Aerospace and Defence

...Reflections & Outlook 2021

January 2021

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2021 will be a test of the learnings from 2020 on how best the path towards indigenization can be mainstreamed - with the budget being the first major step

2020 is behind us and was a strange year - India perspective

Challenges we witnessed

Defence: 2020 witnessed significant border tensions on the LAC which led to several emergency procurements in order to shore up the reserves possibly also resulting in a lot of forex outflow. This would have put pressure on the exchequer. On the industry front, there was subdued production activity for most part of the year.

Commercial aerospace: A decline in air travel led to reduced production rates of commercial aircraft and with pre-COVID air travel levels still some time away, the production rates may as well continue to move at a slow pace. In a capital-intensive industry, which has a high gestation period, 2020 resulted in headwinds beyond control.

Overall, 2020 was a year marked with a lot of uncertainty which may result in cautious investment flow in the coming 2-3 years also. The events in 2020 may arguably have made some significant dents in investment appetites of the industry and it would take a while for that to increase.

Visible Positives

While operationally there were many challenges in the **Defence segment** in 2020, at the strategic level movement on the policy front has been significant.

Defence: The DAP 2020 and the DRDO PM 2020 were formalized. The negative list for imports was released and a separate budget allocation for domestic procurement was announced as steps towards indigenization. FDI was increased to 74% under the automatic route. Aero engine and fab were declared as projects of national importance. BECA was signed between India and the US, providing India access to real time geo-spatial intelligence of the US.

On the **commercial aerospace** front, Vande Bharat Missions along with 'air bubbles' arrangements have ensured a continuity in relationships with countries. Air India has reportedly generated interest from multiple bidders including the Tata group.

The **UAV segment** has seen a lot of traction. Draft UAS Rules and the drone traffic management policy are two significant developments that will enable the UAV segment to further expand in the country.

Space has been opened to the private sector - another significant milestone.

The latter part of the year saw positives in the **Export** potential of Akash missile being exploited.

The establishment of **IFSC Authority** in April 2020 is another positive that should stand in good stead going forward.

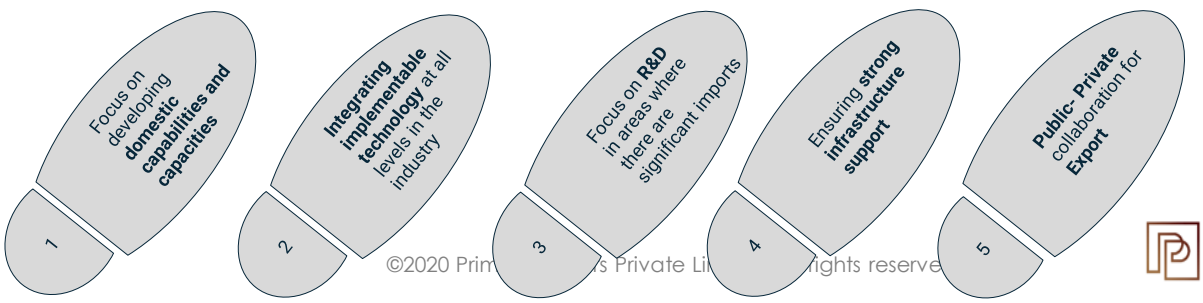
...but some challenges still remain...

The aerospace and Defence industry is capital intensive and has a high gestation period which is a barrier for new entrants. With Covid-19 having impacted 2020, the **uncertainties** within the industry have further increased.

(1) Uncertainty of countries having the requisite resources to meet their **Defence budget** requirements,
(2) Uncertainty of **air travel** coming back soon to pre-COVID levels,
(3) Uncertainty of the smaller players in the **supply chain** being able to meet the demands and timelines of the OEMs while surviving this pandemic.
(1) Uncertainty of the **financial position** of the private industry subject to their debt positions and their interest obligations

Challenges remain (in some cases have been further aggravated) and would require concerted efforts, from Government and industry alike, to ensure some stability in the new normal.

...and the agenda for 2021 should include a focused approach on...



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It is important to focus on developing new strengths while building on the existing ones

1 Fab: Gains impetus as a project of national importance

India has gradually moved up the value chain in the Defence electronics segment - from final assembly to SKD and CKD stages of manufacturing. However, the value add by domestic industries is still reportedly very less at around 15-20%.

Being a dual-use product, the overlapping benefits of having a domestic supply of the semiconductor wafer far outweigh the costs and / or capital investment required in the same. In aerospace and Defence alone, the requirement for Defence electronics is across platforms (land, naval, aero) and systems (platform electronics, data links, seeker electronics, SIGINT, EW and COMS).

The first super fab lab was set up in Kerala along with MIT. IIT Madras and IIT Mumbai reportedly have projects 'Shakti' and 'Ajit' dedicated to this segment. MeitY issued an EoI in December 2020 seeking inputs across three categories. There is work being done and needs to be accelerated going forward.

2 Materials: Finds incentive structure

Materials is a core industry when it comes to aerospace and Defence platforms. It is a fast growing one because globally there is a shift from the traditional heavy materials towards the more light, strong and durable materials with low maintenance requirements.

The fact that now there is a dedicated section in the DAP 2020, specifying the focus on use of indigenous materials, is reflective of its criticality to the ecosystem. However, progress requires both technological know how and capital investment along with the basic understanding of extent of availability within the borders.

It is important to scan the environment for the presence and availability of important materials as also investing in R&D for developing stronger materials. For e.g., the raw material for metal 3D printing is an important element that needs to be catered for. Similarly, composites is another material being used extensively in all platforms.

3 Aero engine: Identified as the key to save forex outgo

The demand for aero engines in India for this decade adds up to ~1,400 for civil aviation and ~2000 for military segments (spares and MRO separate). While these estimates are still pre-COVID, it highlights an important fact that aero engines alone could lead to billions of dollars of forex outgo when considering the life cycle cost for engines.

The LCA Tejas for example can potentially become 30% more indigenous (by value) if an indigenous engine can power it. An entire ecosystem can be built around the aero engine complex being planned. A consortium of government and private industry can together move forward on the subject along with a foreign technology partner.

With the existing presence of some companies in the tiered supply chain for aero engine manufacturers and GTRE also having worked on the Kaveri prototype, it will not be a start from scratch and hence would be slightly easier to build capabilities and capacities.

It is important to focus on developing new strengths while building on the existing ones

4 Space: Private participation will ensure the sector scales newer heights

Till date, the private companies in India's space ecosystem were involved in a limited capacity including supply of components and sub-systems. The space industry in India was opened to private sector participation across the entire spectrum of space activities 2020. IN-SPACe was formed as an arm of ISRO to ensure a 'level playing field' to private companies. The allowance to use ISRO's existing infrastructure and other resources will act as an enabler for the private sector. Private sector will now supplement resources to ISRO.

Space is soon going to be become the fourth dimension of war. Combat Weapons will extend into space and will be another avenue for expansion of companies currently in the A&D domain.

Even on the commercial front proposed projects like the human space flight missions (Gaganyaan), lander rover missions (Chandrayaan-3) and the Venus mission (pre-COVID timelines of June 2023) offer opportunities to the private sector to be a part of the ecosystem.

5 MRO: The key that binds everything by ensuring serviceability

Reportedly more than 90% of the business of commercial aerospace MRO is conducted outside India. The annual import of MRO Services by Indian airlines alone was estimated at around INR 9700cr in the Economic Survey for 2019-20.

With India's projected civil aviation market (pre-COVID estimates) expected to continue its upward trajectory it is important to ensure that more of the MRO is done in India. This will prevent forex outgo, save on fuel costs and reduce maintenance costs for operators / users while ensuring the ecosystem is developed in the mid to long term.

As part of the COVID-19 stimulus measures, the Government has already announced its intentions to make India a hub for MRO of not just civil but also military aircraft. A convergence of such magnitude could potentially fast track the intent to make India as an MRO hub because this would offer a diversified approach for MRO thereby ensuring stability from a business perspective.

6 Optimising force structure with increasing cost of modernisation

With increasing cost of modernisation, commensurate saving must accrue in the equipment and manpower for it to be optimum in cost implementation. The concepts of the number of forces and their structuring in operations, needs a change to enable commensurate savings for modernisation.

Integration must be enabled across the three services wherein capabilities can be synergized leading to exponential increase in effect of weapon impact and duplication of resources weeded out.

The dogma of the multi fold threat must become the catalyst for change in induction of technology, which, considering the financial constraints of a growing economy, can take place by optimising the force strength both in terms of men and weapons/equipment.

India has developed indigenous capabilities on platforms across the land, aero and naval segments. Be it the LCA Tejas / Dhruv helicopters (aero), Arjun tanks / ATAGS (land) or the frigates / OPVs (naval) - all the platforms reportedly have significant indigenous content.

Ensuring an indigenous supply chain in the electronics and aero engine segments would ensure war and Defence preparedness of India by preventing from supply shocks in case of global events like the ongoing pandemic while also being a lesser burden on the exchequer.

Technologically advanced materials are anyways always required to make the platforms more agile and efficient.

MRO as an opportunity proposition falls into place automatically as it is a critical component for any product / equipment / system / sub system. It ensures serviceability.

Focusing on the above five big ideas will ensure that while India builds on its existing capabilities and capacities, there is also a dedicated progress on the segments that bind together the existing strengths

Attempting to achieve difficult targets is what will be the motivation for achieving in this sector

Few key questions that will need executable answers

How can the private industry be given an equal and fair chance across the entire spectrum in procurement contracts, just as the DPSUs?

Just like CSR, should it be made mandatory for ALL companies (over a particular turnover threshold) to invest in R&D and produce tangible results at regular intervals? In order to ensure there is no duplication of efforts should large companies be segmented in their R&D efforts? The Strategic Partnership model will be the catalyst.

Will it make business as well as strategic sense to emphasize zones / clusters in the country with individual and exclusive specializations on the lines of how Mexico has evolved its industry?

…and what policy / budget clauses can enable implementing the above

Many of the private companies in India have at numerous occasions proved their capabilities in the aerospace and Defence sector. Be it the companies in Hyderabad and Bengaluru that supply aerostructures to the foreign OEMs, or in Surat which has delivered gun systems before time - the results are there for all to see. Hence, policy and budget clauses or discussions should be focused on the private sector (including MSMEs and start ups) and enabling them into a greater force to reckon with in the country's ecosystem.

- One primary policy measure that can enable private companies to further their ambitions in the sector in India is the **removal of nomination-based award of contracts to DPSUs.**
- **Implementation of the L1-T1 framework** would also be important for indigenous procurement so that it rewards companies that conduct R&D to a slightly higher price).
- A **dedicated financing arm** that utilizes funds like the existing offset obligations for capital procurements should also be considered. A portion of the same fund can also be utilized for the corporatization of the Ordnance Factories.
- **More allocations to the capital portion** of the Defence budget - more than the current trend of a third share. Cost of technology advancement has to be offset by saving in manpower and equipment/weapons in order to enable technological advancement.

What to look out for in 2021

1. Trajectory of Defence budget
2. Quick closure of long-term Strategic programs
3. Corporatization of Ordnance Factories and implementation of the Defence Testing Infrastructure Scheme
4. Extent to which Leasing is leveraged in Defence procurement
5. Status update on procurement programs including:
   - NUH and P-75(I) procurement plans
   - Artillery procurement programs including the ATAGS
   - Armed UAVs like the MQ-9B
   - Anti Drone/Swarm and kamikaze drone capability

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'Idea Realization'— a unique approach to examine futuristic ideas required for the growth of an organization or a sector or geography, from the perspective of assured on ground implementability.

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Primus Partners Contacts

Nilaya Varma
Co-Founder & CEO

Maj. Gen. Rohit Gupta, SM (Retd.)
Head - Aerospace & Defence

Amit Dugar
Vice President, Sector Lead – Aerospace & Defence

Pooja Ahluwalia
Vice President, Head of Research

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For further details please write to research@primuspartners.in

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