



Beyond Buyer-Seller

The question is, can the DTTI Deliver?



MEETING OF MINDS India's then National Security Advisor Shiv Shankar Menon and defence secretary R.K. Mathur with the US interlocutor Ashton Carter

IF THERE IS ANY SINGLE PROOF OF the transformation of US-Indian relations since 2001, burgeoning defence ties would stand out as 'Exhibit A.' Since the trying moments after the 1998 Indian nuclear tests — when Indian strategic entities became targets of US sanctions, when Indian weapons systems of US origin lay non-operational because spare parts were denied, and when US-Indian defence trade was minuscule — the flood of interactions that have now become commonplace mark defence cooperation as the cornerstone of the steadily strengthening bilateral relationship.

At one level, this metamorphosis should not be surprising. Both the United States and India face common threats: Islamist terrorism, rising Chinese power, continued nuclear proliferation, and new dangers in the global commons. But despite these persistent

perils, it required a civil nuclear agreement to dramatically seal the evolving strategic collaboration between Washington and New Delhi. The 18 July 2005 joint statement issued by President George W. Bush and Prime Minister Manmohan Singh did just that: by signalling that the United States would now treat India as a valued geopolitical partner rather than as a singular target of its nonproliferation policy, Bush (and, his successor, Barack Obama) declared—to the consternation of many—that the United States was serious about building a new relationship with India.

Defence Cooperation is the Leading Edge

The success of this geopolitical transformation has been manifested most conspicuously in that most sensitive realm of high politics: defence cooperation.

In this domain of engagement, the two sides are marching towards achieving the kind of strategic intimacy last seen in 1962. The record thus far is impressive, even if still incomplete. The most striking successes have been recorded in the area of military-to-military cooperation. The extent of progress is indeed breath-taking, whether measured by the number of military exercises, the frequency of senior defence official visits, or the heightened access to training and education programmes, and exceeds anything India achieved with the Soviet Union during the latter half of the Cold War.

The growing value of US-Indian defence trade—primarily through Indian purchases of US military equipment—is even more remarkable, given the long history of Indian suspicions over the United States' reliability as a

defence supplier. Today and prospectively, the cream of India's strategic and theatre transport fleet, its heavy attack and heavy lift helicopter capability, its naval rotary anti-submarine warfare platforms, and its long-range maritime patrol aircraft will all be US-origin equipment. The United States is also in the process of becoming a supplier of advanced munitions and over time, depending on cost and its willingness to transfer technology, could become India's preferred purveyor for many other sophisticated combat systems as well.

If military-to-military cooperation and defence sales have thus far defined the success of bilateral defence cooperation, two other areas—cooperative defence production and joint research and development—have lagged behind in comparison. That these have been Indian priorities for a long time is not in doubt. In fact, in most cases when India has embarked on major purchases of foreign arms, New Delhi has always insisted on significant licensed production in the hope of acquiring technical know-how that could eventually aid in developing either indigenous capabilities or even substitutes for these foreign systems.

Because the technical knowledge acquired through this process historically accrued principally to India's defence public sector undertakings (DPSUs)—invariably the sole entities involved in licensed production—Indian strategic managers expected that the DPSUs, along with the Defence Research and Development Organisation (DRDO), would contribute towards the creation of an indigenous technology base that could, over time, enable India to become self-reliant in the design, development, and manufacture of most major weapon systems.

This vision, unfortunately, has not yet come to pass. In fact, its very viability is questionable, given the development costs of major weapon systems today in the face of what is still a relatively modest Indian procurement budget, the weaknesses of domestic Indian science and technology, and the insular operating regime that characterises India's state-owned defence research and development complex.

Yet the dream of self-reliance dies hard, but successive governments in New Delhi have attempted to reach for it by concluding either inter-governmental arrangements or agreements with specific foreign entities to assist India in developing particular weapon systems that are deemed to be of national impor-

tance. India has, for example, collaborated with Russia's Rubin Central Design Bureau for Marine Engineering on the development of the INS Arihant, India's first nuclear ballistic missile submarine, and it has an ongoing partnership with the Israel Aerospace Industries (IAI) for developing a new generation of surface-to-air missiles for the Indian Army and Air Force.

While Russia and Israel have been India's longstanding partners in developing advanced weapon technologies, the United States has been conspicuously absent. The reasons for this are not hard to understand—and they are both political and structural in nature. Until very recently, the United States did not consider India to be among its close strategic partners and, hence, had little interest in offering New Delhi access to sophisticated military technologies in any form. Such capabilities were reserved solely for America's closest allies and even when these were transferred, their dispatch was regulated by the end-use monitoring required by US law.

Because the United States is a hegemonic power in the international system, all significant military technology transfers are conditioned fundamentally by an assessment of their impact on Washington's capacity to preserve its unique supremacy, their consequences for global or regional stability, and their benefits for deepening strategic ties with the recipient.

Rarely do economic considerations pertaining to the health of US defence industry enter into the equation. This too is understandable, because the US defence budget still remains larger than the next seven countries combined—China, Russia, Saudi Arabia, France, the United Kingdom, India and Germany—and the acquisition account in this budget is large enough to feasibly maintain the most sophisticated defence-industrial base in the world without an excessive reliance on exports for its survival.

Neither Russia nor Israel nor the European allies of the United States enjoy any comparable autonomy. Therefore, it is not surprising that the continued existence of their defence industry often requires not simply liberal product exports to countries such as India, but even some technology transfer in many instances, if they are to earn the revenue necessary to maintain their own, more modest, defence industrial capabilities in the face of constricted demand from their smaller national military forces. Cooperative endeavours in research and

development, as well as coproduction in advanced military technologies, are thus vital to the survival of niche producers in Russia, Israel, and Western Europe in a manner not similarly true for most major original equipment manufacturers (OEMs) in the United States.

Both politics and economics, therefore, combine to prevent the biggest United States defence conglomerates from partnering with India in cooperative defence production and joint research and development. The former is possible—in fact, even likely—but only subsequent to a significant sale of some military equipment because, in most cases, licensed production may make economic sense primarily in the context of implementing a large contract that includes both 'buy' and 'make' components. Joint US-Indian research and development activities that involve prominent United States OEMs rarely appear viable because—even when US government controls do not intrude—both the tangible and the intangible Indian contributions are never sophisticated or inexpensive enough to warrant pursuing these efforts, especially where truly cutting-edge programmes are concerned.

A New Beginning — But Shifting Aims

Notwithstanding these difficulties, the United States has in recent years made determined efforts to enhance bilateral cooperation with India in the areas of coproduction and research and development. There has been a clear recognition that these two areas have not witnessed the breakthroughs now widely evident in military-to-military cooperation and defence sales. The aforementioned structural factors that have prevented success are also well appreciated, and although they can be neither brushed nor wished away, the Obama administration has made truly valiant efforts to foster meaningful partnership in these arenas.

These labours have not been undertaken primarily because of the material benefits accruing to the United States. In that sense, the US initiative differs substantially from Russian, Israeli, and European calculations: whereas the latter pursue joint development and production both for the survival of their defence industries and for deepening their bilateral ties with India, Washington's exertions are directed principally toward strengthening its strategic partnership with New Delhi. If these efforts help to improve India's capacity for technological innovation in defence

and increase New Delhi's confidence in Washington as its preferred partner of first resort, then the strategic aims of the Defence Technology and Trade Initiative (DTTI) will have been amply served.

Although the DTTI has increased in prominence after President Barack Obama's January 2015 visit to India, when President Obama and Prime Minister Narendra Modi jointly directed their governments "to pursue co-production and co-development of four pathfinder projects, form a working group to explore aircraft carrier technology sharing and design, and explore possible cooperation on development of jet engine technology," the roots of the programme go back to June 2012 when then-US Secretary of Defence Leon Panetta visited India.

As a result of the briefings he received prior to his trip, Panetta concluded that the importance of strong US-Indian defence ties necessitated a new effort to jumpstart bilateral cooperation, particularly where defence sales were concerned. Achieving new breakthroughs would require attention from the senior leadership on both sides, as well as possibly new institutional mechanisms to ensure that any mutually beneficial initiatives were not stymied by the usual bureaucratic roadblocks. Panetta's appointment of his then deputy, Ashton Carter—now Secretary of Defence—as the US lead in this effort would have lasting impact. Working with then-Indian National Security Advisor Shivshankar Menon, the DTTI was born.

Right from the start, this initiative was intended to take US-Indian defence trade to a new level because both sides recognised that Indian purchases of US weapon systems would remain the dominant form of bilateral strategic commerce for some time to come. In this context, the original purpose of the DTTI was simply to find ways of removing the obstacles inherent in the Indian procurement system. It soon became apparent, however, that the torturous acquisition process in New Delhi could not be circumvented by extraordinary solutions, no matter how well intentioned, without damaging the integrity of the procurement system as a whole.

Consequently, while Carter and Menon never lost sight of their ambition to expedite Indian defence purchases from the United States, the organisational challenges of reforming India's Defence Procurement Procedure, which was managed by a ministry then headed by the politically powerful but strategical-

ly inept A.K. Antony, proved extremely daunting. The hurdles here were only compounded by the fact that the Indian National Security Advisor's office was, in actuality, far weaker than it appeared on the outside, thus making any effort to accelerate country-specific defence procurements an even more difficult task.

Given the importance of rejuvenating US-Indian defence commerce in the face of these realities, the DTTI's focus soon shifted from securing rapid, supervised closure of outstanding defence deals to transcending the conventional buyer-seller relationship that had hitherto marked all bilateral military sales. By attempting to push the boundaries of defence trade to something beyond merely purchasing American equipment, the DTTI now sought to appeal to New Delhi's traditional interest in "domesticating" advanced military technology by offering India the chance to participate in collaborative research and development on various new defence systems.

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This overture evoked special interest from the DRDO, which tended to assess DTTI's value mainly in its potential to improve the organisation's own home-grown capabilities. From a DRDO perspective, the DTTI was worthwhile only insofar as it enabled India's domestic development organisations to resolve those knotty technical problems that had prevented them from bringing certain military technologies (or systems) to fruition. In the final year of Prime Minister Manmohan Singh's term, therefore, the DTTI headed towards becoming a cluster of science projects involving various DRDO labs, with the Indian armed services and the ministry of defence itself hovering mainly as bit players.

Under Prime Minister Narendra Modi, the DTTI would further evolve with one additional attribute. While the emphasis on collaborative research and development has survived, the Modi government, consistent with its larger policy of 'Make in India', thinks of the DTTI in a somewhat different way. By all accounts, it appears to be more in-

terested in leveraging this initiative to enhance Indian manufacturing capabilities than it is pure research and development, both to further reduce the levels of Indian arms imports and to increase employment opportunities for the nation's vast young population.

While this progression moves the DTTI closer towards greater coproduction in the future rather than merely collaborative research and development, it only serves to emphasise how this endeavour has evolved since it was first mooted by Washington in 2012. Today, the DTTI commands an extraordinary level of attention and commitment in the US Department of Defence, where it is overseen by the Under Secretary for Acquisition, Technology, and Logistics, Frank Kendall, who collaborates closely with his Indian counterpart, the Secretary, Defence Production, Ashok Kumar Gupta.

In addition, there is a joint DTTI Inter-agency Task Force cochaired by Director of International Cooperation for Acquisition, Technology, and Logistics, Keith Webster, and his Indian counterpart, the Deputy Chief of the Integrated Defence Staff for Perspective Planning and Force Development, Lt. Gen. A. K. Ahuja. The US Department of Defence has also established an 'India Rapid Reaction Cell', which is focused exclusively on advancing the DTTI.

After many years of trading proposals and counter-proposals—Washington originally offered 17 ideas, New Delhi countered with five of its own—the first fruits of this initiative were announced during President Obama's January 2015 visit to New Delhi. In addition to the cooperative efforts relating to jet engine technology and aircraft carrier development, both sides committed themselves to four 'pathfinder' projects: two, involving private US OEMs and the Indian government, pertained to co-developing and coproducing a mini-unmanned aerial vehicle and various roll-on/roll-off modules for the C-130J and other aircraft; and two, which involve government-to-government agreements, are focused on the co-development and coproduction of the US Marine Corps' Mobile Electric Hybrid Power Sources (MEHPS), a technology of relevance to expeditionary operations or military deployments in isolated locations, and the US Army's Next Generation Protective Ensemble (NGPE), essentially protective gear for personnel operating in chemical and biological warfare environments.

These four specific projects are

dubbed 'pathfinder' efforts because they remain, in themselves, relatively modest endeavours. Intended to demonstrate principally "proof of concept," they are viewed largely as test beds to examine whether the organisational, technological, and economic challenges on both sides can be managed sufficiently to permit cooperative development and production to occur on a meaningful scale. If this test is met, this initial quartet of activities can serve as the foundation on which more ambitious endeavours can be pursued.

Assuring the DTTI's Effectiveness

There is little doubt that both Washington and New Delhi have expended a great deal of leadership energy and resources to get the DTTI off the ground. Especially in the US government, given Secretary Carter's role in its origination, the DTTI has come to be viewed as the principal avenue through which the United States can stay engaged in aiding India's defence modernisation beyond the simple sales of military equipment. Assuming that the four current projects succeed on all counts over time, the question of whether the DTTI can ever progress to the point where it begins to approximate the kind of collaboration now witnessed between India and Israel or India and Russia then becomes central.

Attempting to answer this question requires, once again, an appreciation of the specific challenges that must be overcome in both Washington and New Delhi if the DTTI is to yield fulsome rewards in both joint research and development and coproduction over time. In this regard, a good place to start is by examining the nature of the defence industrial environment in the United States today.

Unlike the situation obtaining prior to World War II, when the US government fostered partnerships with academia and industry to produce the innovations that shaped the course of both that conflict and the Cold War that followed, most cutting-edge technologies in the United States today are incubated in the private sector. While foreign access to the militarily-relevant subset of these products is controlled by the US government through the export control system, the intellectual property rights to these goods are owned solely by their creators who, more often than not, are private entities.

In such an environment, the US government can, in the first instance, nur-

ture more ambitious partnerships with various Indian entities under the auspices of DTTI by reaching out to national entities that are ordinarily under its control, such as the national laboratories, the Defense Advanced Research Projects Agency, or the research laboratories associated with the armed services. All too often, however, the technologies emerging from these sources are either exploratory or highly protected, thus making them poor candidates for joint research and development activity with any foreign country, including some of the United States' closest allies. There are indeed residual activities that lie outside these two categories, but it is unclear whether participation in such ventures would be of interest to India given their distance from the engineering and manufacturing development phase or their low impact on industrial employment at home.

The defence technologies produced by private entities, which include the major US OEMs, are often highly protected as well, usually because of their technological pittance. But even when export controls are not at issue and the US government is willing to solicit the participation of major US defence companies in activities like the DTTI, it is unlikely that enterprising firms would seek collaboration with India during the advanced or engineering development phase of any major system. In part, this is because the vast disparity in the American and Indian technological frontiers acts as a deterrent to US firms inviting Indian participation, except in some very narrow and select areas.

Therefore, if meaningful joint research and development, especially of significant combat systems, is to occur in the future, it will take place only if US OEMs can expect major cost or technological benefits from such activity, or if the collaboration eventuates in products that will be subsequently purchased by India's ministry of defence through sole-source arrangements.

In other words, because private companies are at the leading-edge of most defence technology innovation in the United States, their willingness to collaborate with various Indian counterparts will be determined fundamentally by the effect of such activities on their bottomline. Since cooperation with Indian partners is unlikely to produce a better or cheaper technology in comparison to what private American companies can produce autonomously, the only incentives to engage in such

collaboration derive from the prospect of enjoying assured, enlarged markets down the line. This same logic motivates Israeli participation in the current Indian surface-to-air missile programme, as it does the Russian involvement in the supposed joint development of the fifth-generation fighter.

Because India's defence procurement procedures currently require US companies participating in the DTTI to subject even their collaborative products to multi-vendor competition as a precondition for any large-scale purchase, few US companies are tempted to participate in such a venture. This regime, then, leaves India with only suboptimal choices: pay to jointly develop a given technology—assuming its US partners are willing—while bearing all the subsequent production, acquisition, and deployment risks independently; or settle for low-end technology development with US OEMs, who might engage in such activities either for reasons of public diplomacy or to satisfy offset obligations that cannot be discharged in any other way.

Unless the Indian government, therefore, changes its procurement policies to permit sole-source purchases of systems developed under the aegis of DTTI, the marginal profits deriving from purely collaborative research and development—when coupled with the high risk of losing out in what are often erratic multi-vendor competitions in India—will leave the most sophisticated US defence companies reticent to engage deeply with New Delhi.

If India reforms its procurement procedures in the manner indicated, however, the symbiotic aim of coproduction would also be satisfied concurrently. Most providers of advanced technology are willing to consider coproduction of some subset of the contracted purchase if it makes economic sense and if their intellectual property is suitably protected. Thus, for example, almost every Indian purchase of advanced Western technology in significant numbers, including for example, the Anglo-French Jaguar, has been satisfied through a combination of both direct transfers and coproduction in India. Even the small number of C-130s purchased by the Indian Air Force will similarly include components manufactured in India.

The important issue that is often confused in Indian deliberations with respect to coproduction is "coproduction for what?" Most Indian policymakers somewhat casually assert that copro-

duction is essential for ensuring the transfer of advanced technology. While meaningful technology transfer can indeed occur through coproduction, this is often not the case. The history of licensed production of Russian combat aircraft in India bears this out amply. Although Hindustan Aeronautics Limited has “coproduced” Russian Mig-21s, Mig-23/27s, Mig-29s, and Su-30s in India for many decades, and although these programmes have undoubtedly raised the technical competence of India’s defence industry, it would be hard to claim that they have actually enabled India to develop the advanced aeronautical systems that its ambitions demanded.

Because coproduction often involves the domestic integration of various sub-systems, assemblies, modules, and components that are imported from abroad, licensed production invariably transfers know-how, but not necessarily know-why. Even the transfer of know-how, however, can have positive effects on training, employment, and income growth, which can occur without any significant transfer of technology that enables a country to domesticate intangible knowledge—that is, internalise the engineering expertise necessary to first reproduce an artifact, then adapt it, and finally create new designs altogether.

If India seeks to coproduce military technologies in order to meet economic objectives such as employment and income generation—clearly, one of Prime Minister Modi’s key goals—then its interests would be well served by simply ensuring that all sole-source contracts emerging from DTTI activities have a substantial manufacture- or assemble-in-India component. If India, however, seeks to rapidly move up the technology proficiency ladder, then the DTTI project route is probably a suboptimal solution. This is because the projects likely to be undertaken under this rubric, as well as other similar activities with France, Israel, and Russia, will remain, for some time to come, small in number and modest in value relative to the huge task of technical transformation that confronts India.

Given this fact, rapidly pushing the Indian technology frontier outwards is not an easy task, and it cannot be achieved under present conditions simply by injections of advanced technology from abroad. Rather, the slow climb up the technology proficiency ladder requires the creation of an entire market-driven ecosystem which integrates improvements in education, increases in research

quality and output, expanded outlays on research and development, institutionalisation of quality control, and upgraded physical plants and infrastructure. The experience of new technology entrants in the postwar period demonstrates that governments have had a critical role to play in this process, but the discipline of the market—even if closed externally—was vital in every case.

The tragedy of India’s technological retardation is that it has been a natural consequence of possessing weak internal markets that are also limited in their connectivity with the global value chains that dominate most high technology trade today. The solution to raising Indian technological proficiency, accordingly, cannot lie in compelling some modest technology flows through bilateral solutions such as the DTTI. Rather, it must centre on accelerating the liberalisation of the Indian economy to create a national innovation sys-

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tem in defence that draws upon India’s comparative advantages and expands the role of its private sector, while simultaneously transforming those resources through the fullest exposure to international capital, expertise, and technology.

The Modi government’s reluctance to permit complete freedom for foreign direct investment in defence is, consequently, confounding—and the rationales offered for the continued ceilings in this sector lack economic sense. If India seeks to dramatically expand employment and income growth through domestic defence manufacturing, while at the same time improving its technological capabilities, it must entice foreign firms to physically invest in India. The commodities produced can be targeted either at domestic or foreign markets, but unless India progressively integrates itself into the global defence supply chain, either by improving the competitiveness of its domestic defence industry or by exporting defence goods produced in India by foreign OEMs, it

is unlikely to reap the employment and technological gains it seeks.

No major international defence company is likely to invest in manufacturing in India if it does not possess the controlling interest that permits it to make strategic decisions and protect its intellectual property rights. The Indian government’s current caps on foreign direct investment in defence, accordingly, ensure that no global major will physically enter the Indian market for some time to come—to the detriment of the competitiveness of its national firms, the improvement of India’s technological performance, and the domestic employment and income gains that Prime Minister Modi so desperately yearns for.

Moving Forward, Smartly

If the DTTI, therefore, is to advance the critical Indian objectives of equipping its armed services with the best military technologies that can be jointly developed with the United States, helping to shift the Indian defence technology frontier outwards, and paving the way for India’s emergent defence industries to become relevant outside its own frontiers, the current approach to bilateral defence industrial cooperation will have to be reformed in at least two ways: enabling the sole-source acquisition of jointly developed items, and undertaking a comprehensive reform of India’s defence industrial policy to create effective internal markets, enlarge the scope of private sector participation, and incorporate foreign investments, expertise, and technology in tandem.

In the meanwhile, as India contemplates these substantial reforms necessary to enhance the DTTI’s effectiveness, neither Washington nor New Delhi should lose sight of the two other cooperative endeavours initiated by President Obama and Prime Minister Modi. By ambitiously implementing the jet engine and aircraft carrier technology sharing and design efforts, Washington will not only have aided New Delhi in developing these high-profile, high-leverage strategic capabilities, but it will also have compensated for any infirmities that still afflict the DTTI in Indian eyes. Satisfying both these objectives would provide further proof of the stated US intention to assist the rise of Indian power—to the benefit of both nations in this new century. ■

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