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AN ANALYSIS OF ACQUISITION OF TECHNOLOGY IN INDIAN DEFENCE INDUSTRY IN THE CONTEXT OF REFORMS IN FDI

KEYWORDS

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ABSTRACT The nation is committed to transform its security forces to a military might which is tailor made to aptly respond to a wide range of asymmetric threats with adequate speed, efficiency and firepower. Though Indian defence industry has efficiently proved its credibility to deliver niche technology against odds, unavoidable Government restrictions in terms of over-reliance on government controlled organizations has left capability gaps and inadvertent delays in technology acquisition and subsequent military transformation. While indigenous and state-of-the-art production competencies have been developed, huge scope exists particularly within the defence industries owing to ever evolving industrial dynamics. The increasing costs and complexity of entrepreneurship and the decreasing budgets has resulted in an intensive approach towards choosing the best technology acquisition process. Balancing the requirements specific to defence industry and identification of vulnerable and critical technologies affecting growth is crucial in view of current global trends. Hence, it is imperative that the tradeoffs made by the stakeholders in acquisition of technology, is realistic and optimized to suit the requirements of the defence industry. Consequently procedural reforms duly assisted by liberal Foreign Direct Investment (FDI), licensing policies and banking provisions are key to energize the defence industry.

1. Introduction

Future battlefield shall witness application of new technology into a significant number of military systems necessitating military concepts and organizational adaptation in a way that shall not only fundamentally alter the character but also the conduct of warfare. Apropos, conflict planning and conflict preparation to increase military effectiveness and combat potential shall hold key relevance. In order to meet these challenges, security forces shall have to evolve strategies and implement measures to overcome the bane of outdated products, processes and machinery, limited efficiency, restricted utilization of resources and inadequately trained manpower.

In recent times, the commercial sector in many ways has outgrown the traditional defense sector thereby causing a disconnect in the rate of advancement between commercial technologies and military specific requirements. Subsequently, a decline in defense budget allocation necessitates adaption of procurement objectives which may propel realistic defense expenditure. While aligning threshold requirements with mature technologies may only solve short term goals, indigenization holds the key for sustenance. Consequently, while the capability gaps may be bridged through non-progressive technologies, capitalizing the potential of Indian defence industry shall incrementally improve the technological base.

While a nation's military strength is determined by its economic might, the industry provides the military with the wherewithal to fight the nation's wars. Apropos, the onus of modernization of the defense forces lies with the industry. Modern-day environ demands versatility, sustainability in equipment profile besides cost-effectiveness in procurement. However, intrinsic complexities of battlefield and resource scarcity have increasingly constrained the access to key commodities and material solutions, yet created exploitable opportunities. Hence, it is essential that requirement, acquisition, absorption and sustainment processes for procurement of equipments be suitably adjusted to fill the existing capability gaps in Indian industrial base.

However, over the years India has emerged as an attractive destination for business houses and investors all over the world. It has been argued that India presently accounts for nearly 20% of the total capital allotted for the developing nations. Investors are eager to invest substantially in both services and manufacturing supply chain over the next few years. Subsequently, Government of India's (GoI) 'Make in India' initiative has placed sizeable weight over development of manufacturing sector with an aim to strengthen the economy of the nation.

In-spite of an encouraging scenario, the unevenness in the economic ecosystem remains. In particular, the defence industry of India, lags behind the commercial sector in various aspects and has been by far remained regressive. Industrial proliferation commensurate with improved productivity of indigenous defence products through exploration of technology, adaptable to environment, can have far reaching effects. While there is a pressing need to address avenues of industrial growth in defence industry, mode of achieving the same is of paramount importance. In an age of globalization and shrinking budgets, acquisition of technology through major stakeholders is the key to attain balanced economic priorities for the future. The present paper reviews the prospects for industrial expansion in the defence sector with the goal of identifying the necessity of growth of industry through acquisition processes in view of recent reforms in FDI.

2. Research Objective

This paper seeks to explore how defence industry is in an extremely advantageous position to benefit from high-tech technologies that are being explored by Government's 'Make in India' initiative. The study also examines current state of acquisition process in Indian defense industry while identifying prevailing loopholes. Further an attempt has been made to examine personal and organizational factors influencing the decision to acquire technology by Indian Defense Industry. Finally a conceptual framework for streamlining the acquisition policies and practices within current FDI model has been suggested.

3. Indian Defence Industry

Presently, India's arms production is undertaken by state-owned enterprises (DPSUs and OFs) which are not only established players in the armament sector but had exclusive rights for defence manufacturing till 2001. But the situation has changed drastically with the introduction of Foreign Direct Investment (FDI) in defence sector up to 26% in 2001 and revised again to 49% in 2015. This has turned the tide and is proving to be a game changer for Indian defence industry.

India's defence spending has been on rise since the GoI first announced its defence budget in 1950. Out of the present share of defence budget, 40% amounts to spending on capital expenditure. Though India currently meets its defence needs through purchases from abroad, the policy changes dictate it to be balanced to favour approx 70% manufacturing through Indian owned industries. The progressive state of Annual Defence Expenditure and share of capital

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expenditure is given in Figures 1 and 2 below:-

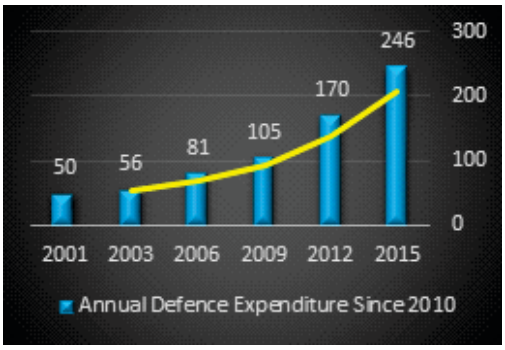

Figure 1 : Annual Defence Expenditure since 2010

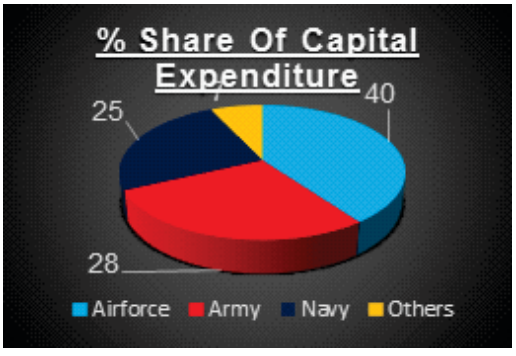

Figure 2 : Percentage Share of Capital Expenditure

The defence production in India is limited to govt / semi govt agencies. Presently, 39 Ordnance Factories (OFs), 9 Defence Public Sector Undertakings (DPSUs) and a few private players form this defence industrial base in India. Subsequently, there there are 52 Defence Research and Development (R&D) laboratories under the umbrella of Defence Research and Development Organization (DRDO) primarily responsible for providing a platform for defence researches.

As far as the private sector is concerned, it is still at a nascent stage with approximately 70% of Indian defence procurement being met from foreign sources. Conversely, out of the orders placed in India, only an estimated 9% is attributed directly to the Indian private sector. Subsequently, the private Indian players enjoy only 14% share in the overall Indian Defence market. Currently, the defence market for private sector, inclusive of outsourcing from DPSUs and OFs is estimated to be worth USD 700 million. However, this share is likely to increase in view of GoI's 'Make in India' initiative.

Various private sector companies have been actively fetching defence needs of Indian Armed Forces. Larsen & Toubro, Tata industries, Pipavav Defence and Offshore Engineering Ltd among others, have created a niche for themselves in defence market. However, still the Govt sector enjoys a major share. The sales of Government Defence Sector are appended in the Figure 3 below:-

Figure 3 : Sales of Government Defence Sector'

1. Make in India' and FDI

Early nineties saw Indian economy opening up, thereby heralding an era of unprecedented industrial growth. Subsequently, varying socio-political scenario of the world has rendered colossal opportunities for growth within the domestic and global defense industries. While indigenous and state of the art production competencies viz. the strategic missile program, Arihant submarine, Samyukta Early Warning system etc. have been developed, huge scope exists within the defense industries owing to ever evolving industrial dynamics.

Since the GoI is creating an encouraging environment for FDI in defence in wake of 'Make in India', Indian private defence industry shall invariably get benefited the most. The 'Make in India' has propelled an encouraging scenario wherein FDI worth Rs 24.36 crore has been received in the defence sector this year. The foreign tie-ups of privately owned Indian industries involved in defence products is given in the Table 1 below:-

Table 1 : Foreign Tie-ups

S No	Indian Company	Foreign Tie Ups
1.	Mahindra Defence Systems	BAE Systems
		Seabird Aviation
		Lockheed Martin
2.	L&T	EADS
		Raytheon, Boeing
		RAC Mig, SAAB Gripen, LMCO
3.	TATA Advance System	Sikorsky Aircraft Ltd
		Boeing
		Israel Aerospace Industry Ltd
		EADS
4.	HCL	Boeing
		Circor Aerospace Inc
5.	Wipro	BAES
6.	Pipavav	SAAB
		Badcock
7.	Bharat Forge	Elbit

1. Impediments with Indian Defence Industry

Though DPSUs share approx 65% of the total industrial output, an inadequate value addition has resulted in huge arms imports from foreign markets notably United States. Also, most of the DPSUs are over-dependent on external sources for raw material, spares and components and capital goods to meet production requirements.

The Indian private sector is fairly capable of buying niche technology from the foreign players and subsequently creating a global supply chain if the Indian market is opened for competition. However, insufficient market access owing to undue preference to DPSUs has reduced them to being unviable. Subsequent roadblocks that exist in private sector are:-

- Lack of a rational industrialization policy
- Lack of inherent domestic capacity to cater to demands from external seekers
- Taxation issues
- Restriction on Foreign Direct Investment (FDI) and allied procedural issues
- Restrictions of dual use technologies
- Inadequately trained manpower

2. Opportunities in Indian Industry

Ever since the concept of globalization transpired in the country, the Indian industry has come a long way and has successfully established its credibility globally. Hence, progressive reliance over industry on defense equipment shall invariably pay high dividends. However, defense is a strategic industry, being more than mere commerce with distinctive issues of obsolescence, technology denial and restricted trade operations. In Indian defense sector, the government is both

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the market and the market maker. Also, in a democracy like India, the strategic industries like nuclear, space and defense are subject to probity, public accountability and transparency in procurement with employment generation being an essential part of the legislative approval process. It may be noteworthy that the measured reduction in defense imports shall fetch optimistic manufacturing Gross Domestic Product (GDP) and help generate additional employment avenues as shown in the Table 2.1 below:-

Table 2.1 : Employment Avenues Generated by Reduction in Defence Imports

% Reduction	Incremental increase p.a.	Acceleration in Manufacturing GDP Growth rate	Additional Jobs
25%	8,500 crores	8%	120,000
50%	11,100 crores	11%	150,000
75%	14,200 crores	14%	200,000

(Courtesy-TATA Power Strategic Electronics Division)

Apropos, it may be appreciated that gradual shift to Indian industry for defense equipment shall undeniably be fruitful for the economy. It shall unvaryingly entail manufacturing process to be undertaken by the industry which is key to technology transition and is the core focus in highly competitive commercial markets. However, to infuse correct manufacturing processes it is essential that knowledge based acquisition and adaption of technology be encouraged.

Hence, to meet the current strategic challenges, there is a need to alter the existing defense procurement procedures of the country and suitably formalize the technology acquisition and absorption processes in the industry. This shall not only radically modify the defense industrial base through development of high-volume production capabilities for defense unique technologies but also help in creation of technology roadmaps for the country.

1. Acquisition Ethos in Indian Defence Industry

In view of refreshing reforms in FDI in defence, there is a need to foster a conducive environment for the indigenous defence industry. A favorable milieu for technology acquisition shall invariably help the defense industry achieve rapid growth. Following actions duly supporting the ambitious 'Make in India' concept may help achieve the same:-

- Seamless funding by the GoI through the entire technology development stage till full maturity of the product is attained.
- Impetus on production of Commercial off the Shelf Technology in maximum defence products for the end user.
- Simplification of defence procurement and acquisition processes with incorporation of maintenance aspects during entire life cycle of the product.
- Implementation of state of the art quality checks during each stage of design, manufacture and production.
- Complete decentralization of decision making process suitably integrating the end user.
- Prioritizing innovation by domestic industry over avoidable economic goals.

2. Advantages of Acquisition in Defence

The acquisition of technology by Indian defence industry shall greatly affect the industrial environment of the country. The advantages accrued out of the same are listed below:-

- Maximum utilization of vast human and material resource
- Enlarged defence market thrusting a healthy competiveness between Indian and foreign industry
- Commercialization of defence goods
- Stout amalgamation of indigenous market with the leading-edge international market
- Deregularization & liberalization of defence market
- Access to cutting-edge technology by MSMEs
- Comprehensive employment generation

1. Acquisition Principles in Defence Industry

The acquisition process in Indian defence industry should be based on following principles:-

- Exploitation of GoI's 'Make in India' initiative with ingenuity.
- Aim to augment the capacity of Indian defence industry through suitable policy framework with an eye on the international markets.
- Emphasis on highlighting the significance of infrastructure, skill and capability building.
- Focus on policies and practices to create a supportive ambience for acquisition.
- Identification of latent areas in defence goods for inviting investment inflow
- Consumer needs to form the nucleus of product development
- Formulation of correct GSQRs

2. Challenges

Though, present economical scenario in the wake of reforms in FDI poses an encouraging scenario, following challenges are noteworthy:-

- The lack of technological infrastructure and backward market practices in Indian defence industry may slow successful absorption of technology.
- Lack of well-structured technological policies based on local capacities of Indian defence industry should be factored in acquisition processes
- Adequate care should be taken while accepting packaged technology to obviate any chance of obsolescence
- Lack of training and education, unproductive R&D and weak government policies may severely affect Absorption and Acquisition.
- Absence of a coherent and strategic plan for technological development concurrently in all public and privately owned defence industries may hamper acquisition process
- Economic factors such as unfavorable tax laws and unstable currency severely impact acquisition process
- Paucity of academic research in acquisition issues specifically to defence related products can influence academic-industry R&D

3. The Road Ahead

The 'Make in India' vision promulgated by the GoI can indeed go a long way in ensuring the much needed self-reliance in defence production, however certain issues which need to be addressed are enumerated below:-

- Establishment of an empowered committee with equivalent involvement of defence officers, DRDO, academia and scientists to formulate a comprehensive long term roadmap of the realistic targets for the Indian defence industry, progressive monitoring mechanism and providing a singular platform for all the visionaries of 'Make in India'.
- Conversion of the Long Term Integrated Perspective Plan (LTIPP) into an exhaustive and attainable defence research, development and production plan.
- Promotion of defence related R&D outside DRDO with academia-industry partnership.
- Establishment of dedicated defence product oriented universities catering to the Indian defence specific needs.
- Incentives to Indian private defence industry in the form of big contracts awarded under 'make' and 'make and Buy' procurement.
- Creaion of a conducive financial framework that incentivizes defence manufacturing by domestic industry.
- Constructive reforms in DRDO, DPSUs and OFs on the lines of

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DARPA and other privately owned major defence industries of the world.

- Improvement in the infrastructure and manufacturing capabilities of private industry through Government assisted acquisitions and mergers.

4. Conclusion

In an era of technological advancement, Indian Armed Forces need to be strengthened with a robust and niche equipment profile. However, the same, if attained through self-reliance can fetch far reaching dividends for nation's economical growth. There is a need for expanding the industrial foundation in defence industry, which can be made stronger through acquisition and diffusion of contemporary technologies. The process of knowledge absorption involves a favorable investment environment and a robust R&D system. There are a lot of prospects that need to be tapped for defence industry to achieve self-reliance and receive acquired technology that is fundamentally apposite to their needs.

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