, 2025, https://www.scmp.com/news/china/military/article/3310887/unable-compete-chinese-dismiss-indias-prachand-combat-helicopter-against-local-z-10.

R&D and production, enabling faster timelines, aggressive platform development, and a willingness to bypass IP norms or reverse-engineer technology.[105] While India emphasizes transparency, domestic capacity-building, and regulatory frameworks, China's system prioritizes speed and global competitiveness, highlighting a structural difference in indigenization philosophy.

China's defense modernization is underpinned by massive state-led investments in research and development, civil-military fusion, and a tightly controlled industrial base. Indigenous platforms such as the J-20 stealth fighter and Type 055 destroyer exemplify the rapidity and scale of Chinese innovation, which is often supported by technology transfers, legally or otherwise, from the West and Russia.

South Korea offers a different model of indigenization that is more closely aligned with India's long-term objectives. Starting with licensed production of US systems in the 1970s, South Korea gradually built private sector capabilities, integrated SMEs, and moved toward fully indigenous designs like the K2 Black Panther tank and KF-21 fighter.[106] Export-oriented production, coupled with Western co-development agreements like the US-ROK Technology Prosperity Deal, allowed South Korea to strengthen both domestic capabilities and global competitiveness.[107]

For India, the comparative analysis highlights both challenges and opportunities. While China demonstrates the benefits of centralized control and accelerated platform development, it also reveals the strategic and ethical trade-offs of rapid, state-directed innovation. South Korea, on the other hand, illustrates how methodical, private sector-driven indigenization can foster both technological sophistication and export potential. India's hybrid public-private model, supported by policy tools such as DAP 2020, Srijan, and iDEX, reflects an attempt to balance these lessons: leveraging state support for scale, fostering private innovation, and maintaining regulatory rigor, while avoiding the pitfalls of extreme.

Co-Production Comparisons: Russia and France

Russia has been India's most flexible partner in co-production and licensed manufacturing, particularly during the Cold War and post-Soviet era. Joint ventures such as the Su-30MKI (HAL and Sukhoi), BrahMos missile system, and T-90 tanks illustrate Russia's willingness to allow domestic assembly and technology sharing.[108] However, this flexibility often comes at the cost of modernization pace, quality assurance, and global competitiveness. Compared to the US, Russia's co-production emphasizes sovereignty and independence over deep systems integration or interoperability, leaving India with capable but sometimes outdated platforms.

France presents a different co-production model that blends technology transfer with politically flexible partnerships. The Rafale deal, including Make in India offset obligations, Scorpène-class submarines, and Mirage support programs, illustrates France's willingness to cooperate on sensitive technologies and support joint R&D.[109] French firms often work closely with Indian entities on electronics, propulsion, and aerospace systems, offering mid-tier high-tech collaboration that complements India's industrial base.[110] Unlike the US, France is less constrained politically and more amenable to joint innovation, particularly for platforms that do not require the highest-tier security restrictions.

In comparing India's defense co-production partnerships, Russia and France illustrate different trade-offs. Russian platforms offer operational autonomy but have weaker support chains, lifecycle management, and networked capabilities than US systems; India's emphasis on strategic autonomy, combined with geopolitical risks following Russia's actions in Ukraine, may limit the scope of future collaboration. In contrast, France provides strong

[105] Cole McFaul et al., *Pulling Back the Curtain on China's Military-Civil Fusion*, Issue Brief (Center for Security and Emerging Technology, 2025), https://cset.georgetown.edu/publication/pulling-back-the-curtain-on-chinas-military-civil-fusion/.
[106] Jr Ng,"South Korea Skills Base Broadens," *Asian Military Review*, Aug. 4, 2020, https://www.asianmilitaryreview.com/2020/08/south-korea-skills-base-broadens/.
[107] "US-Korea Technology Prosperity Deal," The White House, Oct. 29, 2025, https://www.whitehouse.gov/articles/2025/10/u-s-korea-technology-prosperity-deal/.
[108] Daniel Markey and David Brostoff, "Friends with Limits: The Future of Russo-Indian Defense Ties," War on the Rocks, April 25, 2025, https://warontherocks.com/2025/04/friends-with-limits-the-future-of-russo-indian-defense-ties/.
[109] Shayesta Nishat Ahmed, "The Rafale Marine Deal: Adding Strategic Depth to India–France Ties," *Manohar Parrikar Institute for Defence Studies and Analyses*, Aug. 12, 2025, https://www.idsa.in/publisher/issuebrief/the-rafale-marine-deal-adding-strategic-depth-to-india-france-ties.
[110] Anirudh Suri, "India-France Technology Partnership: Reshaping the Global Technology Order," NUS Institute of South Asian Studies (ISAS), Aug. 4, 2025, https://www.isas.nus.edu.sg/papers/india-france-technology-partnership-reshaping-the-global-technology-order/.

bilateral ties and targeted technological co-development, supporting domestic capability-building and diversification, but lacks the scale, strategic networks, and interoperability frameworks embedded in US partnerships, limiting India's integration into broader Indo-Pacific defense architectures, multilateral exercises, and long-term industrial ecosystems.

Conclusions

Three key themes emerge at the intersection of India's defense modernization and the US-India relationship. Interoperability and joint capability development stand out as India pursues advanced technologies, testing standards, and theater commands that complement US systems and enable combined operations across the Indo-Pacific. Balanced modernization and readiness define India's effort to upgrade space, maritime, and cyber assets while sustaining immediate deterrence along the Line of Actual Control (LAC) with China, an approach that aligns with US interests in maintaining regional stability. Finally, strategic co-development and industrial partnership, from semiconductors to next-generation defense platforms, links India's Atmanirbhar Bharat and Viksit Bharat 2047 goals with US technology transfer and supply-chain diversification, deepening trust while advancing shared economic and security objectives.

India's defense strategy recognizes that modern warfare is no longer confined to traditional battlefields but is instead a multi-front, interconnected contest spanning land, sea, air, cyber, and space. China's expanding influence in neighboring countries, the transnational reach of globalization, and the rise of proxy conflicts and internal unrest create overlapping theaters of competition. Procurement decisions now emphasize systems capable of networked operations—advanced ISR platforms, integrated command structures, and real-time data sharing—to ensure that India's forces can respond simultaneously to threats along the Line of Actual Control, in the Indian Ocean, and in the information domain. This strategic orientation toward interoperability not only strengthens India's own deterrence posture but also facilitates coordination with partners such as the United States and other Quad members, where common standards and shared situational awareness amplify collective security.

Modernization also demands a careful balance between competing operational needs. India must expand and upgrade the Army's capabilities to deter or repel high-altitude incursions while also addressing underdeveloped maritime forces tasked with securing the Indian Ocean Region, a critical arena for trade and energy flows. Procurement priorities, from indigenous fighter production to naval shipbuilding and submarine programs, reflect the need to avoid over-concentration of resources in any single domain. By coupling army enhancements with investments in blue-water naval power, integrated air defense, and space-based surveillance, India aims to create a flexible force structure that can pivot across environments and sustain readiness without sacrificing long-term modernization.

Underlying these military choices is India's enduring commitment to strategic autonomy, which seeks to avoid overdependence on any one partner while leveraging a diverse network of relationships to enhance security. Proactive diplomacy, deepening ties with the United States, Japan, France, ASEAN states, and even carefully managing dialogue with China, serves to bolster deterrence and create options for crisis management. While not purely a defense modernization initiative, this diplomatic posture feeds back into security policy by shaping access to advanced technologies, supply chains, and joint exercises, while also insulating India from the vulnerabilities of rigid alliance commitments. The oscillating effects of diplomacy and defense planning thus reinforce each other, enabling India to modernize its forces while preserving the flexibility needed to navigate a multipolar strategic environment.

Therefore, India's defense modernization, while aimed at gaining international credibility, must increasingly adopt a global mindset that reflects the scale of its ambitions. India's traditionally transactional, self-interest–driven approach has helped it avoid deep entanglement in foreign conflicts, but the true value of a self-reliant India will depend on its ability to address local, regional, and global security challenges at once. This requires more than building indigenous capabilities; it calls for a defense posture that integrates production, technology, and strategic partnerships with awareness of global supply chains and transnational threats. Ironically, the same pragmatism that sustains India's strategic autonomy now compels a more holistic approach to defense, one that

strengthens domestic resilience while engaging outward to shape the wider security environment.

Recommendations

Strategic Education

Firstly, India should prioritize "importing minds, not arms" by actively creating incentives, research grants, and career pathways that attract top-tier talent to the defense ecosystem while minimizing brain drain. This approach should integrate incoming expertise into a merit-based system that allows the most capable individuals to advance based on skill and contribution, rather than identity or affiliation, ensuring that innovation, R&D, and high-value defense projects fully benefit from a sustained inflow of knowledge and specialized talent.[111]

Military education, academic exchanges, and co-developed research also form a critical pillar of this transformation, fostering strategic leadership, innovation, and long-term trust with partners like the United States.[112] Domestic initiatives, such as the University of Allahabad's collaboration with the Indian Army, aim to integrate academic rigor with operational policymaking through postgraduate and PhD programs, research projects, and strategic conferences. International programs, like the US Army War College's International Fellows Program, further build interoperability, elite networks, and shared strategic culture, ensuring India develops a future-ready defense ecosystem. Attracting global talent, retaining domestic experts, and bridging civil-military knowledge are essential to prevent brain drain, enhance decision-making, and sustain innovation in both technological and doctrinal domains.

US-India cooperation extends beyond equipment procurement to shared learning, operational exercises, and strategic research, reinforcing long-term alignment and regional security capacity. Initiatives such as Exercise Yudh Abhyas and cross-cultural defense forums build interoperability in command, procedures, and operational planning. By prioritizing intellectual indigenization alongside industrial development, India strengthens its defense posture while fostering mutually beneficial capabilities with the US These educational and institutional linkages are not peripheral but central tools of strategic power, supporting future-ready leadership, cohesive doctrines, and a deepening bilateral defense partnership.

India's Defense: Budget and Investment

Next, India should prioritize efficiency-driven defense reform by reallocating existing resources toward operational capability, expanding competitive private-sector and civil-military innovation ecosystems, and streamlining procurement to maximize modernization without relying solely on higher budget allocations. India's defense budget, while growing, remains constrained relative to total GDP, with the oft-cited target of 3% unmet due to structural pressures such as salary and pension obligations. Achieving an optimal balance between quantity and quality is central to modernization: initiatives like the Agnipath scheme, slowed recruitment, and role-rebalancing aim to prioritize operational effectiveness, yet the armed forces also function as a social safety net for rural youth. Any downsizing or force restructuring must therefore be accompanied by clear alternative pathways, civil defense units, infrastructure corps, or disaster management roles, to prevent social backlash. As the Manohar Parrikar Institute for Defense Studies and Analyses (IDSA) notes, the challenge is not solely in increasing allocations but in maximizing the impact of existing resources; simplifying bureaucratic procedures, streamlining procurement, and ensuring funds are efficiently directed toward operational priorities can be as consequential as raising overall spending.[113]

India's strategic R&D hubs and Global Capability Centers (GCCs) are centralizing advanced technology efforts, enabling the development of next-generation platforms and high-value innovations.[114] By leveraging a talent-rich workforce, 28% of the global STEM pool and 23% of global software engineers, India positions itself as an

[111] M. Muneer, "How Identity Politics Can Burn Viksit Bharat," *The Wire*, July 22, 2025, https://thewire.in/communalism/how-identity-politics-can-burn-viksit-bharat.

[112] Tyler Lissy, "Institutional Military Education and Academic Exchanges as a Pillar of Defense Indigenization," Defence24, Sept. 24, 2025, https://defence24.com/defence-policy/institutional-military-education-and-academic-exchanges-as-a-pillar-of-defense-indigenization.

[113] Amit Cowshish, "Creating Conditions for Utilization of Higher Defense Outlay," *Manohar Parrikar Institute for Defence Studies and Analyses*, July 21, 2025, https://www.idsa.in/publisher/comments/creating-conditions-for-utilisation-of-higher-defence-outlay.

[114] "GCCs Upending India's Technology Landscape: Economic Survey 2025," Business Standard, Feb. 1, 2025, https://www.business-standard.com/budget/news/gccs-upending-india-s-technology-landscape-economic-survey-2025-125013101581_1.html.

attractive destination for high-end defense R&D, including AI- and ML-enabled systems.[115] Building off the emphasis on strategic education, expanding India's collaborative programs with academia and industry create ecosystems for technology transfer, FDI-backed joint ventures, and indigenous defense manufacturing, strengthening India's role as a partner in global defense supply chains.

India's defense industrial base faces a critical need for greater competition and diversification, particularly among MSMEs, which must proactively innovate beyond reliance on large government-backed entities or standard procurement schemes.[116] Expanding opportunities for up-and-coming private firms can pluralize the defense landscape, forcing incumbents to compete and preventing consolidation that stifles innovation. Civil-military fusion offers a mechanism to synergize civilian technological capabilities with defense applications, creating dual-use platforms and co-development opportunities supported by the government. Emerging firms like ideaForge, Digantara, and NewSpace Research and Technology illustrate this potential, scaling operations, diversifying product lines, and navigating the realities of India's often slow and bureaucratic defense procurement cycle, highlighting the importance of targeted support and structural reforms to foster a dynamic and competitive domestic defense ecosystem.[117]

India's Defense: Production, Procurement and Acquisition

India should streamline procurement, protect innovators, and align advanced capability development with US co-development frameworks. Under the current system, items listed on the Srijan Defense Portal as "open for indigenization" have their specifications and import details publicly visible, which risks exposing innovators' solutions before they secure contracts or intellectual property rights. To address this, a suggested amendment to the Defense Acquisition Procedure (DAP) 2020 would grant inventors a "first-mover advantage" by delaying or restricting public disclosure of submissions, thereby protecting originality and preventing competitors from copying or undercutting innovations.[118] Such delays would foster a more equitable defense ecosystem by encouraging genuine innovation to address import-specific vulnerabilities while still promoting healthy competition. This refinement to the Srijan portal, along with other pillars of indigenization, was underscored in the recent technology roadmap as vital to strengthening India's defense industrial base.

India's domestic defense innovation, as outlined in the 2025 Technology Perspective Capability Roadmap, creates fertile ground for deepening US-India cooperation by signaling long-term demand for advanced capabilities where the US has both experience and interest.[119] India's emphasis on AI, autonomous systems, directed energy, and space-based technologies directly intersects with American strengths in defense R&D, opening pathways for co-development, joint research, and technology sharing under frameworks like the Transforming Relations Utilizing Strategic Technologies (TRUST). By aligning procurement priorities with next-generation warfare domains, India establishes a roadmap that makes US partnership not just optional, but strategically complementary.

A Permanent Defense Acquisition Review Board (DARB), a late-stage Defense Technology Fund, and shared testing infrastructure in India's defense corridors together offer a coherent pathway to accelerate procurement, strengthen innovation, and deepen US–India cooperation. A standing DARB would enforce timelines and accountability across the MoD, while a targeted tech fund would bridge the "valley of death" between prototypes and production, enabling startups and MSMEs to scale advanced systems. Complementing both, shared certified testing facilities would speed trials and validation for Indian and US partners alike, improving predictability, reducing friction for original equipment manufacturers (OEM), and

[115] Shruthi Tripathi, "Economic Survey: India Accounts For 28% Of Global STEM Workforce, 23% Of Software Employees," Outlook Start-Up, Jan. 31, 2025, https://www.outlookbusiness.com/start-up/economic-survey-india-accounts-for-28-of-global-stem-workforce-23-of-software-employees.
[116] Rahul Wankhede, "Why India's Defence Start-Ups and MSMEs Must Think Civilian Too," *Manohar Parrikar Institute for Defence Studies and Analyses*, May 27, 2025, https://www.idsa.in/publisher/comments/why-indias-defence-start-ups-and-msmes-must-think-civilian-too.
[117] Wankhede, "Why India's Defense Start-Ups and MSMEs Must Think Civilian Too."
[118] Araudra Singh, "Addressing India's Undersea Technological Deficiencies," Observer Research Foundation, Sept. 6, 2025, https://www.orfonline.org/expert-speak/addressing-india-s-undersea-technological-deficiencies.
[119] Saurabh Trivedi, "India Unveils Roadmap to Strengthen Nuclear Deterrence, Drone Warfare Capabilities," India, *The Hindu*, Sept. 5, 2025, https://www.thehindu.com/news/national/india-unveils-roadmap-to-strengthen-nuclear-deterrence-drone-warfare-capabilities/article70016263.ece.

creating a more credible, collaborative, and export-ready defense ecosystem.

There are significant delays in India's defense procurement process, with the stages involved increasing from 11 to 14 between 2002-2020, as well as some procurement timelines stretching up to 106 weeks.[120] Challenges include inefficiencies within technical evaluation committees and difficulties in integrating systems purchased from multiple vendors, which complicates interoperability across platforms. Understanding the full timeline from research and development to actual deployment, illustrated by programs like the LCH Prachand, remains critical for improving procurement efficiency.[121] Future research could focus on optimizing force structure for maximum operational effectiveness over quantity, alongside revisiting offset policies to better align indigenous production capabilities with tangible delivery timelines.

India's Defense Modernization and US Cooperation

The US can encourage India to reduce reliance on Russian defense systems by offering access to core technologies and co-production opportunities, like how Russia historically created dependency through "crown jewel" platforms like fighters, submarines, and missiles. By incrementally providing high-end alternatives, Washington can build influence while supporting India's modernization, aligning with diversified Indian defense partnerships. Unlike supplier-centric approaches that lock partners into proprietary ecosystems, US co-development frameworks emphasize interoperability, joint production, and the strengthening of India's own defense-industrial and operational networks. Export controls and IP regulations, such as ITAR and EAR, currently slow technology transfer, but comparative benchmarks offer a pathway to mitigation.[122] The US already transfers advanced technologies to treaty allies like Israel and France, who in turn supply sophisticated platforms to India. By examining these flows, US regulators could identify areas where restrictions on India may be unnecessarily tight. Framing technology sharing through trusted partners can create a controlled "safety net," reducing risks while ensuring India gains access to competitive systems that enhance its strategic autonomy and reduce Russian dependence. India's technology roadmap offers tangible avenues for US-India collaboration across several high-priority domains.[123] In stealth RPAs, India's focus on UAVs with advanced payloads aligns with US expertise in platforms like the Predator, Reaper, and MQ-9B SeaGuardian, enabling joint development of stealth features, payload integration, and ISR missions in the Indo-Pacific. The Future Ready Combat Vehicle (FRCV), designed to replace India's T-72 fleet with capabilities in human-machine teaming and cyber/EW resilience, opens opportunities for US technology sharing on network-centric warfare, autonomous vehicle teaming, and advanced protection systems. Additionally, India's emphasis on electronic warfare and cyber tools, including AI-enabled EW, anti-drone swarming, and denial bubbles, can be complemented by US capabilities in AI-driven EW and counter-drone systems, fostering interoperability, joint exercises, and coordinated spectrum operations across the region.

India's complex procurement processes remain a structural challenge to realizing the full potential of this cooperation.[124] Delays in acquisition cycles, protracted trial procedures, and frequent underutilization of capital allocations create friction for both domestic and foreign partners. This complicates timelines for US firms used to faster-paced acquisition environments, raising concerns about return on investment and technology security. Overcoming these hurdles, through reforms like the DAP 2020 review, streamlined joint R&D pipelines, and greater clarity on intellectual property protection, will be key to ensuring that India's innovation drive translates into meaningful and sustained US-India defense collaboration.

Maintaining an Indigenous Defense Apparatus

At the same time, India must ensure its defense strategy remains distinctly "Indian," as illustrated by Operation Sindoor, which fused ancient civilizational concepts of śāstra (knowledge) and śakti (power) with modern military action to create a calibrated framework for warfare in a nuclear

[120] Amit Cowshish, "Compressing the MoD's Capital Procurement Timelines," *Manohar Parrikar Institute for Defence Studies and Analyses*, July 29, 2025, https://www.idsa.in/publisher/comments/compressing-the-mods-capital-procurement-timelines.
[121] Cowshish, "Compressing the MoD's Capital Procurement Timelines."
[122] Rahul Manohar Yelwe and Arun Vishwanathan, "Indo-US Defense Cooperation: Punching Below Its Potential," *Journal of Defense Studies* 19, no. 1 (2025), https://www.idsa.in/publisher/journal-of-defence-studies/indo-us-defence-cooperation-punching-below-its-potential.
[123] Yelwe and Vishwanathan, "Indo-US Defense Cooperation."
[124] Ibid.

context.[125] This example underscores how India's strategic culture, rooted in indigenous philosophy and regional realities, offers a unique lens for balancing deterrence and restraint, even as defense procurement and acquisition increasingly draw on Western technologies and practices.

While India possesses vast untapped defense potential, spanning a large manufacturing base, deep tech and cyber expertise, rich resource deposits, and robust international partnerships such as with the US, its drive toward self-reliance requires a sharper distinction between quality and quantity when setting milestones. Declaring target years for achieving major defense objectives should not rest on ambition alone but on rigorous methods such as capability-based planning, transparent benchmarking of procurement and delivery timelines, and stress-testing industrial capacity against real-world constraints. Further analysis of these metrics is essential to craft realistic policy roadmaps, a hallmark of Modi's governance theme, ensuring that timelines reflect achievable progress rather than political aspiration.

Adapting for the Future

India must additionally remain hyper-aware of the "short war" fallacy that Lawrence Freedman cautions, especially in today's global environment where quick, decisive campaigns are often assumed, yet conflicts rarely unfold so simply and protracted wars are politically difficult to sustain.[126] This tension, between unrealistic expectations of speed and the grinding reality of drawn-out conflicts, creates persistent misalignment between military and political objectives. Within a landscape defined by strategic autonomy, counterinsurgency demands, and multiple regional rivals, India's defense planning must therefore prioritize endurance, adaptable force structures, and political resilience over the allure of rapid victories.

India should shape its defense apparatus to balance traditional deterrence, nuclear forces, A2AD, and border security, with forward-looking investments in irregular warfare preparedness, cyber resilience, internal security, lawfare, and strategic influence. Over the next year, five years, and beyond, New Delhi should prioritize building flexible, networked capabilities while remaining keenly aware of how its capabilities are perceived by partners and rivals alike. A steady, credible modernization path, backed by clear communication of intentions, can quietly strengthen India's position vis-à-vis China and Pakistan.

Current Events

Current US-India relations have been marked by volatility, as President Trump's coercive and transactional approach repeatedly turned the partnership into a domestic political issue in India. Trump's use of tariffs, sanctions threats, and confrontational rhetoric disrupted trade negotiations and fueled anti-US sentiment in India, and although defense cooperation continued through exercises like Yudh Abhyas, these pressure tactics ultimately undermined trust and politicized the bilateral relationship in both countries. If US-India relations continue to experience periods of instability, Washington's approach will undermine its own Indo-Pacific goals by pushing India to quietly strengthen its military capabilities and diversify partnerships, ensuring India remains indispensable to regional stability and forcing the US to reengage on India's terms.

[125] Kallol Chakrabarti, "Śāstra and Śakti: An Analysis of Operation Sindoor as a Manifestation of Ancient Indian Strategic Thought," Social Science Research Network, June 9, 2025, https://doi.org/10.2139/ssrn.5286196.

[126] Lawrence D. Freedman, "The Age of Forever Wars," *Foreign Affairs* 104, no. 3 (2025): 108–21.

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