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# INSIDE

**Exclusive** Interview: Focus on Indigenisation: Ashok Kumar Gupta, Secretary, **Defence Production** 6



Rolls-Royce Going Beyond Technology Transfers and Manufacturing	8
Policies Uplift Investor Sentiment: Pierre de Bausse President & MD, Airbus India	et, 10
Israel Aerospace Industries Array of Systems on Show	11
Advanced Hawk in Indo-UK Colours Makes Debut	12
Make in India, Core of Honeywell's Strategy: Faizi Mohsini,Country Head, Defense & Space, Aerospace- India, Honeywell International 14	
BEL Aims at 12-15% Growth: M.V. Gowtama, CMD, BEL 21	
Exclusive Preview: Aero India 2017	22



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# MODI-FLYING INDIA!



PRIME MINISTER NARENDRA MODI AT THE AERO INDIA 2015 AIR SHOW

#### By R. CHANDRAKANTH

ith a massive electoral mandate, Narendra Modi was sworn-in as the Prime Minister on May 26, 2014. Coming to power on a development plank, the Bharatiya Janata Partyled National Democratic Alliance (NDA) stepped on the gas, accelerating the pace of economic and social reforms, creating an ecosystem for economic development, and infusing enormous investor-confidence. This has pervaded almost all the verticals.

Aerospace and defence have taken centre-stage in the transformation process of the nation, thanks primarily to the Prime Minister Modi who has been aggressive in pushing ahead the reforms process, the decision-making process and also the acquisition methods. He has been single-minded and determined to catapult the country into a major economic power in which defence and aerospace are going to be pillars.

One of the first major defence acquisition decisions that Modi took in the very first year of his term was 'disruptive' in nature. While the previous UPA government was dragging its feet on the 'Mother of all Deals' — to purchase 126 medium multi-role combat aircraft (MMRCA), the Prime Minister while on a visit to France made a surprise announcement to buy 36 Rafale fighter jets from France in a fly-away condition at a cost of \$8.8 billion. The first of the Rafales is expected by September 2019 and all jet fighters will be at the disposal of the Indian Air Force within six years. It took 16 years for an Indian Government to fulfil the commitment of the Indian Air Force which has a much higher requirement of combat aircraft, if it needs to scale up its squadron strength.

That was the beginning of firm decision-making. Importantly, along with acquisition, the Modi government realised that unless reforms were in place, nothing much would change. At regular intervals, the government is coming up with policy changes in aerospace and defence sectors, the positive impact of which will be felt in the short and medium term.

Here are some of the highpoints in aerospace and defence in the almost three years of Prime Minister Narendra Modi governance:

### IN 2014-15

#### Defence

- Foreign equity cap in defence was raised from 26 to 49 per cent; 74 per cent in case of technology transfer.
- On September 25, 2014, Modi's topmost initiative 'Make in India' was launched to encourage national and multinational companies to manufacture in India to cater to the world market. Aerospace
- Announcement of draft National Civil Aviation Policy to create a vibrant sector.

#### IN 2015-16

#### Defence

- **36 Rafale jets:** On April 10, 2015, Modi on a visit to France announces purchase of 36 Rafale fighter jets, as the decision on the MMRCA deal was getting protracted (later it was scrapped).
- **Record 56 defence manufacturing permits:** To accelerate domestic defence industry growth, the government accorded 56 permits to private sector entities, which was more than the 47 licences its predecessor UPA had granted in the preceding three years.
- **145 BAE's M777 ultra-light howitzers:** The Defence Acquisition Council approved purchase of 145 BAE's M777 ultra-light howitzers at a cost of ₹2,900 crore.
- Akash Weapon System: Indigenously developed supersonic short range surface-to-air missile,



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SP's @ 53 PURSUING EXCELLENCE OVER FIVE DECADES SINCE 1964

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### LEAD STORY

**AERO INDIA 2017** 

inducted into the Indian Army on May 5, 2015.

- Apache helicopters: In September, a contract was signed for procurement of AH-64E Apache attack helicopters with deliveries expected from July 2019.
- **Chinook CH-47F helicopters:** Contract signed for procurement of Chinook CH-47F (I) heavy-lift helicopters.
- 'One Rank, One Pension': After a gap of more than 40 years, the much awaited 'One Rank, One Pension' (OROP) scheme was announced on November 7.
- Aerospace
- Foreign direct investment limit increased: FDI by foreign airlines increased to 49 per cent in scheduled air transport service/domestic scheduled passenger airline/regional air transport service, up to 100 per cent in non-scheduled air transport services and 100 per cent for helicopter services/seaplane service.
- **Digitisation of Civil Aviation Ministry:** The Modi government embarked on a big digital push within and outside the government. For internal governance, the Civil Aviation Ministry saw the implementation of e-office where all the wings under the ministry like the Directorate General of Civil Aviation (DGCA), Bureau of Civil Aviation Security (BCAS) and Indira Gandhi Rashtriya Uran Akademi (IGRUA) came under a single URL of ca.eoffice.gov.in where all new files are generated electronically. This is a first indeed.

#### IN 2016-17

#### Defence

www.spsshownews.com

- Indian-Russia mega deals: India and Russia signed several major agreements, including two key defence deals following a bilateral meeting between Prime Minister Narendra Modi and Russian President Vladimir Putin on the sidelines of the 8th BRICS summit in Goa. The two leaders witnessed the signing of a ₹39,000-crore defence deal to procure Moscow's most advanced anti-aircraft defence system S-400 Triumph, which will provide India a ballistic missile shield.
- Kamov helicopters: In another key deal that provides a huge push to

Modi's 'Make in India' initiative, India will initially import and then manufacture Russian Kamov Ka-226T light utility helicopters.

- Stealth frigates: India and Russia will also collaborate in making four state-of-the-art Admiral Grigorovich class (Project 11356) guided-missile stealth frigates.
- New Defence Procurement Procedure: The new Defence Procurement Procedure (DPP) 2016 was promulgated for capital procurements on April 1. DPP 2016 has a focus on achieving the 'Make in India' vision by according priority to 'Buy Indian-IDDM' (Indian Designed, Developed and Manufactured) and 'Buy (Indian)' categories.
- **Rafale deal signed:** The much awaited 36 Rafale deal with France was signed on September 23 at a cost of €7.87 billion.

#### Aerospace

- National Civil Aviation Policy (NCAP) announced: In June, the Modi government brought in a radical and transformational policy — the National Civil Aviation Policy. This is the first time since independence that an integrated National Civil Aviation Policy has been put in place, aimed to take flying to the masses by making it affordable and convenient, establish an integrated ecosystem which will lead to significant growth of the civil aviation sector to promote tourism, employment and balanced regional growth, enhance regional connectivity through fiscal support and infrastructure development and enhance ease of doing business through deregulation, simplified procedures and e-governance. The policy is very comprehensive, covering 22 areas of the civil aviation sector.
- UDAN launched: In October, as part of NCAP, Modi government launched the Regional Connectivity Scheme (RCS) known as UDAN (*Ude Desh ka Aam Naagrik* or the common man will fly), that is expected to leapfrog aviation growth to take India to the third spot in global rankings of aviation markets in the near future.

The Prime Minister is laying emphasis on 'Digital India', 'Make in India', 'Start-up India' among other aggressive initiatives which should unleash unparalleled economic growth. While the leadership is moving at supersonic pace, the bureaucracy is weighing it down. It is hoped that the labyrinthine bureaucratic and corrupt machinery will wake up to the aspirations of millions of Indians to make India proud.







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# WEMAKETIN INDEXT

Every Airbus aircraft being produced today is partly made in India. 'Make in India' is at the heart of our strategy here: to partner with India and ensure its success in the aerospace & defence industry.

Airbus. We make it fly.

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### EXCLUSIVE INTERVIEW



# Focus on Indigenisation

In a rare media interaction with SP's ShowNews, Ashok Kumar Gupta, Secretary, Defence Production, outlined his vision for defence manufacturing in India and addressed a wide range of subjects including 'Make in India', DPP 2016, defence offsets, role of DPSUs, investment in R&D, delays in procurement decisions, blacklisting and other related issues.

#### SP's ShowNews (SP's): What is your vision for India's domestic defence industry in terms of defence production?

Secretary, Defence Production (Secretary): As India is transforming from a regional power to a global power, the defence sector is occupying a bigger space in the country's long-term strategic planning. A confident and resurgent Indian defence industry is making forays in manufacturing. The huge opportunities for growth within the domestic and global defence and aerospace industries have attracted the attention of Indian industry.

The Defence Production Policy aims at achieving substantive self-reliance in the design, development and production of equipment, weapon systems, platforms as early as possible, creating conditions conducive for private industry; enhancing potential of small and medium-sized enterprises (SMEs) in indigenisation and broadening the R&D base.

The government aims to make the country self-reliant in defence production, through various initiatives such as liberalisation of FDI (foreign direct investment) and industrial licensing policy, simplification of export procedures, creating level playing field for Indian private and public sector companies, streamlining of offset implementation process, providing preference to 'Buy (Indian Designed, Developed and Manufactured)' (Indian-IDDM), 'Buy (Indian)', 'Buy and Make (Indian)' categories of capital acquisition over 'Buy (Global)' category in Defence Procurement Procedure (DPP).

#### SP's: The new DPP 2016 is being referred to as game changer for the sector. How do you see it altering the Indian defence growth story?

Secretary: The DPP 2016 focuses on achieving the 'Make in India' vision by according priority to 'Buy (Indian-IDDM)' and 'Buy (Indian)' categories. It also mandates increased indigenous content. The 'Make' procedure has been simplified with provisions for funding of 90 per cent of development cost by the government to Indian industry and earmarking projects not exceeding development cost of ₹10 crore (government funded) and ₹3 crore (industry funded) for the micro, small and medium enterprises (MSMEs), creating an ecosystem in defence manufacturing.

#### SP's: What are the key points of DPP 2016 for a foreign OEM looking at **Indian market?**

Secretary: India is in the midst of modernising its armed forces and an estimated \$250 billion will be spent on capital procurement in the next 10 vears. In the policy, 'Buy (Indian-IDDM)', 'Buy (Indian)', 'Buy & Make (Indian)' are preferred categories which means that increasingly request for proposals (RFPs) will be issued to the domestic industry. The only way for the foreign OEMs to leverage domestic demand is to tie up with domestic companies either for collaborative R&D followed by production or through transfer of technology for production through joint ventures or set up their own manufacturing base.

A number of potential 'Make' projects have been identified which are likely to follow 'Make' procedure for development-cum-procurement. The foreign OEMs can collaborate with the Indian vendor, the prime contractor, for development for defence equipment. Provisions have been introduced to allow foreign OEM to select Indian production agency for transfer of technology for maintenance infrastructure.

Offset implementation process has been made flexible by allowing change of Indian offset partners (IOPs) and offset components, even in signed contracts. Foreign OEMs are not required to indicate the details of IOPs and products at the time of signing of contracts. Services as an avenue of offset have been reinstated with conditions.

#### SP's: How exactly are the 'Make in India' initiatives for aerospace and defence sector being promoted? What has been the reaction of foreign OEMs?

Secretary: 'Make in India' initiatives are being promoted though various policy initiatives and amendments in procurement procedures which would result in ease of doing business, encourage and facilitate private sector to participate in defence manufacturing, nurturing R&D culture. Following are the initiatives:

- FDI: FDI is allowed through automatic route up to 49 per cent and government route beyond 49 per cent wherever it is likely to result in access to modern technology or for other reasons to be recorded.
- Industrial Licensing: The Defence Products List for issuing industrial licences (ILs) under IDR Act is revised and most of the components, parts. subsystems, testing equipment and production equipment have been removed from the list, reducing the entry barriers for the industry, particularly small and medium segment. The initial validity of IL has been increased from three years to 15 years, extendable by three years on a case-to-case basis.
- Defence Exports: The list of military stores has been put in the public domain, making the process transparent. The process of receiving applications for no objection certificate (NOC) for export of military stores and for issuing NOC is online. The standard operating procedure for the issue of NOC for export of military stores is on the website. The requirement of end-user certificate to be countersigned/stamped by the authorities is done away with for export of parts, components, subsystems, etc.
- Defence Offsets: Offset implementation process has been made flexible by allowing change of Indian offset partners and offset components, even in signed contracts. Services as an avenue of offset have been reinstated with certain conditions.
- Level Playing Field: Exchange rate variation protection has been made applicable for Indian private sector at par with PSUs for all capital acquisitions. The preferential treatment given to DPSUs in excise duty/customs duty has been discontinued. All Indian industries (public and private) are subject to the same excise and customs duty levies.
- 'Make' Procedure: The 'Make' procedure has been revised to promote IDDM of defence equipment/platform. It provides for enhanced government funding of 90 per cent of development cost and preference to MSMEs for categories of projects, boosting manufacture of indigenously designed products through collaborative process with Indian industry.
- Buy (Indian-IDDM) in DPP 2016: Introduction of a new procurement category 'Buy (Indian-IDDM)' by which priority has been accorded to procurement from Indian vendors of products that are indigenously designed, developed and manufactured.
- Preference to Indigenous Procurement: Preference is given to procurement under 'Buy (Indian-IDDM)', 'Buy (Indian)' and 'Buy and Make (Indian)' categories of capital acquisition over 'Buy & Make' or 'Buy (Global)' categories.

The foreign OEMs have exhibited a lot of enthusiasm to participate in 'Make in India' initiative. Several OEMs have entered into or are in the process of tie-ups with Indian defence companies for supply of defence equipment categorised as 'Buy and Make (Indian)' and 'Buy and Make'. •

#### Continued on SP's ShowNews Day 2



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### INTERVIEW ROLLS-ROYCE

# **Rolls-Royce Going Beyond** Technology Transfers and Manufacturing

"Our vision for the future moves beyond technology transfers and manufacturing to creating a broader ecosystem that includes co-design, co-development and co-manufacturing."

#### -Kishore Jayaraman, President, Rolls-Royce, India & South Asia

#### *SP's ShowNews* (SP's): How has your partnership with India progressed over the past few years?

Kishore Jayaraman (Jayaraman): Over the last 80 years, we have invested time and resources to contribute towards the development and transformation of the aerospace and defence ecosystem in India. We have created best-in-class supply chains and engineering capabilities which are contributing to the development of Indian industry. Given our belief in India's potential to be the hub for manufacturing and innovation, we have set up Engineering Centres in Bengaluru and Pune. These centres continue to build capabilities and capacity to do a wider spectrum of engineering design and development. We are also growing our supply chain capabilities and engaging with companies like Bharat Forge, Godrej & Boyce and TASL (Tata Advance Systems Limited) to get into more complex commodities. Together with the Hindustan Aeronautics Limited, we intend to grow our JV partnership (IAMPL), which manufactures a wide range of engine components including compressor shrouds and cones for our gas turbines, with a focus on opportunities



to collaborate on co-development. With about 10 engine types in service with the Indian Air Force and the Indian Navy, we provide a wide range of support solutions ranging from provision of technical advice, through supplying spares and material to the Indian armed forces. Our partnership with the Strategic Manufacturing Skills Council for defence sector and with Rajiv Gandhi National Aviation University (RGNAU) enables us to build future competencies required by the Indian A&D industry. Overall, we are building an ecosystem that will allow us to eventually embrace opportunities to co-develop and co-manufacture with the right Indian strategic partners.

#### SP's: What are your views on the Indian defence industry?

**Jayaraman:** Modernisation, reforms and technology are the three crucial elements that currently define the Indian defence industry, and each play an instrumental role in driving the growth and stability of the sector.

The strong growth in the industry, aided by government's important policy reforms and initiatives, is already attracting foreign original equipment manufacturers (OEMs) and leading companies from the domestic private sector to enter the market. Given the government's focus on fleet modernisation and clear vision for building an indigenous defence industry, the growth in domestic demand will continue to be robust. India also has aspirations to become part of the global supply chain for some of the biggest defence suppliers in the world. The key drivers supporting this are the country's big pool of engineering talent, its cost competitive advantages as well as several positive policies that work to improve ease of doing business in defence manufacturing. All these initiatives, coupled with the country's vision to achieve better defence preparedness, own advance technology, build robust manufacturing and create highly skilled workforce, offers immense opportunities for foreign OEMs, SMEs as well as private domestic players to be a part of this emerging growth story.

# SP's: Looking towards the future, where do you see Rolls-Royce heading in India?

**Jayaraman:** Our vision for the future moves beyond technology transfers and manufacturing to creating a broader ecosystem that includes co-design, co-development and co-manufacturing. This in turn will result in not just technology transfer but also capability creation and skill development. Through

ply chain activities, we have already demonstrated our long-term commitment to strengthen our distinguished legacy and play a major role in developing an ecosystem that will engage in co-creation across the entire value-chain — from research, design and development to manufacturing, maintenance and repair. This is what Rolls-Royce considers to be one of its core strengths. Overall, our belief in India's talent and its manufacturing capabilities, coupled with our commitment to play a key role in India's indigenisation vision positions us to embrace opportunities to co-design, co-develop and co-manufacture with right Indian strategic partners.

our engineering centres and growing sup-

SP's a 53 DVER FIVE DECADES

SP's: What do we need to focus on to support growth of the defence sector in India? Jayaraman: The country's aspiration to evolve from a regional power to a global power has led to creation of well-defined initiatives focusing on achieving indigenisation and self-reliance. The government has taken several positive steps to encourage transfer of technology. Opening the sector to 'modern' technology is also a step in the

right direction in the journey towards ecosystem development.

'Make in India' and the host of other reforms such as increased FDI, ease of doing business, etc. will give a boost to indigenous manufacturing sector with modern technologies and best practices being shared by global OEMs. Also, protection of intellectual property is always important, so it's great to see the new India/UK Government MoU, signed during Prime Minister Theresa May's visit, on working together to better provide this.

Currently, the country is at the right juncture to build a vibrant local defence industry ecosystem that could support both domestic and export demand. The need of the hour is increased partnership and collaboration between all key stakeholders — the government, foreign OEMs and the private domestic Indian industry with a focus on developing a strong and sustained R&D as well as creation of a highly skilled resource base.

#### SP's: What will be Rolls-Royces focus for Aero India 2017?

**Jayaraman:** At Aero India, we are focusing on the theme of 'Co-creating the future with India', which translates to recognising the deep relationships we have built up over many years, moving beyond just 'Making In India' and really looking for opportunities to create the indigenous defence aerospace future together with India.

This year, we are showcasing our Adour engine as well as the Advance Military Fan Concept. The Jaguar has flown with Rolls-Royce Adour Mk811 since 1981 and the Adour Mk871 has been powering the new Hawk advanced jet trainer, which recently clocked 1,00,000 hours of flying hours with the Indian Air Force.

The Advance Military Fan Concept is designed to improve core efficiency while minimising installation effects. It's an example of how we can produce rapid prototypes at the early stage of an advanced engine programme to derisk technical and industrial decisions before launching a full development programme.

Aero India offers a perfect platform for us to showcase our current capabilities and progress our aspirations for working with our Indian partners in the future. It is also a unique opportunity to meet a huge range of our customer base thus enabling us to further our relationships and talk about how we can help drive capability in India — both for the operator and the industrial base. •





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### INTERVIEW AIRBUS



# **Policies Uplift** Investor Sentiment

**Airbus** has a strong manufacturing footprint in India. "It is also worthwhile to mention that on the civil aircraft side, we already have an industrial engagement with India which is unmatched by any other foreign OEM." **Pierre de Bausset**, President & MD, Airbus India, reveals in an interview with Editor-in-Chief of *SP's ShowNews*, Jayant Baranwal.

#### *SP's ShowNews* (SP's): How does Airbus view the recent policy changes in defence, especially the one liberalising rules for foreign companies to own a majority stake in manufacturing ventures in India?

**Pierre de Bausset (Bausset):** Due credit needs to be given to the Indian Government for taking progressive policy steps — liberalisation of defence FDI policy being one of them — with the aim to boost defence manufacturing in India. The next step is implementation.

# SP's: Is Airbus encouraged by the government's policy changes and will this prompt the company to set up a manufacturing base in India?

**Bausset:** The policy changes introduced by the government are pragmatic and they do uplift investor sentiment. We already have some programmes underway which once they fructify — meaning once we get the contracts from the Ministry of Defence — will allow us to have a defence manufacturing base in India. We have a partnership with Tata to build the C295W military transport aircraft and with Mahindra to produce military helicopters.

#### SP's: Will sealing the naval utility helicopter (NUH) deal for the Indian Navy be a trigger for Airbus to decide on manufacturing in India?

**Bausset:** Our defence manufacturing plans in India are not contingent on just one programme. The C295W programme with Tata is one example. That proposal is currently with the Ministry of Defence and is advancing. This programme holds out the promise of creating a private sector aircraft manufacturing capability in India within an ambitious time frame, and nurturing a widened supplier base with an increasingly skilled workforce.

Our partnership with Mahindra envisages creation of a private sector champion in India for manufacturing military helicopters. This includes the reconnaissance and surveillance helicopter (RSH), naval multi-role helicopter (NMRH) and naval utility helicopter (NUH). We are offering our 'Panther' for the NUH. If we get the contract, we are willing to create a final assembly line for the 'Panther' in India and make India a global hub for its production.

Since we are talking about Airbus' manufacturing footprint in India, it is also worthwhile to mention that on the civil aircraft side, we already have an industrial engagement with India which is unmatched by any other foreign OEM. We have over 45 Indian suppliers for our commercial aircraft business and we source over \$500 million of aero-structures, detail parts and systems, engineering and IT services, materials and cabins from India annually.

# SP's: Some defence companies we spoke to are planning to use India as an export base. Does Airbus have similar plans?

**Bausset:** While our immediate goal remains to meet the already large needs of the Indian armed forces, once they are fulfilled, the infrastructure that our partners and we would have built in India could and would be used to answer export needs.

#### SP's: What do you think about the progress the Modi government has made in attracting foreign capital to defence in India and how does this compare with earlier governments? And what are the areas that could use some more improvements or change?

**Bausset:** Clearly, the government is keen to make India self-reliant in her defence needs and this reflects in their policy announcements as well as in our private discussions with them. What has been done is to lay the groundwork. What is needed now is for the government to award a few large-scale contracts to jumpstart foreign direct investment and manufacturing activity as part of 'Make in India' in the aerospace and defence sector.

# HAL Upgraded Hawk-i Cynosure of All Eyes

Hindustan Aeronautucs Limited (HAL) has rolled out the first indigenously upgraded Hawk Mk132, named as Hawk-i on the eve of Republic Day celebrations. "This is the 100th Hawk aircraft produced at HAL and we are proud that it has 'Make in India' mark. HAL had conceived a programme for indigenous upgradation of the Hawk Mk132 for achieving self-reliance and has successfully accomplished it", said T. Suvarna Raju, Chairman and Managing Director, HAL. Hawk-i is on flying display at Aero India. The upgrade of Hawk aircraft

was taken up at HAL as to be independent in matters such as in-



tegration of new subsystems or modifications, obsolescence management of avionics systems and to enhance the aircraft operational and training capabilities. HAL has rolled out its own aircraft with the upgrade features in a record time.

In the Hawk upgradation programme, imported mission computer and data transfer units have been substituted with HAL designed and developed systems. This indigenous mission computer in the dual redundant configuration has additional capabilities such as digital map generation (DMG) which provides improved situational awareness. The embedded virtual training system (EVTS) offers improved training capability over the existing system. The Hawk-i also provides secured voice communication and data link capability by integration of Softnet Radio and pilots can configure and select cockpit human machine interface (HMI) for different aircraft platforms. •

# **Israel Aerospace Industries** Array of Systems on Show

In the past year, IAI has achieved hundreds of millions of dollars of sales in the Indian market and is expected to expand collaboration with local companies to produce defence systems

srael Aerospace Industries (IAI) is expanding its collaboration with local leading companies to integrate strategic state-of-the-art systems for the Indian armed forces in a number of areas and in accordance with the Indian Government's 'Make in India' policy. These collaborations are a direct continuation of IAI's business deals in India which totalled some \$500 million in 2016.

IAI has been working with the Indian defence industries and armed forces for the past 25 years, as part of strategic collaboration in many fields. The company collaborates with local companies and works with India's defence agencies as well as the Indian Coast Guard, the Indian Navy, the Indian Air Force and the Indian Army. Joint development projects include the Barak 8 air defence system, in both its maritime and land-based versions; mission aircraft; various radar systems; and UAVs. Collaboration agreements are based on transfer of technology for the benefit of local production as part of the 'Make in India' programme.

Joseph Weiss, IAI's President and CEO said: "India is one of IAI's leading markets. This important market is characterised by long-term collaboration, joint development and production, technology transfer and technical support over many years. We are working to continue to maintain this sta-



JOSEPH WEISS, PRESIDENT AND CEO, IAI

tus in the future, despite growing competition. The excellent reputation that IAI has earned among its Indian customers is vitally important to continuing this tradition of successful cooperation."

IAI is presenting a wide array of strategic defence systems with an emphasis on MRSAM/ LRSAM, in the loitering-munition category, featuring the low-cost Green Dragon, Harpy NG, Harop, and for the first time in India "Rotem" multi-rotor loitering munitions. Moreover, a wide variety of UAVs are on display including the Heron family and the Bird Eye STUAS, which enable a wide variety of intelligence gathering capabilities in various spheres of activity. IAI is also exhibiting strategic radar systems, satellite communication systems, electro-optical systems using high definition technology (M19HD, MO-SP3000HDand MINI-POP) - modular systems for command and surveillance that are compact, with stabilised gyros for night and day observation at a competitive price. In addition, IAI is presenting a variety of mission aircraft for intelligence missions, aerial control and naval surveillance on different platforms, such as AEW&C (Airborne Early Warning and Control), ELW 2090, and the B767-MMTT - an aerial refuelling aircraft. IAI is also highlighting its advanced capabilities in the field of cyber.

-R. Chandrakanth





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### SPECIAL FEATURE

**AERO INDIA 2017** 



# Advanced Hawk in Indo-UK Colours Makes Debut

Strengthens 'Make in India' commitment

D emonstrating its commitment to 'Make in India' campaign, BAE Systems for the first time in India is debuting the Advanced Hawk, the latest development of the world's most successful jet trainer, in collaboration with the Hindustan Aeronautics Limited (HAL), at the 11th Aero India show. This fulfils the commitment made jointly by BAE Systems and HAL at the 2015 Aero India through signature of a memorandum of understanding to explore future possibilities for the Hawk aircraft for India and export markets.

Clad in Indo-UK colours, the Advanced Hawk is on display at HAL's stand, together with a simulator showcasing the aircraft's new capabilities. BAE Systems is also exhibiting at the show with a number of displays spanning the breadth of its capabilities, technologies and platforms.

Building on the success of the Hawk Mk132, which recently completed 1,00,000 flying hours with the Indian Air Force and the Indian Navy, the new features of the Advanced Hawk enable training activities currently performed on frontline fighter aircraft to be undertaken on the updated air platform. The Advanced Hawk will reduce training demands on more expensive front line aircraft, creating additional capacity for operational tasks, whilst delivering fast jet training in a more cost-effective, structured and safer environment. High commonality with the existing Hawk production and support infrastructure in India enables the Advanced Hawk to be manufactured and supported with maximum reuse of facilities, equipment and skills.

Leading the company's participation at South Asia's premier air show are Alan Garwood, Group Business Development Director, and Stephen Timms, Managing Director, Defence Information, Training & Services. BAE Systems India is being represented by Alistair Castle, Country Director, and Nik Khanna, who has recently been named Managing Director.

Stephen Timms said: "The Advanced Hawk is a testimonial of our commitment to sharing technology, capability and knowledge to build advanced systems in India, for India and from India. Together with HAL, we are looking forward to show this industry-funded demonstrator to the Indian and other air forces and seeking their feedback on the combination of features that will better prepare student combat pilots for the demands of front line aircraft."

Alistair Castle said: "'Make in India' is the cornerstone of our strategy and Aero India is an excellent platform for us to engage all our customers and wider industry to explore new ideas for partnerships, whilst strengthening existing ones, such as our association with HAL and Mahindra."

Amongst BAE Systems' displays is the Eurofighter Typhoon, the world's most advanced new-generation multi-role/swing-role combat aircraft available on the market, as well as the Advanced Precision Kill Weapon System (APKWS). The full-colour Striker II helmet-mounted display (HMD) and the BR90 Modular Bridging System are also making their debut at the show along with a broad range of munitions. Striker II is a platform-agnostic, completely digital and now full-colour HMD that provides today's combat pilots with remarkable situational awareness, night vision, target tracking and advanced audio technology — all in one visor-projected system.

BAE Systems recently received a contract from the US Department of Defense to provide 145 M777 ultra-lightweight howitzers to the Indian Army through a foreign military sale between the US and Indian governments.

# Andhra Pradesh: The Emerging Hub of Aerospace and Defence



he new state of Andhra Pradesh is fast evolving into a preferred destination for global businesses in India. Andhra Pradesh, at 10.99%, clocked India's highest GSDP growth rate in Financial Year 2016 FY16. The state is expected to consistently grow in double digits, 300-400 basis points ahead of India's average GDP growth rate. Andhra Pradesh's predominantly coastal geography, half a dozen fully operational ports, presence of good road and power infrastructure makes it an ideal location for upcoming aerospace and defence ventures. The state was ranked first on 'Ease of Doing Business' in 2016, with fastest clearance anywhere for business in India. Under the state's visionary leadership of the Chief Minister N. Chandrababu Naidu the governance has been actively geared towards facilitating establishment of new businesses. The state draws upon its world class infrastructure and vast human capital comprising of knowledge professionals and reform minded bureaucracy to pull out all the stops for ensuring a thriving business environment. With 7.64 lakh acres Andhra Pradesh is today the repository of the largest land bank in the country.

#### THE ECOSYSTEM ADVANTAGE

India's aerospace and defence sector is expected to attract USD 81.7 billion in cumulative investments over the next 10 years. These investments have unique characteristics such as monopsony, long lead times, high capital intensity, and high quality standards. Therefore, it is vital that apart from supportive State Government a thriving ecosystem of private ancillary industries and Government research labs are present within the state to support the vendor base. Andhra Pradesh scores high on this metric.

The State is home to the Eastern Naval Command and serves as the launch centre for the Indian Space Research Organization (ISRO). KeyDPSUs -Bharat Electronics Limited (BEL), Hindustan Shipyard Limited (HSL) and Defence Research and Development Organization (DRDO) Labs have had a long history of operations in Andhra Pradesh. Recently, DRDO had also announced that it is setting up a technologically advanced missile research centre in Kurnool district. Any new investment within the state can easily leverage the existing, highly developed aerospace & defence ecosystem for technology, manpower and logistics support. Some of the leading private entities in Aerospace and Defence in India such as L&T, Walchandnagar, VEM Technologies, SEC Industries have an active presence within the state Other Indian Defence majors and global aerospace majors such United Shipping Corporation (Russia) SAAB (Sweden), Lockheed Martin (United States of America), Airbus (France) and Boeing (United States of America) have also expressed a keen interest in partnering with the state.

#### THE POLICY ADVANTAGE

The State has prescribed graded policy depending on the quantum of Investment being brought in. Investments greater than INR 200 crore in a single standalone unit having order size of at least INR 50 crore qualifies as an Anchor unit. These Anchor Units, qualify for several benefits including, but not limited to, the following:

• Preferential land allotment with ability to sub-lease land parcels to ecosystem partners, subject to certain norms



- Capital subsidy for plant and equipment for the first 10 units in the policy period
- Logistics cost reimbursement for imported items, subject to certain rules

The ready availability of R&D centres staffed with competent personnel makes Andhra Pradesh a thriving ecosystem for innovation and frontier projects. State's entrepreneurial culture can be nurtured within the ambit of a supportive State policy and can be readily aligned with the broader goals of 'Make-in-India' and 'Start-up India' in A&D sector.

Andhra Pradesh's status as a new state allows it to break free of legacy issues and structural bottlenecks. Government of Andhra Pradesh (GoAP) is keen on providing all the fiscal and infrastructural necessities the Government is willing to provide up to 50% of the land costs, building and plant and machinery and 100% reimbursement on VAT/GST/SGST on all input material including Aviation Turbine Fuel for Aircraft MROs in Andhra Pradesh.

Apart from a single window clearance and constitution of a special cell for facilitation of individual projects, GoAP is also looking to provide permission for 24x7operation of A&D clusters in three shifts. Also, to discourage strikes, Aerospace and Defence industry will be declared a Public Utility under the Industrial Disputes Act, 1947.

#### THE INFRASTRUCTURE ADVANTAGE

Andhra Pradesh has three proposed Industrial corridors – Vishakapatnam-Chennai, Chennai-Bengaluru and Bengauru-Kurnool. The expanse of these three corridors covers the whole of Andhra Pradesh, providing vital linkages to manufacturing regions with supply & demand centers giving a massive fillip to economic activity throughout the entire state.

Anantpur, Chittoor and Nellore districts have been earmarked for creation of Aerospace and defence parks. An SPV will provide a developed space in the form of 'plug & play' infrastructure for interested manufacturing entities. The state has six airports, which would increase to 12 by 2020. Andhra Pradesh – Aerospace & Defence Electronics park (AP-ADE), a JV between Andhra Pradesh Industrial Infrastructure Corporation (APIIC) and Vittal Innovation City (VIC) is aimed at creating one the world's finest innovation and manufacturing cluster focused in Aerospace, Defence and Electronics.

The city of Amravati, being developed as a greenfield capital city, will have state of the art infrastructure, inner city canal system and a robust network of arterial roads. The city is bounded by two National Highways NH5 (Vizag-Chennai), NH9 (Hyderabad- Machlipatnam), is currently at a distance of 250 km from Kakinada deep water port, which would be reduced to 100 km once Machlipatnam deep water port becomes operational and is 25 km from Gannavaram airport. It has the unique potential of being India's first 'planned smart city'.

The broader defence sector has seen a surge of technology start-ups especially in countries such as Israel. If business in Andhra Pradesh is able to pivot quickly to address the needs of India and global defence majors by leveraging technology intensive solutions which can be rapidly integrated into complex weapon platforms and larger defence systems, the state can compete with regions such as Haifa in Israel and Silicon Valley in United States in attracting the finest technically skilled manpower and high value Venture Capital.  $\bullet$ 

SP's a 53 DURSUING EXCELLENCE DVER FIVE DECADES



### INTERVIEW HONEYWELL



# Make in India, Core of Honeywell's Strategy

**Honeywell Aerospace** is a manufacturer of aircraft engines and avionics, as well as a producer of auxiliary power units (APUs) and other aviation products. Headquartred in Phoenix, Arizona, it is a division of the Honeywell International conglomerate. In an interview with *SP's ShowNews*, the Country Head, Defense & Space, Aerospace-India, Honeywell International, **Faizi Mohsini** talks about the journey in India over the last 20 years.

# *SP's ShowNews* (SP's): Can you take us through a journey of Honeywell's activities in India in the last 20 years?

**Faizi Mohsini (Mohsini):** For almost 80 years, Honeywell has been committed to delivering solutions to India's aerospace and defence industry. Today, we see India as one of our main hubs for manufacturing and maintaining components and subcomponents. The company's investments and partnerships in India are a sign of our regional growth and strong presence in the country.

We have extended our business across civil aviation and defence by offering expertise in key areas such as engine technology, maintenance, repair and overhaul (MRO) support, unmanned aerial vehicles, navigation and helicopter safety supports. Our strategic associations with local organisations like the Hindustan Aeronautics Limited (HAL) and Tata Power Strategic Engineering Division (SED), have helped us evolve our business in India to match the industry's rapid development.

On the civil aviation front, Honeywell has played an instrumental role in helping the industry prepare for future requirements and evolving user expectations. For example, the Airports Authority of India has selected our SmartPath Ground Based Augmentation System (GBAS) for Chennai International Airport which is the third busiest airport in the nation. With the airport, handling over 10.5 million passengers each year, SmartPath will support future demand at Chennai International Airport by reducing delays and journey times for passengers, lowering operational costs for airlines, and increasing traffic throughout at the airport. In another similar association, Honeywell and Safran signed a memorandum of understanding (MoU) with GoAir to support the development of the electric green taxiing system (EGTS) which helps save fuel and reduce costs.

Hence, Honeywell is strategically placed to meet the mechanical and digital requirements demanded by today's Indian aerospace sector. We have effectively integrated software and connectivity with mechanical components to create a more streamlined airplane for our Indian customers.

#### SP's: How do you position your company in Indian market today?

**Mohsini:** Due to Honeywell's long presence in India, we have been able to establish and maintain long-term relationships with the Indian Government and the Ministry of Defence, as well as companies like HAL and the country's leading airlines.

The 'Make in India' initiative is at the core of Honeywell's strategy in the country's aerospace and defence market. Honeywell has offerings and technologies for a wide range of aircraft, whether they are turboprop aircraft, commercial jets, military aircraft or even space platforms.

Looking at the civil aviation market, as per the Centre for Asia Pacific Aviation (CAPA), Indian domestic air traffic is expected to surpass 100 million passengers by the end of this financial year. This passenger increase will directly affect the fuel consumption pattern of airlines and overall revenue generation, as fuel accounts for as much as 50 per cent of an airline's operational cost. Because of this, Honeywell's current focus is to offer solutions that will improve operational efficiency and reduce congestion. Honeywell's SmartPath groundbased augmentation system is an advanced technology that is easily available to alleviate regional and global concerns around congestion and efficiency.

According to last year's revised regulations, foreign direct investment in the Indian defence industry is now at 49 per cent. Hence, for the next few years, the Indian private sector is looking for foreign partners with \$130 billion of military contracts. Along with our existing associations, this has allowed us to extend our defence and space business solutions to support the Indian military, advancing their capabilities, improving mission success and managing interoperability with other nations. For instance, our recent partnership with Tata Power SED on the Honeywell TALIN inertial land navigator will not only bring high performance technologies to the country, but also incorporate strong local engineering. These technologies will be critical to the success of the Indian Government's 'Make in India' movement. Another major focus for us is on the overhaul and upgrade of military fleets through providing our advanced avionics systems, engines and auxiliary power units (APU) product lines to the Indian military.

### SP's: Honeywell has made some key investments in India. Can you provide us with some details on these investments?

**Mohsini:** India is a high-growth region that Honeywell is heavily invested in. Strategic associations with local organisations like HAL and Tata Power SED, have helped us locally produce in India and develop residential expertise.

Our partnership with HAL led us to secure a licence for the production of Honeywell's TPE331-5 engine for domestic and international use, and after 40 years, the engine remains in service with the Indian military today. Another successful investment has been our agreement with Tata Power SED to install Honeywell's TALIN inertial land navigation on systems like the Pinaka multibarrel rocket launcher (MBRL), advanced towed artillery gun system (ATAGS), and the Akash surface-to-air missiles. Due to these long-term associations, Honeywell continues to contribute towards the 'Make in India' initiative as well.

Honeywell is also investing heavily in the next-generation of talented engineers and pilots in India. The Honeywell Technology Solutions Inc. engineering arm, based in Bengaluru, has developed connections with schools and universities as a commitment to train young Indian engineers in the aerospace and defence sector.

With these strategic investments, our aim is to contribute and develop a more advanced, capable and successful ecosystem of Indian aerospace manufacturing and engineering talent.

## SP's: Which sector in India appears to be the most promising today through your eyes?

**Mohsini:** Looking at Honeywell's growth trajectory for the coming years, India as a market itself seems to be very promising across various sectors. Specifically, the aviation sector is growing strong. According to the International Air Transport Association (IATA), India has the fastest growing domestic aviation market in the world. As India is expected to be the world's third largest aviation market by 2020 and the largest by 2030, the industry is experiencing a new era of expansion.

Last year, the Ministry of Civil Aviation introduced the new National Civil Aviation Policy, which includes proposals such as allowing new airlines to fly abroad and the introduction of more regional flights. With these developments and the Prime Minister's ongoing 'Make in India' initiative, the aviation sector has witnessed substantial growth in its market of low-cost carriers (LCCs), modern airports, foreign direct investment (FDI) in domestic airlines, advanced information technology (IT) interventions and growing emphasis on regional connectivity.

According to Indian Brand Equity Foundation (IBEF) figures, passenger traffic during 2015 increased at a rate of 21.3 per cent, from 70.54 million in 2014 to 85.57 million in 2015. In light of this positive outcome, the government also introduced various proposals for MRO operations for airplanes last year. These include customs and excise duty exemption for tools and tool-kits used in MRO works.

All these rising figures and the untapped potential of the Indian aviation sector show a promising future for Honeywell's offerings to the Indian aviation market. With the government's support for implementing the right policies and focusing on quality, India is currently among the five fastest growing aviation markets globally.  $\bullet$ 

#### Continued on SP's ShowNews Day 2



## नवरत्न रक्षा पीएसयू

# देश के रक्षा बलों को सशक्त बनाते हुए



भारत इलेक्ट्रॉनिक्स लि. (बीईएल), भारत की अग्रणी रक्षा इलेक्ट्रॉनिकी कंपनी ने सैनिकों के निर्णायक मिशनों में उनकी सहायता करने वाले उत्पादों की व्यापक श्रृंखला तैयार करते हुए देश के सशस्त्र बलों को सक्षम बनाने का अपना लक्ष्य तय किया है। एक बहु-उत्पाद, बहु-यूनिट वाली कंपनी, बीईएल को अपने उच्च परिशुद्ध उत्पाद जिसकी सभी प्रक्रियाओं में विश्व-स्तरीय गुणता सुनिश्चित की जाती है, से आद्योपांत, आवश्यकता अनुकूल समाधान प्रस्तुत करने में विशेषज्ञता प्राप्त है।





**AERO INDIA 2017** 

# **Rockwell Collins** in Sync with India Aspirations



# *SP's ShowNews* (SP's): What's the road map of Rockwell Collins today for the Indian market?

**Sunil Raina (Raina):** Rockwell Collins is operating from Delhi and two major aerospace hubs in the country, namely Hyderabad and Bengaluru. In 2008, Rockwell Collins set up an Indian Design Centre (IDC) that has given employment to Indian engineers. This Centre caters to the need of the entire world and also the needs of the Indian Ministry of Defence (MoD) requirements. The IDC was recently recognised as a top 25 employer brand in the Southern Region of India for 2016-17 by the Employer Branding Institute of India. Rockwell Collins was the only company in the aerospace and defence industry to receive this recognition. In addition to this the Rockwell team has identified a few Indian companies that support Rockwell Collins providing hardware manufactured in India as per global standards. This is just a beginning and as we grow in India, we look forward to a teaming partnership with many more Indian OEMs to support the campaign of 'Make in India.'

#### SP's: Which key areas is Rockwell actively involved in the Indian market?

**Raina:** Rockwell Collins has been successful in both civil and defence markets for our communication, navigation and surveillance equipment. We have supplied ECCM modules to various radios for defence requirements. We are currently growing our markets for satellite products, radios for ground, airborne and naval application while continuing our success story in the civil market.

#### SP's: Rockwell has developed TruNet Network Communication Solution. Can you elaborate on its roles and applications?

**Raina:** Rockwell Collins TruNet is a networked communication solution that would enable advanced situational awareness for the defence forces. The cutting-edge technology provides secure and real-time capabilities, which enables seamless interoperability of air and ground forces. TruNet family includes airborne, ground and hand-held series SDRs that enhance the effectiveness and impact of any military operations.

### SP's: What capabilities are you showcasing at the Aero India? Raina: We are presenting:

- Pro Line Fusion Integrated flight deck leveraging advanced commercial technology for military platforms.
- Unmanned Aerial Systems For enhanced situational awareness, surveillance, navigation and communications.
- Patrol Persistent Surveillance System (PPSS) Scalable integrated sensor solution to protect from perimeter breach.
- Modernised HF IP over Wideband HF communications for interoperable air, sea and land applications, disaster relief and border protection.

#### SP's: Today, the Indian Government is in the process of introducing various initiatives. One of these is the 'Skill India' programme. Does Rockwell have anything to offer in sync with this initiative?

**Raina:** Rockwell Collins understands 'Make in India' initiative and the drive of the Government of India. We are making several attempts in this direc-

**Rockwell Collins** is a pioneer in the design, production and support of innovative solutions for its customers in aerospace and defence. Its expertise in flight-deck avionics, cabin electronics, mission communications, information management and simulation and training is strengthened by its global service and support network spanning 150 countries. Working together, its global team of 19,000 employees shares a vision to be the most trusted source of aviation and high-integrity solutions in the world. The team in India is so integral to the company's global footprint. **Sunil Raina**, Managing Director of Rockwell Collins India, gives an insight into that.

> tion and some of them are our ability to bring a scalable patrol persistent and surveillance system for the Indian MoD perimeter security requirements. With Zen Technologies we are trying to come up with a transportable simulator that addresses the simulator needs of the Indian MoD. We also have a partnership with Tatas for a critical Indian Army programme. To sum up, Rockwell has moved towards the policies of the Government of India. This is just a beginning and it will be continuous efforts from our side. •







**AERO INDIA 2017** 

# The Other Dimension of **Regional Connectivity in India**



The Regional Connectivity Scheme initiative has energised the nation. However, if we are looking to improve connectivity, we should also not overlook the existing markets that are currently underserved. Going from Point A to B requires air travellers to make an often lengthy transit through Point C. Such markets have existing passengers who would immediately benefit from improved connectivity, leading to further demand stimulation and growth. People prefer direct connectivity and it allows the airlines to maximise yield by offering a better network.

#### By MARK DUNNACHIE, VICE PRESIDENT, EMBRAER, ASIA-PACIFIC

The Regional Connectivity Scheme (RCS) that was recently rolled out is the government's push to increase connectivity in India particularly targeting underserved and unserved airports, while promoting the use of smaller aircraft, of up to 80 seats, to do so. We applaud this initiative that will make air links accessible to more people when airlines in India take up the challenge. We also understand, however, the hesitation that airlines have on the RCS, as the capped airfares may not always make economic sense. In this article, we offer an additional avenue for airlines to pursue, which will improve connectivity for travellers, and enable airlines to grow their operations whilst in turn fulfilling the government's desire to enhance travel for all.

#### **BUILD ON THE POTENTIAL OF UNDERSERVED MARKETS**

When we look at existing airports with existing air links, we see that much more can be done to enhance connectivity and frequency in secondary and tertiary cities. Based on IATA data, underserved markets have substantial passenger demand for direct (no stopover) and for more scheduled services. Leveraging the existing infrastructure at these airports allows airlines to further introduce new routes between cities that currently require transit to get there or cities that have a low number of scheduled flight frequency (typically less than a daily frequency flight). The introduction of a direct flight benefits not only the passenger by reducing total travel time, but also enables the airline to realise improved yields, in some cases up to 15 per cent, on such routes. This is of course the classic Blue Ocean, Red Ocean concept where opportunity lies in underdeveloped or untapped markets.

One example of such a market is Chennai-Dharamshala, where the current way to travel between those two cities is via a 10-hour stopover at Delhi; travelling from Hyderabad to Amritsar via a three-and-a-half hour stopover at Mumbai is another of the many examples.

One might ask, if such an obvious opportunity exists, what is holding back airlines from seizing this opportunity? The type of 'tool' matters. The current fleet profile of the Indian aviation market is heavily focused on narrow-body aircraft such as the Airbus A320 family and Boeing 737 family that have a seat capacity of 140 seats and above. On the other end of the capacity spectrum, three of the four largest airlines have turboprop aircraft (ATR 72 and Dash 8), which have a seat capacity limited to 80 seats and below where the product is largely only viable for sectors with less than 500 km. In between this spectrum, there are only a handful of 80- to 130-seat jet aircraft (CRJ700 in Air India and E190 at Air Costa), and this represents an untapped opportunity.

Based on Embraer's studies, two-thirds of underserved markets within India are too thin in passenger demand for narrow-body aircraft operations and more than 80 per cent of these markets have stage lengths too long for viable turboprop operations. It is forecast that by 2020, there will be more than 120 underserved markets with an average stage length of more than 1,000 km. These markets are more optimally served by 80- to 130-seat jets offering the ideal capacity size for thin passenger demand and with the adequate range capabilities.

We have seen multiple 'success stories' across the globe, showing how airlines have used E-Jets to stimulate traffic in secondary and tertiary cities. In China, for example, Tianjin Airlines have been operating their fleet of E190s to develop routes to and from cities like Tianjin, Xi'an, Urumqi (west China) and Hohhot (northern China). Japan Airlines' subsidiary J-Air uses E190s and E170s to right-size capacity in order to maximise frequency on routes or complement larger gauge aircraft at off-peak times to enhance market connectivity.

#### WHAT BENEFITS DO EMBRAER'S 80- TO 130-SEAT E-JETS OFFER?

#### MORE CARGO AND ONBOARD SERVICE CAPABILITIES

Due to the low yield environment in India, it is important that airlines generate revenue streams away from passenger fares — ancillary cabin services being one source, but even more importantly, cargo revenue. Unlike other aircraft, whether turboprop or jet, in the 80- to 130-seat category, the E-Jets can accommodate more cargo volume and weight, typically offering up to two tonnes capacity on top of checked baggage. This is a substantial revenue stream.

#### LOWER CASK EVEN COMPARED TO TURBOPROPS

Although current ATR 72 and Dash 8 aircraft fill the segment of an 80-seat aircraft, the aircraft range is a limitation to their effectiveness in delivering increased connectivity. In contrast, Embraer E-Jets offer a range that covers India end-to-end. From an economic standpoint, with an average network stage length of 550 km, and a utilisation of 11.7 block hours per day per aircraft, the cost per available seat kilometre (CASK) of a 100-seat Embraer E190 aircraft can be 12 per cent to 15 per cent lower than that of an ATR 72 which has levies on fuel price VAT. The second-generation of E-Jets, the E-Jets E2, designed to provide better fuel economy, will offer even greater cost advantage through the all-new Pratt & Whitney geared turbofan engine and a reduction in direct maintenance costs. This cost advantage that the E-Jet and E-Jet E2 family can deliver will bring about lower fares for travellers and higher profits for airlines, making the entire aviation ecosystem a healthier and more sustainable environment.

#### BETTER PRODUCTIVITY AND LOWER MAINTENANCE COSTS THAN TURBOPROPS

As aviators say: an aircraft can only make money when it is flying. Being a jet-powered aircraft, the E-Jets can fly faster and their typical high service reliability enables them to fly with higher frequency and more sectors than the turboprop or other 80- to 130-seat aircraft. Fuji Dream Airlines, an all E-Jet operator in Japan, recently achieved a 12-month service reliability average of 99.83 per cent — the highest among all E170 and E175 operators.

On top of that E-Jets have less maintenance down time than other aircraft types. E-Jets have longer intervals between Heavy Checks as the aircraft does not have a calendar limit on Heavy Checks, unlike the Boeing 737, CRJ and the Dash 8 turboprop that has a 36-month limit. The A320 and ATR turboprop are even shorter with a 24-month limit between Heavy Checks.

Furthermore, coupled with the E-Jet superior flight hour (FH) limits for Heavy Checks, assuming a typical annual utilisation of 2000FH, the E-Jets require only two Heavy Checks as compared to three to five Heavy Checks for the other aircraft types in a 10-year period. The result is lower maintenance costs for E-Jets with less down time and Heavy Checks, and greater revenue opportunities with the higher productivity of E-Jets.

#### CONCLUSION

There are many avenues for regional connectivity in India to flourish, and this should include building on the existing air links at existing airports where new routes can be developed or route frequencies can be increased. We believe that this opportunity is real and that this will drive the profitable growth of the industry and the economy in India. It is important to remember, however, that to harness this opportunity, the right tools will be needed. In our case, we see that as being through the world's leading 70- to 130-seat aircraft, the E-Jet family.  $\bullet$ 





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### SPECIAL REPORT

# **Strong Dassault Aviation** Presence at Aero India



FALCON 8X TRIJET

The Dassault Aviation group is showcasing its dual military and civil know-how at Aero India. Dassault Aviation's large-scale presence at this prestigious air show reflects the long-standing relationship of trust between the Group and its Indian customers.

The Indian Air Force has been flying Dassault aircraft since 1953 and the contract to acquire 36 Rafale, signed last September, is a continuation of this strategic, technological and industrial success story. In the field of business aviation, Indian companies are also turning to the Group, with about 20 Falcon already in service and promising prospects for the future.

Dassault Aviation's participation at Aero India is marked by the presence of three French Air Force Rafale, with daily flying displays. And the presence of a Falcon 8X, the flagship of the Falcon range, as well as a Falcon 2000LXS.

"On the occasion of this air show, Dassault Aviation recalls its complete determination to reinforce the partnership that unites it with India, in particular within the framework of the 'Make in India' policy developed by Prime Minister Narendra Modi. We thus hope to be in a position to satisfy the future needs of the Indian Air Force and naval aviation", declared Eric Trappier, Chairman & CEO of Dassault Aviation.



**RAFALE MULTI-ROLE FIGHTER** 

#### **FALCON 8X TRIJET DEBUT**

The ultra-long range Falcon 8X trijet, as well as the Falcon 2000LXS twin are at the show. Dassault Aviation's new flagship Falcon 8X, which entered the market in October, was handed over to an Indian customer last month.

The 4,000 nm (7,410 km) Falcon 2000LXS offers a short-field capability comparable to smaller midsize business jet models but with a range and comfort level far better than those aircraft. Equipped with a next-generation EASy II flight deck and the FalconCabin HD+ cabin management system, the 2000LXS offers a combination of airport performance, cabin design and efficiency unique in its class. More than a dozen Falcon 2000 twins are currently in service in India.

#### **INDIAN MARKET LEADER**

Dassault is a market leader in the Indian large cabin, long-range aircraft segment with more than 20 aircraft currently in service. Falcons are known for their versatility and their ability to fly into challenging hot-and-high airfields like those commonly found in and around India. They are widely recognised for their fuel economy and low operating costs, too.  $\bullet$ 

#### -SP's Special Correspondent

# IAI Gains Momentum in Cyber Space

yber business at Israel Aerospace industries (IAI) continues to grow and the company's cyber contracts in 2016 totalled over \$100 million, all of which were deals in the field of cyber intelligence, cyber forensics and analysis, and national-level cyber defence centres. In addition, IAI and ELTA's boards of directors authorised the establishment of a designated division for the cyber business as part of IAI's subsidiary, ELTA subsidiary. Esti Peshin was appointed as General Manager of IAI's Cyber Division.

Joseph Weiss, IAI's President and CEO, said, "We consider cyber to be a strategic field of activity and a growth engine at IAI, and expect it to continue to expand significantly in the coming years. The establishment of IAI's Cyber Division serves as infrastructure for continued extensive activity. We will continue to invest in cyber companies and research and development centres in order to continue to expand in this field and I wish



ESTI PESHIN, GENERAL MANAGER, IAI'S CYBER DIVISION

Esti Peshin and the employees at the cyber division all the success."

Esti Peshin said: "IAI is expanding its role as a significant global cyber player. Our advanced technological capabilities, excellent human capital and extensive partner network will enable us to continue to develop and serve as a significant force for the company's business growth."

Cyber security has been identified by IAI as a strategic field and growth engine for IAI. The company is developing cyber solutions and unique and advanced capabilities for intelligence, monitoring, identification and accessibility and offers its customers a variety of abilities to cope with various cyber threats. IAI operates R&D and innovation centres in Singapore, Switzerland and Israel. In addition, IAI leads the Israel Cyber Company Consortium (IC3) which offers end-to-end solutions for national cyber systems and is comprised of leading Israel cyber companies. •



### INTERVIEW BEL



# **BEL** Aims at 12-15% Growth

**Bharat Electronics Limited** (BEL) is a Navratna defence public sector undertaking established in 1954. With nine factories, it primarily manufacturers advanced electronic products for the Indian armed forces. The Chairman and Managing Director, **M.V. Gowtama**, talks about BEL's road map.

# SP's ShowNews (SP's): Can you tell us about BEL's participation in Aero India 2017?

**CMD:** BEL is showcasing its wide range of capabilities at spanning every domain of its business — Electronic warfare and avionics; C4I systems and solutions; communication systems; electro-optics; radars; energy shelters and missile systems, besides demonstrating R&D capabilities. Electronic warfare & airborne products on display include avionics for light combat aircraft (LCA), lightweight ESM system for helicopters and LRUs for Rustom unmanned aerial vehicle (UAV). Communication systems on display include the Software Defined Radio — airborne and AFV versions, Radio on the Move (ROTM), Stars V Mk-III, CNR Mk-II, SATCOM terminal man-pack and hand-held and advanced landing ground communication terminal. On display include a host of new radars — ground penetrating, through wall, Schilka weapon system, weapon locating, and minefield recording system. The highlight of BEL's outdoor display will be the army version of the Akash missile system, including the troop level radar, troop control centre, troop power supply vehicle.

#### SP's: Tell us about your recent successful supplies to the Indian armed forces.

**CMD:** BEL has successfully executed many notable orders for the Indian armed forces. These include Akash weapon systems for the Indian Army and the Indian Air Force, 3D Tactical Radar for the Army, passive night vision devices, low level lightweight radar for the Air Force, fire control systems for the Navy, ship data network and new-generation Sonars for the Navy.

## SP's: Give us an update on Akash and other missile programmes where BEL is actively involved.

**CMD:** Akash is a great success story and the best example of the Indigenous Design Development and Manufacturing drive. Almost 92 per cent of the total inputs are sourced within India. Akash is the first indigenously developed air defence missile system in our country, realised by DRDO with support from BEL, BDL and private industry. While the radars, control centres, simulators, associated maintenance vehicles and the integrated software for the system are supplied by BEL, the missiles are from BDL, Squadron Control Centre is from ECIL and the launchers are supplied by Tata Power SED and L&T. There are around 500 vendors, out of which 108 are MSMEs.

With the weapon system expertise gained in Akash, BEL is geared up for futuristic programmes like the Quick Response Surface-to-Air Missile (QRSAM), Medium Range SAM (MRSAM), Long Range SAM, Akash–NG, etc, and can execute them as turnkey projects.

#### SP's: Tell us about your ongoing projects for the Indian Air Force (IAF). CMD: The current/immediate future EW programs for the IAF are:

- Radar warning receivers for Su-30 fighter aircraft
- Ground-based Mobile ELINT System (GBMES): The first production model of the system is under progress and the system is likely to be delivered shortly.
- Avionics Package for LCA comprising of EW Solutions, Flight Control System, Weapon Control System, cockpit modules, etc
- EW Suite for MiG-29 Upgrade programme
- ELINT & COMINT systems for UAV: Development of ELINT & COMINT payloads for UAVs are under progress with DRDO and will be ready for trials by mid-2017.
- Integrated EW Range (IEWR): The proposal for IEWR has been submitted by BEL and cleared by DAC. The RFP is likely to be released in early 2017 and BEL has commenced discussions with its technology partner.
- Passive Surveillance System (PSS): The RFI for PSS system has been issued by IAF and BEL has submitted the Technical Proposal.
- Product Support through Long Term Maintenance Agreement (LTMA) and Long Term Rate Repair (LTRR) / AMC contracts for earlier supplied systems / RWRs for different platforms including AEW&C programme.

#### SP's: What are your major EW programmes?

**CMD:** Currently, BEL is working on two major EW programmes for the Indian armed forces. These EW systems are configured based on state-of-the-art Quad Superhet Receiver (QSHRx), Quad Digital Receiver (QDR) and Homodyne Receiver technologies. The system is equipped with DRFM based multi-beam jammer with robust software features.

## SP's: What role will BEL play in aircraft programmes like AMCA, Rafale and LCA?

**CMD:** For AMCA, BEL will be the Production Agency and Development Partner for EW suites, flight control systems, weapon control systems and cockpit modules. BEL will also play a role as agency for avionics integration of all the systems onboard the aircraft.

With regard to Rafale, BEL is interacting with Dassault of France, and Thales of France, for manufacture and supply of Electronic Warfare Suite and AESA Radar under co-production agreements. Other business opportunities are also being discussed for various onboard electronics and avionics.

#### SP's: How does BEL intend to further increase its export?

**CMD:** BEL has been exporting various products and services to various countries such as the United States, Germany, France, Sri Lanka, Switzerland, Indonesia, Vietnam, Myanmar, Italy, Namibia and Honduras. To increase the export business, BEL is continuously interacting with current and prospective customers for future business development and giving major thrust for a long-term relationship.

#### SP's: What has been BEL's contribution to defence exports?

**CMD:** BEL has achieved exports of \$85.07 million in the financial year 2015-16, registering a growth of 47 per cent over the previous year's export turnover. The export sales to the total sales turnover ratio for the financial year is 20 per cent.

#### SP's: Tell us about your JVs.

**CMD:** BEL has two joint venture companies — one with General Electric of USA and the other with Thales of France. The JVC with GE, GE-BE Pvt Ltd, manufactures medical equipment like CT Max and X-ray tubes and recorded a turnover of ₹79.5 crore in the year 2015-16. BEL has 74 per cent holding in the JVC with Thales, BEL-Thales Systems Ltd. The company is also in the process of forming a special purpose company with Rolta to address the Battlefield Management System programme. The defence segment continues to be BEL's main business and provides close to 80 per cent of revenues. In keeping with the modernisation plans of the Indian defence forces, BEL aims to grow at a rate of 12 to 15 per cent in the next 8 to 10 years.

#### SP's: Tell us about BEL's 'Make in India' initiatives?

**CMD:** BEL recognises outsourcing as one of the strategic tools to achieve cost benefits and also complement the strengths of the private sector to build a strong industrial base. Such initiatives will also help BEL to focus more on core areas and R&D. BEL has prepared the list of 358 items reserved for purchase from MSMEs and this is uploaded on its website. About 120 projects have already been identified for collaborative R&D and 180 partners including 75 MSMEs are empanelled.

The response to the initiative of outsourcing from private sector especially from MSMEs is overwhelming and BEL has added 782 new indigenous vendors during 2015-16 and approximately 400 Indian suppliers including MSMEs and start-ups are getting added every quarter to the vendor base of BEL. It has achieved procurement level of 20 per cent from MSMEs during 2015-16 against 8 per cent during 2014-15. •

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