

# Issue

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# Brief

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# India's Defence Industry: Achievements and Challenges

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### Abstract

Prime Minister Narendra Modi's government has launched many reforms under the 'Make in India' and 'Atmanirbhar Bharat' initiatives to strengthen India's moribund defence industry. These reforms have led to some visible improvements, as evidenced by increased defence production and exports, and a large bank of in-principle government approvals for future domestic production. However, several challenges persist that require urgent attention. In particular, efforts must be made to scale up defence production to at least match the procurement budget of the armed forces to minimise direct imports. The research and development capacity of the industry needs significant improvement to reduce the dependence on external sources for technology and input materials. The government must also expedite its procurement decision-making cycle to quickly translate the reform measures into actual production and delivery.

Since assuming power in 2014, Prime Minister Narendra Modi's government has made a determined attempt to strengthen the Indian arms industry and transform the country's image from the world's largest arms importer to a major exporter of defence equipment. To realise this goal, the government has announced many reform measures under the 'Make in India' initiative and '*Atmanirbhar Bharat Abhiyan*' (self-reliant India mission). These measures cover virtually every facet of the Indian defence economy, spanning structures, acquisition processes, industrial regulations, and budgetary provisions. The government is optimistic that the reform measures will act as a catalyst and help the domestic industry meet the government's vision of achieving a production target of INR 1,750 billion (US\$26 billion)—including exports of INR 350 billion (US\$5 billion)—by 2025.<sup>1</sup>

This issue brief<sup>a</sup> examines the performance of the Indian defence industry by assessing the key reform measures announced over the past decade. It also assesses the significant challenges the Indian defence industry faces on its path towards self-reliance. Essentially, it seeks to answer two crucial questions: To what extent has the government's goal been realised? What are the challenges facing the Indian arms industry, which has historically been considered a laggard?<sup>2</sup>

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# Indian Defence Industry: Key Players

Public sector entities have historically dominated the Indian military-industrial complex, though emerging private players are slowly gaining ground. The public sector has dominated production and research and development (R&D). The major entities in the production domain are the 16 defence public sector undertakings (DPSUs), seven of which were converted out of the erstwhile ordnance factories (OFs), effective October 2021.<sup>b</sup> These DPSUs function under the administrative control of the Ministry of Defence (MoD).

Of the nine old DPSUs, four—Mazagon Dock Shipbuilders Limited, Garden Reach Shipbuilders and Engineers, Goa Shipyard Limited, and Hindustan Shipyard Limited—are dedicated shipyards responsible for the construction of various types of warships for the Indian Navy and Coast Guard.<sup>3</sup> Each of the remaining five old DPSUs has a specific domain expertise: Hindustan Aeronautics Limited (aircraft), Bharat Electronics Limited (electronics), Bharat Dynamics Limited (missiles), Mishra Dhatu Nigam Limited (special alloys) and BEML Limited (vehicles and earth moving equipment).

Apart from 16 DPSUs, the MoD also controls the key defence R&D agency, the Defence Research and Development Organisation (DRDO). Established in 1958, the DRDO is involved in developing technologies for both strategic and conventional weapons. With a human resource base of 21,730 (including a cadre of 6,713 scientists and engineers), and a budget of INR 238.55 billion (approximately US\$2.86 billion) in 2024-25, its R&D activities span almost all aspects of defence technologies, including strategic and conventional missiles, combat aircraft, tanks, gun systems, electronics, naval systems, and life sciences.

Beyond the MoD's direct control are several government-owned entities that are primarily commercial-oriented but also produce a few items for defence. The most notable is Cochin Shipyard Ltd (CSL), a public sector undertaking (PSU) that constructed India's first indigenous aircraft carrier. It presently functions under the administrative control of the Ministry of Ports, Shipping and Waterways.

Apart from the DPSUs and PSUs, there are several defence-specific joint ventures (JVs) between the MoD-controlled entities (DPSUs or DRDO) and foreign partners. The biggest JV in the defence domain is BrahMos Aerospace;

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<sup>b</sup> The seven new DPSUs are: Munitions India Ltd (MIL), Armoured Vehicles Ltd (AVNL), Advanced Weapons and Equipment India Ltd (AWEIL), Troop Comforts Ltd (TCL), Yantra India Ltd (YIL), India Optel Ltd (IOL) and Gliders India Ltd (GIL).



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established in 1998 between DRDO and a Russian collaborator, its turnover reached INR 33.32 billion (approximately US\$415 million) in 2022-23.<sup>4</sup>

Compared to the public sector, private companies are relatively new entrants in the defence production space. The private sector was barred from defence production until 2001 when the defence industry was opened up. Post-liberalisation, especially after the launch of the Make in India initiative in 2014, India's private sector has seen remarkable growth. As of 2022-23, it has corned about 20 percent of India's total defence production (see Table 1) and, as discussed later in this brief, accounts for an overwhelming share of India's defence exports.

**Table 1: India's Defence Production**

Financial Year	DPSUs (INR billion)	OFs (INR billion)	Other PSUs and JVs (INR billion)	Private Companies (INR billion)	Total Production (INR billion)
2016-17	404.27	148.25	46.98	141.04	740.54
2017-18	434.64	148.29	51.80	153.47	788.20
2018-19	453.87	128.16	55.67	173.50	811.20
2019-20	476.55	92.27	62.95	158.94	790.71
2020-21	467.11	146.35	60.29	172.68	846.43
2021-22	557.90	119.13	72.22	199.20	948.45
2022-23	634.66	169.98	71.37	210.83	1086.84

*Note: Financial year runs from April to March*

*Source: Ministry of Defence<sup>5</sup>*

It is worth noting that the private sector's involvement in defence production is subject to the government's approval through a process of industrial licencing. As of April 2023, the government has issued 606 licences to 369 companies.<sup>6</sup> Most big Indian private conglomerates, such as Tata Group, Larsen & Toubro (L&T), Mahindra, and Bharat Forge, are involved in some form of defence production. Some of the big-ticket items being manufactured (or their contracts won) by the private sector include transport aircraft (Tata), artillery guns (L&T,

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Tata, and Bharat Forge) and Pinaka Rocket launchers (Tata and L&T), among others. In significant orders won by the private sector recently, L&T signed two contracts—for high-powered radar and close-in-weapon system—with the MoD in a combined deal worth INR 133.69 billion (approximately US\$1.6 billion).<sup>7</sup>

While the DPSUs, DRDO, and big private companies are the mainstays of India's defence production, they are supported by an ever-growing number of micro, small, and medium enterprises (MSMEs) and startups. As of January 2023, 14,000 MSMEs and 329 startups are engaged in defence production in India.<sup>8</sup>

“Post-liberalisation, especially after the launch of the Make in India initiative in 2014, India's private sector has seen remarkable growth. As of 2022-23, it has cornered about 20 percent of India's total defence production.”



# Defence Industry Reforms Under Make in India and Atmanirbhar Bharat Abhiyan

**D**espite having a sprawling defence R&D and manufacturing base, the Indian defence industry has historically been constrained in meeting the requirements of the armed forces, forcing the government to resort to imports. India was the biggest arms importer in the 2019-23 period, with a 9.8 percent share in total global arms imports. This was a marginal increase from the 2014-18 period (9.1 percent) when India was the world's second-largest arms importer.<sup>9</sup>

The Modi government has initiated several reforms to revitalise India's arms production and reverse India's import dependency. The reform measures, which have been unleashed under the broad Make in India initiative and Atmanirbhar Bharat Abhiyan, cover the institutional, procedural, industrial, and budgetary aspects of defence production. Some of the key measures undertaken in the last 10 years are:

## **Institutional Reforms**

In 2019, the government created the post of Chief of Defence Staff (CDS), which is touted as the most significant defence reform since independence. Though the measure was to forge synergy in the functioning of the defence forces—which are often accused of acting in silos—the charter of the CDS and the newly created Department of Military Affairs (DMA) under the CDS has a far-reaching impact on defence indigenisation. Among all the responsibilities, the CDS is also assigned the task of “promoting the use of indigenous equipment by the Services.”<sup>10</sup>

In effect, establishing the role of the CDA/DMA makes the armed forces an equal and integral stakeholder in indigenous armament projects by breaking the acrimonious relations between the users on one side and the developers and manufacturers on the other. Rising to the task, the CDS-led DMA has so far announced five lists of over 500 items that are banned from import after a stipulated time for each listed item. In other words, these items will eventually be manufactured in India. These lists include several big-ticket items such as missiles, fighter aircraft, helicopters, warships, radars, and a range of munitions.

Following the appointment of the CDS and the creation of DMA, the government also announced the long overdue corporatisation of the OFs that were earlier functioning as government arsenal. The decision involved converting 41 OFs into seven distinct DPSUs. As corporate entities, the new

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DSPUs will enjoy greater autonomy in decision-making and be accountable for their performance. Corporatisation is also the first step for additional reforms—which can be carried through further consolidation into fewer DPSUs or by listing them in stock exchanges (to further improve corporate governance) or by their privatisation, if the government so desires.

## Acquisition Reforms

To deepen the domestic industry's role in the procurement process, the government has refined the arms procurement processes as codified in the Defence Acquisition Procedure (DAP) (known as Defence Procurement Procedure before 2020). The key reform in the DAP is further rationalising the procurement categories by prioritising domestic industry over foreign companies. Of the five prioritised procurement categories, the domestic industry is assigned the role of system integrators in the first three (see Table 2). In other words, for contracts awarded under these categories, foreign companies will have a secondary role as equity partners to the Indian firms that will be responsible for the execution of the contracts. The foreign equity varies from a maximum of 49 percent (in the first category in which the domestic industry is required to design and manufacture) to 74 percent (in the next three prioritised categories).

**Table 2: Prioritised Defence Procurement Categories**

Prioritised Category	Indigenous Content (IC) Requirement	Tender issued to	Maximum FDI allowed under automatic route
Buy (Indian-IDDM)	Indigenous Design & IC of $\geq$ 50%	Indian	49%
Buy (Indian)	50% IC if Indigenous Design; Otherwise, IC of $\geq$ 60%	Indian	74%
Buy and Make (Indian)	$\geq$ 50% IC in Make Portion	Indian	74%
Buy (Global-Manufacture in India)	IC of $\geq$ 50%	Foreign	74%
Buy (Global)	Foreign Vendor- NIL Indian Vendor $\geq$ 30% IC	Foreign/ Indian	NA (Foreign); 74% (Indian)

Source: Compiled from Ministry of Defence, Defence Acquisition Procedure 2020.



# Defence Industry Reforms Under Make in India and Atmanirbhar Bharat Abhiyan

An integral part of the acquisition reform is the government's effort to mandate higher indigenous content (IC)—including in parts, components, raw materials, and software—in various domestic industry-friendly procurement categories. The minimum IC required from the first four prioritised categories is 50 percent, significantly higher than the 30 percent demanded before the Make in India initiative was launched. The government is also confident that IC could be enhanced further in some categories. A clear indication of this was provided by the Indian defence minister who, in late 2023, instructed the CDS and the Defence Secretary to consult the industry and “work towards increasing” the IC of Indigenously Designed, Developed and Manufactured (IDDM) category—the first prioritised procurement category— projects to a minimum of 60-65 percent.<sup>11</sup>

Apart from enabling the industry to take greater responsibility for manufacturing, the government has also tried to incentivise it to undertake R&D, an area historically dominated by the DRDO and, to a limited extent, by the DPSUs. The government has simplified and expanded the ‘Make’ guidelines of the DPP/DAP and launched two innovation-oriented schemes—innovation for Defence Excellence (iDEX) and Technology Development Fund (TDF) (see Table 3).

Furthermore, Union Budget 2022-23 reserved 25 percent of the R&D budget for the industry, startups, and academia.<sup>12</sup> After the announcement, the MoD has identified 18 major projects, the design and development of which are to be led by the Indian industry.<sup>13</sup>

## Table 3. Make and Innovation Categories

Category		Features	Maximum FDI allowed under automatic route
Make	Make-I	Up to 70% government funding for prototype development, subject to a maximum of INR 2.5 billion (approximately US\$30 million) per development agency. After successful development, procurement will be through the Buy (Indian-IDDMM) route.	49%
	Make-II	Self-funded by the industry for prototype development. After successful development, procurement will be through the Buy (Indian-IDDMM) route. Industry can submit a suo-moto proposal.	49%
	Make-III	Primarily intended for import substitution of product support of existing weapons systems. Post successful development, procurement through the Buy (Indian) route	74%
iDEX		Primarily intended for startups, individual innovators and MSMEs. Innovators can submit suo-moto proposals. Post successful development, procurement through the Buy (Indian-IDDMM) route	49%
TDF		A scheme run by DRDO with funding support. After successful development, procurement will be through the Buy (Indian-IDDMM) route.	49%

Source: Compiled from Ministry of Defence, Defence Acquisition Procedure 2020.<sup>14</sup>

### Ease of Doing Business Reform

Soon after assuming power in 2014, the Modi government took several steps to improve the ease of doing business environment, especially for the private sector. The government streamlined the industrial licensing process for the private sector so that the latter could easily obtain official permissions without



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bureaucratic hassles.<sup>15</sup> This was soon followed by liberalising the defence foreign direct investment (FDI) regime by enhancing the earlier foreign equity cap from a maximum of 26 percent under the automatic route, first to 49 percent and subsequently to 74 percent. The FDI liberalisation has led to an inflow of INR 57 billion (approximately US\$ 609 million) till 2024.<sup>16</sup>

The government has also brought out a standard operating procedure to formalise the process of defence export authorisation; allowed the private sector to use government-run facilities to test their equipment; launched two defence industrial corridors; opened a single-window agency (the Defence Investor Cell) to address investors' queries; and announced a policy to facilitate the indigenisation of parts and components used in platforms being produced by the DPSUs. A dedicated web portal, SRIJAN, has also been created so that the DPSUs and the armed forces can upload previously imported items for indigenisation by domestic entities.

## Performance of the Defence Industry

Following several reforms, the defence industry has made certain progress. The most visible indicator of the progress is the near continuous increase in production turnover, which reached INR 1087 billion (US\$13.5 billion) in 2022-23 (see Table 1). This, in turn, indicates that the Indian industry's growing capability to manufacture and supply a large number of defence equipment. Buoyed by the domestic industry's growing capability, the MoD is increasingly awarding complex projects to the industry, both private and public. In 2023, the MoD signed contracts with the domestic industry for medium power radar and an integrated electronic warfare system (Bharat Electronics), HTT-40 basic trainer aircraft and Dornier-228 aircraft (Hindustan Aeronautics Limited), cadre training ships (L&T), improved Akash Weapon System (Bharat Dynamics Limited), Offshore Patrol Vessels and Missile Vessels (Goa Shipyard Limited and Garden Reach Shipbuilders and Engineers), Fleet Support Vessels (Hindustan Shipyard Limited), and upgraded super rapid gun mount (Bharat Heavy Electrical Limited).<sup>17</sup>

The government's reforms have led to a visible improvement in defence exports, which reached an all-time high of INR 210.83 billion (approximately US\$2.63 billion) in 2023-24 (see Table 4).<sup>18</sup> In the post-reform decade—from 2014-15 to 2023-24—defence exports totalled INR 883.19 billion (approximately US\$11 billion), representing a 21-times increase from the INR 43.12 billion

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(approximately US\$517 million) in exports in the preceding pre-reform decade (2004-05 to 2013-14).<sup>19</sup> Encouraged by this success, the government has set an ambitious annual target of INR 500 billion (approximately US\$6.0 billion) in exports by 2028-29.<sup>20</sup>

**Table 4: India's Defence Exports**

Year	Export Authorisations to Private Companies (INR billion)	Export by DPSU (INR billion)	SCOMET Issued by DGFT (INR billion)	Contract Value (INR billion)	Total Export (INR billion)
2016-17	1.94	13.28	0.00	0.00	15.22
2017-18	31.63	15.19	0.00	0.00	46.82
2018-19	98.13	9.33	0.00	0.00	107.46
2019-20	80.08	9.05	2.03	0.00	91.16
2020-21	72.71	9.85	1.79	0.00	84.35
2021-22	59.65	3.86	0.07	64.57	128.15
2022-23	90.51	3.86	3.51	61.30	159.18
2023-24	131.40	1.09	20.90	57.65	211.05

Source: Department of Defence Production<sup>21</sup>

India is now exporting arms, ammunition, and related items to over 85 countries, with 100 Indian firms participating in international sales. Some of the major items exported include “Dornier-228, 155 mm Advanced Towed Artillery Guns, Brahmos Missiles, Akash Missile System, Radars, Simulators, Mine Protected Vehicles, Armoured Vehicles, PINAKA Rockets & Launchers, Ammunitions, Thermal Imagers, Body Armours, besides Systems, Line Replaceable Units and Parts & components of Avionics and Small Arms.”<sup>22</sup>

Notably, most of the exports are driven by the private sector, while the DPSUs, the mainstay in India's defence production, have contributed little. However, most of the private sector's exports are in the form of parts, components, assemblies, and sub-assemblies, with few Indian companies exporting major systems. Among the major items exported by the private sector, Bharat Forge's export of 155mm artillery guns (worth US\$155 million) is notable.<sup>23</sup>

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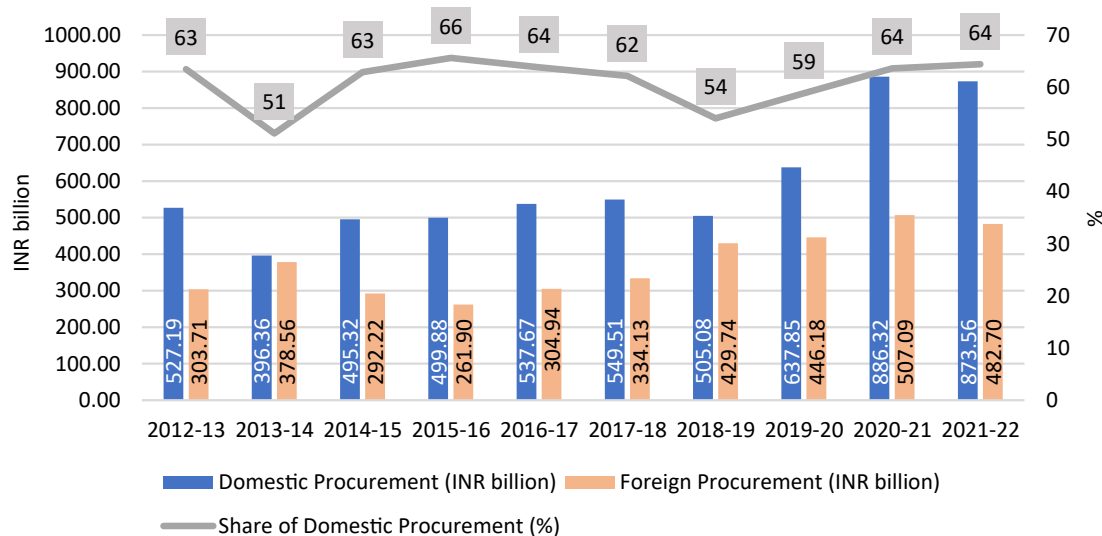
Buoyed by the domestic industry's achievements and to support it further, the government has taken two crucial steps that are likely to deepen the involvement of the domestic industry in the coming years. In a move to procure more from the domestic industry, the government has been consistently earmarking a greater share of its capital acquisition budget for procurement from the domestic industry. In 2023-24, the share was raised to 75 percent, up from 58 percent in 2021-22,<sup>24</sup> indicating the government's confidence in the domestic industry's growing ability to meet the armed forces' requirements.

At the same time, the government is also keen to reinforce its faith in indigenous capability. This is evident from the high-value acquisition proposal being earmarked for execution by the Indian industry. In 2022-23, the MoD gave the acceptance of necessity (AoN)—the official approval to begin the formal procurement—to proposals worth INR 2710 billion (approximately US\$32.5 billion), 99 percent of which is meant for procurement from the domestic industry.<sup>25</sup> In 2023, the value of AoN was INR 3500 billion (approximately US\$42 billion), the majority of which will eventually be manufactured in India.<sup>26</sup> Some of the major items for which the government has accorded AoN include light combat helicopters, light combat aircraft MK 1A, medium-range anti-ship missiles, and the towed gun system. When these proposals, along with the 500 items identified in the positive indigenisation lists, are converted into contracts and further into actual production by the industry, the volume and share of the domestic industry in procurement are bound to increase substantially. The MoD estimates that the value of the domestic defence production will reach INR 3 trillion (approximately US\$36 billion) by 2028-29.<sup>27</sup>

“The government's reforms have led to a visible improvement in defence exports, which reached an all-time high of INR 210.83 billion (approximately US\$2.63 billion) in 2023-24.”

Although the Indian defence industry is now on a much better footing, it faces several challenges. The foremost challenge is increasing production, at least to a level that meets India's procurement requirements. Despite the government's efforts and an ambitious production target of US\$26 billion by 2025, production has not grown significantly enough to meet the annual procurement requirements of the armed forces. As Figure 1 shows, the domestic share in the armed forces' capital acquisition has hardly increased from 2014-15, the year the Make in India initiative was launched. The slow progress in India's defence production and an ever-increasing procurement budget have ensured that India remains dependent on external sources for critical defence hardware requirements.

### Figure 1: Capital Acquisition by Armed Forces (Domestic and Foreign)



Source: Extrapolated from Standing Committee on Defence, Demands for Grants 2023-24.<sup>28</sup>



# Challenges


On the export front, despite registering a noticeable increase in international arms sales, the industry is way off the target set by the government. The biggest challenge in meeting the government's export target comes from the DPSUs, which have been slow in rising to expectations. Some recent attempts to export major systems have not met with success. For instance, Hindustan Aeronautics Limited, the biggest defence company in India, could not win an international competition for its light combat aircraft Tejas fighter in Malaysia, which selected a Korean alternative.<sup>29</sup> Previously, Garden Reach Shipbuilders and Engineers lost a big tender in the Philippines, indicating the difficulties faced by the DPSUs in arms exports.<sup>30</sup>

Second, the Indian defence industry, despite having a large production and R&D base, lacks the technological depths to design/manufacture major systems and critical parts, components, and raw materials, which are eventually imported. The lack of technological depth is also one of the reasons why the Indian government still prefers to licence manufacture many major systems. Notably, licencing manufacturing has an overwhelming share of 58 percent in India's defence procurement, indicating the extent of India's external dependency.<sup>31</sup>

Third, although the Modi government has announced many reforms to revitalise domestic production, many are yet to be implemented in full letter and spirit. This has created a condition where the time between reform announcements and their translation to actual contract, production, and delivery is unduly prolonged. Given India's bureaucratic system, overcoming the delays in implementation will remain a key challenge in the foreseeable future.

# Conclusion

The reform measures launched by the Modi government under the Make in India initiative and the Atmanirbhar Bharat Abhiyan have begun to positively impact the Indian defence industry, as seen in its growing production and exports. Furthermore, with the government reserving a large bank of projects for production in India, the impact will likely intensify in the coming years.

Although the Indian defence industry's reforms-driven performance is encouraging, certain challenges need to be overcome to enable the industry to achieve higher self-reliance. Defence production needs to be augmented to a level that at least matches India's growing procurement to avoid direct imports. The industry's R&D capacity needs improvement to deepen indigenisation and avoid imports, both direct and indirect. There is also a need to expedite the defence procurement decision-making process to facilitate the industry in manufacturing and supplying arms in the shortest possible timeframe. 

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