

Skill Gap Analysis and Training Needs in Indian Aerospace Industry

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Abstract

Purpose: The main objective of the paper is on assessing the global aerospace industry as well as Indian scenario, and attempts to assess the skill gaps and training needs of Indian aerospace industry.

Design/methodology: The study is qualitative in nature, and employs wide array of qualitative tools which includes desktop study, focus group interviews and secondary sources of information. Around 10 focus groups were used in the study, with each focus group having a minimum of 6 members of experts in the aerospace and allied industries. The study evolved into a 2 staged one, with the first study elucidating the growing importance and potential of aerospace industry, justifying the significance to take forward the second part of the study. And the second study specifically focuses on skill gaps and training needs.

Findings: The Study yields varied results on existing generic expectations of aerospace industry, specific needs of aerospace industry, identification of aerospace job categories unique to aerospace industry, key issues of training in Indian scenario and recommendations. The paper in summary reflects the current scenario of aerospace industry potentials for India and its likely impact on skills gap and training needs.

Practical implications: Skills gap is a significant gap between an organization's current capabilities and the skills it needs to achieve its goals. As a number of Global forecasts project, India as an emerging aviation market, the skill gaps in this sector is predicted to be huge and necessitates the study on assessing the skill gaps and its allied training needs.

Originality/value: The Study is highly original and first one of its kind in reflecting the current situation of the skills gap and training needs in Indian Aerospace industry. The focus group interviews were conducted with the experts at various levels in the industry without any bias yielding valid and real time data for the research.

Keywords: Skills gap; Indian aerospace industry; aerospace job categories; training needs.

1. Introduction

Communities, states, regions, and entire nations pay a heavy price when they cannot find or equip workers with the right skills for critical jobs. The McKinsey Global Institute report (MGI, 2012), predicts a potential global shortage of 38 to 40 million high-skills workers in 2020 (13 per cent of the demand for such workers) and 45 million middle-skills workers (15 per cent of the demand). Low-skills workers will be in least demand at 10 per cent, a shortage of 90 to 95 million. It is the point at which an organization can no longer grow or remain competitive because it cannot fill critical jobs with employees who have the right knowledge, skills, and abilities.

The American Society for Training & Development shows that leadership and executive skills, managerial and supervisory skills, and profession or industry-specific skills are ranked as the highest areas for skills gaps (ASTD, 2012). Also it is important to note that managerial and supervisory skills are of most concern to the majority of respondents: they ranked skills in this area as the first or second biggest gaps.

As high-skills jobs become more specialized, earning certifications is a viable solution for educated workers to hone their existing knowledge. According to the job projections, the 30 occupations with the fastest rates of growth will each increase by more than 29 percent from 2008 to 2018 (Alan Lacey & Wright, 2009). Seventeen of these are professional and related occupations, seven of which are in the healthcare practitioners and technical occupations occupational group. The Bureau of Labor Statistics reports (ASTD, 2012) that eight of the 10 top growing occupations through 2014 do not require a

bachelor's degree, instead, skills certificates, on-the-job training, and apprenticeship programs are relevant and practical methods for developing middle skills.

CAPA (2014) estimates that the Indian aviation workforce will expand from 150,000 today to 450,000 in ten years time (refer Figure 1). And growth in India is just one of the drivers of the demand for education and training. Other factors include regulatory change, the advent of new technology, and procedures and the migration of skilled Indian resources to other growth markets, particularly the gulf.

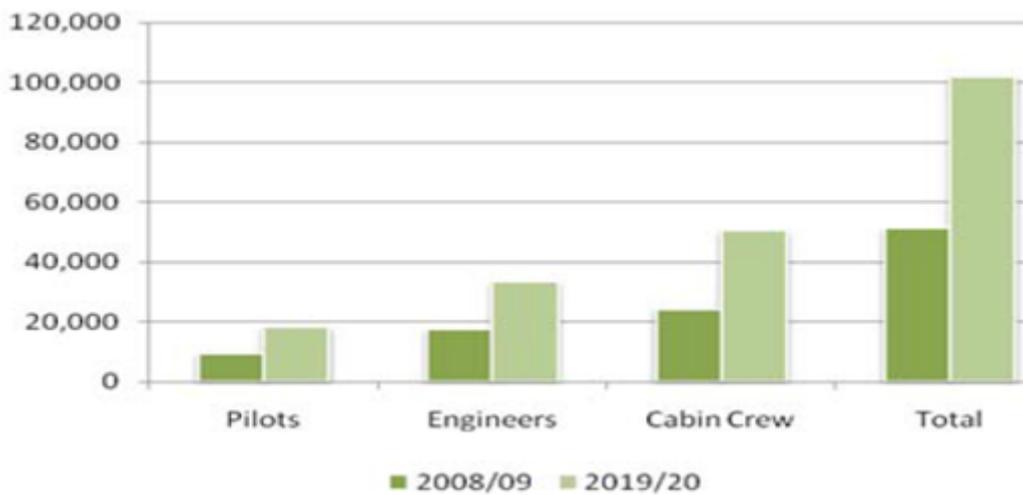


Figure 1. Indian aviation workforce projections (CAPA (2014))

1.1. Objective of the study

- To assess the Global aerospace scenario and identify the key drivers of Indian Aerospace industry.
- To assess the skill gaps in detailed manner and understand training needs with specific reference to Indian aerospace industry.

1.2. Need for the study

A number of global forecasts (eg. Airbus) project that India will be the fastest growing aviation market in the world over the next 20 years (The Financial Express, 2015) with a sustained compounded annual growth rate of approximately 10% per annum over this period. This would see India emerge as the 3rd largest aviation market in the world. According to CII (2014), with an expected population of 1.3

billion by 2020, 60% of which would be in the working age group (15-59 years), India is the powerhouse of the coming decade.

According to a research by Boston Consulting Group (2008), estimate is that by 2020 India will have a surplus of active population - about 47 million people. This is almost more than all the rest of those countries with net positive growth combined. According to the International Air Transport Association (IATA), the Asia Pacific region is very important to the aviation industry as 40% of all air travel takes place in this region. For example, aviation and aviation-enabled tourism accounts for over 24 million jobs and over \$500 billion in economic activity across the Asia-Pacific region. In the next 20 years, the Asia Pacific region is predicted to be the largest aviation market, which means there will be many career opportunities for those working in the aviation industry (The Hindu, 2014).

The growth of the aviation industry will not happen without the availability of qualified personnel across every discipline, including pilots, cabin crew, engineers, air traffic controllers, ground staff and handlers, administration and management. Each one of these roles requires education and training. This impacts not only airlines and airports, but every supplier across the value chain, as well as government regulators.

Training will be required not only to induct new employees into the industry, but also to address the loss of skilled employees through attrition, and as importantly to keep incumbent employees up to date with technological and commercial advances and regulatory changes. The industry will continue to see new airframe, engines and air traffic management procedures, particularly in light of the strong focus on fuel efficiency. This evolution will require continuous investment in training to higher and higher standards. In a fast changing environment, training cannot be a one-off activity. And as India moves to the next level of regulation, in harmony with rising European Aviation Safety Agency (EASA) and Federal Aviation Administration (FAA) standards, the quality of training required across the entire value chain will be need to be upgraded.

1.3. Scope of the study

The scope of study is characterized by three main factors as discussed below:

1.3.1. Broad industry perspective

The research includes perspectives of senior experts from business and academics who are aware of the industry trends for the past decades and play a significant role in different steps in value chain. The study also integrates viewpoints of experts from related sectors. While the majority comes from the people who have been associated themselves to this industry for years in the field of aeronautics.

1.3.2. Narrowed job profiles

Due to time constraints, only jobs in airlines are studied. The job profiles which need training and which with even minor skill gap would produce multiple errors in the process is found and studied.

1.3.3. India focused approach

The focus of the report is limited to India and to analyze Indian aerospace industry in order to develop projections and scenarios that support strategic decision making as well as innovation and risk management.

1.4. Limitations of the study

The study was constrained by the availability of adequate data for estimating human resource requirements and availability at various skill levels across the country. There were discrepancies across different data sources, which were addressed by using information from reliable sources. The skill gap is to be interpreted as the difference in the estimated human resource requirement and the estimated human resource availability. The study was carried out at the taking nation as a whole entity and not in state level and therefore, does not reflect specific characteristics at the state. The research was influenced by the time-bound nature of the study. The skill classifications are based on educational attainments, and therefore do not account for skills acquired informally or on-the-job. Training provided by unregistered private training providers is not reflected in the estimations due to the unavailability of data on capacity, employability and quality. The findings include approximations and

adjustments using past growth rates, regional and national averages, benchmarks arrived at through research, information regarding upcoming investments and employment and historical trends.

2. Literature review

2.1. Indian auto and auto component industry

The liberalisation of the Indian industry saw significant growth in the Indian Automotive Industry. Today, the Indian Automotive Industry is a significant contributor to the Indian economy, contributing nearly 5% to the country's GDP and about 17-18% to the kitty of indirect taxes to the Government, while investment outlay stood over Rs. 83,500 crore in 2008-09 (ASDC, 2009). The economic liberalization coupled with its technological, cost and manpower advantage have made India one of the prime business destination for many global automotive players. The sector has moderate direct employment and significant indirect employment; it is estimated that the sector provides direct and indirect employment to over 13 million people.

2.2. Changing dynamics of global aerospace industry

PriceWaterHouseCoopers' internal report on Globalisation in Aerospace and Defence (PWC, 2009) indicates that the global aerospace market was estimated at USD97 billion in 2007. This includes both commercial and defence aircraft requirements and does not take into account MRO expenditure made by airlines. Growth in the civil and military aviation sectors is the main drivers of the global aerospace industry. Long term projections and estimates by industry experts project growth in both sectors. The civil sector will expand as a result of increased travel in emerging market economies and the defence sector as a result of a heightened focus on military expenditure, given the global war on terrorism. In the current economic climate, it would be difficult to make long-term projections. However, it is widely acknowledged that the aviation sector is cyclical

2.3. Skill gaps in Indian aerospace industry

The study by NSDC (2013) was conducted to assess the degree to which the various reports published by NSDC – sector wise and state-wise – can be used as a planning tool for determining the skill gaps in various sectors and across various states in India. This was done by comparing the methodologies used for quantitative estimation across the two sets of NSDC reports, sector wise vis-à-vis state-wise. In the

Global skills summit (2012) report, FICCI & Ernst & Young highlight, the development of skills for 500 million Indians in less than 10 years is not only a matter of national urgency; it is astounding in its scale.

Thus far, the development of skills has been driven by the requirements of the market; while much progress has been made with considerable help from the private sector, it clearly continued to be a supply driven system. The need to focus complete attention to the industry is now essential. This will make the system demand driven and close the skills mismatch. The industry needs to rally around them to strengthen this initiative which is essentially this report discusses and analyses the reality of the demographic dividend and urges the industry to be the focal point of all skill development activity from working with the Government.

3. Research methodology

3.1. Research approach

The project started with desktop study in the starting weeks which included studying about the industry in detail not only in India but studying the global aerospace sector too. Trends, growing needs, market structure, size, economy, etc. were studied in depth. The research design used in the project study is analytical in nature, the procedure using, which researcher has to use facts or information already available, and analyze these to make a critical evaluation.

Qualitative research and, in particular, focus-group interviews generate large amounts of data, which tend to overwhelm novice as well as experienced researchers. Well-designed focus groups usually last between 1 and 2 hours (Morgan, 1997) and consist of between 6 and 12 participants (Johnson & Christensen, 2004; Langford, Schoenfeld & Izzo, 2002; Onwuegbuzie, Jiao & Bostick, 2004). The rationale for this range of focus group size stems from the goal that focus groups should include enough participants to yield diversity in information provided.

By skill fully facilitating the discussion, rich data is generated from the interview, and can be complemented with observational notes and typing the recorded information. Familiarization with the data can be achieved by listening to tapes, reading the transcripts in their entirety several times and reading the observational notes. The aim is to immerse in the details and get a sense of the Interview as a whole. During this process the major themes begin to emerge

3.2. Data collection

3.2.1. Primary sources

The primary data collected is through discussion with panel and experts in the field during focus group discussions and interviews.

3.2.2. Secondary sources

The secondary data collected includes the various reports done from Government and human resource management companies, books and journals pertaining to the study.

3.3. Data collection tools used

The Research tools adopted for the study is desktop and focus group study. Field trip was done in Bangalore for 3 to 4 weeks which included a visit to HAL and training institutes in Bangalore for understanding the practical and current scenario of aerospace industry in order to find real time solutions.

Focus group methodology was chosen for reasons like time limit, schedule of the experts, and presence of experts in the company and to get more real solutions to the problems. Forming the group and selecting the members of the 10 groups was carefully planned according to the prestigious members. Sample size 6 per focus group discussion and it is chosen because of the nature of the study which needs experts from the field and to have clear verdict. Their availability and importance to the topic is considered first and focus group was conducted at two levels. One level, focused on the skill gap analysis in the aerospace industry, and next level discussed the importance of training and finding the training course suitable.

3.4. Data analysis tools used

3.4.1. Matrix tool

Matrix tool is used for assessing the level of consensus in focus group

3.4.2. Conversation analysis

Conversation analysis is a qualitative data analysis technique that offers much potential for analyzing focus group data. Although conversation analysts have tended to avoid analyzing interview data (Potter, 2004), this form of analysis appears to be justifiable for focus groups because an underlying assumption of this technique is that it is primarily through interaction that people build social context (Heritage, 2004).

4. Results & discussion

4.1. Study 1: Desktop study on global aerospace industry & Indian scenario

4.1.1. Global scenario

According to research by Boeing (PwC, 2009), the fastest growing economies in Asia will lead change in the market space, with Asia-Pacific set to be the largest air transport market in the world with 45% share of air travel (Refer Figure 2). Commercial airplane market is estimated to be a huge \$ 3.2 trillion by 2027, with Asia-Pacific accounting for 37% of the total market.

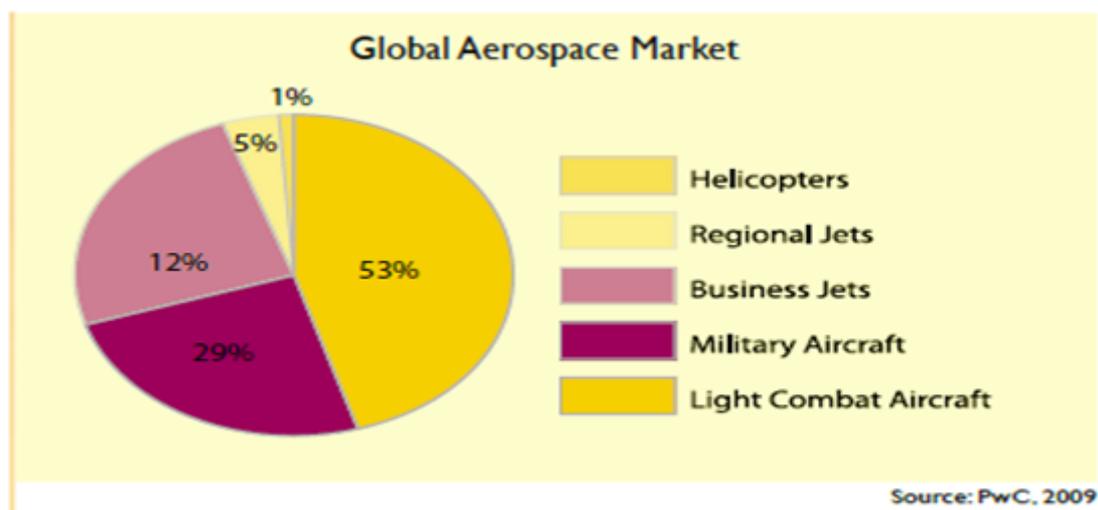


Figure 2. Global aerospace market (PwC, 2009)

Moser, von der Gracht and Gnatzy (2010), in their two stage Delphi based study, project the aerospace sector will grow with the industry; Also India's MRO segment is estimated to grow at 10 percent and reach USD1.17 billion by 2010 and USD2.6 billion by 2020. The main challenge in positioning India as an MRO hub comes from the indirect tax structure, specifically customs duties and service tax.

The aerospace industry worldwide involves manufacturing as well as services operations. On the manufacturing front, the major activities include Design engineering & IT solutions, Component manufacturing, and Aircraft assembly, while on the services side are the MRO (Maintenance, Repair and Operations) services. Various sub-activities involved are illustrated in the exhibit below (Refer Table 1). According to DSIR (2010), the aerospace industry in India is mainly concentrated in Design, Engineering & IT solutions and Tier 3 manufacturing supplier space. Off late MRO is also emerging as major sector with OEMs, airlines and private MRO service providers setting up their businesses in India.

Design Engineering & IT Solutions	Component Manufacture (Tier 3)	Component Manufacture (Tier 2)	Sub Systems Manufacture (Tier 1)	Aircraft Assembly	MRO
Aircraft and Subsystem Design. Avionics and critical component design. Simulation and testing services. Component design and IT Solution	Castings, Forgings. Power and Electronic Components, Cables, Wiring. Sheet Metal Components. Aircraft Interiors, Seats, Windows, Upholstery.	Hydraulic Systems. Electronic Systems. Avionic and Flight System Components	Engine Manufacture. Avionic and Flight Control Systems. Wings and Landing Gear Assembly.	Full Aircraft Assembly. Aircraft Testing and Validation. Fuselage, Empennage Assembly.	Engine MRO. Airframe MRO Services. Components MRO Services. Line Maintenance.

Table 1. Classification of aerospace industry

4.1.2. Key drivers of growth of indian aviation market

The National Transport Development Policy Committee's, report of Working Group on Civil Aviation Sector (NTDPC, 2012) has summarized the key drivers of Indian Aviation market in the forthcoming section (refer Table 2).

S.No	Key Driver	Description
1	Rising GDP	In the period 1990-91 to 2003-04, the CAGR of India's GDP works out to 5.7% which then rose to 8.6% during 2004-05 to 2010-11.
2	Expanding middle-income group	NCAER analysis reveals that the middle income group population in 2010 stood at 160 million individuals i.e. 13.3% of the total population, which is expected to rise to 547 million in 2025 (i.e. 37.2% of the total population).
3	Demographic dividends	62% of the population is in the working age group of 15-60 years and this proportion is set to increase in future indicating a larger employee base, greater business travel and greater economic activity.
4	Rising urban population	Mckinsey Global Institute's projections state that India's urban population will be 590 million by 2030 i.e. about 40 per cent of the total population of India.
5	Significant market developments	Low Cost Carrier (LCC) model which made air travel affordable for common man got established firmly in the domestic market since 2004.
6	Investments in Airport and related infrastructure	Total investment made by private airport operators in the last five years was to the tune of Rs 30,000 crores Airports Authority of India (AAI), incurred expenditure of around Rs 12,500 crores during the 11th Plan period.
7	Growing tourism	During the period from 2001 to 2010, the average annual growth rate of foreign tourist arrivals in to India and Indian National departures from India grew by 9.2% and 11.5% respectively.
8	Thrust on Remote area Connectivity	The thrust of the Government of India is to enhance connectivity in remote and inaccessible regions of the country.
9	Untapped market potential	Taking 1000 passengers per Million Urban Capita, a recent study has arrived at a comparative picture. Air traffic density in India using this measure is very low at 72 as compared to China (282), which is 4 times higher; Brazil (231), which is 3 times higher; Malaysia (1225) is 17 times higher, U.S.A. (2896) is 40 times higher and Sri Lanka (530), which is 7 times higher
10	Global integration of businesses	Indian firms acquiring International firms in order to capture markets and resources abroad, where the M & A transaction value for the year 2010 touched almost \$ 50 billion.
11	Shift in traffic	Within the Asia Pacific region China and India are the two fastest growing economies and they are becoming the epicentre of supply and distribution.
12	International Market Access	Deregulation of the international air traffic markets would enable the LCCs to capitalize the opportunities of newer markets first and enhance growth of international traffic. The entry of leading private air-cargo companies has brought in a wave of increasing automation, mechanization and process improvement initiatives at major air-cargo terminals.

Table 2. Key Drivers of growth of Indian aviation market

4.2. Study 2: Focus group study on skills required & training needs in aerospace industry

The desktop study highlighted that it was relatively difficult to identify the skill gaps in this sector because of its smaller size compared to much larger network of other countries. The questionnaires were formed based on the desk study done for weeks. It was designed to gather information about skill gaps and future requirements of the training from the stakeholders. Ultimately, the need of training is felt in the end of the every tunnel of skill gap. Most frequent and dominating skill gaps were identified and mentioned in the findings of the study. The main drivers of the development of new courses are meeting the demands of the industry and the regulatory bodies. The skill gap identified can be removed or at least reduced only by the means of training the individuals properly. Training will eliminate the chances of occurrence of these skill gaps. Also it is a sad fact that India has very less training facilities and licensing regulations and authorities compared to other countries. In looking at the totality of responses to inquiries about skills sets, some key findings emerge (Table 3):

S.No	Skill Set	Description
1.	Soft Skills	For production workers, technicians and engineers, the ability to work in a team towards a goal is mentioned as a frequently needed skill. Cross-disciplinary thinking and strong problem-solving abilities are two skills that some companies cite difficulty in finding among engineers.
2.	Basic Skills	Solid literacy and numeric skills, not surprisingly, are more frequently mentioned than the Technical skills as prerequisites. This shows up in their frequent desire to see more emphasis on science, technology, engineering, and mathematics (STEM) education at all education levels.
3.	Certifications	The most common certification for technician positions is the Airframe and Power plant certification issued by the DGCA. Firms require this certification for technicians, fabricators and front-line supervisors. Several firms that employ electronic and avionics technicians also prefer technicians with the Certification of Radio Operator's License. In general, certification requirements are greater at MRO companies compared to manufacturers due to contractual agreements with suppliers.
4.	Experience	Some Companies prefer individuals to have robust advanced manufacturing skills and experience such as welding, drafting and assembly. Many companies indicate that they often hire more general mechanical engineers rather those trained especially in aerospace. This also likely reflects that the pool of aerospace engineers is smaller because it is a less common track in engineering schools.

Table 3. Skill sets required in aerospace industry

4.2.1. Areas of skill gaps

From the focus group discussions conducted with the panels, the following skill gap areas were identified (Table 4).

AREAS OF SKILL GAPS IDENTIFIED	
FOCUS GROUP NO.1,3,5,7,9	FOCUS GROUP NO.2,4,6,8,10
1. Basic and fundamental technical theories.	1.Human factors
2. Inspection and Maintenance of equipment.	2.Safety management
3. Air traffic management	3.Lack of technical and practical skills
4. Documentation	4. No study materials
5. Management Training	5. Training
6. Airport and operation services	6. Continuing airworthiness
7. Managing continuing airworthiness.	7. Use of technology
8. Human factors	8. Certification criteria

Table 4. Areas of skill gaps identified

4.2.2. New job categories identified for training in airline industry

Apart from the regular job categories of aerospace industry like Pilots, Engineers, the evolving LCC model of airline industry has generated new job categories. The new growing job categories identified by conducting the focus group study and analysis of airline industry related documents are summarized in below section (Table 5).

S.No	Job Category	Description
1	Air cargo Handler	Responsible for overseeing the movement and safety of cargo and baggage on an aircraft. Unload, load, and secure cargo, determine orientation and destination, and complete load plans.
2	Air Charter broker	Responsible for building relationships with a portfolio of clients who regularly need to charter private flights all over the world, while offering the best possible service at a competitive price.
3	Cargo and Freight Agent	Expedite and route movement of incoming and outgoing cargo and freight shipments in airline, train, and trucking terminals, and shipping docks. Take orders from customers and arrange pickup of freight and cargo for delivery to loading platform. Prepare and examine bills of lading to determine shipping charges and tariffs.
4	Aircraft Loader	Drive baggage and freight between planes and airport terminals or cargo buildings, load and unload aircraft, operate equipment such as cargo and belt loaders, lift trucks, ramp tractors and loading systems, help position loading ramps, passenger ramps, help guide planes into their berth and secure the aircraft
5	Stock Clerk	Keep records of items shipped, received, or transferred to another location, Compile reports on various inventory, Find, sort, or move goods between different parts of the business, Check inventory records for accuracy
6	Passenger Boarding Attendants / Agents	Attendants / Agents will ensure that all passengers remain under direct control while they are in the multi gate boarding area and the Airport Operations Area. Agents are responsible for ensuring the passenger walkway used are free from hazards
7	Ground Attendants	It includes, those who take reservations and sell tickets, as well as those who help keep the airplanes operating on schedule
8	Ramp Agent	Airline flight crews need ramp agents to safely guide their planes into gates and then push them back out again. Ramp agents are also responsible for all ground servicing of a commercial airliner, including loading and unloading of baggage and cargo. Ramp agents typically operate a variety of machinery and equipment

Table 5. Job categories in airline industry

4.2.3. Key issues found in training needs

In light of the above analysis, the need will be greatest in southern states, the regions which currently have limited existing training infrastructure. Although some of the issues and drivers may differ, the developed markets in Karnataka also face their own challenges in attracting, training and retaining a skilled workforce. Some of the key issues include:

- **Training Infrastructure:** Most of the current training facilities are located in Karnataka, but the greatest demand is in the emerging markets. This means that people in these regions are either being sent to where the facilities (which is expensive), or are not receiving proper training (which is dangerous). Alternatively, key roles are being filled by expats, which is also not financially or culturally sustainable. There is a desperate need to develop high quality, in-country facilities where the demand is.
- **Harmonisation:** There is a critical need for greater harmonisation of international regulations to permit standardised training and enhance global mobility of labour.
- **Role of Technology:** As technology becomes more pervasive in aviation, training needs to recognise this in the following ways:

- Technology is creating new roles and changing existing ones – training must keep pace with these developments;
- The youth of today are technology natives and not technology migrants, and if they are to be enthused about the industry, we need to engage with them in a manner which they relate to. This means greater use of technology in the delivery of training, rather than continuing to use old fashioned methods ‘chalk and talk’ methods.
- Competency: Training needs to evolve to become more competency and evidence based e.g. The Multi-Crew Pilots Licence (i.e. training should focus on how you will perform your role in the workplace – just as the military has always done). Competencies must be measurable and achievable.
- Image of Aviation Careers: aviation is struggling to attract high quality people amongst the next generation of students, who are increasingly being drawn to other sectors. The industry needs to address the very real problem that aviation is seen having lost its glamour – instead it is now seen as a stagnant industry, associated with shift work, declining perks, poor remuneration, and instability.
- Competition from other Sectors: There is a need to introduce outreach programs that target students not only at universities, but also at a much earlier age, in schools, to promote the attraction of a career in aviation. And it does not end there, once people are in the industry you need to retain them. The next generation is not as wedded to the concept of picking and sticking with an industry for the long term. Switching between sectors will become increasingly common. This in itself will increase the demand for training as staff turnover will be higher.

4.3. Recommendations & implications

The various recommendations and implications evolved in the course of study is given in forthcoming section (Table 6):

S.No.	RECOMMENDATIONS	IMPLICATIONS
1.	Promotion of training for developing design and related skills.	Although it is a niche segment, jobs in this area would be extremely critical to the competitiveness of the firm and the employees can expect a premium in Salary.
2.	Promotion of courses providing new skill requirements in MROs.	Jobs in MROs is not career many aspire, but growing needs and enlargement of industry forced only well trained persons to repair who are very short in number.
3.	Aiding and Building manufacturing plants in India.	If the government pursues it mission of "MAKE IN INDIA" ,it would boost up the economy and give profits for the whole nation.
4.	Starting Training schools and setting up regulations and licenses for skilled professionals.	Unemployment prevailing in this industry would go down and immense potential for satisfying job demands in varying levels of skills.
5.	Promotion of soft skills related courses.	Courses in soft skills and behavior would limit the extent of damages and errors.

Table 6. Recommendations for stakeholders

5. Conclusion

Skills and knowledge are the driving forces of economic growth and social development for any country. For the economy to grow at 8% to 9%, it is required that the secondary and tertiary sectors grow at 10% to 11%, assuming aerospace grows at 4%. In such a scenario, it is obvious that a large portion of the workforce would migrate from the primary sector to the secondary and tertiary sectors. However, the skill sets that are required in the manufacturing and service sectors are quite different from those in the aerospace sector. This implies that there is/will be a large skill gap when such a migration occurs, as evidenced by a shrinking employment in existing sectors. This scenario necessitates skill development in the workforce addressing the emerging needs of aerospace industry.

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Appendix

Appendix A. Initial discussion about industry by focus groups

FOCUS GROUP MEMBER'S NO.	VIEWS ON PAST SCENARIO OF THE INDUSTRY	VIEWS ON CURRENT SCENARIO AND TRENDS OF THE INDUSTRY	FUTURE PREDICTIONS
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Appendix B - Views of the focus group

Skill gap themes	View of focus group member no 1	View of focus group member no 2	View of focus group member no 3	View of focus group member no. (4,5,6,7,8)	View of focus group member no 9	View of focus group member no 10
Skill gaps in industry						
Any specific area of skill gaps in industry						
Reasons of skill gaps						
Potential skill gaps which should need immediate response						
Stakeholders part in skill gaps						
Solutions for gaps						
Training structure						
How training will solve skill gaps?						
Job profiles which need training						
Job description						
Job requirements						