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Buying Is Not Building: The Technology Gap in India-US Defence Ties

 **THE HINDU**

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THE LIFT LINE

A partnership measured in the number of aircraft and rifles bought is a customer relationship, and India's search for a defence future it can call its own begins the day the metric shifts from what it purchases to what it is allowed to make.

WHY THIS EDITORIAL MATTERS FOR YOUR EXAM

Twenty years after the 2005 framework that reset India-US defence ties, the relationship has produced substantial procurement but strikingly little co-development or deep technology transfer. The GE F414 engine deal, meant to power the indigenous Tejas Mk2 through licensed manufacture with HAL, has become the clearest illustration. Reports indicate the estimated per-engine cost rose nearly threefold during commercial negotiations, from roughly Rs 70 to 80 crore to well over Rs 200 crore, while core technologies such as the Full Authority Digital Engine Control are set to stay under the American firm's control even under an agreement promising around 80 percent transfer of technology. The episode matters because it forces India to distinguish between buying capacity and acquiring the ability to build.

GS Paper 2: India and its [bilateral](https://ujjyari.com/vocab/bilateral/) relations, agreements involving India, and effect of foreign-country policies on India's interests. **GS Paper 3:** Defence, [indigenisation](https://ujjyari.com/vocab/indigenisation/) of technology, and developing new technology.

For **Prelims**, hold the specifics: the GE F414-INS6 engine selected for the Tejas Mk2, produced under licence by Hindustan Aeronautics Limited; the roles of HAL, the Defence Research and Development Organisation, and the Aeronautical Development Agency; iCET, the India-US initiative on Critical and Emerging Technology; and its predecessor, the Defence Technology and Trade Initiative, DTTI, launched to spur co-

development. For **Mains**, argue that **strategic autonomy** (<https://ujjayanti.com/terms/strategic-autonomy/>) in defence rests less on the volume of imports and more on control of critical technology, intellectual property, and the industrial capacity to sustain and upgrade a platform through its lifecycle.

BACKGROUND AND CONTEXT

India is among the world's largest arms importers, and the United States has grown into a major supplier, from maritime patrol aircraft to helicopters and howitzers. The political relationship is genuinely close, marked by foundational agreements and a shared strategic outlook on the Indo-Pacific. Yet the industrial relationship has lagged the diplomatic one.

The reason is structural. Buying finished platforms is fast and low-friction, but it leaves the buyer dependent on the seller for spares, upgrades, and permission. Co-development, by contrast, requires the supplier to share design knowledge, source code, and manufacturing know-how, which advanced economies guard closely for commercial and strategic reasons. The engine deal sits exactly on this fault line, because a jet engine is among the hardest technologies to master and India has long failed to build one indigenously, as the troubled Kaveri programme showed.

THE CORE ARGUMENT / ISSUE

The difference between buying and co-developing

Procurement adds hardware to the inventory. Co-development adds capability to the nation. The F414 arrangement, even with a headline transfer figure, keeps the most sophisticated subsystems and the freedom to modify them with the original manufacturer, which limits HAL's ability to independently upgrade the engine over decades.

DIMENSION	BUYING (IMPORT)	CO-DEVELOPING (TRANSFER OF TECHNOLOGY)
What India gets	Finished platform	Design knowledge and manufacturing capacity
Dependence	Spares, upgrades, vendor permission	Progressively self-reliant
Intellectual property	Retained by seller	Partly shared, negotiated
Strategic value	Capacity this decade	Capability for the century

The political-industrial gap

The warmth at the political level has not translated into industrial generosity. iCET was launched to bridge exactly this gap by opening critical and emerging technologies, and DTTI before it aimed at co-production, yet flagship projects have moved slowly. The engine cost escalation and IP disputes suggest that commercial and export-control caution on the American side still outpaces the political ambition.

Why the engine is the test case

An aircraft engine embodies the highest tier of aerospace technology. If India cannot secure meaningful transfer here, its dependence persists at the most critical node of air power. That is why the F414 negotiations are read as a [proxy](https://ujjayanti.com/vocab/proxy/) for whether the partnership can mature from sales to sovereignty.

HOW TO THINK ABOUT THIS (ANALYTICAL FRAME)

Separate the diplomatic relationship from the industrial one, because they can move at very different speeds. A close strategic partnership can still leave a country technologically dependent if the partner protects its crown-jewel technologies. The transferable rule for GS2 and GS3 is that strategic autonomy is a function of control over critical technology and the industrial base, not of the friendliness of the supplier. The examiner rewards the candidate who frames the F414 episode not as a grievance against the United States but as a reminder that indigenisation, sustained investment in DRDO and HAL, and hard bargaining on intellectual property are the only durable routes to defence self-reliance.

THE DIAGRAM IN WORDS

2005 framework resets India-US defence ties -> strong arms procurement follows -> political closeness deepens (foundational agreements, iCET, earlier DTTI) -> but co-development lags -> GE F414 deal for Tejas Mk2 tests the relationship -> per-engine cost rises sharply, core tech (FADEC) stays with vendor -> HAL-DRDO-ADA collaboration constrained by IP and licence terms -> lesson: buying capacity is not building capability -> path to strategic autonomy runs through genuine technology transfer and indigenisation

WAY FORWARD

- 1 **Negotiate for control, not just content.** Government should press for source code, design authority, and upgrade rights in transfer deals, since a platform India cannot modify independently is only conditionally its own.
- 2 **Invest patiently in indigenous engines.** Sustain funding for domestic jet-engine research so that reliance on any single foreign supplier becomes a choice rather than a necessity.

- 3 **Operationalise iCET on defence.** Convert the critical-technology dialogue into concrete co-development projects with clear IP-sharing terms, rather than letting it remain a forum of intent.
- 4 **Strengthen the domestic industrial base.** Deepen the private-sector and HAL-DRDO-ADA ecosystem so that transferred technology is absorbed and built upon, not merely assembled.

PYQ LINKAGE AND PRACTICE

UPSC has asked about India-US relations, defence indigenisation, and technology transfer in strategic sectors. This editorial turns a live procurement dispute into an applied lesson on strategic autonomy, which is the layered analysis the examiner rewards.

Practice question: “In defence, strategic autonomy depends more on control of critical technology than on the volume of imports.” Critically examine with reference to India-US defence cooperation and the challenge of indigenisation. (250 words, 15 marks)

Sources: *The Hindu* (<https://www.thehindu.com/>), *The Wire* (<https://thewire.in/>), *Press Information Bureau* (<https://www.pib.gov.in/>)

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