



**AVIATION WEEK Executive Roundtable
Military Fleet Availability- The New Paradigm Towards
Transformation**

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Bengaluru, India
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AVIATION WEEK held its first roundtable on military logistics for maintenance, repair and overhaul (MRO) in Bengaluru (formerly Bangalore) India, a day before the bi-annual Bangalore Air Show on Feb 10.

The forum brought together a mix of professionals from private and public sectors of the defense industry, engineers, and CEOs in civil and military MRO.

Affirmative Outcome

Chief Host Air Marshal K.M. Ramasundra, AOM AVSM, VSM, an enthusiastic interactive participant, was receptive to queries addressed by the 50 senior level executives from government undertakings such as Hindustan Aeronautics Ltd, ADA, Air Force, major OEMS including Boeing, Lockheed Martin, Raytheon, EADS, SAAB and Indian companies - Wipro, Data Patterns, TCS.

“We have received tremendous feedback,” says Timothy Nichols, managing director of Aerospace & Defense Global marketing for the meeting’s sponsor, Siemens PLM Software. “This emphasizes the strategic effectiveness of bringing together people who have a common goal, support of their end-users.” .

Participants were urged to draw from their shared wisdom to address issues facing the industry. The emphasis was a collective debate on what was suitable for the military aerospace domain.

Purpose and Role of AVIATION WEEK Executive Roundtable: Military Fleet Availability

- Convene the best of industry leaders in India to discuss on a personal basis the challenges facing the growth of the industry
- Identify primary issues
- Provide time for small-group discussions to detail the issues and problems and develop recommendations to resolve these problems
- As a group, agree to a list of the most significant problems and the most advantageous solutions
- The results of the roundtable would be published and distributed to individuals, organizations and the government to initiate change

Round Table Discussion Highlights

- Private-Public Partnerships - Macro Issues and Challenges
- India's large defense procurement orders will bring about a change in the present functioning of MRO including co-development, co-production, offsets, collaborations
- Challenges likely to be faced on industry interoperability and technology transfer/sharing.
- What are the leading "enablers" of fleet availability?

Issues

- FDI levels in defense industry of India
- Private and Public partnerships
- Enablers and impediments to free availability
- Tax regime/ import and export of aviation items
- Production and co-production of assets in military arena
- Military procurement process

Findings

- The present 26% FDI level in defense industry in India needs a re-look as investors are looking at management control.
- No specific processes set by government to govern public and private deals in Indian military arena.
- Import of aviation items is heavily taxed. If a local company is used additional taxes include 10.4% service tax and 12.5 % VAT. This has consequences:
 1. Why would Indian companies want to scale up their size when a third of their revenues will be taxed?
 2. Why would a customer buy from them?
 3. What is the incentive for foreign investment?

Solutions

- Government should identify a clear-cut process for private and public partnerships in the aerospace arena as Indian companies will be taking the lead here.
- Equal importance to private and public deals
- More transparency in Foreign Direct Investment

Maintenance through Design and Manufacture Highlights

- Maximizing efficiency in design engineering for reliability and maintainability.
- Maintenance philosophy for product design and planning, spares, testing and upgrades. Adopting lean and mean methods through engineering design and process support, data conversion, and document and content management services and solutions.

Issues

- Management of technical aspect in improving the fleet availability from the Indian context
- Reliability of the equipment
- Time for procurement and repair
- Design reliability

Findings

- Reliability standards are not clear in India
- Procurements in India aren't checked for component reliability

Solutions

- Propose reliability standards and make them crucial for procurement process and suitably specified
- Streamlining of key engineering processes to accelerate product development
- Adequate data should become a contractual requirement
- Have active reverse engineering processes
- High information transparency levels

Life Cycle Integration

Use of advanced commercial software tools specifically designed to lower the life-cycle cost of technical data management and maintenance activities for mission-critical, complex equipment and systems.

Issues

- Fleet availability –is the aircraft asset ready for use when needed?
- Raising the bar to meet the new logistics standards?
- Can the traditional defense supply chain model meet the raised logistics standards required?
- Problems with elements of supply chain integration.

Findings

- Extremely bad usage of aircraft
- Resource allocation between buying an aircraft and putting it for maintenance and resource planning is poor
- Avionics constitute 70% to 80% availability but not maintenance; regular upgrades required
- Mid-life upgrade problems
- Delays in administrative decision making

Solutions

- Plan upgrades from user and maintenance angle beforehand
- Anticipate problems
- Supply chain management
- Importance on private sector participation. FDI should be infused because India requires technology with government discretion
- Formation of Blue teams suggested (designer, consumer, manufacturer and government agencies)
- While inducting the fleet decision should be made on the upgrade process as technology evolves fast
- Private companies should play a role
- Focus on interoperability capability and sustainment once the asset is in operation

PLM and Networking/ Development of Future Program Leaders

System life-cycle management from Concept, Design to Phase-out- from OEM to warfighter (digital thread).

Issues

- Networked mechanism for coping with upgrades to continuously absorb emerging technologies in all domains- aircraft fleet, engines, LRU's, components.
- An economical alternative to increasing staff to meet peak demand
- In-house training
- Constraints on integration of costs

Findings

- Tradeoffs at software level.

- India should be able to absorb the infrastructure
- TOT still an issue

Solutions

- Need for joint ventures
- Appropriate allocation of resources
- India requires infrastructure/HR planning
- Need to focus on process, people and technology
- Managing Costs. Maintenance strategy.

Looking Ahead

- As capacity increases, the military will look at outsourcing
- Transparency through dissemination and sharing of information needs to be addressed
- Addressing evaluation and approval in terms of certification and qualification
- Work toward sharing of civil with military infrastructure and technicians
- Address obsolescence in management

Changes Ahead Spell Progress- Reassuring Words-

Air Marshal K.M Ramasundra, Air Officer Maintenance, AVM, VSM, Indian Air Force- Observations:

- No other manufacturer can understand our tropical climate other than an Indian manufacturer
- Trials may be successful but constant usage of an airplane may reveal otherwise
- Now the Mean Time Between Failures (MTBF) warranty is laid down in the contracts. However, this has to be addressed during the design stage.
- Everything from placing the order till its procurement is a part of supply chain management. Logistics play a crucial part here and this should be taken care, else we cannot maintain a fleet.
- Only when MRO is vigilant and efficient can the country maintain a fleet
- Outsourcing the repair work and procuring items has become the mantra of the day we don't want to do get too much in there. Our job is to fight for the nation
- Forecasting of spares has become an issue as it is not an art or science.
- Overhaul can be done at a public, private or defense service station
- Everything is in three categories as per DPP- buy, buy and make and make – there is no rule that every giant deal has to be a public sector undertaking
- There is no embargo that it has to be a public enterprise can be a manufacturing unit

Recommendations for future consideration by Indian Aerospace government and industry leaders:

Aerospace Best Practices/Lessons Learned:

Industry breakthroughs that could benefit the Indian Aerospace Industry in-

- Engineering process
- Manufacturing/production process
- Service/sustainment process
- Modifications/conversions/upgrades

International Partnerships:

- Secure, seamless collaboration, 24x7, around the globe
- Where has this been successful on current major A&D programs?
- Synergy between Commercial and Defense Infrastructures in:
- Infrastructure interoperability
- Common processes, metrics and data standards
- Infrastructure transformation: best practices

- Government acquisition reforms: best practices and trends

Lifecycle Solutions, Best Practices:

- Total extended-enterprise productivity
- Supply Chain Integration and Synchronization
- New approaches to address Performance-Based Logistics challenges

Development Cycle Reduction: The new aerospace benchmarks:

- Sukhoi CAC: Superjet 100 Regional Jet,
- IAI: GS150 General Aviation Jet,
- Lockheed Martin JSF F-35 Lightning II Advanced Military Aircraft (5th Generation Family),
- Aero engine development cycle reductions: from 60 to 42 to 24 months.

AVIATION WEEK Proposal

We suggest that a joint government/industry steering committee be formed to drive/motivate this agenda and future actions including potentially an Indian aerospace webpage, aerospace seminar series and perhaps a follow-up executive roundtable.

About Siemens PLM Software

Siemens PLM Software, a business unit of the Siemens Industry Automation Division, is a leading global provider of product lifecycle management (PLM) software and services with nearly six million licensed seats and 56,000 customers worldwide. Headquartered in Plano, Texas-USA, Siemens PLM Software works collaboratively with companies to deliver open solutions that help them turn more ideas into successful products. For more information on Siemens PLM Software products and services, visit www.siemens.com/plm.