

OPINION

DRDO and Expectations of Stakeholders

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ABSTRACT

DRDO is India's major credible research and development organization that enables self-reliance and indigenisation of defence technologies and weapon systems to empower India in the emerging geo-political balance. The Organisation has its genesis in a technical inspection agency which over the years have transformed into a highly professional R&D organization with strong design and technology capabilities and skilled entrepreneurship to undertake development of state-of-the-art defence systems. DRDO driven R&D efforts have catalysed the growth of domestic defence and civilian industries in the country as well. The overarching endeavours of DRDO encompassing academia, private industry and Defence PSUs have helped in establishing a self-reliant defence industrial ecosystem and collectively all have contributed in the Hon'ble Prime Minister's vision of "skill development" and "Make-in-India". Yet, DRDO's struggle at the national level continues since Armed Forces continue to depend on imports for major acquisitions. Indigenous options have not always established themselves as the preferred options even when they are available. The acceptability of DRDO developed products remains at a low ebb. The question is what more DRDO should do to ensure the acceptability of the users? This study examines the evolution of the DRDO and whether over the years DRDO has done enough or should do more to increase its visibility, acceptability, credibility and respectability? And how DRDO should reposition itself beyond MoD/Armed Forces in the national and international context to fulfill the ambitions of the country to play global roles? This paper also discusses how building the brand "DRDO" may possibly help DRDO.

Keywords: DRDO; Brand; Visibility; Stakeholders; Branding strategy

1. INTRODUCTION

National security and defence capabilities are highly dependent on technology and their exploitation. A typical Defence Research and Development Organisation provides, knowledge and technological edge to their Armed Forces to defend and protect country's interests at home and abroad. It delivers solutions for the modernisation of Armed Forces and complement civil security, public safety, and welfare with dual use technology and products. It performs strategic S&T capability planning; partners with industry, academia, other government departments¹. It also remains the wish of every Defence Research Organisation that it evolves into a DARPA like agency to counter the strategic surprises for the country. But no country could produce another DARPA or come near to its absolute dominance². DARPA is the most powerful and most productive military science agency in the world. Its mission is to create revolution in military science and to maintain technological dominance over the rest of the world³. It is an entity that also have a function that extend beyond the immediate foreseeable weapon system of the current or near future³. In India, among all prevailing S&T agencies in government, public and private, DRDO conspicuously is very close to discharging DARPA like mandate albeit with

lesser autonomy and more constraints. DRDO stands tall as a major credible research and development organization. The Organisation has over the years established itself as the main technology generator for the country and dedicatedly equipping Indian Armed Forces with world class weapons, equipment, technology, and, state-of-the-art test and evaluation infrastructure. Its efforts have brought the growth to country's defence industries and kindled the spirit of S&T among research and academic community. DRDO has established itself as central to India's mission of strengthening country's defence R&D. The place which DRDO rightfully deserves is still elusive. DRDO's captive users, Indian Armed Forces, continue to look westward for arms acquisitions; DRDO must hard sell its products.

The succeeding paragraphs ponders the evolution of DRDO in relation with the growing expectation of Indian Armed Forces; the role of DRDO in country's mission of self-reliance, indigenisation, and Make-in-India. The paper assesses whether DRDO has contributed enough in the service of nation, or a course correction is needed.

2. OBJECTIVES

The following are the objectives:

- To study the evolution of the DRDO
- To find out whether DRDO has done enough or should

do more to increase its visibility, acceptability, credibility and respectability over the years?

- How DRDO should reposition itself beyond MoD/Armed Forces in the national and international context to fulfill the ambitions of the country to play global roles?
- How to build a brand “DRDO”.

3. THE EVOLUTION OF DRDO

DRDO have made an enormous impression on India’s security and defence preparedness. Post-Independence, as part of “Indianisation,” Prime Minister Nehru accepted Prof. Blackett’s advice to establish a new research capability within the Ministry of Defence. He underlined the role of defence science in planning India’s Defence programme and based on the report, the Defence Science Organisation (DSO) was set up in the year 1948 with a role to advise and support the Indian Armed Forces on scientific matters as well as to undertake research in the areas related to defence. During 1948-1957, the scientific focus was in the areas of operations research, explosives, military physiology, applied psychology, electronics, food and nutrition, applied chemistry, clothing, ballistics, weapon evaluation techniques¹. The next decade saw transformation of DSO to Defence Research and Development Organisation (DRDO), which formally came into being on 1 January 1958. Prof DS Kothari from 1948 to 1961 was the first Scientific Adviser to the Raksha Mantri who headed the DRDO and was succeeded by Prof S Bhagawantham from 1961 to 1969.

In the early 1970s, DRDO graduated itself from small scale weapons and equipment development projects to large-scale military systems development programmes. Until then, India acquired its military technologies from foreign sources and undertook limited indigenous developments. The realization that to strengthen India’s position and to secure national interests, India needs a strong and technologically advanced defence force led to setting up of a defence technology ecosystem in the country. Same conviction strengthened the growth of India’s Defence Research and Development Organisation (DRDO) and the public-sector manufacturing units under the Department of Defence Production. This paradigm shift unfurled a renaissance in defence R&D in the years that followed. Dr BD Nagchudhary from 1970 to 1974; Prof MGK Menon from 1974 to 1978 and Dr Raja Ramanna from 1978 to 1982 who played the leadership roles successively, set DRDO’s profile in the nation’s vision of a secured country. Dr VS Arunachalam who took the mantle from Dr Raja Ramanna, in 1982 and remained at the helm of the affairs of DRDO, set the stage with many “magnum opus” programs.

Dr APJ Abdul Kalam while as Director DRDL and later as SA to RM in the period from 1992 to 1999, ignited the imagination of the scientists with imposing project, Integrated Guided Missile Development Program (IGMDP). The IGMDP, by its very scope and scale, took the country by storm and the world started looking up at India as an “Emerging Regional Technology Power”. IGMDP set the trend for other major programmes in DRDO such as, Main Battle Tank, Light Combat Aircraft, Airborne Early Warning and Control System, indigenous Submarine, Artillery Rocket System, Radars,

Electronic Warfare System, Assault Bridges, and Underwater Systems etc. The array of varied programmes added massively to the Nations’ defence preparedness and self-reliance². Despite the technology denials and control regimes enforced by the developed countries, Dr Kalam imbibed a high-end research and development initiative in DRDO laboratories⁴. Dr Kalam’s dream of a “Developed India” and economically strong country which is self-reliant in defence system was cherished by all successive leaders of DRDO.

Guided by the philosophy that “science is the source of strength”, DRDO continued its growth trajectory under the leaderships of Dr VK Aatre from 1999 to 2004, Shri M Natarajan from 2004 to 2009, Dr VK Saraswat from 2009 to 2013, and Dr Avinash Chander from 2013 to 2015. During these periods several world class S&T laboratories, with system engineering base were continued to be established. The Indian Armed Forces were provided with the state-of-the-art systems, weapons, platforms, delivery vehicles, sensors, special foods, medicines and life support technologies⁶.

With Dr S. Christopher at the helm of affairs since 2015, DRDO has grown in multiple dimensions and become a major technology generator for the nation, effectively meeting its mandate of developing and fielding contemporary defence systems for the Armed Forces and paramilitary forces. The past two years have been exceptional in the history of DRDO which narrates the technical path traversed by DRDO to reach the stage of confidence, technology maturity, and ability to deliver.

4. DRDO AND DEFENCE INDUSTRIALISATION

When DRDO was set up in the late 50s, there was a zero defence industrial base in the country. Over the years DRDO managed with Defence PSUs, Ordnance factories, a few private industries and some foreign collaboration. In 1991, the defence industry sector was opened to private participation in a restrained manner. In 2001, 26 per cent FDI was allowed in the defence sector which was enhanced to 49 per cent in 2016 which also had a provision to allow FDI beyond 49 per cent on case-to-case basis depending upon the nature of technology being brought in the country⁷.

The enhanced FDI up to 100 per cent, i.e., 49 per cent through automatic route and another 49 per cent on need basis, the GoI has provided enough motivation and incentive for foreign companies to invest in the county in the defence equipment manufacturing. The controlling stake of a foreign company which was limited to 49 per cent in a JV with an Indian partner was a limiting factor and thus that was breeched by permitting to have FDI beyond 409 per cent⁸.

The increased FDI in defence sector also provided much needed strategic push to country’s defence R&D and production under the national vision of “Make in India”. Among several forward looking and liberal policies to boost domestic industry, DRDO is also gearing up to contribute in country’s mission through developing strategic partnerships with the Indian and foreign industry. The export of DRDO’s indigenously developed systems to friendly foreign countries is another feather which DRDO is pursuing and has potential to become one of the contributing factors for India to recalibrate

its foreign policy, besides, raking in huge foreign defence investments leading to economic growth and paving the way for security dominance both at regional and global levels.

While, it is beyond argument that DRDO's contribution in promoting S&T in the country is immensely huge and organization has no equals in its own class in the country, paradoxically, DRDO still has identity issues. DRDO struggles at the national level for the equitable recognition and finding its name under the Sun for all its achievements from indigenisation to self-reliance to contribution in the peace and security of the country, to equipping Indian Armed Forces with the equipment, weaponry and platforms.

5. ANALYSIS AND DISCUSSION

5.1 Stake Holding

Shri Arun Jaitely, the Hon'ble Raksha Mantri at a function at DRDO HQ in March 2017, said, "*DRDO is becoming an important instrument for self-reliance of the nation and some of the best innovations have come from the pool of scientists of DRDO. Great societies and nations are made through people working on important tasks in anonymity, like the DRDO scientists. In the modern world, societies that invent and innovate will make faster progress.*"⁹

Evidently, DRDO has been playing a vital role at national and International level for country's security and capacity building. The production value of DRDO developed products which have been approved for acquisition by the Defence Acquisition Council (DAC) of the Ministry of Defence under the Chairmanship of Hon'ble Raksha Mantri, has gone up to ₹2.56 lakh cr., and an estimated ₹1 lakh cr., was acquired in past two years. During this period, 30 high value DRDO products worth rupees 96,383 cr., have been inducted into the Armed Forces⁵. DRDO is continuing to contribute in the intellectual wealth of the government's "Skill Development" and "Make in India" initiatives.

Despite, technological achievements, deliverability, generosity of the government; the relation with Indian Armed Forces are stressed; no significant support is forthcoming; the acceptance to MK-I and handholding for MK-II is far and few. The conduct of user trials which are subjected to summer and winter trials are dependent on users' priorities and not necessarily meet developer's timeline and scheduling⁵. The trials may wait up to one year, if one season was missed, the delay is blamed on DRDO⁹. DRDO is also accused of independent functioning, oblivious of the requirements of the user, over promises and under delivery with huge time and cost over runs and delays and delivery woes have distanced the user, resulting into making them wary of research undertaken by the DRDO¹⁰.

The conventional wisdom suggests that R&D is cruel; the reality is that Defence S&T is far more intricate and where failures are more prominent than successes⁵. Every developmental effort would not necessarily succeed; some may incur delays; some do not reach up to production stage; and some would be short-closed due to the availability of a better technical alternate⁸. But all hardships leave behind an invaluable experience⁸.

The reality on the other hand is that Services continue

to avoid indigenous development and focus on foreign acquisition, whereas, if a big order is placed it can potentially motivate the scientists and stabilize production lines; bring a better Return on Investment (ROI) and boost the domestic capability of design, development and production paving the way for development of a next generation system¹¹. The improved versions with indigenously developed sub-systems and components could provide much needed growth to India's defence industry including PSUs and Private sectors and a great opportunity avenue for employment and skill upgradation¹¹.

It is judicious to state, that DRDO has been a lone flag bearer in the government sector for indigenous development and self-reliance in defence technologies. However, DRDO is continued to be perceived as an under-achiever⁵.

It is judicious to state, that much has been done and achieved by DRDO for self-reliance in defence technologies within the limited resources; the organization is continued to be perceived as an under-performer and more than often at the receiving end without portraying the correct perspective⁵.

The pertinent question is, where does DRDO go from here? How DRDO should manage the expectations of its users? How DRDO translates its huge capabilities and contributions into the brand "DRDO", a brand that commands loyalty and instant acceptability. A name that sells.

5.2 "Brand" and "Branding Strategy" at DRDO

Branding involves every dimension of customer's experience from advertising to the level of interaction and consumption by customers¹². Branding thus, is an important aspect in the growth of an organization because,

- (i) *Branding promotes recognition*, once the quality is assured, it encourages the customers to choose the products/service again;
- (ii) *Branding apart the competition*: a brand helps to stand out first among equals;
- (iii) *Branding sets expectations*: a strong consistent brand, built on credibility and trust, let customers know what they should expect from the business;
- (iv) *Branding enhances value of the product*: a robust and an efficacious branding compliment the business¹³.

A brand thus, is a more than an image, it is based on relationship, trust, customer satisfaction, and attributes like ethical standards, customer satisfaction and integrity etc. It encompasses mission, goals, and values of an organisation. Answers to these questions, can help charting out own brand. The dovetailing of customers' expectations would further enhance its acceptability.

5.3 Expectation from DRDO

The predominance in the fields of science and technology (S&T), as well as a breadth and pace of innovation adds to country's dominance at the world stage. The best conduit to innovations is the properly designed S&T workforce. DRDO must focus on globalization of DRDO's S&T by preparing scientists and engineers and positioning them into the national S&T and the global S&T community. That would add to DRDO's visibility and establish academic credentials among peer organisations¹⁴.

DRDO's commitment to self-reliance in defence technologies must be unflinching and honest. To help the country in the flagship programme of "Make in India", DRDO should identify a few mega projects on the lines of IGMDP, MBT, LCA, AEW&C which meet national aspirations. Strengthening of the nascent eco-system into an asset for the growth of domestic industry and will give confidence to foreign suitors for investing and technology transfer. Besides, big names, MSME partners must continue to be nurtured to support DRDO's mission of cost-effective solution for Indian Armed Forces to ward off challenges of acquisition from abroad and at the same time ensuring the quality to be at par with their contemporaries in the world⁵. Some sectors, such as civil nuclear energy will continue to work behind firewalls, for reasons of India's International commitment, but for other sectors DRDO should establish linkages and share the dual use technologies with both defence and civil sectors. As an important stakeholder in the process of defence indigenisation, this is an imperative for DRDO to hold sway over Defence S&T.

Over the years, DRDO has consolidated research laboratories to develop end-to-end capabilities and capacity to design, develop and produce tactical and strategic military hardware for a credible deterrence. Today, the country should feel assured that DRDO is equipped to face technology challenges of the future⁵. To drive the maximum from civil and academic partnerships, DRDO must prioritize, incubation centres in the private sectors and academia and provide them with basic infrastructure, training and access to manufacturing and test facilities. These centres would help addressing the R&D needs which perhaps may not be fulfilled as effectively by current resources of DRDO. The centres must be located outside DRDO laboratories and better if based on the model of a private research enterprise, to provide management flexibility, ease of funding, resource generation, and means of attracting and retaining high-quality scientists; all of which critical to the mission of the DRDO¹⁵.

But this has never been easy, DRDO continue to face overabundance of challenges and hardships from all quarters. Lack of defence industrial base in the country, lack of users' support, lack of incentives to attract the young scientists, attrition and no fresh induction are some of the major contributors in DRDO's cup of woes. At the global level, DRDO face trade restriction and denial of advance technologies and products. That being said, DRDO still have to make Indian Armed Forces combat ready force for national security; should diligently ensure that weapon systems developed and delivered meets quality, dependability, and expectations of the services. Must set an epitome of high standards. If DRDO fails to act, the deleterious consequences will be felt in all spheres of national life and a lost opportunity. DRDO also needs to prove itself that it is a responsible and credible stakeholder in ensuring India's territorial integrity by providing a secure internal environment and remain in full preparedness for social causes, internal conflicts, Low Intensity Conflict operations, natural calamities/human disaster management.

The larger point is whether DRDO should look beyond Indian Armed Forces and increase relations in volume, scope

and institutional diversity in the country with the masses and Internationally? The answer is, "Yes". Foremost, DRDO must consolidate its position and accomplish as a brand "DRDO". The brand, that invokes admiration, a sense of excellence, and aspire the following of the likes of, NASA, DARPA, RAND, ISRO, IITs, IIMs, IISc, SAMSUNG, Boeing, Raytheon, Lockheed Martin, Google, Apple, Microsoft, TATA, L&T, etc. The brand that will bring visibility, credibility, trust, confidence, respect and acceptance to the organisation. DRDO also must ponder, what brand "DRDO" can do for India's international posturing? What is DRDO's contribution in global peace and security? Contribution in the knowledge economy of the country for Indian masses, Indian social, political, economics, resources?

These pertinent issues have some relatable and contextual answers. In the global context, *DRDO must enhance R&D Collaboration leading to capacity building and growth of domestic industry*; exchange of scientists and researchers through overseas academia collaborations (attracting the Indian talents from abroad back to India?); pursuance of global engagement with commitment to enhance intra-operability of military systems developed by DRDO; extending R&D portfolio suiting to global demand. Collaboration enhances knowledge and improves self-evolution. To improve its connectivity with the common man, DRDO must bring its societal missions to the centre stage to win people's confidence, trust and recognition.

DRDO as an R&D organization has obligation to act as a science interface in the promotion of S&T, and bringing scientific temperament and consciousness in the civil society; developing S&T community in the country through academics and research pursuits; patents generation, innovation and discovery, extramural research programmes, and sponsored research. DRDO scientists must patronize in-house science journals to publish their researches. DRDO should also be aware of its responsibility of creating the repository of sharable researches in building a knowledgeable society in the country. It must be understood that the impact of the researches and supported R&D is not only for enlighten the individuals committed to research but is also for upliftment of the society. DRDO can be among the early exploiters in making the research data re-useable and promoting data citation practices. The documents such as, DRDO's International S&T Perspective; DRDO's Engagement Strategies; Enhancing Collaboration between R&D and Foreign Industry; Governing Military Technologies; International Approach to Defence R&D; etc., would help DRDO in articulation its' vision and mission on engaging foreign countries, and that would bring instant International recognition to the organisation. The "academic pursuit" towards developing knowledge economy should have the missionary zeal.

The digital and media campaigns are two very straight forward arrangements to connect with the masses and contributing socially and politically. DRDO has created a substantially robust infrastructure in the form of DRDO wide Intranet, DRDO website, and e-governance services for digital empowerment. The synergy between various laboratories however needs improvements to achieving a greater efficiency and deliverability. The DRDO website should have all the

trappings to be a truly dynamic, bilingual, content rich, content search facility, a clear representation of DRDO policies, programmes and services. Information based web services and supporting mobile and e-commerce applications; document management, and archiving needs. Availability of good research material would lead people to DRDO website. A two-way communication to provide e-consultation, discussion forums and replies to feedback serves as channel to communicate with masses and enhances the global reach. The stories of DRDO's achievements; projection of S&T initiatives; description of what DRDO is doing for the country through societal missions and dual use items, can hold the interest of the people. For research community, stories of great scientists and achievers will resonate, who wished to follow their lives in the same way.

The building of brand from the inside out must be a priority for DRDO. A study undertaken by Harvard on Taj attack happened in Mumbai, pointed to certain eye-opening strategy of the Taj, the brand which commands quality, prestige and respect. During the attack, no one of Taj employees abandoned the hotel but ran right through the attack, they helped guests escape. This act confounded the psychologists but finally they pin pointed to three strategies of the Taj. The important ones were, Taj taught their employees to be ambassadors of their guests of the company and not the ambassadors of the company to the guests; Taj, empowered them to take decision. Being Ambassador, kindles the spirit of organizational loyalty and zeal to do good for both, customers and the organisation, and being empowered energizes them and makes them feel in command. The narrative suggests that own "employees" are most important resource of a company; they are our full-time ambassadors/promise keeper to deliver the branded experience to the customers¹⁶.

While it is necessary that DRDO creates its own brand ambassadors; the equally important aspect is spreading of brand awareness in the political and bureaucratic fiefdom. DRDO must hasten the action plan in ensuring national security and capacity building by outlining DRDO's strategic intent for recognition as a Centre of Excellence for Research, Design and Development, improving acceptance in political/bureaucracy and stakeholders. DRDO through enhanced International R&D Collaboration has the potential to be a pivotal in the progression of bilateral and multilateral relations for the country for geo-political and global security paradigm advantages to India and leveraging home grown S&T competence to mitigate global threats to the country. Besides, for DRDO to remain in the nation's consciousness and visible, it is important that DRDO heightened its' concerns of technology denial and restricted trade practices at inter-ministerial foreign consultations, bilateral and multilateral meetings, India's outreach initiatives which country undertakes to seek India's membership to International treaties, and at the high table between the governments. However, for all above interventions, DRDO's commitments to safeguard the imported critical weapons sub-systems, components, materials and technologies; adherence to non-proliferation, International trade practices and licensing requirements, are keys to success.

6. CONCLUSIONS

The external and internal security threats that India faces today are very diverse, dynamic and complex in nature. To counter the evolving threat environment from external aggression and cross-country terrorism, DRDO has made a significant impact on India's security and defence preparedness. The R&D efforts however need more consolidation and vibrancy. In the past the political ambivalence and self-doubt has slowed down the pace and intensity of DRDOs' developmental intent. The present political settings are different. It is era of confidence and pragmatism, DRDO should make good strides towards stardom. DRDO must make use of country's vision of 'Make in India' to its advantage by accelerating the pace of self-reliance and indigenization; complementing the growth of domestic defence and civil industry by feeding with advance technologies. Through DRDO-Industry-Academics ecosystem, industries have been matured by DRDO, the handholding should continue for the sustenance of the capability to produce state-of-the-art military weaponry and platforms. DRDO has proven its worth in meeting country's aspiration and country has many reasons to be grateful to DRDO. However, DRDO's visibility is a necessity for India's growth trajectory. DRDO must transform into an agency that could visualize country's needs before those needs yet existed; an Organisation that could research and develop the weapon systems of the future. A Defence R&D Organisation that provides an integrated science and technology as a package offers strategic S&T capability planning; partners with industry, academia, government departments and foreign contemporaries². An organisation that has the tenacity to create revolution in military science; an organization that is equipped to dominate over the rest of the world and hold sway by technology might².

Tough test and tougher challenges await. DRDO must load, lock and fire. For Brand "DRDO"– boundary should ... expand consistently, characteristics should keep changing and its stature should keep growing¹⁷. With *continuous efforts, DRDO will usher into newer innovative areas of Defence Technologies and position itself among a few top brands; DRDO hope to achieve more milestones for the country and strengthening the nation*".

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