



A bright future for India's defense industry?

The stars might be aligning for India's defense sector. Here's what the government and industry can do to seize the moment.

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India's defense industry, which has grown substantially in recent years, seems headed for even better days. Growth in domestic demand should continue to be robust, the government has a clear vision for an indigenous defense industry, the country's attractiveness to global defense companies is rising due to shrinking global defense budgets, and there is tremendous export potential in engineering services and component sourcing.

The way forward is not without some significant obstacles, however. In particular, the government's new purchasing procedures must prove their mettle, and broadening and shifting the nation's strategic alignments will be challenging. For their part, defense firms

will have to learn to manage some uniquely Indian requirements.

To build tomorrow's industry, India's Ministry of Defence and its contractors might look to mature markets such as France and the United Kingdom, as well as to developing markets such as South Korea, and apply some of the ideas pioneered there. One essential move is to decide on core capabilities and focus efforts on building these in India. Other steps include improving the talent market, building skills in the government and private companies, and ensuring open and inclusive access to defense markets.

If the government and its partners embrace the challenge, India in 2020 will have a vibrant



industry capable of meeting not only its domestic needs but also the needs of other nations. That would give India a greater degree of self-reliance, of course, and contribute to a stronger trade balance and substantial job creation.

A decade in review

India’s defense market saw robust growth over the past decade. Government capital spending quadrupled from \$3 billion in 2000 to \$12.2 billion in 2010.¹ By this measure, India was the sixth-biggest spender on defense worldwide from 2000 to 2010.

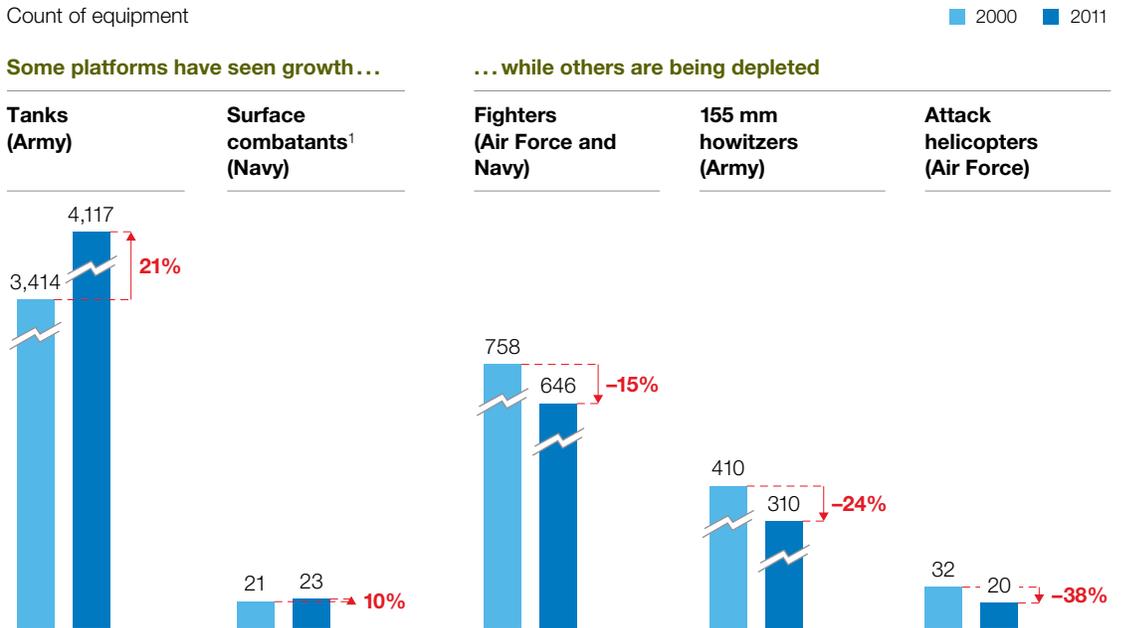
Most capital spending was done through inter-governmental purchases, which are typically

noncompetitive, bilateral agreements. These accounted for approximately 70 percent of the total from 2000 to 2010. India increasingly looked beyond its traditional supplier, Russia, for weapons procurement and began to include France, Israel, the United Kingdom, and the United States in the mix. However, even with increased purchases, equipment levels in several key categories have declined over the last decade due to rising obsolescence and delayed procurement (Exhibit 1).

These intergovernmental purchases often include a significant role for defense public-sector undertakings (DPSUs)²—Indian companies that are licensed to produce the contracted equip-

Exhibit 1

Inventory has declined for several platforms.



¹The surface-combatants category includes destroyers, frigates, and corvettes, but not submarines.

Source: *The Military Balance*, The International Institute For Strategic Studies, 2000 and 2011 editions

Exhibit 2

The Defence Procurement Procedure, or DPP, guides standard procurement.

Indian defense purchasing includes 3 components

	Description	Requirement
1 Standard procurement (DPP)	<ul style="list-style-type: none"> Forms the basis of most capital purchases to ensure the best quality at the lowest price Includes 4 types of contracts¹: buy, buy and make, buy and make (Indian), and make Upgrades are available to get classified in 1 of the above categories 	<ul style="list-style-type: none"> Indigenous content can offset requirements in other contracts
2 Intergovernmental agreement	<ul style="list-style-type: none"> Includes procurement from friendly countries for geostrategic advantage and based on intergovernmental agreement: <ul style="list-style-type: none"> Equipment purchases that benefit Indian armed forces but are based on suppliers' contracting practices Procurement of in-service platforms 	<ul style="list-style-type: none"> Not required to meet DPP Deals could be negotiated to include offsets for DPP
3 Strategic deals	<ul style="list-style-type: none"> Includes procurement driven by strategic partnerships or major diplomatic, political, economic, technological, or military benefits 	

¹“Buy” includes equipment purchases that are put to a tender that is either global or limited to Indian vendors. In “buy and make,” a contract is awarded to a foreign vendor; some procurement is from outside India, but equipment is produced or manufactured in the country. In “buy and make (Indian),” a contract is awarded to an Indian vendor; some procurement is from outside India, but equipment is produced or manufactured in the country. In “make,” systems are designed, developed, and produced indigenously.

Source: Defence Procurement Procedure, 2011, India Ministry of Defence; McKinsey analysis

ment. For example, a large proportion of the Indian Air Force’s fleet of Russian Sukhoi Su-30 MKI fighter jets was manufactured under license by Hindustan Aeronautics Limited (HAL) in India through the transfer of designs and subsystems from the Russian original-equipment manufacturer (OEM). DPSUs also undertake new development; they have, for example, created Agni and Prithvi missiles and Arjun tanks. Currently, DPSUs are the only defense firms with a sizable presence in the country, and they are highly vertically integrated, a factor that weighs against the development of an elaborate base of defense suppliers.

However, growing demand has attracted many new industry participants—Indian firms such as Larsen & Toubro, Mahindra, and Tata, as well as global “primes” and OEMs such as BAE Systems, Boeing, and Israel Aerospace Industries. These companies have started to build market positions in air, land, naval, and communication systems. While this development could make the industry more dynamic, it has not yet significantly altered the industry’s structure, which remains tilted toward DPSUs.

An important development in the last decade was the creation of the Defence Procurement

Although progress from the Defence Procurement Procedure was modest at first, it has picked up in recent years; approximately \$4.3 billion worth of offset contracts have been signed and launched since 2007.

Procedure (DPP) in 2002; it has since seen many revisions and amendments. The objectives of the DPP are to bring structure and transparency to procurement and to build the capabilities of India's nascent defense industry through offset obligations—requirements that contractors source the equivalent of 30 percent of the foreign-exchange value of the contract from Indian defense suppliers (Exhibit 2).

DPP has been in place for about ten years, and though progress was modest at first, it has picked up in recent years; approximately \$4.3 billion worth of offset contracts have been signed and launched since 2007, most by India's Air Force. As noted, most of India's purchases are from other governments and thus are not eligible for DPP. That said, procurement seems to be shifting toward a DPP-led competitive process. The recent deal for medium multirole combat aircraft (MMRCA), under negotiation with Dassault for the company's Rafale jets, is a good example of an at-scale order (approximately \$10 billion) put out for competitive bid. While this is a good sign for the program, all things considered, it is still too early to judge DPP's impact in driving efficiency in the procurement process.

The next phase of growth

We expect India's \$12 billion defense market to continue its strong growth trajectory through 2020.³ By that time, capital-equipment spending is expected to reach between \$18 billion and \$20 billion⁴—the second-highest growth rate among the top 15 countries ranked by defense spending. India will continue to be a large net importer of defense hardware; indeed, its import intensity will continue to be one of the highest among countries that procure at similar levels.

India's domestic demand likely will be set by five factors:

- Changing geopolitical scenarios on India's borders may necessitate continual augmentation of its defense equipment.
- New procurement will be necessary to replace obsolete equipment and to reach inventory levels required for combat readiness.
- Internal security requirements will likely drive demand for homeland-security equipment.
- Strong underlying economic growth would allow for increased government spending on defense.

- The entry of new companies in the market would increase competition and innovation, further driving growth.

Put it all together, and India's spending will total approximately \$150 billion⁵ in the short term (Exhibit 3). Naval platforms will account for the

largest share, driven by the need to augment the depleted strength of equipment (particularly submarines and aircraft carriers) and by the new strategic naval mandate for "blue water" capabilities, which will require nuclear submarines, additional aircraft carriers, and landing platforms.

Exhibit 3

Platform spending will likely total nearly \$150 billion by 2017.

		Potential spending, ¹ \$ billion	Main orders expected
Air	Combat/trainer	26.3	Medium multirole combat aircraft and other fifth-generation aircraft, Mirage upgrade, MiG-29 upgrade, Jaguar engine upgrade, basic trainer
	Support	15.8	Transport aircraft, aerial tankers, long-range maritime patrol aircraft, midrange maritime reconnaissance aircraft, Phalcon AWACS, ² mini AWACS
	Rotary	9.1	Light-utility helicopters replacing Chetaks for Navy, multirole helicopters for Navy, attack, heavy lift, light utility, light combat
Land	Fighting vehicles	15.8	Arjun main battle tank (MBT), T-90 MBT, light tank, futuristic infantry combat vehicle
	Artillery	4.2	155 mm towed guns, 155 mm ultralight guns, 155 mm self-propelled tracked guns, 155 mm self-propelled wheeled guns
	Missiles	3.4	Javelin antitank guided missiles, CBU-105 sensor-fuzed weapon, short- to medium-range surface-to-air missile, Agni-V, MICA
	Infantry systems	1.1	Futuristic Infantry Soldier as a System (eg, weapons, helmet, visor, clothing)
Sea	Surface combatants	20.8	Aircraft carrier: Project 71; destroyer: Project 15B; frigate: Project 17A and 17B; corvette: Project 28A
	Submarines	46.7	Nuclear: Arihant follow-on, Scorpene, Project 75I, special, midget
	Support	4.1	Landing platform dock, landing ship tank, landing craft utility
C4ISR³		0.3	Navy 3-D radar, radar-jamming integrated electronic warfare systems

¹Total includes \$1.1 billion of infantry equipment not detailed in the chart.

²Airborne warning and control systems.

³Command, control, communications, computers, intelligence, surveillance, and reconnaissance.

Source: Literature search; McKinsey analysis

Exhibit 4

Offsets could spur growth.

Defense spending eligible for offsets through 2017, estimated, \$ billion



Source: Defence Service Estimates, India Ministry of Defence; *Economic Survey 2009-2010*, India Ministry of Defence; *Report of the Thirteenth Finance Commission (2010-2015)*; Union Budget of India, India Ministry of Finance; McKinsey analysis

Upgrading the Indian Air Force's capabilities will drive the second-largest portion of spending. The Air Force plans to increase its "eyes in the sky" by acquiring airborne warning and control systems, augment its strategic and tactical lift capabilities by strengthening its transport fleet, and acquire new fighter platforms such as MMRCA and fifth-generation aircraft. Land forces are primarily looking to acquire tanks, combat vehicles, and artillery, and they are building a network-centric infantry through the Futuristic Infantry Soldier as a System program.

In addition to these big procurement programs, offset obligations under the DPP could become an opportunity worth \$10 billion to \$20 billion for the domestic industry, based on the current order pipeline (Exhibit 4). As noted, the basic intent of the offset policy is to build a domestic defense-manufacturing base. The most recent amendment to DPP,

made in July 2012, added multipliers for the offset credits created in deals with micro-, small, and midsize enterprises and for the acquisition of specific technology by the Defence Research & Development Organisation. New rules also add homeland- and coastal-security equipment to the list of eligible products and services and offer more time for contractors to bank their offset credits.

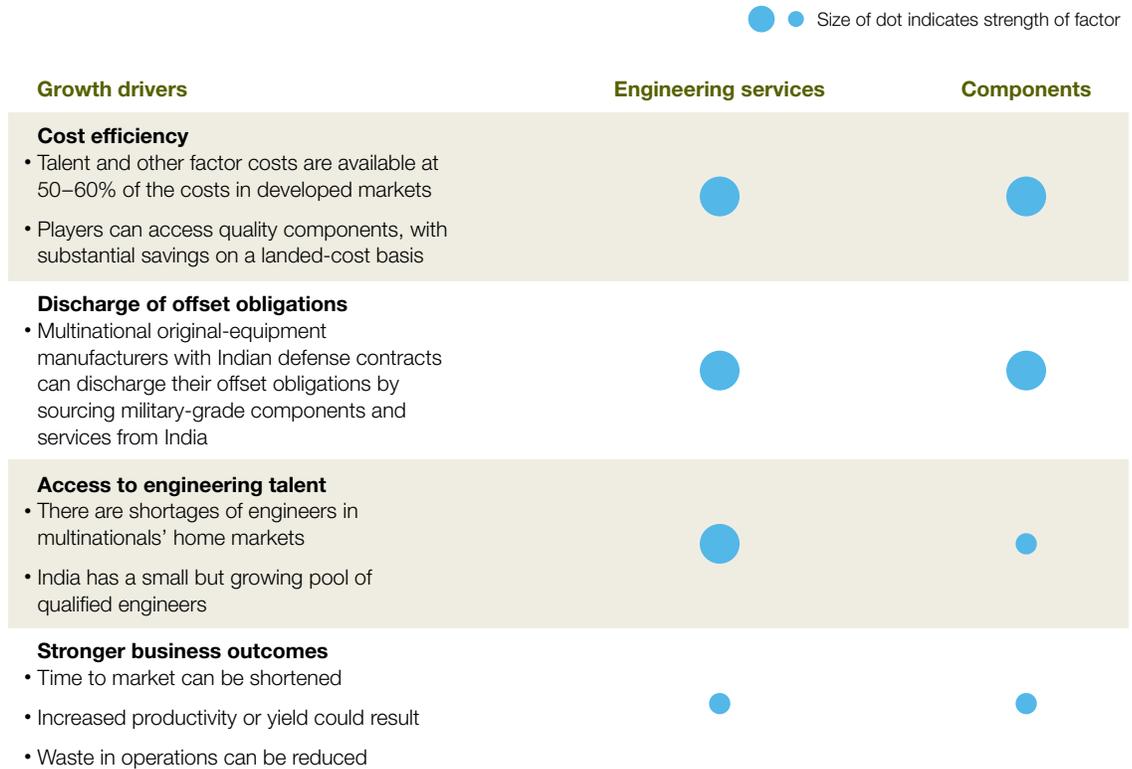
Uniquely Indian requirements

Taken together, these programs provide a significant opportunity to industry suppliers. In addition to operational and commercial strengths, capturing the opportunity successfully will require a strategy that is informed by awareness of three essential characteristics of the next wave of Indian defense spending.

First, in the next three to five years, most of the big contracts announced in recent years will be awarded, providing a window of opportunity to

Exhibit 5

Cost savings and discharge of offset obligations will likely boost a nascent export market.



suppliers. This will represent an upswing in India's strongly cyclical defense demand, and it is a rare and perhaps unique exception to the downturn in the global aerospace and defense market, which many expect to persist for at least the next few years.

While Indian procurement is cyclical, it is also uneven—a second characteristic. Large programs are often slowed by contracting challenges. Smaller programs will likely move through the process relatively quickly.

Finally, intergovernmental orders are likely to continue to account for most spending, although they may become less common.

The beginnings of an export market

The domestic industry seems poised for another period of rapid growth. Moreover, India has the potential to become an attractive destination for governments and companies around the world that need engineering services and components. Collectively, these opportunities could total \$6 billion to \$10 billion by 2020⁶ (of which we estimate \$2 billion to \$4 billion will be for engineering services and \$4 billion to \$6 billion for components).

Both opportunities leverage two of India's key advantages: its lower cost base for manufacturing and its small but growing pool of skilled engineers (Exhibit 5). Shrinking defense budgets

in Western countries and the resultant pressure on OEMs to “do more with less” could make India’s low-cost manufacturing and labor services more attractive. And engineering-services sourcing and component sourcing can be used to fulfill offset obligations for multinational firms that win big weapons contracts.

The preferred business model for engineering services will likely be captive centers of competence and joint ventures due to the strategic and intellectual property-intensive nature of the work. A few examples have already emerged—these include a captive unit of Safran, a French defense major; BAeHAL, a joint venture between BAE Systems and HAL; and an engineering-services partnership between Rolls-Royce and Tata Consultancy Services.

For component sourcing, India could draw on its strengths in the auto-components industry and target three sets of components: highly varied, low-volume, and skill-intensive parts, such as aerostructure components and armor plates; those that require a higher degree of engineering, especially manufacturing engineering, such as complex castings, forgings, and fabricated parts; and components with embedded software,

such as communication and navigation electronics. A few examples are already emerging in this field; Tata and Boeing have partnered to produce defense-related aerospace components, and Tata and Sikorsky have teamed up to assemble Sikorsky S-92 helicopter cabins for civil and military use.

For the export dream to come true, some critical supports are needed—especially talent availability, infrastructure, and sound regulation. India will have to build its stocks of aerospace and defense expertise: although India is one of the world’s largest producers of engineers (about 350,000 per year), only 4,000 or so are aeronautical experts. In addition, the government could help pave the way for the required infrastructure to be built quickly by putting enabling policies in place, and export approvals must be more readily forthcoming.

A third, smaller export opportunity merits a mention: the chance to sell to countries with requirements similar to India’s. The nation currently has defense-supply relationships with smaller South Asian countries such as Bhutan, Nepal, and Sri Lanka. Other emerging markets also beckon; for example, India recently



supplied Dhruv helicopters, designed and manufactured by HAL, to Ecuador. The key to unlocking these markets is to deliver the right quality of platforms, of the right “vintage” (that is, one, two, or three generations behind the leading edge), at a disruptive price point. It is here that India, with its record of frugal engineering, could have a unique advantage.

2020: Toward a sustainable industry ecosystem

India is in an unusual and perhaps unique position to build a vibrant local defense-industry ecosystem that could support both domestic and export demand, yielding material benefits to the industry and the nation. Self-reliance is the sine qua non in defense, in India and elsewhere, and developing a vital industry is a big step in that direction. Today, the country makes huge

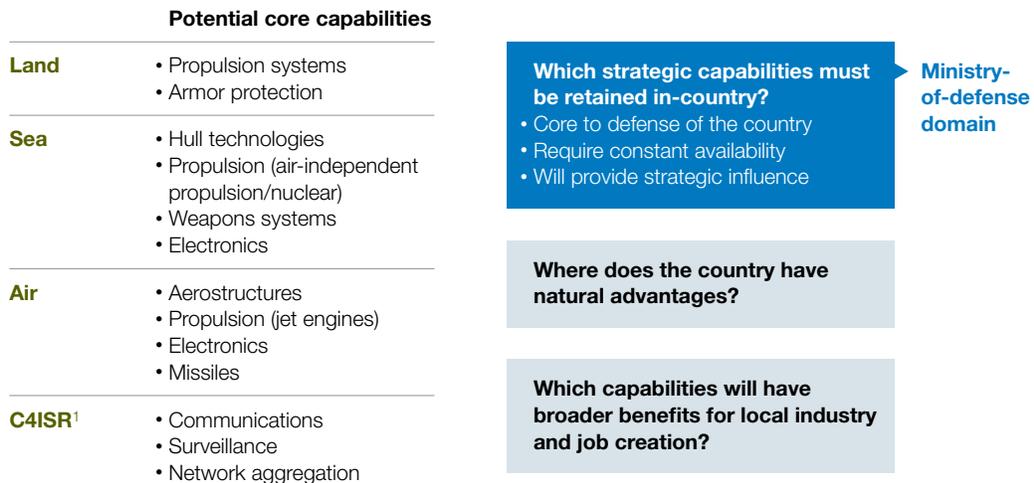
payments for equipment imports; a vital domestic industry could right this trade imbalance. And a thriving industry will create jobs in both manufacturing and engineering services.

So the goal is worthy. But how can it be achieved? As India sets out, it can look to other countries whose defense markets were once at a similar stage of evolution and later went on to build a robust domestic industry. France and the United Kingdom did it some time ago; Israel and South Korea are doing it now. Most of these countries made five moves.

Choose core capabilities. Successful countries made explicit choices about competencies and capabilities for their domestic industry, based on their strategic needs and operational requirements (Exhibit 6). Some of the elements

Exhibit 6

Successful countries made explicit choices on core military capabilities to develop themselves, and they procured the rest.



¹Command, control, communications, computers, intelligence, surveillance, and reconnaissance.

India is in a position to build a vibrant local defense-industry ecosystem that could support both domestic and export demand.

that might guide these choices include the desired level of readiness of a country's forces and the desired vintage of weapon systems.

Accelerate capability building. Once capabilities were chosen, these countries took steps to speed up their development. One common move was to shape procurement procedures, in particular highly specific offset policies, to encourage capability building in their chosen domains. For India, that may mean further revisions to the DPP.

Enable the optimal industry structure and conduct. Successful countries established a level playing field for all industry participants, including global OEMs, domestic private players, and government-owned defense entities. Some did this by raising limits on foreign direct investment. Equality of opportunity makes market participation more attractive for multinationals, which can invigorate the local industry with world-class practices, processes, and technologies.

In this context, the restriction that limits foreign ownership of Indian defense entities to 26 percent could be viewed as a bottleneck by multinationals, which naturally want to ensure appropriate controls on the flow and use of their intellectual property by partners. The current foreign-direct-investment policy does allow for a higher ownership percentage,

to be determined on a case-by-case basis; however, most recent proposals have been denied. Defense is a strategic sector—there is none that is more so—and governments need to ensure proper checks and balances before opening it up to foreign participation. At the same time, India might also weigh the considerable benefits of foreign participation, including access to state-of-the-art technology, to ensure that the domestic industry's desired progress is not delayed.

Improve procurement processes. Successful countries rationalized their procurement processes to ensure simplicity, clear accountability, and speedy decision making.

Drive a performance orientation in government defense entities. These countries invested in their defense ministries and other groups, transforming several key agencies to support the market's requirements.

A balancing act

India's journey to a world-class defense industry has begun, but for the foreseeable future, it is likely to remain one of the largest importers of defense hardware in the world. As such, it is already diversifying its supplier base, courting countries such as France, the United States, and others while also seeking to maintain close ties with its long-term trusted supplier, Russia.

India's close strategic relationship with Russia (and earlier with the Soviet Union) was bolstered by its partner's willingness to share top-of-the-line platforms and technologies. Over time, India expanded its base to countries like France and Israel, again driven by their willingness to share the desired platforms and technologies. Of late, India has had some issues with its suppliers related to prices, availability of spares, and so on; as a result, it is again expanding its supplier pool. India is now exploring possibilities with some Western countries, particularly the United States.

These are early days for India's expanding network of defense relations. The country's movements will be guided by changes in its geopolitical situation, especially as India builds deeper relationships with countries such as France and the United States and sees how these countries fare as trusted suppliers. These movements have the potential to spark substantial changes in India's strategic relationships and ultimately in the balance of trade in the global defense industry. Will supply relationships with countries such as France and the United States serve to strengthen India's political ties with Europe and America?



Will India emerge as a defense exporter in its own right? What would this mean for India's role in the region and beyond? The next decade of development bears watching.



Already, India's defense sector has picked up some best practices, for instance, giving initial form and shape to a structured procurement process and putting in place an offset program. The government is continually refining and reforming this procurement process and fine-tuning its requirements to reach best-in-class performance. It is an arduous task; there is much to do and little time in which to do it. But the benefits are compelling, both for India and the defense

companies chasing the opportunity. As the journey unfolds, it will no doubt offer useful lessons for other countries at the start of their own journeys to self-reliance in defense. ○

¹To convert India's accounting terms to those used elsewhere, fiscal year 2001 government-expenditure numbers are presented as 2000 numbers; similarly, fiscal year 2011 numbers are presented as 2010 numbers.

²Defense public-sector undertakings include BEML, Bharat Dynamics Limited, Bharat Electronics Limited, Goa Shipyard Limited, GRSE, Hindustan Aeronautics Limited, Hindustan Shipyard Limited, Mazagon Dock Limited, Mishra Dhatu Nigam Limited, and Ordnance Factory Board.

³Estimates based on data from Teal Group Corporation and several government sources including Defence Service Estimates, the Ministry of Defence, the Finance Commission, the Union Budget, and the Economic Survey.

⁴In real terms, using constant 2010 prices.

⁵Representing all known programs, including some recently ordered but not yet fully delivered.

⁶In real terms, using constant 2010 prices.

