GROWTH, OPPORTUNITIES AND CHALLENGES FOR BUSINESS AVIATION IN INDIA

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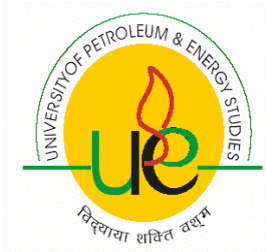
SUBMITTED

IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF

THE DEGREE OF

DOCTOR OF PHILOSOPHY

TO



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March, 2013

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List of Abbreviations

AATF	Airport and Airway Trust Fund
ADS	Alternate Depreciation System
AIP	Airport Improvement Program
AIR-21	Aviation Investment and Reform Act for 21st Century
AOC	Air Operations Certificate
AOPA	Aircraft Owners and Pilots Association
APEC	Asia Pacific Economic Community
ASD	Aerospace and Defence Industries Association of Europe
BAOA	Business Aircraft Operators Association (India)
BBGA	British Business and GA
BOT	Build Operate Transfer
BRIC	Brazil, Russia, India and China
CAA	Civil Aviation Authority
CAASA	Commercial Aviation Association of Southern Africa
CBAA	Canadian BA Association
CAEP	Committee on Aviation Environment Protection
CAGR	Compounded Annual Growth Rate
CAPA	Center for Asia Pacific Aviation
COA	Certificate of Airworthiness
CFR	Code of Federal Regulations
CTC	Cape Town Convention
DGCA	DGCA
EASA	European Aviation Safety Agency
EBAA	European BA Association
EC	European Commission
EGAMA	European GA Manufacturers Association
ETOS	Engineers, Trainers and Operators
EU	European Union
FAA	FAA
GA	GA
GADIT	GA Data Improvement Team
GAMA	GA Manufacturers Association
GARA	GA and Revitalization Act
GAO	General Accountability Office (USA)
GBAA	German BA Association
GDP	Gross Domestic Product
GVA	Gross Value Added
HEMS	Helicopter Emergency Medical Services
IACC	Indo American Chambers of Commerce
IATA	International Air Transport Association
IBAC	International BA Council

IBAE	Indian BA Exposition
ICAO	International Civil Aviation Organization
IFACPA	International Federation of Airlines Pilots Association
IFR	Instrument Flying Rules
IS-BAO	International Standards for BA Operators
MACRS	Modified Accelerated Cost Recovery System
MoCA	Ministry of Civil Aviation
MEBAA	Middle East BA Association
MAIS	MEBBA Aviation Insurance Scheme
MRO	Maintenance, Repair and Overhaul
MSN	Manufacturers Serial Number
NASA	National Aeronautics and Space Administration
NBAA	National BA Association
NOTAM	Notice to Airmen
NPIAS	National Plan for Integrated Aviation System
NTSB	National Transportation and Safety Board
OEM	Original Equipment Manufacturers
ONGC	Oil and Natural Gas Commission
PCATD	Personal Computer based Aviation Training Devices
PFC	Passenger Facility Charges
PIC	Pilot In Command
PIRGS	Planning and Implementation Research Group
POC	Private Operators Certificate
SARPS	Standards and Recommended Practices
SES	Single European Sky
SMS	Safety Management System
VAT	Value Added Tax
VFR	Visual Flying Rules

Chapter 1 Introduction

1.1. Background

Man has always been fascinated by the sky and always wanted to fly like a free bird. This desire to explore the unexplored is the cause for genesis of the aviation industry. From the beaches of Kitty Hawk to the stealth fighter of the day, the industry has grown by leaps and bounds. The First World War provided the forces necessary for propelling the industry forward. Military aviation had its roots during these dark days while the need for faster transportation resulted in the civil aviation industry.

Across the world, aviation industry has been divided into Military and Civil. The International Civil Aviation Organization (ICAO) states that all civil aviation operations are divided into three categories: commercial air transportation, GA and aerial work (Sheehan, 2003).

Commercial air transport involves transporting passengers, cargo or mail for remuneration or hire. It may operate as per a published schedule or without a published schedule. The Scheduled operators over time have resulted in the growth of airlines while the Non-Scheduled tend to be part of General Aviation (GA).

Aerial work on the other hand relates to specialized services like agriculture, surveying, search and rescue or aerial advertisement. End of the First World War saw the growth of the "barnstormers". Pilots who had participated in the war, post their active military service were the harbingers of GA industry; providing services ranging from crop dusting to firefighting. GA deals with private owners of aircraft, company owned aircrafts, flying clubs, small taxi operators.

United States of America (US) has been the home of GA and a number of practices have emerged and it is to be seen if the same practices can be transplanted in the emerging economies like India.

Writing in the 1970s, Jeremy Warford used the term "GA" to cover all civil aviation apart from the commercial airlines. The aircraft involved vary considerably in size and sophistication and

are used for a variety of activities from transporting executives to crop-spraying and recreational flying (Warford, 1971).

With the evolution of the GA industry the definition has also undergone a change. According to Allen, in the US , the home of GA , it encompasses the manufacture and operation of any type of aircraft that has been issued a Certificate of Airworthiness (COA) by the Federal Aviation Administration (FAA), other than aircraft used for scheduled commercial air service (airlines) or operated by the U.S. military. (Allen, Blond, & Gellman, 2006) Three out of every four take offs and landings in the US belong to GA flights (GAO-USA, 2001).

The Air Taxi Survey (FAA, 2004) has listed down a number of factors like air medical services, aerial observations, external load etc. which have contributed to the growth of GA in the US of America.

Versatility of GA can be seen from its usage in tourism, disaster relief, medical or emergency evacuation, pilgrimage or industrial usage in oil and gas, geological surveys, cleaning of transmission lines etc. (IBAE, 2011). New pilots are trained in GA before joining as airline transport pilots with scheduled operators. A special use of GA aircraft happens as part of Campaigning in a democracy like India.

GA is further categorized into recreation, personal and business. Some people use an aircraft for recreational, sightseeing or sports purposes while others use it as a personal mode of transportation. (Sheehan, 2003)

According to the testimony of Ed Bolen before the US congress, BA (BA) is an FAA defined term. According to the FAA (FAA), BA is the use of any GA aircraft piston or turbine for a business purpose (Bolen, 2011).

BA is also considered as a catalyst for economic growth. Businesses that use GA are said to gain competitive advantage, while communities gain job opportunities and access to the nation's extended air transportation system. It tends to contribute to growth of Gross Domestic Product (GDP) directly and has a number of multiplier effects. It benefits the users of transportation services and the country's economy at large. It increases the efficiency and productivity of

businesses by reducing travel time that would be required to drive or to use more congested commercial airports. Business Aircrafts have emerged out as force multipliers (Nigam, Ajit; Singh, Arjun, 2012).

Helicopters or Rotary crafts have special operating characteristics like its ability to take off and land vertically, and to hover for extended periods of time. Today, helicopter uses include transportation, aerial photography, motion picture photography, reflection seismology, construction, firefighting, search and rescue, tourism, military uses etc.

The role of Helicopters in Emergency Medical Services (EMS) cannot be denied and is known as Helicopter Emergency Services (HEMS). The advisory circular issued by FAA in 1991 forms the basis of HEMS. It divides the medical care into Basic Level Services and Advanced Level Services and lays down the procedures and regulations for equipment on board, communication systems, operating procedures , training of personnel (including medical and flight crew) etc.

The National BA Association (NBAA) of US of America has studied how companies use their aircraft for business purposes. They found that customer visits, humanitarian flights, charter revenue flights, corporate shuttles, attracting and retaining key people are some of the ways of utilizing BA aircrafts. (NBAA, 2011).Table 1 describes the utilization of BA.

Table 1: Utilization of BA Aircraft

UTILIZATION	DESCRIPTION
Key Employee Travel	Getting the right person in the right place at the right time
Customer Visits	Bring Customers to you
Customer Trips	Visit Customers on their turf
Scheduled Customer Service	Routine trips to service customer accounts
Emergency Customer Service	Rapid response trips to fix what is broken and " put out fires"
Humanitarian and Charitable Flights	Being a good Corporate Citizen; helping employees
Sales and Marketing Blitzes	Multiday/ Multicity sales trips covering a region or sales area
Charter Revenue Flights	Offering your aircraft for use by Charter Operator
International Flying	Regularly outside the US
Helicopters	Used to go directly to specific destinations; not just between airports
Management Teams	Transporting Management Teams to organization sites
Engineering Teams	Transporting Production or Engineering teams to critical work sites
Corporate Shuttles	Regularly scheduled flights between organization facilities or customer sites
Making Airline Connections	Making Airlines Connections, particularly international flights
Carry Priority Cargo	Spare Parts or Mail
Special Projects	Such as advertising shoots
For Goodwill/ Lobbying	Transporting elected officials or candidates; going to law makers
Utilitarian Purposes	Mapping , Aerial surveys or inspections
Market Expansion	Evaluating New Markets or sites
The Airborne Office	Working/ Conferring En route
Personal Travel	Employees and their families
Attract and retain key people	A tool to facilitate work or get people home more nights
Maximize Employee Safety and Industrial Security	Better than airlines

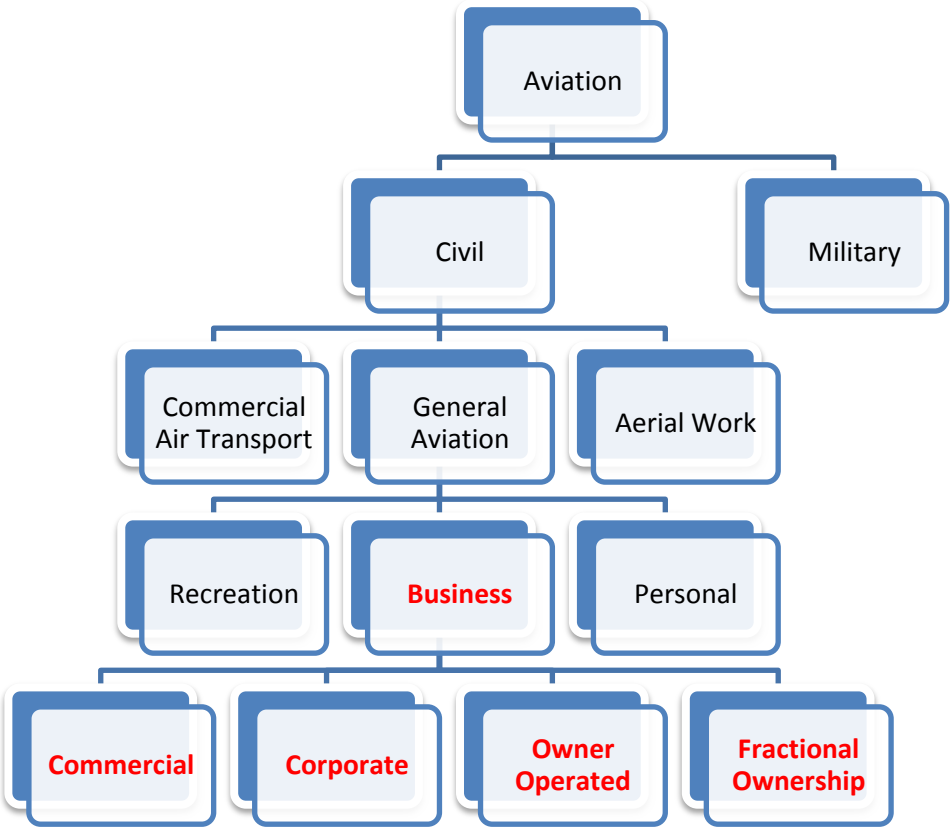
It is to be noted that BA has not been defined under ICAO and is not included in the ICAO vocabulary. BA is represented worldwide through International BA Council (IBAC). The council has a permanent observer status at ICAO and is housed in the same building as ICAO. Although individuals or companies own the majority of business aircraft, BA can also use arrangements

such as chartering, leasing, fractional ownership, time-sharing, interchange agreements, partnerships and aircraft management contracts (ICAO, 2005).

NBAA has defined BA as the use of any "GA" aircraft for business purpose. As such BA is a part of GA that focuses on business use of airplanes and helicopters (NBAA, 2011).

The Annual Report of IBAC (International BA Council) elucidates BA as that sector of aviation which concerns the operations or use of aircraft by companies for the carriage of passengers or goods as an aid to the conduct of their business, flown for purposes generally considered as not for public hire and piloted by individuals having, at the minimum, a valid commercial pilot license with an instrument rating (IBAC, 2010). GA tree is depicted in figure 1 (Nigam, Singh, & Pahwa, 2012).

Figure 1: The GA Tree



The BA is further subdivided into the following

Commercial

The commercial operation or use of aircraft by companies for the carriage of passenger or goods as an aid to the conduct of their business and the availability of the aircraft for whole aircraft charter, flown by a professional pilot(s) employed to fly the aircraft.

Corporate

The non-commercial operation or use of aircraft by a company for the carriage of passengers or goods as an aid to the conduct of company business, flown by a professional pilot(s) employed to fly the aircraft.

Owner Operated

The non-commercial operation or use of aircraft by an individual for the carriage of passengers or goods as an aid to the conduct of his/her business.

Fractional Ownership

The operation or use of aircraft operated by an entity for a group of owners who jointly hold minimum shares of aircraft operated by the entity. Fractional Ownership operations are normally non-commercial; however, the operation of the aircraft may be undertaken as a commercial operation in accordance with the Air Operations Certificate (AOC) held by the entity.

The researcher has used the above as the operative definition for the purpose of defining the scope of the present research work.

USA is a country which has not only been in the forefront of BA but also has benefitted substantially from its growth as can be seen from the following. BA employs about 1.2 million

people and contributes billions of dollars to us economy. Sale of old and new airplanes as well as maintenance and operational support result in large financial benefits for every star in the nation most of the aircraft used for business globally are made, serviced, operated and maintained in the USA. It is the interesting to note that relatively small numbers of aircrafts made outside the USA are assembled with American made electronics, avionics, engines, paint and other aircraft parts. A number of jobs are result of BA operations, Pilots, technicians, dispatchers, schedulers, flight attendants, trainers, employees and other support personnel are required for flight made by business airplanes. Companies that use business aircraft have several advantages over non uses in terms of annual earnings, share price, stock and dividend growth as well as market captilisaion.BA is environmentally friendly and has a limited carbon footprint with a good environmental record. Emission From aviation is only a small fraction of all emissions from transportation. More over emission from business aircraft are a tiny portion of those. The business aviation industry has been using technology to reduce emission and noise while enhancing efficiency and safety. 97 percent of business aircrafts are used by governments, charitable organizations, universities and small and medium enterprises .Out of 15 thousand business aircraft registered in US only 3% of are used by companies. The reach of business aviation is to over 5 thousand public used airports as against 70 major airports where US airline flights go to out of the total traffic at busiest airports only about 4% accounts for business aircraft. Transportation of cargo that cannot be carried by airlines is done by business aircraft. After the terrorist attack in the US, government has partnered with industry to introduce stringent security procedures (NBAA, 2011).

With India inching towards its rightful position in an interconnected world the time has come to focus on the BA. It is also important to understand the Regulatory, Operating and trading environment both from perspective of new as well as pre owned aircraft. On the other hand, government policy in China and India remains effectively hostile to GA Activity. There are signs that both nations see advantages in opening up airspace and encouraging growth in GA Sector, but the movement is glacial (Royce, 2011).

1.2. Organization of Thesis

Chapter 2 reviews the literature and the themes which emerge out is used to create a conceptual lens through which the research problem is viewed at the outset. Chapter 3 focuses on the methodology adopted and describes the data collection process. Chapter 4 glances at the practices of BA worldwide. Chapter 5 is devoted to analysis of categories as a result of use of GT. Further factor analysis is used for identifying factors affecting the growth, opportunities and challenges for BA in India. Chapter 6 describes the findings of the research while Chapter 7 presents the conclusion. Chapter 8 discusses the recommendations emerging from this research and Chapter 9 points to the future scope of the research.

Chapter 2 : Review of Literature

The foremost step of any research work is to understand the conceptual framework and review the work already done. Literature review has its own importance as it brings in mind the various aspects already covered and enlightens the untouched aspects for better results.

2.1. Growth and Forecast

McDougall and Dong tried to give a user cost approach in order to estimate the demand for new GA aircraft. (Cho, Gerald McDougall and Dong W, 1988). In a further development Mattheiss along with Hersch has examined the discrete choice analysis and found that business jet market processes information about product attributes similar to household market for automobiles. (McDougall, Philip L Hersch and Gerald, 1993).

As per the handbook of NBAA, It is expected that active GA fleet will increase at an annual rate of 0.9% over the 21 year forecast from 224,172 in 2010 to 270,920 aircraft by 2031.The turbine powered aircrafts are expected to grow at an average of 3% while the turbine jets grow at 4.2% over the projected period (NBAA, 2010).

Despite the impact of the recession felt in the business jet market, the current FAA forecast calls for robust growth in the long term outlook, driven by higher corporate profits and continued concerns about safety/security and flight delays, increasing the attractiveness of BA relative to commercial air travel and predicts business usage of GA aircraft will expand at a faster pace than that for personal/recreational use. The active GA fleet is projected to increase at an average annual rate of 0.9 percent over the 21-year forecast period, growing from an estimated 224,172 in 2010 to 270,920 aircraft by 2031. The more expensive and sophisticated turbine-powered fleet (including rotorcraft) is projected to grow at an average of 3.0 percent a year over the forecast period, with the turbine jet portion increasing at 4.2 percent a year (FAA, 2011).

As per the briefing provided by Eurocontrol, BA was one of the strongest market segments in 2010, with flights growing by 5.5%. The big 3, France, Germany and UK all grew, with Germany growing at 8.1%. Turkish internal traffic was the individual flow that added most new

business flights. The 19-seaters remained the busiest group of aircraft, but the 6-seaters added the most flights (Eurocontrol, 2011).

BA has grown on average by 2.3% in 2011 to around the volume last seen in 2006. This was not stable on a monthly basis, with values nearly at 9% at the beginning of year and a collapse since October down to -5.1% in December 2011. However, the market share of BA has remained stable compared to 2010, flying around 7.1% of all flights in 2011.German domestic traffic was the individual flow that added most new business flights becoming the second busiest flow in Europe behind France domestic. For the other big BA markets, France, UK and Switzerland have all kept in 2011 similar shares of BA departures as in 2010 whereas Italy and Spain have both seen their share decline as a consequence of a decline in their business traffic (Eurocontrol, 2012).

During the last three years, the world feet of civil business jets has risen by a little more than 3,000, an increase of just over 20%. However, the growth in the US has been half that figure. The significant growth has taken place in countries such as India, where the feet has doubled from 51 business jets to 106 today; in China, which now has nearly 100 aircraft in service – up from 57 in 2007 – and in the developing European countries such as Bulgaria, the Czech Republic, Hungary, Romania and Poland whose combined feet has grown from 32 jets to 72 over the three years. In many of these countries, there is also a significant feet of aircraft whose identities are kept secret under American registration or within 'registrations of convenience'. The count of business jets in Aruba, Bermuda, the Isle of Man and the Cayman Islands has blossomed from 278 in 2007 to nearly 500. Aruba in particular has proved to be a popular haven for business jets belonging to private owners from Russia and the other CIS states. Using an offshore jurisdiction enables them to escape the punitive taxes on import of new aircraft into their home countries and the complications of raising purchase finance locally (Simpson, 2010).

In recent years, China, India, Russia and Europe have accounted for more than half the new aircraft orders in the world. While most of that overseas demand was centered in Europe, interest in aircraft was high in the emerging markets of China, India and Russia (Business Aviation Insider, 2010).

Meanwhile, the business jet industry has increasingly become a tale of two markets. In terms of sales and deliveries, large-cabin and long-range business jets are doing considerably better than light and d-size business jets. Manufacturers have reduced production of all business jet types from 2008 levels, but build rates for light and medium jets have been slashed much deeper than those of larger jets. In addition, demand is already recovering for the larger types, but remains moribund for the smaller models (Forecast International, 2010).

The business aircraft industry's improving book-to-bill ratio is a positive signal that the market has turned the corner and is gaining momentum. The world economy rebounded nicely in 2010, led by high growth economies (China, India and Brazil) and sustained by a recovering US. On the other hand, lagging growth in Europe was and remains a concern. Most key business jet indicators are showing signs of improvement. Sales of used aircraft are rising to pre-downturn levels and as a result pre-owned inventories are declining. Business jet utilization as measured by movements is up. Industry deliveries are not expected to improve significantly in 2011; however, signs of a market recovery are plenty, and it is expected that business aircraft market deliveries will return to growth in 2012 (Bombardier, 2011).

The latest GA Manufacturers Association (GAMA) report has indicated that in 2010, 42.1 percent of business jets deliveries were to North American customer as compared to 49.4 percent in 2009. Europe counted for 22.8 percent of the shipment 2010, Latin America followed with 14.3 percent, Asia Pacific at 11.8 percent and the Middle East and Africa with 9.0 percent. GAMA expects the industry to sustain this market structure as more of the world's economies expand their use of GA to facilitate commerce and build global businesses (GAMA, 2010).

The strategy consultants, Ronald Berger did a study on BA and reported that the total market for turbojet business aircraft is expected to grow at a rate of 6.9% per annum reaching USD 30.7 billion in 2020.Super Midsize and Large segments show highest growth due to fleet exchange and increased use. Original hype in Very Light segment has ended. North America and Europe show highest absolute growth, but China will outperform the market in terms of growth rate with 20.4% growth per annum. Growth is mainly driven by the general economic upturn and environmental issues. Pre-owned market will decrease as residual values rise. New business

models will fill the gap between full ownership and commercial aviation with respect to cost and personalization (Ronald Berger Strategy Consultants, 2011).

The Amstat Market update report of October 2012 on resale transaction activity indicated that after a strong Q2, transaction activity was down in Q3 for Jets and Turboprops, and was essentially flat for Turbine Helicopters while year on year transaction activity was up for Jets, but down for Turboprops and Turbine Helicopters. The Q3 transaction activity lagged behind its 20 year average levels for all categories of Business Aircraft in pre-owned category. (Amstat Market Update, 2012)

Bombardier tracks the long-term market drivers of business jet industry and believe that growth remain solid. These market drivers include wealth creation, increasing business jet penetration in high growth economies, globalization of trade, replacement demand and market accessibility. The 20 year delivery forecast predicts 24,000 business jet deliveries valued at $648 billion. 9,800 deliveries worth $266 billion are expected between 2012 and 2021, and 14,200 deliveries worth $382 billion between 2022 and 2031.Bombardier expects worldwide business jet fleet to grow at a Compound Annual Growth Rate (CAGR) of 3.7% over the forecast period, from 15,200 aircraft in 2011 to 31,500 aircraft by 2031, net of retirements. (Bombardier, 2012)

Honeywell spotted growth in BRIC nations. In the year 2011 the respondents to a survey reported large acquisition plans. This has been lowered to 46% with a firming profile. One-third of the respondents indicated that they would purchase within two years. This year about 40% said that they would buy aircrafts within next two years. Science of uncertainty does show up, with most of the purchases culminating in 2017.The results from big countries show a mild tempering of enthusiasm, but still quite stronger than other regions (Honeywell, 2012).

Most new demand will come from Asia. China already requires 300 to 400 new aircrafts a year to keep up with demand from travelers. The other main source of demand will be the Middle East, where more than 400 wide-body aircraft currently operate. This will create execution challenges for Original Equipment Manufacturers (OEMs) and the industry in general. Besides these execution challenges, high fuel prices will weigh on operators' profitability and

environmental pressures will ratchet up as the industry tries to meet its commitments to reach a net carbon emission cap by 2020, and to halve its carbon output by 2050. (Booz & Co, 2012)

2.2. Productivity

Utilization of aircraft for productive purpose in an organization is central to its acquisition. Mattheiss and Olson had examined the importance of GA in Industrial locations and found little correlation. (Olson, 1972) . Extensive cost benefit studies of BA have found significant advantage to aircraft users from the largest multi-site operations to individual entrepreneurs Study techniques which have been used in the review of business aircraft operations to quantify several tangible benefits include travel time savings, increased work productivity, reduction in mental fatigue and physical endurance. Some of the intangible benefits included business opportunities which could have been missed, flexibility of routing and scheduling, efficient use of executive time, enhanced customer service, decentralized business operations. It was also concluded that an appropriate valuation of senior executive's time results from a multiplier of 5.7 to that of total compensations. This multiplier drops to 3.8 in case of middle managers. (PRC Aviation, 1995). Anderson Consulting reflected upon advantages from using business aircrafts and its relationship with performance of an organization and shareholder value (Anderson Consulting, 2001).

"The Real World of BA: A Survey of Companies Using GA Aircraft" was conducted by Harris Interactive on behalf of the NBAA and the General Aviation Manufacturers Association (GAMA). The survey was commissioned to better understand who is flying on turbine-powered business aircraft and why they use the aircraft. (Orkis, 2009).The Business and Commercial operations guide released in 2010 discusses the cost of operating varied types of business aircraft including maintenance, infrastructure and other periodic costs. (BCA, 2010).

In a testimony before the US International Trade Commission, Ed Bollen, president of NBAA stated that from creating business opportunities and global connectivity for America's small towns and rural areas to supporting the nation's productivity BA is an important economic engine creating jobs and Investments. He added that if you want to do business in Brazil, India, China and Russia, face to face communication is the need of the hour and business aircraft is just

the right productivity tool. (Business Jet Aircraft Industry: Structure and Factors affecting Competitiveness, 2011).

2.3. Economic Contribution

A study was conducted on Economic impact of improving GA airports where in it was reported that the Service Sector representing 35 percent of respondents from Massachusetts was the largest group including consultants, lawyers, doctors and advertising firms. Manufacturing came up next with 19 percent. (Weisbrod G. , 1991).A GA and Taxi Survey was conducted by FAA which pointed out and listed the use of GA aircraft under various categories ranging from ranching, aerial advertising etc. (FAA, 2004).

A study conducted for GAMA in 2006 breaks new ground by bounding GA activity using the FAA's standard definitions, which are widely recognized by every segment of GA. The study uses FAA's estimates of annual fight activity and applies industry-derived per-hour costs for operating various types of aircraft. GA's economic contribution is calculated by putting these costs into regional economic models, widely accepted as valid by economists and available from the U.S. Department of Commerce. (Allen, Blond, & Gellman, 2006).

The Vivace project at Rolls Royce in collaboration with Nottingham University examined the value chain in the aviation industry. From a broad perspective the aerospace manufacturing and service value chain covers airlines delivering value to the passenger through the provision of seats, through the airframe OEM, engine OEM and supply chains that cover both the provision of OE and the aftermarket spare parts and services. The report highlights and discusses some of the issues that exist within this value chain. In attempting this, the business model operated within each tier of the value chain is modeled and discussed, with specific reference made to how this may exert influence on the performance of the Aero-engine manufacturer. (Doug Scott, Erick Hedenryd and David Buxton, 2006)

The need to understand the status of GA in United Kingdom prompted the Central Aviation Authority (CAA) to conduct a study which found that GA is perceived by some to be purely a leisure pursuit and the preserve of the wealthy. However this masks the real picture. Many parts of GA are growing strongly, in particular the BA market and the smaller end of the market (such

as micro lights and helicopters). The BA sector, which is growing strongly, makes up the lion's share of the overall economic contribution. GA represents around 8% of the economic contribution of UK commercial aviation. It concludes that GA is a sizeable sector that is growing in economic value. It is also important as a facilitator of other business activity. (CAA, 2006)

The Report on European Business and Personal Aviation Database deals with EU-USA GA comparison and safety and at the same time is an overview of current situation of GA in Europe. It examines the Aircraft Database and presents the results by bringing together the key characteristics of current personal aircraft, including price and direct operational cost. Airports facilities including landing facilities in Europe and distributions of their main characteristics are further studied in the report. (Baron, A., 2007)

A discussion paper released by European Commission in 2007 describes how GA fits into the overall system of civil aviation operations and gives characteristics of different GA activities in the European Community. The impact of GA on the capacity of air transportation system and environment is addressed as well as its contribution to the competitiveness of the EU economy and relevance for the social life of the European citizens. It also discusses the current Community regulatory framework relevant for GA including safety, security and economic regulation. (European Commission, 2007)

The Enterprise Value of BA was studied using a framework built on Utilization, Benefit and Value (UBV) methodology. That Utilization yields Benefits that yield enterprise Value formed an ingenious basic methodology for our analysis. This "UBV" methodology links the use of business aircraft to the fundamental drivers of a company's long-term value creation. The study attempted to study "Under what conditions is the use of business aircraft the best business option and under what conditions should alternatives be employed?" for companies which are part of S&P 500. It found that BA is a tool that provides a unique competitive benefit to American companies, manifesting in higher shareholder and enterprise value. Increased mobility is at the core of these gains – satisfying management's need for greater organizational agility, knowledge integration and transaction speed. In short, if used wisely and aggressively, business aircraft could alter a company's business practices and performance for the better. (Nexa Advisors,

2009). Similar study was conducted in the following year for the companies in the Small and Medium Enterprises using S&P 600. (Nexa Advisors, 2010)

As a result of the studies the following key value drivers as depicted in table 2, from Business aircraft utilization emerged out. (NBAA, 2011)

Table 2: Key Enterprise Drivers from Business Aircraft Utilization

	Financial	**Non-Financial**
Enterprise Value Drivers (typically found as a result of Business aircraft use)	Revenue Growth	Customer Satisfaction
	Profit Growth	Employee Productivity, Motivation and Satisfaction
	Asset Efficiency	Innovation
		Risk Management and Compliance
Note: Studies show that there is a clear correlation between business aircraft utilization, the associated benefits of use and the key financial and non-financial drivers of enterprise value.		

2.4. Regulatory and Liability

Writing in the Transportation Journal Truitt and Tarry have argued that product liability was not the only cause for decline in the growth of GA which eventually led to the GA Revitalization Act 1994.They examined long term trend analysis and concluded that growth follows the product life cycle curve. Historically production of aircraft as measured in units is clearly positive, though in the long run it shows strong cyclical tendencies almost in parallel to the growth in the economy. During times of economic expansion it shows strong growth in production and sales followed by a decline in sales when economy contracts (Tarry, Lawrance J Truitt and Scott E, 1995).

On the Indian front, Directorate General of Civil Aviation (DGCA) maintains a list of Non Scheduled operators for India. In India the Civil Aviation Requirement (CAR) for grant of permit to operate Non Schedule Air Transport Services has been issued by DGCA. It specifically defines Charter operation as an operation for hire and reward in which the departure time, departure location and arrival locations are specifically negotiated with the customer or customer's representative for entire aircraft. No ticket is sold to individual passenger for such operation. This requirement also lays down actions to be completed before acquisition of aircraft. (DGCA, 2000)

The Australian Government released a green paper on National Aviation Policy in order to lay down its vision for a policy overhaul. Australia is a nation with a diverse economy that provides fulfilling, highly-skilled and well-paid jobs; an economy that competes successfully in global markets; and an economy in which barriers to full participation are removed. The Australian Government is also committed to a strong program of structural reform to help manage the current impacts of global economic volatility. (Australian Government, 2008)

China's GA industry is underdeveloped. However, recognizing GA's social and economic benefits, Chinese policymakers are instituting reforms that will create a more favorable operating environment and catalyze growth, which is forecast to reach an annual rate of 20 percent. Changes to China's regulatory environment, market economics, and competitive landscape will create growth opportunities across the GA value chain. This paper reviews China's GA industry from its origins in the 1950s to the regulatory and competitive changes shaping the industry

today. It examines current growth constraints and opportunities, and concludes with specific recommendations for companies planning to enter this market. (Booz & Co, 2009).The emerging markets lack a well-defined set of national or regional policies that could define goals and benchmarks for the sector. There are overlapping roles and responsibilities across various aviation-related entities such as regulators, airlines, airports, and municipal and national agencies. This has led to internal conflicts between the regulatory role of Civil Aviation Authorities (CAAs) and their role as operators. Table 3 suggests the activities to be performed by CAAs. (Booz & Co, 2010).

Table 3: Domain of CAAs

Regulatory Domain	Categories	Best Practices
Aviation Safety	Safety Policies, Regulations and Standards	Develop airworthiness and operational Regulations
	Inspection and Control	Issue Operational Licenses
Aviation Security	Security Policy, Regulation and Standards	Oversea national aviation Security program, Required by ICAO
	Passenger Screening	Develop crisis management plan
Airspace and Air Navigation	Airspace Oversight and Route Structuring	Approve airspace changes
	Management of Civil and Military airspace	Certify and Inspect ANSPs
Economic	Economic Policies and regulations	Oversees charges of ANSPs and airport operators
	Air Transport Agreements	Assess economic viability of operators
Environmental	Noise and Emission Standards	Issue Environmental regulations and certifications and conduct inspections
	Evolve Climate Changing requirements	Coordinate with local environmental agencies
Consumer Protection	Travel agents and organizer agreements	Develop Passenger protection Bill of rights in line with ICAO Standards
	Consumer Service Standards	Oversee the process of dealing with consumer complaints

2.5. Financing and Insurance

Business aircraft financing is not as exotic as it appears in the first glance. It is like any other equipment financing, except more complicated. Many middle-market financing providers, after buying but not originating these deals, realized that the transactions were not extraordinarily different from other equipment financings. Finance providers began using experienced asset

managers, attorneys, and other resources, so the related anxieties became more manageable. (Edward K Gross, Rhonda Maggiacomo and Adam L Schless, 2006). The Laws governing certain aircraft financings underwent a significant change when a treaty known as Cape Town Convention (CTC) became effective on March 1, 2006. The Cape Town Convention applies to loans, leases, contracts of sales and other associated rights. (Capetown Convention, 2001)

The Indian GA market is also seeing the beginning of competition among the insurers with requirement for different types of products. Apart from traditional airline and aircraft related insurances, Insurers are now covering different verticals of aviation industry ranging from airports to aircraft manufacturers with bigger risks appetite. This is more so in the GA (generally aircraft with less than 61 seats) segment where the sum insured limits are within the capacities of many Indian Insurers. GA buyers in India have enjoyed substantially lower premium payouts in 2008 compared to their world and regional peers, as buyers have bargained hard taking advantage of the soft market conditions and excess market capacity. In the process, quite a few buyers have switched their insurers. (Pawar, 2008)

Mark Patiky interviewed David Wyndham, Vice President at Conklin & de Decker and other professionals in the industry and produced a Business aircraft acquisition and financing guide as a series of articles for Business Week. Apart from the prevalent business models Mark discusses the ways companies acquire Business Aircraft. (Patiky, Business Aircraft Acquistion and Financing Guide, 2010).

According to a report by Aon Risk Solutions, despite rising exposure as a result of airlines increasing fleet investments and passenger forecasts in response to recovering economic confidence in some parts of the world, lead hull and liability premium has remained fairly stable in 2011 (Aon Insurance, 2011).

2.6. Infrastructure

In a study undertaken by International Civil Aviation Organization (ICAO) in 2005, problems experienced by international general and BA users in terms of access to airports are identified, notably through capacity constraints, measures taken to deal with airport capacity shortage (e.g.

congestion charges, slot allocation), effect of the organizational structure of airports, environmental constraints and security aspects (ICAO, 2005).

David Esler points out that in addition to concerns about real estate development, noise and environmental impact, safety considerations, airspace integration, zoning and land-use planning, and community relations, there comes one of capacity. Aviation forecasters in government and industry are predicting business and commercial air traffic will double (or more) over the next two decades and across the US, airport managers are wondering where all these new aircraft will go and where they will park when they get there (Esler D. , 2007).

Public sector budget constraints have been a key catalyst for change, with the private sector attracted by the chance to profit from high revenue growth as well as efficiency and innovation opportunities. Even the involvement of government regulators can be attractive, providing the reassurance of stability for the longer term investor. A number of models exist for private participation ranging from management contract to outright divestiture, with the private sector increasingly favoring Build-Operate Transfer (BOT), lease and divestiture, because of the greater control afforded. In India the first privatization projects occurred in 2007 with airports such as Delhi and Mumbai going the joint venture way while Bangalore and Hyderabad took the Public Private Participation (PPP). The government is looking for private sector investment in a number of regional airports to support ongoing development. The authors discuss the changing profile of airport investors, pricing airport access, changing airline marketing strategies, key success factors for airport express trains, the strategic and financial impact of Single European Skies (SES), the impact of airline bankruptcies and potential remedies, pursuing sustainable aviation, and a new airport security model (Booz & Co, 2011).

During a supplier conference in Phoenix, Kevin Michaels pointed out that the current Maintenance, Repair and Overhaul (MRO) market is nearly worth about 6.2 billion dollars and is set to double to 12.6 billion dollars by 2018. The fastest growing region for MRO is Middle East with CAGR of 12.3. The Asia pacific region follows next with a CAGR of 11.3%.Interior refurbishments, paintings, avionics retrofit and cabin electronics retrofit are the four main segments of the BA modification market (Michaels, 2010).

2.7. Safety and Security

Security became an overarching issue after the Sept 11, 2001 and US Government Accountability Office (GAO) submitted a report to the Sub Committee on Homeland Security emphasizing that though increased federal oversight is required yet private sector partnership is critical. GA accounts for three quarters of all aircraft that take off and land in US. These aircraft encompass a wide range of operations at nearly 19000 GA airports nationwide. On the other hand there are approximately 300 sea and river ports and 453 commercial airports. According to the National Air Transportation Association, the GA industry contributes about $ 100 billion to the US economy each year and accounts for 1.3 million jobs (Government Accountability Office, 2004).

Breling Associates in 2005 have examined the private operations of Business Aircrafts in Europe. Training is a vital area which is so important for both private and commercial pilots. A private owner/ operator buying a new aircraft will have the advantage of free training from the manufacturers and a continuing program of checks and recurrent training can be arranged with an established training organization (Associates, Breiling, 2005).

GA plays a small but important role in the U.S. economy, improving upon GA security without unduly impeding air commerce or limiting the freedom of movement by air remains a significant challenge. However, policymakers have received mixed signals about the relative security risk posed by GA, due to its diversity and a general lack of detailed information regarding the threat and vulnerability of various GA operations. While some recent high-profile breaches of GA security point to persisting vulnerabilities and limited intelligence information suggests a continued terrorist interest in using GA aircraft, it is evident that GA airports, aircraft, and operations vary significantly with regard to security risk (Elias, 2009).

An initial conceptual lens was developed by understanding the underlying themes in the literature. The literature map categorizing the themes is depicted in the figure 2.

Figure 2: Initial Conceptual Lens

After an in depth review of literature, the research problem in the context of business aviation in India was visualized and the methodology to interpret and analyze has been detailed out in the following chapter viz "Research Methodology".

Chapter 3 : Research Methodology

3.1. Introduction

Knowledge Claims, Strategies, and Methods are the elements of inquiry that combine to form different approaches to research. These approaches, in turn, are translated into processes in the design of research. Preliminary steps in designing a research proposal, then, are to assess the knowledge claims brought to the study, to consider the strategy of inquiry that will be used, and to identify specific methods. Using these three elements, a researcher can then identify either the quantitative, qualitative, or mixed methods approach to inquiry. Setting a knowledge claim means that researchers start a project with certain assumptions about how they will learn and what they will learn during their inquiry. These claims might be called "paradigms" or broadly conceived "research methodology". Philosophically, researchers make claims about what is knowledge (ontology), how we know it (epistemology), what values go into it (axiology), how we write about it (rhetoric), and the processes for studying it (methodology) (Creswell, 2009). Against this backdrop, the proposed research focuses on growth, opportunities and challenges for BA in India.

3.2. The Business Concept

BA contributes $150 billion to U.S. economic output and employs more than 1.2 million people. GA activities including sales of new and previously owned airplanes, as well as maintenance and other operational support generates substantial financial benefits for every state in the nation. BA operations are a source of good jobs. Flights made by business airplanes require support. Tens of thousands of pilots, maintenance technicians, schedulers, dispatchers, flight attendants, training professionals, airport employees and other support personnel are employed in BA. Business aircraft users have a dominant presence, on average of 92 percent, among the most innovative, most admired, best brands and best places to work, as well as dominating the list of companies strongest in corporate governance and responsibility. (NBAA, 2012).The growth in BA can best be visualized through the various forecasts by a number of companies and governments.

A survey done by Honeywell pointed out that global sale of BA aircraft between the years 2011 and 2021 will be about $230 billion, or 10,000 aircraft. About 45 percent of those purchases over the next five years will come from international markets. Many of those buyers will purchase larger, long-range aircraft; again reflecting the growing international scope of BA. (Honeywell, 2011).It is nice to note that Warren Buffet has an extremely high opinion of the Indian economy. He said that he did not consider India as an emerging market anymore and even the US would benefit from rise of countries like India and China. (Economic Times, 2011).

In view of the above context the managerial problem can be summed as the following question

- **How would BA Aircraft Trade grow in India?**

The scope of the research will be limited to Business aircraft and the researcher has chosen to concentrate on the same. *It covers both rotary and fixed wing aircrafts which could be new or pre-owned.*

In order to conduct this research, the researcher has used innovative and cutting edge techniques for data collection and analysis. During the early phase of research, guidelines from the GT for analyzing and collecting the qualitative data have been used. (Charmaz, 2006).

3.3. Rationale and Motivation for the Research

Despite an increased interest in BA due to its ability to contribute to the economic development of the country, the focus has been limited. Both business community and the regulator have been paying attention to scheduled airlines since independence. It is only after liberalization the focus has shifted to thin connectivity and its ability to contribute to economic growth. This metamorphosis resulted in the researcher focusing its attention on growth, opportunities and challenges in BA. The BA Industry in India is in its nascent stage and understanding the best practices from other geographies would assist an emerging economy like India to avoid the costly mistakes yet suitably modify them to suit the local conditions.

GA Manufacturers Association (GAMA) President and CEO, Pete Bunce noted that the strong forecast for business aircraft deliveries, including rotorcraft to the Asia Pacific region over the

next several decades will require solutions to existing challenges. These include shortage of pilots and technical personal, as well as insufficient infrastructure. He further added that regulatory framework should help and not hinder BA (GAMA, 2011).

In a joint statement, the group of 21 transportation ministers called for Asia Pacific Economic Community (APEC) -wide effort "to focus expeditiously on identifying the benefits of BA and then working to develop and implement an APEC-wide set of agreed core principles that will apply to BA operations" (APEC, 2011).

BA has been treated as second cousin to the scheduled operators at its best or a rich person's toy at its worst. The winds of change have reduced the world to a global village and BA is now being regarded as a tool of productivity and cost savings in the developed Economies. (Allen, Blond, & Gellman, 2006)

The Eco-system of BA has a number of components like regulatory and operational procedures, infrastructure facilities and the aircraft itself which contribute to the growth of the sector. It is crucial to understand the factors underlying the growth of BA and to the best of the knowledge of the researcher no comparable studies have been conducted in India.

3.4. Research Objectives

Against the above backdrop, the research focuses on factors affecting the business aircraft acquisition in India and attempts to achieve the following objectives.

1. **To examine factors leading to growth of BA Industry globally.**
2. **To identify the factors affecting the growth of BA in India.**
3. **To develop a framework for BA in India**

3.5. Research Design

The philosophy underlying this enquiry is interpretive and uses a mix of qualitative and quantitative research to understand and interpret the meaning of BA. The intent of this sequential mixed method two phased study is to explore growth, opportunities and challenges in BA. Both

qualitative and quantitative data will be combined to explore participants' views with the intent of using a questionnaire for an understanding of the importance of the factors affecting this growth.

Assumptions identified in interpretive works hold that individuals seek understanding of the world in which they live and work. They develop subjective meanings of their experiences-meanings directed toward certain objects or things (Creswell, 2009).

Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. Qualitative, quantitative, and mixed methods are three types of designs. The approaches should not be viewed as polar opposites or dichotomies. A more complete way is to view the gradations of differences between them is in the basic philosophical assumptions researchers bring to the study, the types of research strategies used overall in the research (e.g., quantitative experiments or qualitative case studies), and the specific methods employed in conducting these strategies (e.g., collecting data quantitatively on instruments versus collecting qualitative data through observing a setting).

Mixed methods research is an approach to inquiry that combines or associates both qualitative and quantitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study. Thus, it is more than simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research (Creswell, 2009).

As further explained by (Creswell, 2009), it is also important to note the types of Mixed Method approaches one can adopt for implementation going forward, as depicted in the table 4.

Table 4: Mixed Methods

Implementation	**Priority**	**Integration**	**Theoretical Perspective**
Concurrent (No Sequence)	Equal	At Data Collection	Explicit
Sequential – Qualitative First	**Qualitative**	**At Data Analysis**	**Explicit**
Sequential- Quantitative First	Quantitative	At Data Interpretation	Implicit

The researcher using the interpretive approach decided to give priority to qualitative process as the area of inquiry is new and needed to be explored before quantitative techniques could be used. Keeping the priority to qualitative inquiry in view, it is important to understand the features of qualitative research.

Several writers have identified what they consider to be the prominent characteristics of qualitative, or naturalistic, research. A list representing a synthesis of these authors' descriptions of qualitative research has been compiled. (Hoepfl, 1997)

- Qualitative research uses the natural setting as the source of data. The researcher attempts to observe, describe and interpret settings as they are, maintaining what Patton calls “empathic neutrality".
- The researcher acts as the "human instrument" of data collection.
- Qualitative researchers predominantly use inductive data analysis.
- Qualitative research reports are descriptive, incorporating expressive language and the "presence of voice in the text"
- Qualitative research has an interpretive character, aimed at discovering the meaning events have for the individuals who experience them and the interpretations of those meanings by the researcher.
- Qualitative researchers pay attention to the idiosyncratic as well as the pervasive, seeking the uniqueness of each case.

- Qualitative research has an emergent (as opposed to a predetermined) design, and researchers focus on this emerging process as well as the outcomes or product of the research.
- Qualitative research is judged using special criteria for trustworthiness

There are different ways through which a qualitative research is done and some of them are depicted in table 5.

Table 5: Qualitative Approaches

Type of Qualitative Approach	Description
Ethnography	Study of an intact cultural group in a natural setting over a prolonged period of time
Grounded Theory	**Study in which the researcher attempts to derive a general, abstract theory of a process, action, or interaction grounded in the views of participants.**
Case Study	Study in which the researcher explores in depth a program, and event, and activity, a process, or one or more individuals.
Phenomenology	Study in which the researcher identifies the "essence" of human experiences concerning a phenomenon, as described by participants..
Narrative Research	Study in which the researcher studies the lives of individuals and asks one or more individuals to provide stories about their lives. This information is then retold or re-storied by the researcher into a narrative chronology.

Grounded Theory (GT) has been used as no comparable work had been done and the BA as an industry is also new. GT is a systematic methodology in the social sciences involving the generation of theory from data. (Turner, 1986) It is mainly used in qualitative research, but is also applicable to quantitative data.

GT is a research method that operates almost in a reverse fashion from traditional research and at first may appear to be in contradiction to the scientific method. Rather than beginning with a hypothesis, the first step is data collection, through a variety of methods. From the data collected, the key points are marked with a series of *codes*, which are extracted from the text. The codes are grouped into similar *concepts* in order to make them more workable. From these concepts, *categories* are formed, which are the basis for the creation of a *theory*, or a reverse engineered hypothesis. This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the phenomenon to be studied. (Barney Glaser and Anslem Strauss, 1967).Thomas and James have suggested that it is impossible to free oneself of preconceptions in the collection and analysis of data in the way that Glaser and Strauss say is necessary (Thomas G and James D, 2006).The early data collected is separated, sorted and synthesized through qualitative coding. Coding means that researcher attaches labels to segments of data that depicts what each segment is about. Coding distills data, sorts them and allows the researcher to make comparisons with other segments of data (Charmaz, 2006).

3.6. Sampling

Purposeful sampling is the dominant strategy in qualitative research. Purposeful sampling seeks information-rich cases which can be studied in depth. (Patton, 1990).

In quantitative inquiry, the dominant sampling strategy is probability sampling, which depends on the selection of a random and representative sample from the larger population. The purpose of probability sampling is subsequent generalization of the research findings to the population. By contrast, purposeful sampling is the dominant strategy in qualitative research. Purposeful sampling seeks information-rich cases which can be studied in depth. Patton identifies and describes 16 types of purposeful sampling. These include: extreme or deviant case sampling;

typical case sampling; maximum variation sampling; snowball or chain sampling; confirming or disconfirming case sampling; politically important case sampling; convenience sampling; and others (Patton, 1990) .

According to Lincoln and Guba, the most useful strategy for the naturalistic approach is maximum variation sampling. This strategy aims at capturing and describing the central themes or principal outcomes that cut across a great deal of participant or program variation. For small samples a great deal of heterogeneity can be a problem because individual cases are so different from each other (Lincoln & Guba, 1985).

The maximum variation sampling strategy turns that apparent weakness into strength by applying the following logic: Any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a program (Patton, 1990) .Maximum variation sampling can yield detailed descriptions of each case, in addition to identifying shared patterns that cut across cases.

In spite of the apparent flexibility in purposeful sampling, researchers must be aware of three types of sampling error that can arise in qualitative research. The first relates to distortions caused by insufficient breadth in sampling; the second from distortions introduced by changes over time; and the third from distortions caused by lack of depth in data collection at each site (Patton, 1990).

Qualitative researchers, who frame their studies in an interpretive paradigm, think in terms of trustworthiness as opposed to the conventional, positivistic criteria of internal and external validity, reliability, and objectivity.

Denzin and Lincoln suggest that four factors be considered in establishing the trustworthiness of findings from qualitative research: credibility, transferability, dependability, and confirmability (Denzin & Lincoln, 2011).

a) Credibility, which refers to the confidence one can have in the truth of the findings, can be established by various methods including triangulation.

b) Transferability means, in essence, that other researchers can apply the findings of the study to their own.
c) Dependability refers to the stability of the findings over time.
d) Confirmability to the internal coherence of the data in relation to the findings, interpretations, and recommendations.

Validity, in qualitative research, refers to whether the findings of a study are true and certain—"true" in the sense that research findings accurately reflect the situation, and "certain" in the sense that research findings are supported by the evidence. Triangulation is a method used by qualitative researchers to check and establish validity in their studies by analyzing a research question from multiple perspectives (Guion, Diehl, & McDonald, 2012).

Patton (2002) cautions that it is a common misconception that the goal of triangulation is to arrive at consistency across data sources or approaches; in fact, such inconsistencies may be likely given the relative strengths of different approaches. In Patton's view, these inconsistencies should not be seen as weakening the evidence, but should be viewed as an opportunity.

The researcher collected data from all the speakers who addressed the following international conferences and seminars during the phase 1 of the study. This was done as the speakers in these international conferences are the acknowledged experts in the area of BA.

i. IBAE 2011
ii. IBAE 2012
iii. International Seminar on Opportunities and Challenges in the area of GA
iv. Airport Summit 2012

Apart from the above data was also collected through the interviews till the time the codes started repeating themselves.

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in establishing the trustworthiness of findings from qualitative research: credibility, transferability, dependability, and conformability (Denzin & Lincoln, 2011).

During the 2nd Phase the researcher adopted Census as a method to collect data related to those categories that had emerged from the qualitative phase. The structured questionnaire was sent to all members of Business Aircraft Operators Association through the good offices of its Managing Director. It was also sent to professionals interested in Indian BA using LinkedIn groups.

3.7. Methods of Data Collection

The Sequential Mixed Method research design with priority to qualitative approach is the basis for data collection. The methodology adopted during the research is exploratory in nature and the data collection itself has been divided into two phases – Qualitative and Quantitative. The qualitative research during the Phase-I help in identifying the categories associated with the industry in the context of India. Using the output of Phase-I, a questionnaire was prepared and administered in order to gather the data required for identification of factors responsible for growth of BA in India. Phase-II uses descriptive statistics for analysis.

3.7.1. The Qualitative Phase

The phase-I (Qualitative) has helped in identifying the factors based on interview and schedule. During the first phase data collection was conducted using a schedule based on the concepts derived from GT. The methodology adopted during the research is exploratory and the data collection is iterative in nature. Data was collected using a schedule based on the initial conceptual lens in accordance with the qualitative approach as depicted in figure 3.

Figure 3: The Qualitative Process

During the qualitative process the researcher prepared an interview schedule for data collection while attending the sector specific conferences including IBAE Indian Business Aviation Expo (IBAE) and seminar on GA. The researcher also met the ICAO team which was on a visit to India. During the conference, the researcher was invited by Shri R P Sahi, consultant to the Ministry of Civil Aviation to the offices of DGCA for a discussion. During this discussion Dr Ronald-Yves Gagne, Air Law Expert and Captain Joe Hessberger, Flight operations expert from ICAO team joined in. The Schedule was discussed and validated. During this validation process, the researcher had to brief the team about the merits of the GT approach and specifically about the indirect style of data collection.

The researcher also participated in 2nd International BA Exposition held in Delhi at Hotel Shangri La on 21st to 23rd Feb 2011 in order to understand the growing sector and meet participants and experts. This conference is one of its kinds and is a very important event in BA as indicated by the participants. During this conference emerging opportunities in the Indian BA Industry and its insights were discussed amongst the government officials, investors, industry leaders and international experts enabling delegates to be a part of a global forum (IBAE, 2011).

The conference was useful and was a major event in bringing the stakeholders of BA together as indicated by one of the participants.

> *"The conference was especially good in the 2nd and 3rd days. I think there is a long journey ahead of all stakeholders in BA in India. "*
>
> **— Jose Eduardo Costas, Vice President, Sales & Marketing, Embraer**

Various members of Business Aircraft Operators Association of India (BAOA) provided valuable inputs to the researcher in this process.

An international seminar was organized under the guidance of Dr Arjun Singh through the Indo American Chambers of Commerce (IACC). This seminar was titled, 'GA-Growth, Opportunities and Challenges' and was attended by majority of stakeholders. The focus of the conference was to bring together and show case the GA Sector together as indicated by one of the participants.

"The Ministry of Civil Aviation (MoCA) has highlighted GA as a focus area for upcoming years to frame the policies and regulations in order to sustain impending growth in the aviation sector".

Mr. S.K.Sarkar, Regional President, Indo American Chambers of Commerce

US Government took this opportunity to present their view point and advocated that the industry grows so that the American business would also benefit from the same. The following quotation establishes the interest and the importance given by US government to the conference.

"We have all recognized the growing opportunity to collaborate into do the business in India in this particular sector. I am pleased particularly to have a chance to represent the US perspective, perhaps not every perspective but at least that exclusive perspective from the US Government, which recognizes India as a place that is exciting to do business; where there are opportunities for American companies and where there are great partners to work with"

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy, India

The presence of an international team from International Civil Aviation Organization added to the quality of the discussion. The researcher through the offices of Indo American Chambers of Commerce recorded the complete proceedings and later transcribed them along with assistance from the students of the aviation program of University of Petroleum and Energy Studies. The Conference proceedings were later published (Nigam, Ajit; Singh, Arjun, 2012) as a report along with recommendations and submitted to Government of India.

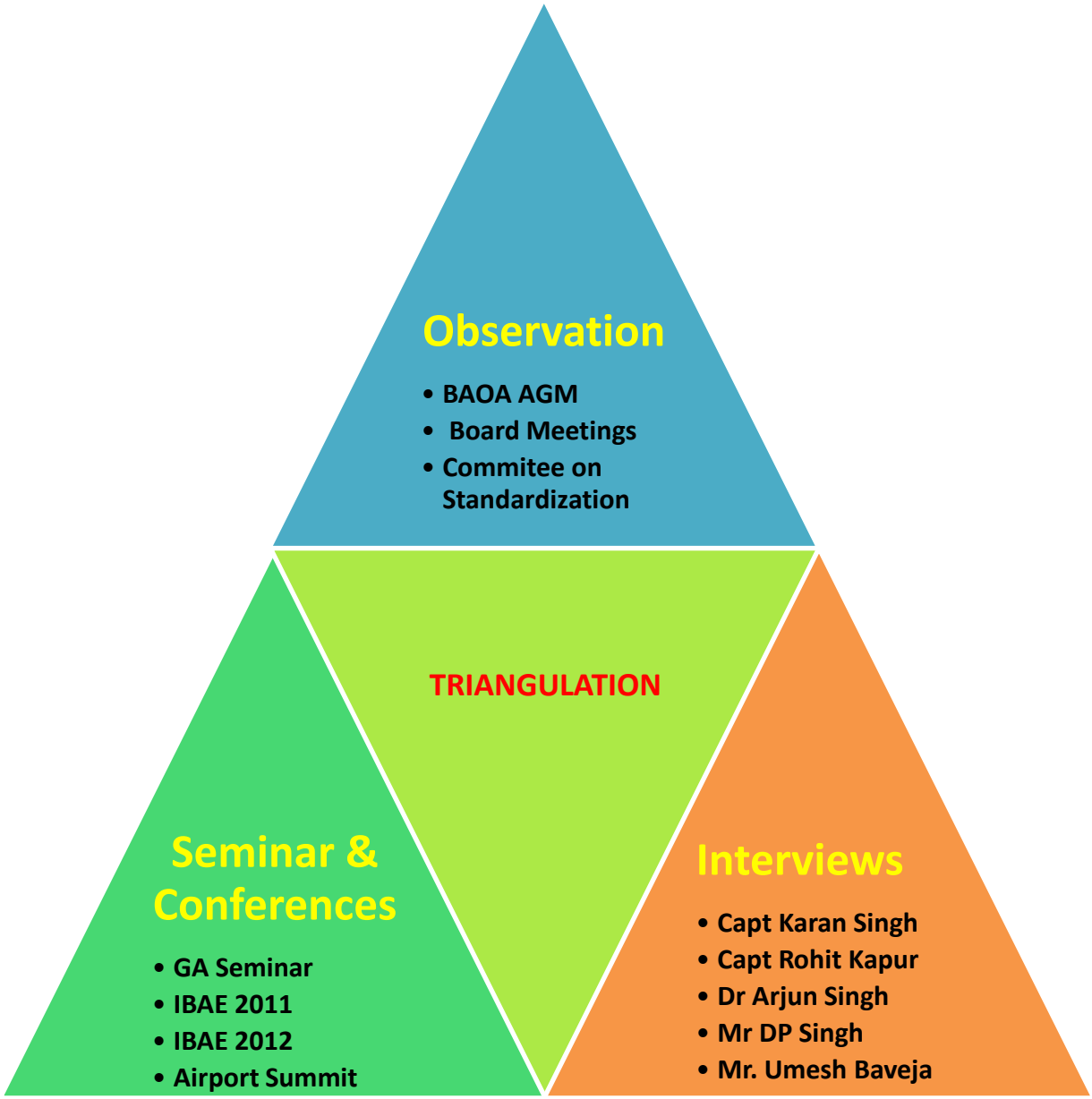
The researcher also participated in the third IBAE 2012, New Delhi on 20 and 21 Feb 2012, under sponsorship from BAOA where the participants from the industry discussed the status and the way forward for the BA Industry in India. The presence of ICAO team under the leadership of Captain Tom Sylvester added an international regulatory dimension to the discussion and deliberations.

Another opportunity to collect further data arose during the 2nd Airport Summit in Delhi at Hotel Hilton on 21st and 22nd June 2012 where experts provided valuable feedback from the

infrastructure perspective. A large delegation from Airport Authority of India was present which gave me a platform to discuss various dimensions related to Airport infrastructure.

Data is collected through the system of triangulation as depicted in figure 4 using an Interview Schedule, Observation and Documents. The benefits of triangulation include "increasing confidence in research data, creating innovative ways of understanding a phenomenon, revealing unique findings, challenging or integrating theories, and providing a clearer understanding of the problem" (Guion, Diehl, & McDonald, 2012). These benefits largely result from the diversity and quantity of data that can be used for analysis.

Figure 4: Triangulation



The classic form of data collection in naturalistic or field research is observation of participants in the context of a natural scene. Observational data are used for the purpose of description-of settings, activities, people, and the meanings of what is observed from the perspective of the participants. Observation can lead to deeper understandings than interviews alone, because it provides knowledge of the context in which events occur, and may enable the researcher to see things that participants themselves are not aware of, or that they are unwilling to discuss (Patton, 1990). A skilled observer is one who is trained in the process of monitoring both verbal and nonverbal cues, and in the use of concrete, unambiguous, descriptive language.

There are several observation strategies available. In some cases it may be possible and desirable for the researcher to watch from outside, without being observed.

- Maintain a passive presence, being as unobtrusive as possible and not interacting with participants.
- Limited interaction, intervening only when further clarification of actions is needed. Or the researcher may exercise more active control over the observation, as in the case of a formal interview, to elicit specific types of information.
- Full participant in the situation, with either a hidden or known identity.

Each of these strategies has specific advantages, disadvantages and concerns which must be carefully examined by the researcher (Schatzman & Strauss, 1973)

An interview guide or "schedule" is a list of questions or general topics that the interviewer wants to explore during each interview. Although it is prepared to insure that basically the same information is obtained from each person, there are no predetermined responses, and in semi-structured interviews the interviewer is free to probe and explore within these predetermined inquiry areas. Interview guides ensure good use of limited interview time; they make interviewing multiple subjects more systematic and comprehensive; and they help to keep interactions focused. In keeping with the flexible nature of qualitative research designs, interview guides can be modified over time to focus attention on areas of particular importance, or to exclude questions the researcher has found to be unproductive for the goals of the research (Lofland & Lofland, 1984).

Intensive Interviewing has long been a useful data gathering method in various types of qualitative research. Being a directed conversation, it permits an in-depth exploration of a particular topic or experience and, thus is a useful method for interpretive inquiry (Charmaz, 2006).

Open and focused coding using the principles of GT was done as part of the analysis. The software to do this analysis is Atlas Ti. In order to learn the tool and its features the researcher participated in the webinars organized by the company. ATLAS Ti is one of the most sophisticated qualitative analysis tools and is used for intelligent data file management with strong document management capability. With strong code management capability with grouping and filtering features, code lists can be generated (Atlas, http://www.atlasti.com/features.html, 2012).

Data collected is separated, sorted and synthesized through qualitative coding. Coding means that researcher attaches labels to segments of data that depicts what each segment is about. Coding distills data, sorts them and allows the researcher to make comparisons with other segments of data (Charmaz, 2006).

It is extremely important to note that triangulation between different methods of data collection like in depth interviews, semi structured interviews, surveys with open ended questions, multimedia analysis etc. assists in understanding the following (Contreras, 2012).

a) What are the Central themes or Variables in the data?
b) What is the qualitative relevance of the variables?

Analysis begins with identification of the themes emerging from the raw data, a process sometimes referred to as "open coding" (Strauss & Corbin, 1990). During open coding, the researcher must identify and tentatively name the conceptual categories into which the phenomena observed will be grouped. The goal is to create descriptive, multi-dimensional categories which form a preliminary framework for analysis. Words, phrases or events that appear to be similar can be grouped into the same category. These categories may be gradually modified or replaced during the subsequent stages of analysis that follow.

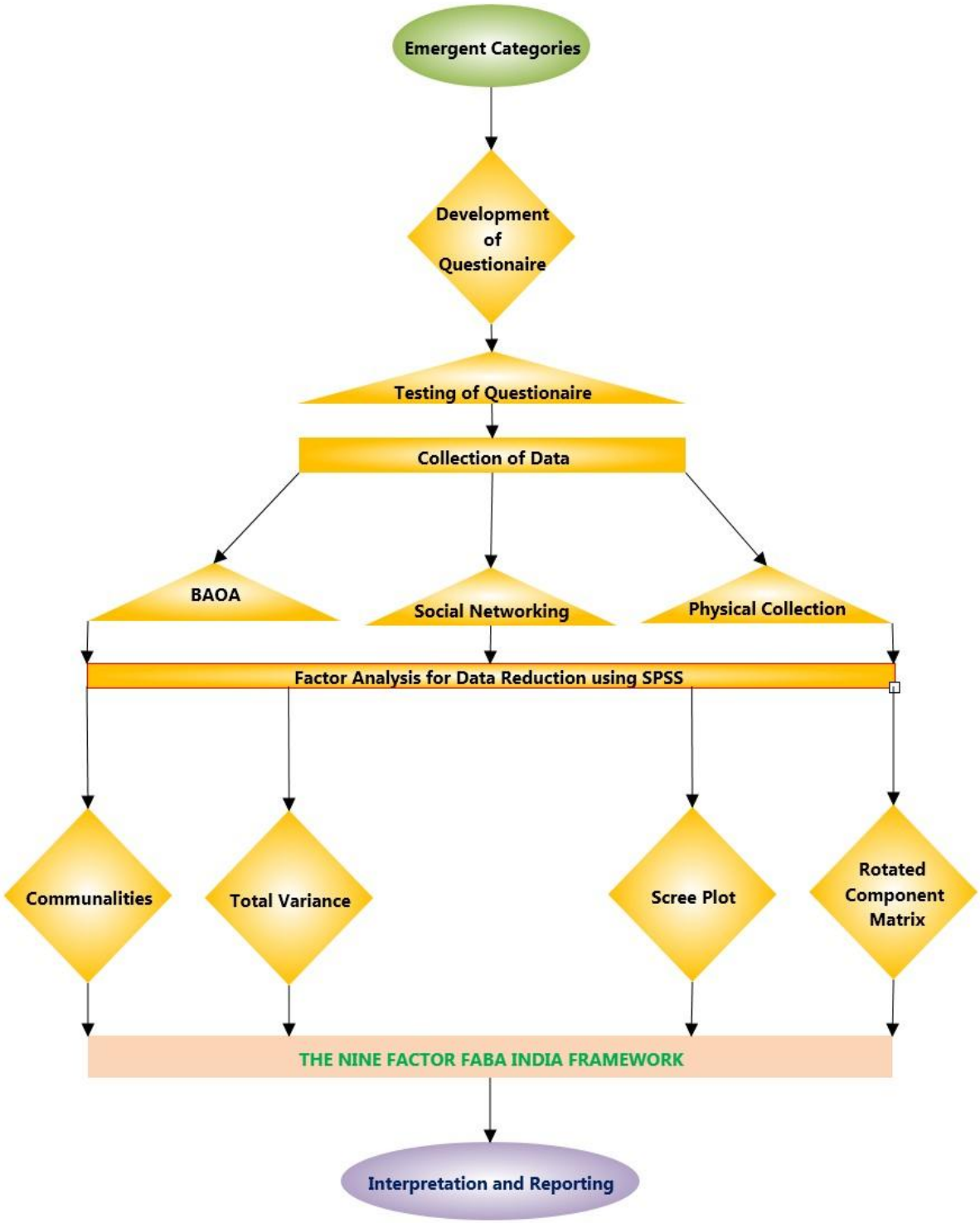
As the raw data are broken down into manageable chunks, the researcher must also devise an "audit trail" that is, a scheme for identifying these data chunks according to their speaker and the context. The particular identifiers developed may or may not be used in the research report, but speakers are typically referred to in a manner that provides a sense of context. Qualitative research reports are characterized by the use of "voice" in the text; that is, participant quotes that illustrate the themes being described. Finally, the researcher must translate the conceptual model into the story line that will be read by others. Ideally, the research report will be a rich, tightly woven account that "closely approximates the reality it represents" (Strauss & Corbin, 1990).

Using a set of Primary documents, collected over last two years, about five thousand quotations emerged. These quotations were categorized to develop codes. Initially around 400 codes emerged. The codes were merged and cleaned using a focused code review process. This resulted in codes being reduced to 355. The quotations were grouped together to form codes and codes were grouped together in a logical manner to create code families. These code families or entities emerged as categories from ground affecting the growth of BA in India.

3.7.2. The Quantitative Phase

The categories which emerged at the end of qualitative Phase have been used by the reseracher as input for Phase II whereby factors affecting growth, opportunities and challenges in BA were identified by Factor Analysis which is a tool for discriptive research. Figure 5 depicts the quantitative process.

Figure 5: The Quantitative Process



After identifying the categories, the researcher used a structured questionnaire to rank the variables in the order of priority. This structured questionnaire was then tested to fine tune it. Reliability of the instrument was also calculated and the cronbach's alpha values indicate the reliability of the instrument apart.

Case Processing Summary

		N	%
Cases	Valid	294	99.7
	Excluded[a]	1	.3
	Total	295	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.886	35

The questionnaire was the instrument through which data was collected from both offline and online sources. The researcher sent approximately 3000 individual mails and the survey was completed by 295 BA professionals. The response rate was about 9.83 percent. The researcher also observed that the use of information technology resulted in ease of collection of data apart from variety of samples which is the hallmark of mixed method research. The ratio of variables to questionnaires answered is 8.42, which is also considered adequate. As a general rule, the minimum is to have at least five times as many observations as the number of variables to be analyzed (Hair, Black, Babin, Anderson, & Tatham, 2007).

Data was collected from the offices of operators in the G+5 building near Terminal I-D at New Delhi. From an online data collection perspective the researcher employed the latest techniques of Information technology age. Social networking and the rise of powerful search engine like Google are the hallmarks of this age. Using the functionality of Google docs for conducting an online survey, the researcher uploaded the questionnaire on the Google sky drive.

The researcher also requested the Managing Director, Business Aircraft Operators Association, to send the questionnaire to all members of the association. This was also followed up by calls to members. The researcher also initiated discussions on Yahoo groups and LinkedIn.

Emails were also sent out to the data base maintained by the researcher of professionals who were met during various meetings, conferences and seminars with some success. Similarly mails were also sent to another larger database of professionals from the scheduled aviation industry. In order to send out mails, the researcher used the mail merge facility of Microsoft word.

The researcher also joined various social networking groups related to BA including that of Indian BA and the BA Network. The members of any such group also have the ability to send individual mails to the members.

A factor analysis further reduced the variables to Nine Factors explaining 54 percent of variables with a data loss of about 3 percent.

The results of the above methodology are shown in Chapters V and VI whereas Chapter IV provides an overview of global practices in business aviation. It is always better to understand the current practices before developing the sector so that mistakes may not be repeated.

Chapter 4 : Business Aviation Worldwide at a Glance

4.1 Introduction

An international association, IBAC is a non-governmental body representing, promoting and protecting the wellbeing of BA in international regulatory and policy platforms. It was founded in 1981 during a meeting of five founding in London. The five members were British Business and General Aviation (BBGA), European Business Aviation Association (EBAA), Canadian Business Aviation Association (CBAA), German Business Aviation Association (GBAA) and the National Business Aviation Association (NBAA). IBAC works in close association with the specialized agency of UNO, namely ICAO. This agency creates the Standards and Recommended Practices (SARPs) for civil aviation around the world and represents the interests of BA to ICAO. The representatives of IBAC have an observer status on committees at ICAO like Committee on Aviation and Environmental Protection (CAEP), Planning and Implementation Regional Groups (PIRGS) and a number of panels of ICAO. IBAC is also involved in protecting the interest of BA with other aviation organizations like IATA and International Federation of Airlines Pilots Association (IFALPA). (IBAC, 2011).

The BA associations worldwide are as per figure 6.

Figure 6: BA Associations worldwide

4.2. Americas

4.2.1 North America

4.2.1.2. United States of America

There are various types of business aircraft starting from small propeller driven to large business jets and helicopters. In America some of piston aircraft are slightly bigger than a car and fly a few hundred miles before stopping for fueling. There are some other aircrafts which can seat more than a dozen people and fly across continents. Majority of business aircraft in USA have a cabin size of a large SUV, seat about six passengers with an average distance of 1000 miles. Depending upon the make of the aircraft they may fly below 20000 feet or above the airline's flight levels. NBAA categorizes business aircraft as piston engine aircraft, turboprop aircraft, jet aircraft and helicopters (NBAA, 2012).

Throughout its history, NBAA has worked to support policies that foster BA in the US and around the world. Among the policy priorities for the Association and the industry it represents are modernization of the nation's aviation system, building upon the already outstanding safety record for BA and preserving secure access to airports and airspace.

4.2.1.1.1 Regulatory

In the US, aviation came to be viewed as an area appropriate for federal intervention and the application of federal law and the Federal Aviation Act 1958 governs and regulates aviation (Eichenberger, 1997).

From its genesis in the 1920s, FAA of USA has undergone a transformation both in its authority and structure. Today it is responsible for making rules and its enforcement, apart from a major role to play in policy making.

Title 14 of Code of Federal Regulations (CFR) lays down in detail the parts and sections of the regulations. The rule making process is comprised of draft, public hearing and notice. The other regulatory body playing a pivotal role is National Transport Safety Board (NTSB). It should be noted that the ambit of NTSB is larger and responsible for all modes of transportation including

air. The advice of NTSB is recommendatory in nature and the enforcement of guidelines lies with FAA.

Operations such as personal and business flying are regulated under Part 91, which does not have as stringent safety requirements. Other parts govern specific operations, such as Part 137, which regulates agricultural aircraft operations, and Part 133, which regulates rotorcraft external load operations. From a strictly regulatory standpoint, only Part 91 operations are considered GA, but FAA and others generally include other operations in this category for descriptive purposes and trend monitoring because they are more similar to GA than commercial aviation. GA aircraft include all U.S. registered civil aircraft not operated under 14 C.F.R. Part 121 (scheduled commercial airlines) or Part 135. Operations that involve transportation for hire such are air tours and medical evacuations are regulated under part 135 which has higher standards of safety GA also includes on-demand air carriers that operate nonscheduled commercial service under 14 C.F.R. Part 135 (GAO, 2001).

An important regulatory reform in the area of GA is GA Revitalization Act (GARA), 1994 by limiting liability costs. The reform under the law of torts in GA led to expansion in the industry. The law established an 18 year limit for product liability lawsuits against manufacturers of airplanes, engines and components of aircraft with 20 or fewer seats.

An article by Scott Tarry examines the efforts of GA manufacturers to define the issue of tort reform in ways that strengthened their unlikely coalition with important consumer groups like Aircraft Owners and Pilots association (AOPA) and minimized opposition from organized labor through a broad base link with manufacturing jobs (Tarry, 2001).

Part 61 describes the requirements for issuing pilot, flight instructor, and ground instructor certificates and ratings along with the conditions under which those certificates and ratings are necessary as well as the privileges and limitations of those certificates and ratings.

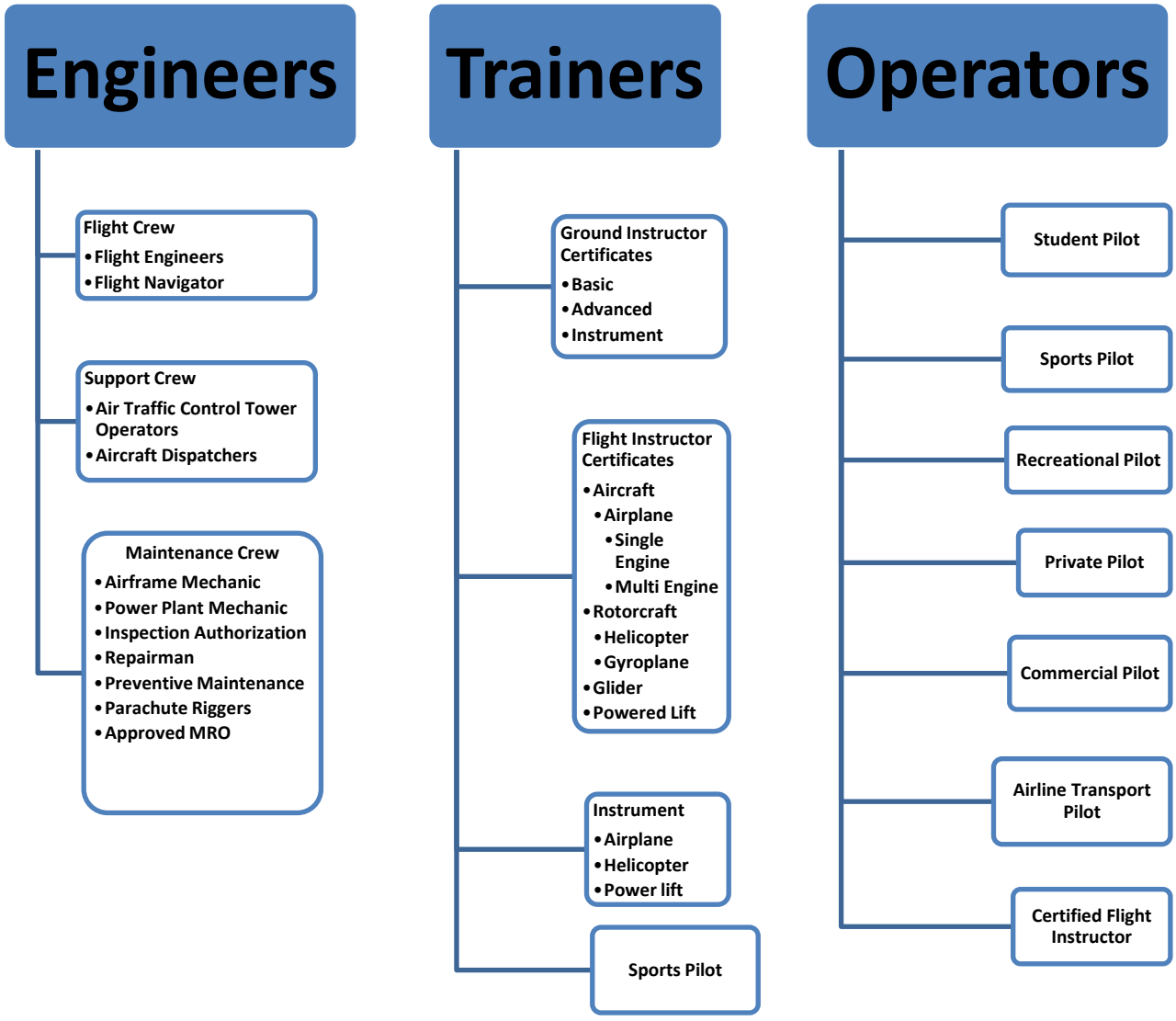
Engineers, Trainers and Operators (ETOS) form the basis of the flying backbone and the same is depicted through the Engineers, Trainers and Operators framework (The ETOS framework for flying).Engineers using both hard and soft infrastructure create the conditions necessary for the aircraft to operate, bur the man behind the machine needs to be trained both in ground as well as

in air. It is the pilot who is the operator of the aircraft completing the circle and creating the flying backbone.

The ETOS framework for flying can be used for analysis of aviation policy worldwide. It stands to reason if the elements of the framework are analyzed and suitable regulation created then a policy can be formulated.

The ETOS framework for flying is governed by a system of certificates and ratings as depicted in the figure 7 below .Sub part 61.5 of Title 14 of Code of Federal Register (CFR) lays down the rules for the certificates for the pilots. Certificate indicates the general flying status of the pilot whereas type rating is applicable to a particular type of aircraft.

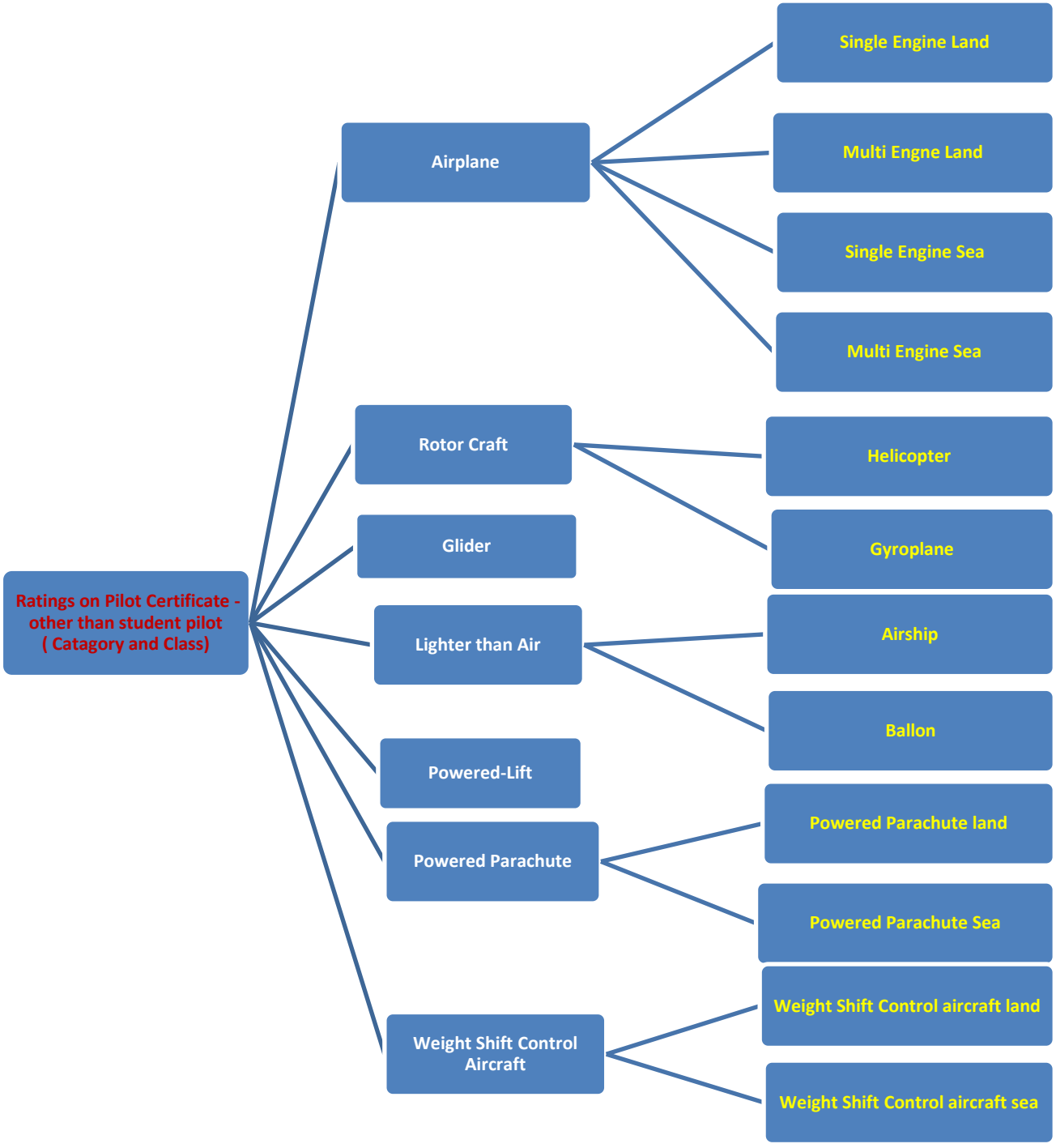
Figure 7: The ETOS Framework for Flying



Private Pilot, Commercial Pilot and Certified Flying Instructor are the categories applicable to the growing field of BA.

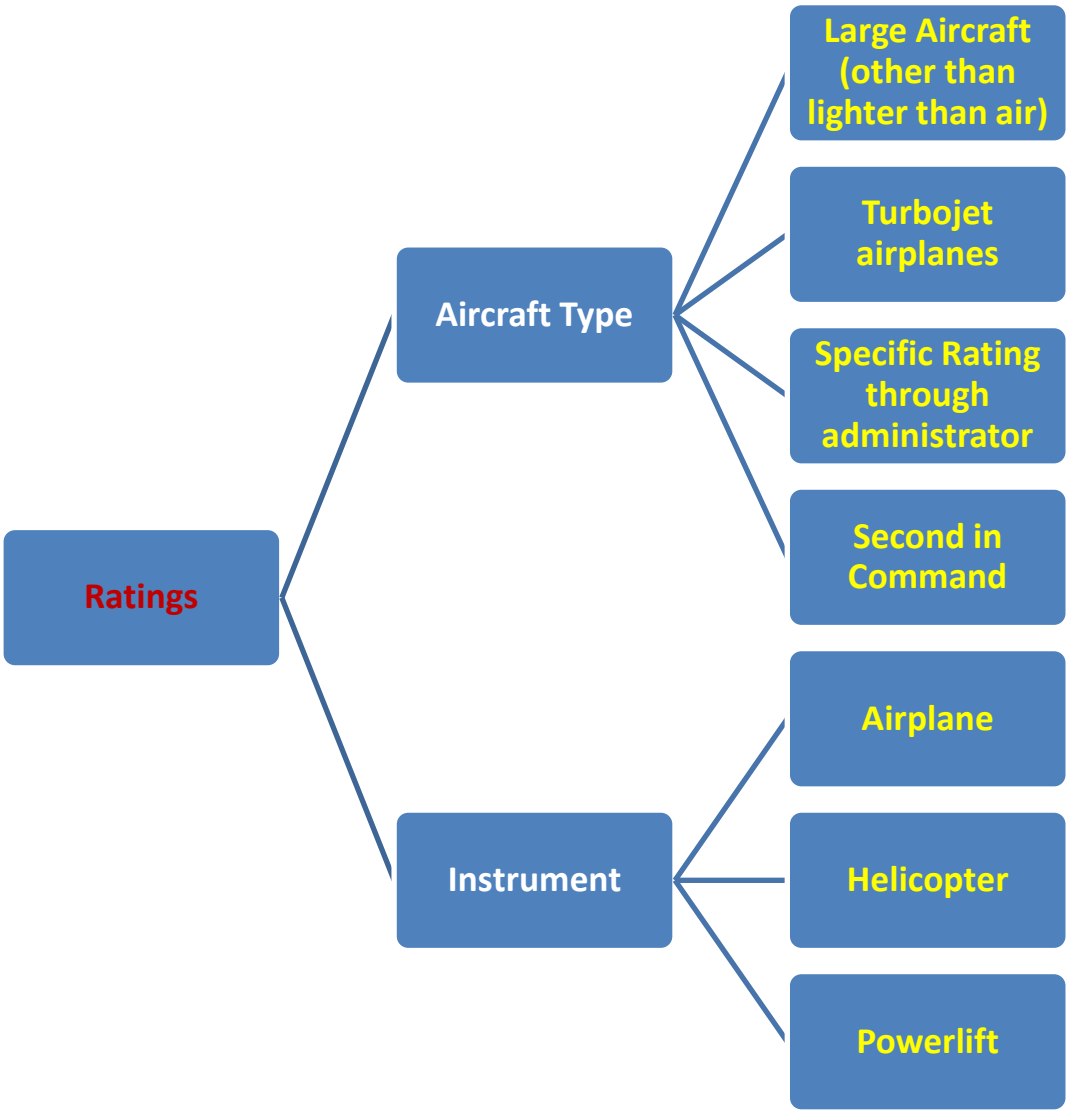
Various categories of pilot's certification are depicted in Figure 8 below. A private pilot license is divided into categories and each category is further divided into classes.

Figure 8: Pilot Certifications in USA



Ratings in the US are divided into aircraft and instrument. Aircraft type ratings are crucial in deciding what type of an aircraft a pilot can operate while instrument ratings indicate the ability to fly using instruments on a particular type of aircraft as depicted in figure 9.

Figure 9: Type of ratings in USA



4.2.1.1.1.1 Part 91

Part 91 describes the general and operating rules and is divided into following parts.

Table 6: Operations under Part 91

Sub-Part	Description
Subpart A General	Rules governing the operation of aircraft (other than moored balloons, kites, unmanned rockets, and unmanned free balloons, and ultra-light vehicles) within the US, including the waters within 3 nautical miles (NM) of the U.S. coast. There are exceptions for operating between 3 and 12 nautical miles
Subpart B Flight Rules	Flight rules governing the operation of aircraft within the US and within 12 NM from the coast of the US
Subpart C Equipment, Instrument, and Certificate Requirements	This subpart discusses various equipment and their certifications including oxygen requirement, aircraft lights, Terrain Awareness Warning Systems etc.
Subpart D Special Flight Operations	Rules for special operations like aerobatic flying, test flying, towing , experimental aircraft etc. are enumerated under this subpart
Subpart E Maintenance, Preventive Maintenance, and Alterations	This subpart prescribes rules governing the maintenance, preventive maintenance, and alterations of U.S.-registered civil aircraft operating within or outside of the US.
Subpart F Large and Turbine-Powered Multiengine Airplanes and Fractional ownership Program Aircraft	This subpart prescribes operating rules governing the operation of large airplanes, turbojet-powered multiengine civil airplanes and fractional ownership program aircraft of U.S. registry not involving common carriage including ferry or demo flights, aerial work, personal or business transportation etc.
Subpart G Additional Equipment and Operating Requirements for Large and Transport Category Aircraft	This sub-part indicates the mandatory requirement of aural speed warning device, cockpit voice recorder, flight data recorders etc.

Subpart H Foreign Aircraft Operations & operations of U.S.-Registered Civil Aircraft outside of the US & Rules Governing Persons on Board such aircraft	This sub-part applies to the operations of civil aircraft of U.S. registry outside of the US and the operations of foreign civil aircraft within the US. It also applies to persons on board the aircraft. There are also special rules for Canada, Mexico and Cuba
Subpart I Operating Noise Limits	This sub-part discusses the sonic booms and other noise limitation requirements at various levels including exceptions during crop spraying and firefighting operations
Subpart J Waivers	This part discusses rules which can be waived through an application to FAA
Subpart K Fractional Ownership Operations	This sub-part describes both operations control and program Management under fractional ownership
Subpart L Continued Airworthiness and Safety Improvements	This sub-part requires operators to support the continued airworthiness of each airplane. These requirements also include revising the inspection program, incorporating design changes, and incorporating revisions to Instructions for continued airworthiness.
Subpart M Special Federal Aviation Regulations	This subpart lists all the appendices to the subpart and special regulations

FAA under CFR 91.117 mandates that no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed of more than 250 knots (288 mph). While flying over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft has to be maintained.

There are specific operating procedures which need to be conducted when operating in a specific category of airspace. A Notice to Airmen (NOTAM) designates an area within which temporary flight restrictions apply and specifying the hazard or condition requiring their imposition is issued when necessary.

CFR 91.147 is applicable for passenger carrying flights for compensation or hire. During the day under Visual Flying Rules (VFR) the aircraft must carry 30 minutes of fuel after landing at first point, while in the night the requirement is for 45 minutes.

The VFR flight plan must contain the aircraft identification number and, if necessary, its radio call sign, The type of the aircraft the full name and address of the pilot in command, the point and proposed time of departure, the proposed route, cruising altitude and true airspeed at that altitude. It must also contain the point of first intended landing, the estimated elapsed time until over that point, the amount of fuel on board (in hours) and the number of persons in the aircraft.

Under Instrument Flying Rules (IFR) the airplane must be able to fly to the point of intended landing and fly there to an alternative airport and carry fuel to fly for 45 minutes after that. In case of helicopters, they need to carry fuel for additional 30 minutes after the alternate airport.

CFR 91.205 with standard category U.S. airworthiness certificates lays Instrument and equipment requirements for a Powered civil aircraft. It is to be noted that under CFR 91.321 there are specific requirements in tune with the election code for carriage of candidates in elections.

CFR 91.501 is applicable to GA uses like Ferry or training flights, Aerial work operations such as aerial photography or survey, or pipeline patrol, Flights for the demonstration of an airplane to prospective customers, Flights conducted by the operator of an airplane for his personal transportation, or the transportation of his guests, the carriage of property (other than mail) on an airplane operated by a person or a fractional ownership program manager. No fees can be charged for an operation under this rule.

Commercial air tour means a flight conducted for compensation or hire in an airplane or helicopter where a purpose of the flight is sightseeing. On-demand operation means any

operation for compensation or hires where operations are conducted as a public charter under part CFR 380 or any operations in which the departure time, departure location, and arrival location are specifically negotiated with the customer or the customer's representative and include the following.

(i) Common carriage operations conducted with airplanes, including turbojet-powered airplanes, having a passenger-seat configuration of 30 seats or fewer, excluding each crew member seat, and a payload capacity of 7,500 pounds or less, except that operations using a specific airplane.

(ii) Private carriage operations conducted with airplanes having a passenger-seat configuration of less than 20 seats, excluding each crewmember seat, and a payload capacity of less than 6,000 pounds.

4.2.1.1.2 Part 135

Part 135 discusses the rules for commuter and on demand operations. An “eligible on-demand operation” is an on-demand operation conducted under CFR 135.4 and has a Two-pilot crew at least two qualified pilots employed or contracted by the certificate holder with a flight experience of a minimum of 1,500 hours for pilot in command while a minimum of 500 hours is needed for the Second in command. An on demand operator or a charter operation carries passengers for hire and the regulatory regime is more onerous. Part 135 is divided into the following subparts as per table 7.

Table 7: Operations under Part 135

Sub Part	Description
Subpart A General	This part describes the rules for eligible On demand operations both for crew and passengers including training and emergency operations
Subpart B Flight Operations	This subpart prescribes rules, in addition to those in part 91 including additional airworthiness and duties of crew.
Subpart C Aircraft and Equipment	The requirements of this sub-part are in addition to the aircraft and equipment requirements of part 91 of this chapter including dual control, public address system, oxygen equipment etc.
Subpart D VFR/IFR Operating Limitations and Weather Requirements	This sub-part prescribes the operating limitations for Visual Flying Rules/Instrument Flying Rules for flight operations and associated weather requirements
Subpart E Flight Crewmember Requirements	This sub-part prescribes the qualification, experience and recency requirement of pilot in command and second in command.
Subpart F Crewmember Flight Time and Duty Period Limitations and Rest Requirements	This part prescribe flight time limitations, duty period limitations, and rest requirements for operations
Subpart G Crewmember Testing Requirements	Prescribes the tests and checks required for pilot and flight attendant crewmembers and for the approval of check pilots
Subpart H	This sub-part prescribes training requirement at initial, transition, upgrade, requalification etc. It also prescribes Crew Resource Management

Training	Training
Subpart I Airplane Performance Operating Limitations	This sub-part prescribes airplane performance operating limitations applicable to the operation of various categories of airplanes
Subpart J Maintenance, Preventive Maintenance, and Alterations	This sub-part prescribes rules in addition to those for maintenance, preventive maintenance, and alterations.
Subpart K Hazardous Materials Training Program	This sub-part prescribes the requirements applicable for training each crewmember for supervising, accepting, rejecting and handling any item for transport on board an aircraft:

The aircraft should be registered as a civil aircraft of the US and carries an appropriate and current airworthiness certificate. Crew members who were previously employed by air carriers at the time of issuance as flight certificates need to surrender those certificates under CFR 135.43.

For operating an aircraft under 135.45 it is necessary to show operation of at least 25 hours including 5 hours of night flying, if night flying is to be authorized. Five instrument approach procedures under simulated or actual conditions are required for IFR certification. A sensitive altimeter, Heating or de-icing equipment for each carburetor and two gyroscopic bank-and-pitch indicators (artificial horizons) for use at the pilot stations are some of the equipment mandated by law. Voice and flight data recorder for an aircraft with a passenger seating configuration of 20 or more is a must.

Operators are prohibited under CFR 135.154 to operate a turbine-powered airplane configured with 10 or more passenger seats, excluding any pilot seat, unless that airplane is equipped with an approved terrain awareness and warning system. For flying under IFR rules the aircraft must have a vertical speed indicator, a free-air temperature indicator a heated pitot tube for each airspeed indicator, a power failure warning device or vacuum indicator to show the power available for gyroscopic instruments from each power source and an alternate source of static

pressure. It is also necessary to equip the aircraft with an approved traffic alert and collision avoidance system.

The pilot in command needs to have an airline transport pilot certificate with appropriate category and class ratings unless under VFR rules he holds at least a commercial pilot certificate with appropriate category and class ratings with about 500 hours' time as a pilot, including at least 100 hours of cross-country flight time including 25 hours at night.

4.2.1.1.3 Productivity and Economic Contribution

The economic impact of GA is measured by considering the contributions of the GA industry to the economy. One methodology for measuring economic impact was developed by the FAA. This methodology estimates three related measures of the economic impact of GA on the nation and on regional communities—economic activity (or output), employment (or jobs), and income (or earnings). (US Department of Transportation, 1986)

The total economic impact of GA is an aggregation of three impacts: direct, indirect, and induced impacts. Direct impacts are those financial transactions that occur as a result of providing GA services that include the provision of aircraft and airport-related services. Indirect impacts occur as results of the use of GA services, which include expenditures by visitors patronizing hotels and restaurants in the area. Induced impacts are the "multiplier" effects of the direct and indirect impacts; the multiplier effects result from successive rounds of spending that originate with the direct and indirect impacts. (GAO, 2001)

A study was also undertaken by ICAO to understand the measures that can be taken to ensure that BA can establish, maintain and expand access to airports. The study identified that problems related to access to airports tend to be capacity constraints, measures taken to deal with airport capacity shortage (e.g. congestion charges, slot allocation), effect of organizational structure of airports, environmental constraints and security aspects. (ICAO, 2005)

GA is an essential economic generator, contributing more than $150 billion to annual U.S. economic output, and directly or indirectly employing more than one million people. Most GA aircraft operating around the world are manufactured and/or completed in the U.S., and the

industry is continuing to build a strong American manufacturing and employment base that contributes positively to the national balance of trade. From creating growth opportunities and global connectivity for America's small towns and rural areas to supporting the nation's productivity, BA is an important economic engine, creating jobs and investment, while contributing to the world's leading aviation system. Simply put, BA is a vital part of the nation's economy and transportation system.

In small towns and rural areas across America, BA is an essential tool that enables businesses to thrive, grow and create jobs in their home towns. That's because in many instances, there are no other transportation options that meet their needs. Many small and mid-size businesses are located in areas without scheduled airline service. Businesses of all sizes require in person travel for such operations as sales, technical support and other types of customer service. Such trips may call for multiple stops in a short period of time or travel to remote locations. Often, the distances are too long to drive or airline service is not available. The BA community is not only the economic lifeline for thousand s of our nation's communities; it also supports people and communities in times of crisis.

For example, in the days and weeks following Hurricane Katrina, hundreds of thousands of pounds of supplies were transported into small airports throughout the Gulf Coast region aboard business aircraft. These aircraft also were used to transport victims out of harm's way. (Bolen, 2011)

The 'View from the Corner Office' addresses how the C-Suite expects the BA leader, to optimize his contribution to enterprise performance and the enhancement of shareholder value.The flight department's implementation of best practices contributes to operational efficiencies, positive perception, departmental success, and, most importantly, shareholder value. From the perspective of a board member or senior executive officer, whose firm operates business aircraft in today's environment, there are several fundamental best practices in policies and procedures that today's BA leader must understand and adopt to maximize success for his company (Lara, 2007).

4.2.1.1.4 Finance and Insurance

GA airports receive funding for capital development from multiple sources, including state governments and the sale of bonds. The largest single source of funding is grants from the federal government (GAO, 2001).

The 108th Congress (2003-2004) passed and the US president signed into law, the Vision 100-century of the Aviation Reauthorization Act. Among other things, the act continues provisions for airport capital improvements that were authorized by Wendell H Ford Aviation investment and Reform Act for 21st century (AIR-21) in 2000. That act paved the way for grant of funds for most GA airports.

Airport Improvement Program (AIP) grants are made available from the Airport and Airway Trust Fund, which is financed by taxes on domestic and international airline travel, domestic cargo transported by air, and aviation fuel. FAA allocates most AIP grants on the basis of

(1) A legislated apportionment formula

(2) Discretionary spending approved by FAA based on project priority and other selection criteria.

Discretionary spending is also subject to set-asides and other spending criteria.

The concept of sustainable development in aviation has been examined by John Bartle from the perspective of environmental, financial, economic and social. He felt that time has come to focus on economic and social goals as against building just the infrastructure. Financial incentives like ticket taxes, fuel taxes and excise taxes on international flights and domestic cargo are the main sources to support the Airport and Airway Trust Fund (AATF). AATF partly funds the Airport Improvement Program (AIP). Passenger Facility Charges (PFC) does not create a close link between the cost of projects they fund and the benefits received by the passengers paying for them. (Bartle, 2006)

To help determine which projects will receive funding, FAA uses a system that categorizes airport development in accordance with the agency's goals and objectives. In assigning priority,

the system takes into consideration the type of airport, the purpose of the work, the physical component of the work e.g., a runway, building, apron, and so forth), and the type of work (that is, the specific project being done, such as construction, purchasing a fire-fighting vehicle, or making security improvements). The system favors projects that address the safety and security requirements found in federal regulations and guidance. (GAO, 2001)

The three phases of aircraft acquisition are strategic planning, tactical implementation and operations. It is a multistep process and assumes complications based on the jurisdictions. The rule of thumb industry experts subscribe is to acquire an aircraft that will serve 80% of the time and then revert to charters, jet cards or fractional ownership for the remaining 20%. As the requirement ratio moves to a 50-50 split, two fractional shares might be the answer. (Patiky, Business Aircraft Acquistion and Financing)

Aircraft management companies tend to play a vital role through a professionally run management program including crew, maintenance and operations.

The following are some of the ways through which aircraft ownership is acquired.

a) **Whole aircraft ownership**

   Although whole aircraft ownership offers immense advantage, it requires substantial capital investment and operating infrastructure.

b) **Fractional Ownership**

   It reduces the investment, eliminates the management obligations and introduces a wealth of unique benefits not found with whole aircraft ownership.

c) **Jet Cards**

   It eliminates the capital investment lowers the usage commitment and offer significant flexibility, albeit at a higher per hour cost like Flex jet 25 VCard, Avant air edge card, Citation air etc.

d) **Charters**

   It is the lowest price point of entry and is even more straightforward. Charter's drawback is unless one is travelling out and back within a day or two, it can be more costly than jet card travel.

Many aircraft owned and operated by business today are depreciable for income tax purposes under the Modified Accelerated Cost Recovery System (MACRS) of section 168 (b) of the internal revenue code over a period of seven years. Alternatively it could be depreciated under Alternative Depreciation System (ADS) based on the straight line method over a period of twelve years. The above two methods of can be used for a typical Part 135 operations. This period gets reduced to five years under MACRS and six years under ADS for part 91 operations. Aircraft held as inventory, stock in trade or not constituting qualified business use are not depreciated. The test applied to choose a particular method is that of predominant business use (Rolf, 2001).

An international registry was created as an additional place for filing of interests in certain airframes, aircraft engines and helicopters. The International Registry of Mobile Assets defines the priority of interests on airframes, aircraft engines and helicopters. The International Registry permits individuals and organizations to register financial interest in assets using the MSN manufacturer's serial number (MSN). Its role is to electronically record international interests in aircraft objects, thereby establishing priority of interests.

The International Registry operates under the legal framework of the Cape Town Convention and the Aircraft Protocol adopted on the 16th of November 2001 at Cape Town. It provides for the registration and protection of 'international interests' that are recognized by all ratifying states, with priority being determined on a "first-to-file" basis. (International Registry, 2012)

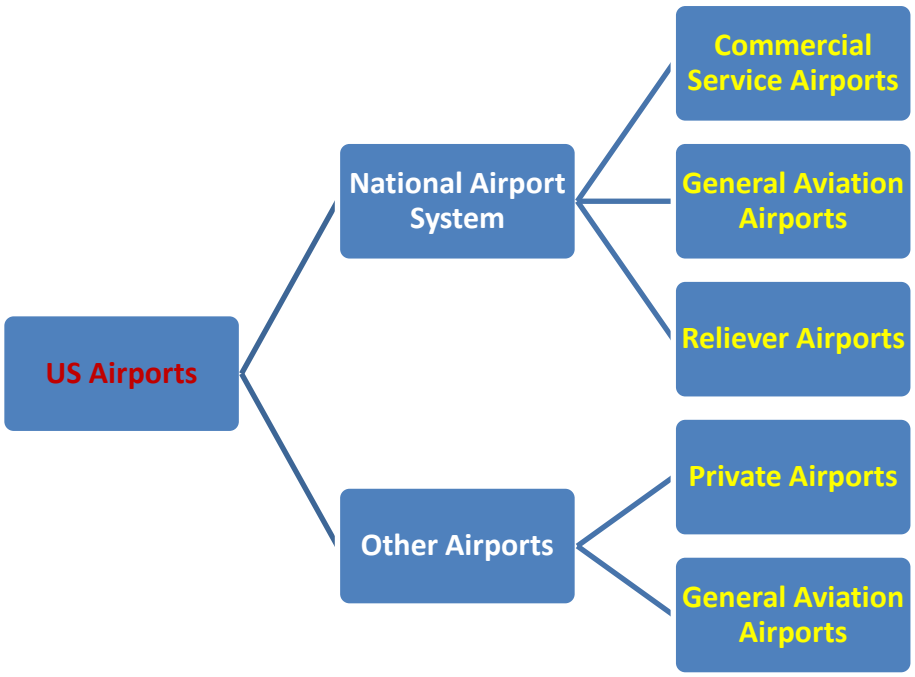
4.2.1.1.5 Infrastructure

One of the essential components of aviation infrastructure is the airport itself. Airports in the US are divided into various categories as per figure 7.

The FAA Modernization and Reform Act of 2012 defines a GA airport as a public airport that is located in a state and that, as determined by Secretary of Transportation, does not have a scheduled service or has less than 2,500 passenger boarding each year. There are over 19,000 airports, heliports, seaplane bases and other landing facilities in the US and its territories. Of these 3,330 are included in the FAA's National Plan for Integrated Airport Systems (NPIAS) are open to public and are eligible for federal funding via Airport Improvement Program (AIP). Out

of total landing sites 378 are primary airports supporting the scheduled service while the balance 2,952 GA facilities are also eligible for federal funding. (FAA, 2012).GA airports are of two categories depending on their financing structure. GA airports which are part of National Airport System only receive federal funding as depicted in figure 10.

Figure 10: Types of Airport in USA



Concerns about real estate development, noise, environmental impact, safety considerations, airspace integration, zoning and land use planning, community relations and capacity planning are critical in development of an airport. Business airports also tend to act as reliever airports to commercial hubs. New Jersey's Teterboro (TEB), Westchester County (HPN) in White Plains, New York, Van Nuys outside Los Angeles are a few examples. At these airports there is much more random traffic that doesn't fly along the same routes. It is less directional that airline hubs.

A marketing plan should be viewed in the same light and addressed with the same degree of energy as other important airport plans. Given the many ways to market an airport and the limited resources available, it is essential to have a focus for the marketing plan, that is, to define the goals and objectives, establish the message, and allocate resources. (Peggy, Hazel, Ureksoy, & Harig, 2010)

Estimates of development created by FAA and others are based on airports master's plans the accuracy of which diminishes beyond 3 to 5 years into the future and these tend to underestimate actual construction cost.

Dupange airport in west Chicago is an example of a BA airport which has had the foresight in planning. It contributes economically both by way of direct jobs and ancillary activities. Fuel sales on the air side while a tech park on the landside contributes to revenue generation (Esler D. , 2007).

Naturally it would make sense to understand the cost of aviation infrastructure. Karlsson has tried to understand the percentage which goes towards paying for infrastructure including capital, operational and security related costs. Costs of infrastructure are divided into (a) Infrastructure related taxes and fees and (b) Operators direct expenditures on the charges for the use of airport facilities, security, ATM and the development and operation of their on-airport facilities (Karlsson, Odoni, & Gaudet, 2007).

The survey classified costs into five major categories which are as follows

a) Airport costs, including passenger facility charges (PFC);
b) Air Navigation Charges;
c) Security Costs, including government security fees;
d) Other taxes and fees paid to US government entities and
e) Taxes and fees paid to foreign entities for infrastructure and security.

Glen Weisboard examined the problem of defining and measuring state and local economic impacts of GA airports. He states that user benefits of an airport that cause the subsequent economic benefits of business expansion and attraction. For any given transportation improvement, the aggregate economic value of time savings, out of pocket cost savings and safety improvements for all travelers can be compared to base condition. Economic contribution of an airport can be measured by a process of accounting for revenue received by business in the community as a result of airport activity. It includes directly, indirectly and induced spending. The net economic benefit has three components including local income generated as a result of business expansion, additional jobs as a result of new business attraction and additional value of

user benefits (time and cost savings) as a result of non-business travel. The Massachusetts Airport Impact Model provides a method for estimating changes in airport business usage, economic contribution and business attraction based on characteristics of improvements in the airport, its service area population and area economic profile. The survey conducted in Massachusetts indicated that 19% of business said that they would relocate, while 7% said that they will go out of the business if the airport closed (Weisbrod G. , 1991).

4.2.1.1.6 Skill Development and Training

Within GA, some types of flying are safer than others. The safety record of corporate flying, for example, rivals that of commercial passenger airlines. Other types of flying, such as personal and aerial application, have considerably higher accident rates (GAO, 2001).

As a result of the on-going work of Safer Skies, FAA, NTSB, NASA, and industry associations have also formed a GA Data Improvement Team (GADIT) to gather better data on GA accidents. This initiative was formed to address complaints about a lack of data on the causes of GA accidents and incidents, especially those involving human error. In addition, this team will develop strategies for:

a) Improving the quality and timeliness of estimates of GA activity and
b) Measuring the effectiveness of the various Safer Skies interventions.

FAA oversees `the safety of GA through a process of pilot certifications and the biannual flight review. Continuing education programs, safety seminars and use of personal computer based aviation training devices are some of the ways in which training is conducted. Table 8 below lists some of the training initiatives.

Table 8: Training in GA

Source	Training Recommendations
Safer Skies	Enhance the biennial flight review and/or competency check.
	Improve pilot training (that is weather briefing, equipment, decision making, wire and tower avoidance and human factors).
	Develop and distribute mountain flying technique advisory material.
AOPA	Enhance requirements for initial training to include instruction in flying in marginal weather conditions and topics related to weather awareness.
	Enhance requirements for the biennial flight review to include competence in: (1) reading and interpreting aviation weather reports and forecasts; (2) Obtaining in flight weather information and (3) Explaining various adverse weather conditions and strategies for avoiding them.
NTSB	Establish a cooperative program that encourages the training of pilots who are transitioning from one type of airplane to an unfamiliar type.

FAR Part 91, the primary section of the U.S. aviation regulations concerning non-commercial passenger carrying operations, does not provide an overall operational performance standard, regardless of type of aircraft involved. In many parts of the world, this deficiency has been addressed by mandating some form of operational approval for private operators similar to a commercial operating certificate typically issued by a government aviation ministry. For instance, Canada has required a Private Operator Certificate (POC) since the early 1990s.

Originally administered directly by Transport Canada, the responsibility for that was delegated to the CBAA. These concerns led IBAC in 1999 (heavily encouraged by the NBAA and the reorganization of Canada's POC program) to begin formulation of a set of operational safety standards for BA. Another influence behind the decision was the growing worldwide acceptance of the Geneva-based International Standards Organization and its ISO 9000 code of industry best practices, claimed to enhance efficiency, productivity and employee well-being, and facilitate business internationally. Out of this process emerged the International Standard for Business Aircraft Operations (IS-BAO), a "professional safety code of practice for flight departments worldwide, developed by the industry for the industry." In its simplest form, IS-BAO is a uniform operational template that addresses risk-management and problem-solving based on proven procedures in a universally understood manner (Esler D. , 2004).

IBAC introduced the IS-BAO program for many reasons. In many business sectors, international standards are recognized for their role in facilitating global commerce. IS-BAO is similar in this respect as its fundamental purpose is to foster standardized, safe and highly professional aircraft operations.

IBAC recognized the need for the BA community to take a lead role in fostering harmonization of operating procedures and requirements. IBAC works closely with the ICAO towards international standardization. The President of the ICAO Council has endorsed the efforts of the BA community in developing an industry 'code of best practice'. IS-BAO incorporates the International Standards and Recommended Practices for the Operation of Aircraft applicable to BA prescribed in ICAO Annex 6, Part II for International GA- Aeroplanes (IBAC, 2011).

IS-BAO is a code of best practice. It has been developed by the industry for the benefit of the industry. It is the industry's contribution to promoting highly professional operational practices. IS-BAO is intended to build upon the excellent safety record already established by BA.

The SMS model contained in the IS-BAO incorporates elements of a traditional flight safety program with quality management practices in a manner that makes concerted flight safety efforts practical for even a small flight department.

Safety Management System (SMS) is "the systematic and comprehensive process for the proactive management of safety-risks that integrates the management of operations and technical systems with financial and human resource management" (Rohr, 2004).

4.2.1.2. Canada

CBAA has been instrumental in taking up the cause of Canadian BA. CBAA believes that perverse and harmful results of Transport Canada's overregulation and other challenges such as outdated customs procedures are a constraint in the growth of the sector. It advocates that BA requires a different regulatory framework from commercial aviation.

Customs and security for BA cannot be based on the airline terminal model. Specific processes and technologies need to be developed that reflect the operational realities and profile of BA operations and terminals. It also believes that proposed Transport regulations put Canadian BA at a disadvantage compared to USA and excessive regulations offset the benefits derived from this government's good fiscal, monetary and economic policy frameworks (CBAA, 2012).

4.2.2 Latin America

Compared with the U.S. and Canada–where the Business-jet fleet totals some 16,000 airplanes Latin America is a relatively small market on the global map. For most aircraft manufacturers, it is the fourth largest market, behind North America, Europe and the Middle East. There are several reasons for the booming demand: new businesses moving into Latin America; a more stable political climate and improving economy in many countries; expanding offshore oil and gas business; and replacement of an aging fleet. Those selling their older helicopters are generally replacing them with new, and demand for used helicopters remains healthy. In the larger cities, where Traffic backs up for miles and rampant crime prompts security concerns, helicopter transport is no longer considered a luxury but a necessity for business executives and wealthy individuals. In Mexico City more and more new buildings are coming up with helipads. There are already 75 helipads in the city. While the market in Latin America is primarily for small and medium business jets, Bombardier expects to see a growing market for larger aircraft with legs to match a global economy that more and more Latin American businesses are entering (Harrison, Kirby J; Johnson, Elizabeth, 2006).

Latin America's prosperity is reflected in the region's surging business aircraft fleets. Since 2001, Latin American BA fleets have grown at a 9.1% compound annual rate - among the highest in the world. All the growth drivers are there: strong economic growth, economies based on transplant manufacturing and resource extraction, spotty ground transport infrastructure and economically important regions that are relatively un-concentrated (Sarsfield, 2011).

4.4. Europe

Founded in 1977, European BA Association (EBAA) is the leading Association for BA in Europe. It takes part in regulatory discussions at the various European institutions to tackle the challenges that threaten this sector and promotes the community as vital to Europe's economic development. European BA fleet is composed of 4266 aircraft operated by 838 operators. The fleet size has grown 6.9 percent over 2010 (EBAA, 2012).

General and BA offers closely tailored flexible, door-to-door transportation for individuals, enterprises and local communities. These are supplementary services allowing providers to reach destinations that the airlines cannot serve because of operational restrictions or do not serve due to economic considerations. Moreover, general and BA provides high value services to the general public, including environmental surveillance, fire-fighting, map charting and emergency medical transportation (ASD-EGAMA, 2009).

BA includes Air Taxi operations, in which whole aircraft are chartered by clients and corporate operations in which a company owns and operates its own aircraft using professional pilots. BA provides industry and commerce with speed and flexibility of operation which the rigid schedules and time-wasting routines of airline travel deny to those who need to travel quickly, cost-effectively and by the most direct routings. It enables busy executives to complete trips in a day which otherwise would involve the frustrations and expense of overnight stops.

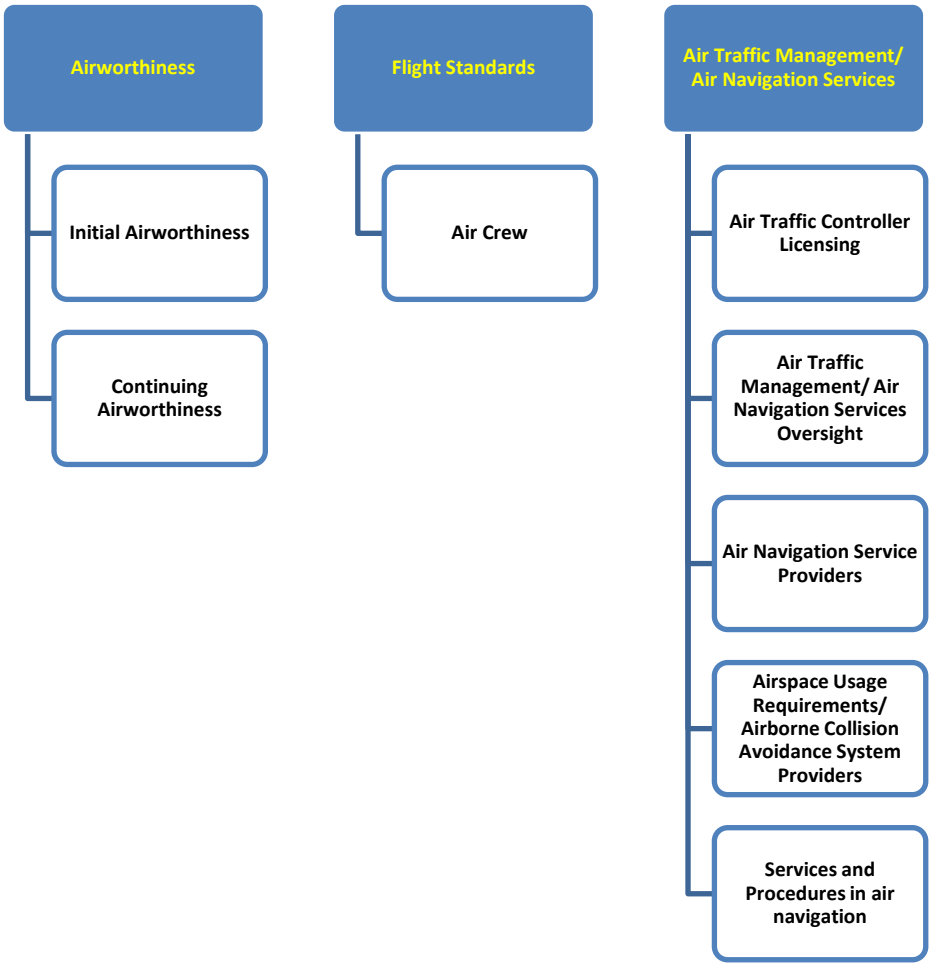
Air transport is one of the safest modes of travel. It is also the fastest growing. That is why the European Union decided on a common initiative to keep air transport safe and sustainable, allowing for growth and improved safety. It is called the European Aviation Safety Agency (EASA).

4.3.1.1. Regulatory

The regulations in Europe are managed by European Aviation Safety Agency (EASA). The Agency promotes the highest common standards of safety and environmental protection in civil aviation in Europe and worldwide. It is the centerpiece of a new regulatory system which provides for a single European market in the aviation industry (EASA, 2012).

The basic regulation for Europe is (EC) No. 216/2008. The basic regulatory structure in Europe is as depicted in the figure 11.

Figure 11: Regulatory Structure in Europe



4.3.1.2. Productivity and Economic Contribution

In a discussion paper on GA in Europe it was pointed out that status of an aircraft is determined by the "Principal of functionality" as against its registration status. Issues related to fractional ownership or the practice of cross company charge backs for provision of air transportation tends to complicate the matter. Enhancement of overall business productivity, flexibility in operations, quicker point-to-point service and more available destinations are reasons generally quoted by individuals and companies using their own corporate aircraft or on-demand taxi services. This sector of GA encompasses different model of aircraft utilization. Each model has different characteristics and regulatory regimes applicable to them may vary depending on whether they are commercial air transport or private operations (European Commission, 2007).

Pricewaterhouse Coopers LLP (PwC) in 2008 examined the impact of BA in the economy of European Union. The BA sector contributed a total of €19.7bn in annual Gross Value Added (GVA) to the European economy in 2007, accounting for approximately 0.2% of the combined GDP of the European Union (EU), Norway and Switzerland. The induced impact, at €9.3bn, was the largest contributor to the economic impact of the sector. Considering BA's direct, indirect and induced impact, the industry accounted for more than 164k jobs across the continent and generated combined annual wages and salaries of around €5.7bn. France, Germany and the UK are the countries most impacted by the BA industry. Total impact of BA in these three countries is €12.6bn, which represents 64% of the total industry GVA in Europe (Pricewaterhouse Coopers, 2008).

From 2001 to 2007, BA expanded rapidly, contributing significantly to the total growth of flights in Europe. Then the economic downturn hit this market segment early and hard; the 14% decline in flights in 2009 was the largest of the main market segments. Of the six main States, the downturn in BA affected the UK and Spain most strongly. This was enough for Germany to move into second place, in terms of numbers of flights generated, ahead of the UK but still some way behind the largest source, France. BA specialises in flying from smaller airports. It flies a very large number of routes, three times the number of scheduled links, and predominantly city-pairs where there is no daily scheduled service. The cut-backs in traffic have increased this effect further, the proportion of BA flights on city pairs without daily scheduled flights rose from 62%

in 2007 to 66% in 2009. BA continues to be about small fleets, flying rarely. Some 3,200 operators or handling agents filed flight plans in 2009, but 1,900 of these had only one aircraft that flew in Europe. The very-light jets are now flying and the number of flights is growing. In the medium-term, the forecast is for growth slower than that seen in the 2004-2007 periods, but still faster than the growth of the bulk of flights .As a result, the market share of BA should recover from the 6.9% of flights in 2009, passing 8% around 2015. BA in Europe is concentrated in six European states of France, Germany, Italy, UK, Switzerland and Austria amounting to 2/3rd of the business (Marsh, David, 2010).

In the recently concluded conference on European BA, David Marsh pointed out of 1930 flights per day, 1007 are between city pairs with no scheduled service. The main business is still taking in Western Europe. Though the business recovered in 2009, it is again showing a dip after that. In the year 2011, Poland, Turkey and Ukraine have shown the highest growth rate averaging 12% (Marsh, 2012).

The degree of flexibility on offer makes BA very different from the scheduled network. While the scheduled network provides "thick connectivity", based on economies of scale and concentrated at major cities, BA offers "thin connectivity", carrying a low volume of passengers between a much larger numbers of destinations. Even through the global crisis the network continued to widen, reaching 88,000 airport pairs by 2011. This "thin connectivity" can play a particularly crucial and complementary role in integrating regions of Europe less well served by scheduled airlines – a key policy goal for the European Union. BA is also playing an important role in supporting economic links to emerging markets – for example, in 2011 there were over 1,400 flights between Europe and India using BA. The report also estimates that since BA carries key decision-makers on high value-added trips, each additional passenger flown on a BA flight generates the same contribution to GDP as nine business passengers on a scheduled flight (Oxford Economics, 2012).

Russian regulations and legislation treat business and commercial aviation identically, resulting in significant legal challenges for BA market participants. BA" is a legal concept absent from Russian law. The country's primary aviation regulatory legislation, the Aviation Code, which was adopted in 1997, does not distinguish between BA and commercial aviation. The most

significant obstacle business jet manufacturers outside the Russian Federation and prospective owners in Russia face is the import tariff. Customs regulations impose prohibitively high duties on all aircraft imported into Russia. The Customs Tariff of the Russian Federation sets the current rate at 20 percent of the customs duty. An 18 percent value added tax (VAT) increases the total price of the imported jet by 41.6 percent of the initial price.

Business jet operators in Russia are subject to the same standards as any large Air Operations Certificate (AOC) holder, which is equivalent to the U.S. certification process under FAR Part 121 for commercial air carriers. In the US, by contrast, business jet operators operating aircraft with a seating configuration of less than 20 passengers or a maximum payload capacity of less than 6,000 pounds are not required to have an AOC. Rather, business jet operations in the US are usually conducted in accordance with the "General Operating and Flight Rules" contained in FAR Part 91. Under Russian law, there is a significant deviation from accepted international practice in that business jet operators (whether individual owners or air taxi operators) are required to issue tickets to their passengers. This ticket becomes the primary binding contract of carriage, superseding any other arrangements that may exist between the customer and the jet operator. Clearly, this kind of legal relationship raises additional liabilities and risks for both the passenger and the business jet operator (Voskoboynikov & Wicks, 2010).

4.4. Middle East and Southern Africa

Middle East BA Association (Middle East BA Association) which represents the operators from the Middle East region shares perspectives and best practices with other world-class BA associations. It also intends to establish a data bank for gathering useful and relevant industry data for MEBAA Members and interested parties and arranges training, lectures and conferences.

A unique activity by MEBBA is the introduction of MEBAA Aviation Insurance Scheme (MAIS). MAIS is a unique insurance product exclusive to members of MEBAA .MAIS provides coverage for Aircraft Hull, Hull War, Spares, Liability, Personal Accident and Pilot Loss of License. MAIS will cater for all business jets of members up to and including Airbus ACJ A318/A319/A320/A321 and Boeing BBJs aircraft (MEBAA, 2012).

MAIS criteria:

- Maximum hull agreed value of USD 80,000,000.
- Maximum combined single limit of USD 550,000,000 including coverage in respect of Extended Coverage Endorsement (Aviation Liabilities).

Additional coverage features of MAIS:

- Lowest available position for total loss settlement.
- Trip interruption expenses in the event of loss.
- Option for "new for old" settlement.
- Replacement Aircraft Rental Expenses in the event of loss.

One of the oldest civil aviation associations is that of Southern Africa. On 6 June 1944, at a meeting in Johannesburg, the Commercial Aviation Association (CAA) was officially launched with a membership of 25 persons, representing various concerns involved in some way with aviation. The stated purpose of the Association was to serve as "a permanent association for the furtherance of civil aviation in Southern Africa."

The initial objectives of the association were:

- Free Trade" at all airports (members were concerned that the larger companies would "gobble up" or trample the smaller concerns).
- The proximity of municipal airports to their respective towns and the question of their size.
- Landing fees (it's amazing how this issue always remains on the industry's agenda).

Civil Aviation Association of South Africa (CAASA)'s most successful achievement was when a fuel requirement survey was done to establish how much fuel GA used, a very small percentage of the total fuel acquisition. CAASA received a 90% return on the survey. Furthermore, CAASA obtained the Diner's Club fuel card, which could also be used for spares, and then later for other business. Crew cards were also introduced and CAASA was also involved with the establishment

of the International BA Council (IBAC), but participation in this organization was restricted because of South Africa's apartheid policies.

CAASA developed a reputation for tenacity and persistence when fighting for the causes of civil aviation. The abolition of customs and excise duties on aviation fuel in 1983 saved the GA sector, an estimated amount of four million rand for the year 1984.

The International Air Transport Association (IATA) funded a study by Oxford Economics in 2012 that shows that the aviation sector contributed R50.9 billion or 2.1% to the South African GDP. In addition there are R23.4billion derived in 'catalytic' benefits through tourism, where GA (GA) is playing its part. The report also states that the aviation sector supports 227,000 jobs. This equates very favourably compared to the 36,000 jobs the motor industry is supporting. The question being raised then is why the motor industry can get financial assistance from Government and the Aviation Industry gets taxed more and more? This is one of the reasons why CAASA is funding its own study on the impact that GA is having on the economy. This will enable them to show the relevant authorities that GA is not just for the rich and exclusive but that it has a very important role to play in the South African economy and not to be seen as a cash cow to be milked (Oxford Economics, 2012).

4.5. Asia Pacific

A report by McKenzie indicates that China, India and Russia are expected to emerge as significant players over the next two decades. Specialization in design, manufacturing and assembly is likely among suppliers and OEMs like Airbus, Boeing and Bombardier. Demand for aircraft in these markets is surging. China, India and Russia are expected to purchase more than 3,500 aircrafts over the next two decades. An analysis indicates that China will surge ahead in a manufacturing role. Variables determining the speed of aviation development would include the ability to understand global requirement, to design a compelling and reliable aircraft and to develop program management, supplier integration and after-market support capabilities (Bedier, Vancauwenberghe, & Sintern, 2008).

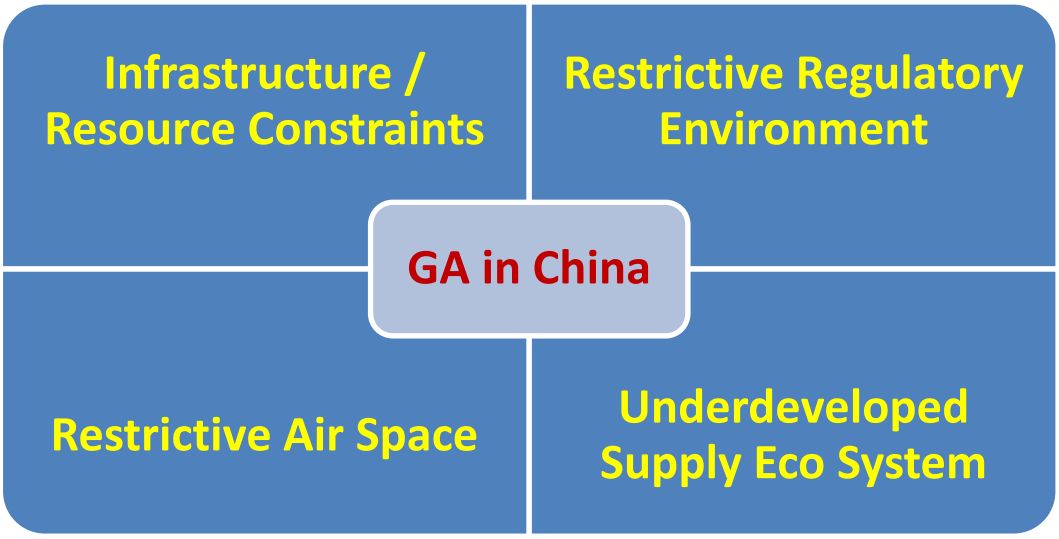
Asia-Pacific has been one of the fastest-growing economies in the world, and BA is playing a key role in the economic growth of the Pacific Rim. However, challenges to doing business in the region remain (NBAA, 2012).

The purpose of Asian BA Association is to promote the benefits of BA in Asia and to support the interests of business aircraft operators and companies that support those aircrafts with a focus on safety and networking among its members.

4.5.1 China

Booz and Allen analysed the GA sector in China in order to understand the constraints for growth. The constraints in the growth of BA are similar as GA is larger set as depicted in figure 12 (MacCorkle & Wong, 2009).

Figure 12: Growth Constraints for GA in China



Infrastructure / Resource Constraints

i. Few Airports and low utilization of existing airports.
ii. Lack of Pilots and pilot development system.

Restrictive Regulatory Environment

i. Lack of effective regulatory framework for development while ensuring safety and security.
ii. Lack of Coordinated regulations and policies across stakeholders make regulators overly cautious.
iii. Approval Process for GA process is lengthy, time consuming and costly.

Underdeveloped Supply Eco System

i. Management, technology and engineering constraints limit advances in aviation manufacturing.
ii. Most GA operators have difficulty in achieving profitability.
iii. After market services are underdeveloped with heavy reliance on overseas support for major repair.

Restrictive Airspace

i. China has not fully exploited the full potential of airspace resources.
ii. Airspace is divided into Class A, B, C and D which are tightly controlled and restricted.
iii. Limited access to airspace and inadequate air traffic management.

The first China regional market outlook released by Embraer points out that there will be growing demand for better connectivity in secondary tier cities, fostered by China's vibrant economy and its growing middle class. The country's regional aviation will continue its sound growth trajectory, as experienced in the past decade. The Market Outlook highlights the central and local government aviation policies as catalysts to regional aviation expansion in China, as well as fleet capacity optimization as a mean to keep a competitive edge. The Market Outlook includes an in-depth case study illustrating how Embraer's commercial jets are fostering the development of both local air transportation industry and the economy of China's Inner Mongolia region (Embraer, 2012).

From a regulatory perspective, one of biggest issues for BA in China continues to be infrastructure. All large airports are constrained, but the Civil Aviation Administration of China realizes that it needs to build dedicated BA airports, as well as more regional airports. However, progress, both in infrastructure development and the opening of airspace, will proceed at a measured pace.

4.5.2 India

In India aviation falls as entry 29 under the central list as per the VII schedule created under article 246 of the Constitution (Shukla, 2010). The Central government has the power to legislate on the subject of aviation. A perusal of the definition clause indicates the need to examine the differences in the regulation. The term Air Commerce or interstate air commerce has not been defined in the Indian Constitution and would fall under the article 301 related to freedom of trade and commerce throughout the territory of India.

The legislative and regulatory framework of civil aviation in India is currently provided through the Aircraft Act, 1934 and the Aircraft Rules, 1937 framed under the Act. Both Act and the Rules have been amended numerous times. The Aircraft Act, 1934 was last amended in 2008 and last amendment to Aircraft Rules in 2012. The present Act and the Rules have also legislated 'International Standards and Recommended Practices' (SARPs) stipulated by International Civil Aviation Organization (ICAO) wherever and whenever required. The Central Government, therefore, has proposed to set up a Civil Aviation Authority and draft new Civil Aviation Authority of India Bill, which would be empowered for regulating the civil aviation sector. It is envisaged that the Civil Aviation Authority of India (CAAI) would regulate the civil aviation sector through the Aircraft Act, 1934 (or the newly proposed Civil Aviation Act in place of Aircraft Act of 1934) through a collective decision of its board having broad based expertise rather than an individual, as is the situation today (Ministry of Civil Aviation, 2012).

The principle regulator of civil aviation in India is DGCA and is attached to the Ministry of Civil Aviation. DGCA is the regulatory body in the field of Civil Aviation primarily dealing with safety issues. It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety and airworthiness standards. The Directorate is

responsible for registration of civil aircraft, formulation of standards, licensing of pilots, engineers, establishments like airports, training academies, conducting investigations etc. among its other objectives (Duties, Functions and Responsibilities, 2012). DGCA also coordinates regulatory functions with International Civil Aviation Organization.

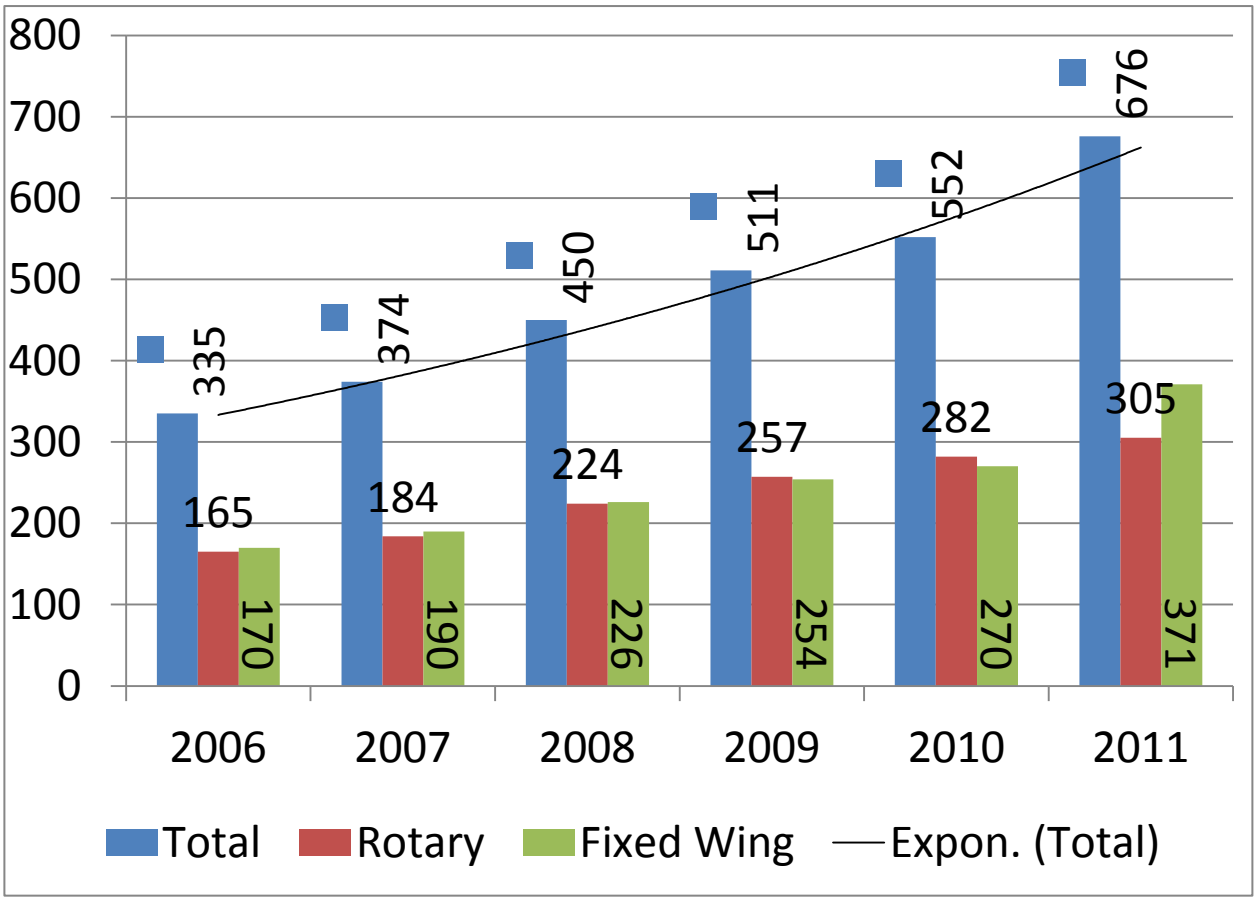
The headquarters are located in New Delhi with regional offices in the various parts of India. There are 14 (fourteen) Regional Airworthiness Offices located at Delhi, Mumbai, Chennai, Kolkata, Bangalore, Hyderabad, Trivandrum, Bhopal, Lucknow, Patna, Bhubaneswar, Kanpur, Guwahati and Patiala. Apart from the Regional Airworthiness Offices, there are 5 (five) Regional Air Safety offices located at Delhi, Mumbai, Chennai, Kolkata and Hyderabad, the Regional Research and Development Office located at Bangalore and the Gliding Centre at Pune (DGCA, 2012).

BA is growing at a steady pace in India; though in the US during the latter part of the first decade of the millennium, it showed a decline. US expects that this decline would be compensated by growth internationally, particularly from countries like India and China. Table 9 depicts the growth of BA aircraft in India.

BA is growing at a rapid pace and India along with Russia and China is considered the fastest growing market. The acquisition of business aircraft doubled (2011 figures) since 2005. Currently there are over 676 (2011 figures) business aircraft (including rotary and fixed wing) operating in India (Singh K. , Business Aviation in India, 2011).

It is important to note that the proportion of fixed wing aircrafts acquired between 2006 and 2010 is similar to that of rotary aircrafts but has slightly changed in favor of fixed wings in the year 2011.

Table 9: Growth of Business Aircraft Acquisition in India



SOURCE: INTERVIEW WITH BAOA OFFICIALS

According to the 2011 report, CAPA had stated that India's GA sector has tremendous opportunities and has projected that the industry could see new aircrafts sales that are business jets, helicopters, turboprops and piston engines of up to US dollar 12 billion over the next decade. By which time the fleet is expected to touch 2000 aircrafts. The report also estimates that the direct and indirect economic contribution of GA would be close to US dollar 4 billion per annum 2020. On the rotary wing side, the future of India looks very promising. In a rapidly growing economy increasing reliance on air transportation and diversified terrain are all pushing the Indian helicopter market to develop at a very fast pace. It is expected that the commercial sector of corporate and VIP transport will also grow rapidly. Another area of visible growth in India will be the oil and gas industry and in order to support exploration and development of new sources, there will be a need of longer-range helicopters and which ONGC and the Ministry of Petroleum is addressing. The field of emergency medical services as operated by helicopters is

also emerging as a very important growth area. In terms of fixed wing business jets statistical studies indicate that generally they are more cost effective than commercial services and hence there is this potential.

India is the fourth largest market in the world behind the US, China and Japan and yet India is one of the least penetrated markets in the world even lower than Sri Lanka, Pakistan and Nigeria.

Economic development of India in the coming generations depends upon seamless interface between information technology, regional aviation and developmental goals (Nigam, Ajit Kumar; Pahwa, M S; Saini, Jaskaran Singh, 2013).

Data in India on schedule airlines is available and data on non-scheduled and private jets, which constitute GA, is difficult to come by. The biggest challenge, which the Government of India (GOI) is now facing because sector is predominantly liberalized, is to ensure that though there a is lot of growth taking place, challenge is to ensure that the growth takes place in a safe and a planned manner.

Aircraft can be acquired through a sales agreement or a lease agreement. Lease transaction can be either a finance lease or an operating lease.

Permission is required from the Ministry of Civil Aviation for acquisition of an aircraft. Permission is needed from the Reserve Bank of India (RBI) for making advance payments, obtaining foreign currency loans, issuing guarantees etc., for purchase of an aircraft or its acquisition on a finance lease basis (Saran, 2008).

Direct Purchase

Sale and purchase of an aircraft is governed by Sales of Goods Act. A contract of sale must fulfill all the requirements of a valid contract under the Indian Contract Act. The subject matter of the contract can be: existing or future goods, or goods which the seller may acquire only upon the happening of a specific event. In case of future goods the contract is considered to be an agreement to sell.

Finance Lease

A finance lease is a contract where almost all of the risks and rewards of ownership are borne by the lessee and the lease payments made to the lessor during the lease period are sufficient to cover the lessor's costs and also present a profit. Although the aircraft is purchased by the lessor, it does not usually have a hand in the selection of its model, which is done on the basis of the specifications provided by the lessee. The lessee is responsible for all repairs, maintenance and insurance costs, and also bears the risk of obsolescence. The lease period normally covers the economic life of the aircraft so that by the end of the lease, the residual value of the aircraft may be negligible. The lessor may generally give the lessee an option to purchase the aircraft either at the end of the lease period or throughout, taking into consideration bank breakage charges and the relative negotiating powers of the parties. Such options may be exercised at predetermined prices or for fair market value.

Operating Lease

The purpose of an operating lease is to facilitate usage of the asset rather than transfer of any ownership interest and it covers most other forms of leases, where the risks and rewards of ownership remain with the lessor. An operating lessor has to place the aircraft on a number of successive leases or sell the aircraft in due course to recover its capital outlay and make a profit, whereas a finance lessor looks to a single lease to do the same. Operating lessors must, therefore, have significant expertise in the management of the asset, while a finance lessor is primarily concerned with effectiveness of the lease structure and has minimal interest in asset.

Leveraged Lease

In a leveraged lease, the lessor (also called the equity participant) provides only a proportion of the cost of the aircraft from its own pockets and the rest is borrowed from a lender or a syndicate of lenders (also called the debt participant) on a non-recourse basis. The proportion ranges between 20% - 40% and this risk is maintained by the lessor throughout the lease term. The loan is repaid from the lease rentals, which are assigned to

the lender along with the insurance proceeds, and is secured by a first mortgage on the aircraft. In case of default, the lender has no recourse against the lessor for any amount in excess of what might be realized pursuant to the enforcement of the mortgage or receipt of the insurance proceeds for the repayment of the loan.

Sale and Lease Back

A sale and leaseback is a transaction where the owner of the asset sells the asset to a purchaser, who then immediately leases it back to the seller. This enables the previous owner to continue using the asset, in addition to recovering the equity in the asset.

Using Business Aircraft in India

The acquisition of a Phenom 100 by Kalyan Jewelers headquartered in Kochi, Kerala in a state where communism rules the roost is a harbinger of times to come. The need to expand the business and yet maintain a work life balance has resulted in the CMD, Mr. Kalayanaraman use the aircraft as a business tool and not as a status symbol or an item of luxury.

The group's jewelry chain of thirty is spread across Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Pondicherry. Mr. Kalyanaraman feels that keeping a close eye on the business is tough due to the poor commuting options. Videoconferencing is an option but a poor one and it has also been seen that business travel by air has not come down in spite of videoconferencing. Commuting to small towns like Hubli, Belgaum or Tirupati takes days simply because of air connectivity issues. On top of Kalyan group's reason to go for the jet is the time it saves for the promoters in running the business. Mr. Kalayanaraman opted for Embraer Phenom 100 because it can land in some of the largest airstrips in the country and which means that some 250 cities and towns that have an airport become potential business centers for the group (Scaria, 2012).

Security

It is also important to understand the security implications of GA. A sensational case called the Purulia arms drop case was an example of illicit arms trafficking by air. On 17th December 1996, an Antonov-26 aircraft dropped over 300 AK47/56 rifles and 20,545 rounds of

ammunition, dragnov sniper weapons, rocket launchers and night vision devices in Purulia village in West Bengal (Singh S. P., 2002).

Having pursued the literature at hand from an Indian perspective, the researcher has analysed the primary data using a qualitative approach in the next chapter.

Chapter 5 : Analysis of Categories and Factor Analysis for Business Aviation

Business Aviation is the new kid under the block and is a relatively new segment of the industry in India. It facilitates emergency medical services, disaster management, offshore operations, scientific research and security as well as law enforcement. One of the major reasons for the rise in demand for BA is that, aircraft are no longer seen in this country as a luxury but as a tool for increasing productivity. BA is also considered as a catalyst for the economic growth. Businesses that use BA are said to gain competitive advantage while the communities gain job opportunity and access to nation's extended air transportation system. Maximum use of BA is seen in the chartered business in India, tourism as well as off shore operations. BA in India is a niche market. Especially since it is relatively hassle free and has instant availability status. The value of additional benefits of private aircraft is that it can fly to destinations, which are not normally covered by the scheduled airlines and have access to smaller airstrips.

In this chapter the researcher has examined the various shades of BA and further goes on to further categorize the factors affecting it as discussed in chapter 3 related to research methodology. BA is experiencing a lot of formidable constraints. There are no exclusive guidelines for them. The factors that inhibit growth of BA are mainly lack of infrastructure and manpower as well as several procedural issues relating to government control. The emerging theme of Business and GA is related to twelve codes as listed below. The initial codes emerged through discussions, seminars, interviews and conferences.

Code	Code
GA as a focus area	Air Taxi Services
Non Scheduled Operator	Business Aircraft
Private Aircraft	Business Aircraft Operators Association
Private Category	BA
Private Operator	Business Aircraft
Scheduled Commercial Aviation	Corporate Aviation

Air Taxi Services

An air taxi service is one of the potential areas which would lead to growth of BA. In fact it is commonly used in US and it could be used to connect far flung places of commercial and tourist interest. The code "Air Taxi Services" can be deduced from the following quotations:

> *GA means private aircrafts, aircrafts owned by the companies, flying club aircrafts, small taxi operators and helicopters.*
>
> **Mr. A.K. Jain, General Manager, Airports Authority of India**

> *So how the GA operators can break even is the main question? Mr. Ambani or Mr. Tata, they don't care for operating cost but there are other segments like this air-taxi you mentioned, where breaking even is impossible.*
>
> **Rohit Kapur, President Business Aircraft Operators Association**

Business Aircraft

Some of the quotations which assist in establishing the importance of business aircraft are as follows:

> *Improved processing of formalities; talking about customs immigration processing, more favorable climate for purchase and operation of business aircraft are some of the constraints for Business Aircraft.*
>
> **Mr. Lex Den Herder, Vice President, Government and Industry Affairs,**
> **Universal Weather & Aviation Inc.**

> *India lacks any dedicated airports for business aircraft (with the exception of Juhu Airport, Mumbai for helicopters.*
>
> **Kapil Kaul, CAPA**

India's growing roster of HNIs and Corporates keen to buy business aircraft.

Ravi Radhakrishnan, Reliance Infrastructure

Business Aircraft Operators Association

Business Aircraft Operators Association (BAOA) is an important element of BA as established by following quotations:

A quick word about Business Aircraft Operators Association (BAOA)-this is Non-Profit Organization which was formed on 31st March 2011 by amalgamating two erstwhile associations which were doing the same work. We were established with the aim of bringing in close cooperation among its members for mutual benefits, the collective voice for the BA community in India & do assist its members in aviation matters.

Capt. Rohit Kapur, President BAOA

Business Aviation

The following quotations support the relevance of BA:

The fleet classification is 308 the training fleet, 154 BA and 39 government and 8 aerial work fleet, Basically the problem is, there are large number of general operators, around 133 Non-Scheduled Operators and 175 others.

D.P Singh. Executive Director, Corporate Planning, Airports Authority of India

BA really started took-off in year 2002-03 and good growth at the rate of 11%, 14%, 19%, 26% and 2007 at the rate of 12% little low but in 2007 was the year when Import duty came into existence and 2008 is again same bad deliveries.

Capt. Rohit Kapur, President BAOA

Business Aircraft

The demand for business aircraft is growing as evidenced from the following statement:

> *In India, business aircrafts have continuously evolved to meet the increasing market demands for speed and comfort and with a number of high net-worth individuals. No doubt the business jets market will increase and jet manufacturers will be intensifying their efforts to sell more aircrafts in the country.*
>
> **Mr. E K Bharat Bhushan, Director General, DGCA**

> *The license such required to handle an airline should not be the same thing that is required to handle a business aircraft that is something totally different.*
>
> **Capt. Rohit Kapur, President BAOA**

Corporate Aviation

Corporates purchase a business aircraft not only for business purposes but also for regular transportation of employees. This is supported by the following quotations:

> *If I look at BA, I can't put it under Aerial Work Operations nor under Corporate Aviation Operation*
>
> **Mr. Somesh Arora, Partner, Legal Alley**

> *We are world's leading Corporate Aviation Financier.*
>
> **Ashish Sharma, GE Capital**

GA as a focus area

GA can provide the impetus for economic development of India and Indian government is beginning to provide necessary focus. This is supported by the following statement:

The Ministry of Civil Aviation (MoCA) has highlighted GA as a focus area for upcoming years to frame the policies and regulations in order to sustain impending growth in the aviation sector

Mr. S K Sarkar, Regional President, Indo American Chambers of Commerce

In US, GA is an essential part of our transportation system and that is especially critical for individuals and businesses for both who need to travel and move goods quickly and efficiently in our just in time market.

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy

Non Scheduled Operator

The distinction between scheduled and Non-scheduled operator should be done away with. This is supported by the following statement:

There are large number of general operators, around 133 Non-Scheduled Operators and 175 others.

D.P Singh, Executive. Director, Corporate Planning in Airports Authority of India

SMS for the operators the guidance materials for Non-scheduled Operators was prepared with the help of EU experts

Mr. Pawan Kumar, Dy. Director, DGCA

Private Aircraft

Private aircraft tends to be used for personal use as evidenced from the following:

The value of additional benefits of private aircraft is that it can fly to destinations, which are not normally covered by the scheduled airlines and have access to smaller airstrips.

Mr. E K Bharat Bhushan, Director General, DGCA

Corporate users have limited choice in terms of professional, high quality charter operators, hence growth has been limited. They have instead turned to the acquisition of private aircraft. They have instead turned to the acquisition of private aircraft.

Kapil Kaul, CAPA

Private Category

The distinction between private and Non-scheduled operators is based on proposed use and the stark distinction on import duty results in mis-categorization. This is supported by the following statements:

If the end use is on NSOP, then it should attract the import duties of it stands today of NSOP; not of a private operator. But today as it stands, I must import it in a private category, pay an import duty of a private Category and then give it to somebody else on lease so that he can manage it for me. It does not stand to logic to us.

Capt. Rohit Kapur, President BAOA

Around 900 or so are actually operating as many aircraft owned by the State Governments, training institutes and under 'Private Category' are old/grounded and do not possess current 'Certificate of Airworthiness.

Mr. Pawan Kumar, Dy. Director, DGCA

Private Operator

A private operator of an airport has to take care of a large number of costs as evidenced by the following statement:

Small airport operator has to pay all the bills of AAI, so AAI has de-risked itself completely as far as economics is concerned. They would position 2 or 4 people there and the NAVAID, It's the private operator which is coughing up every rupee for that.

Ravi Radhakrishnan, Reliance Infrastructure Private Ltd

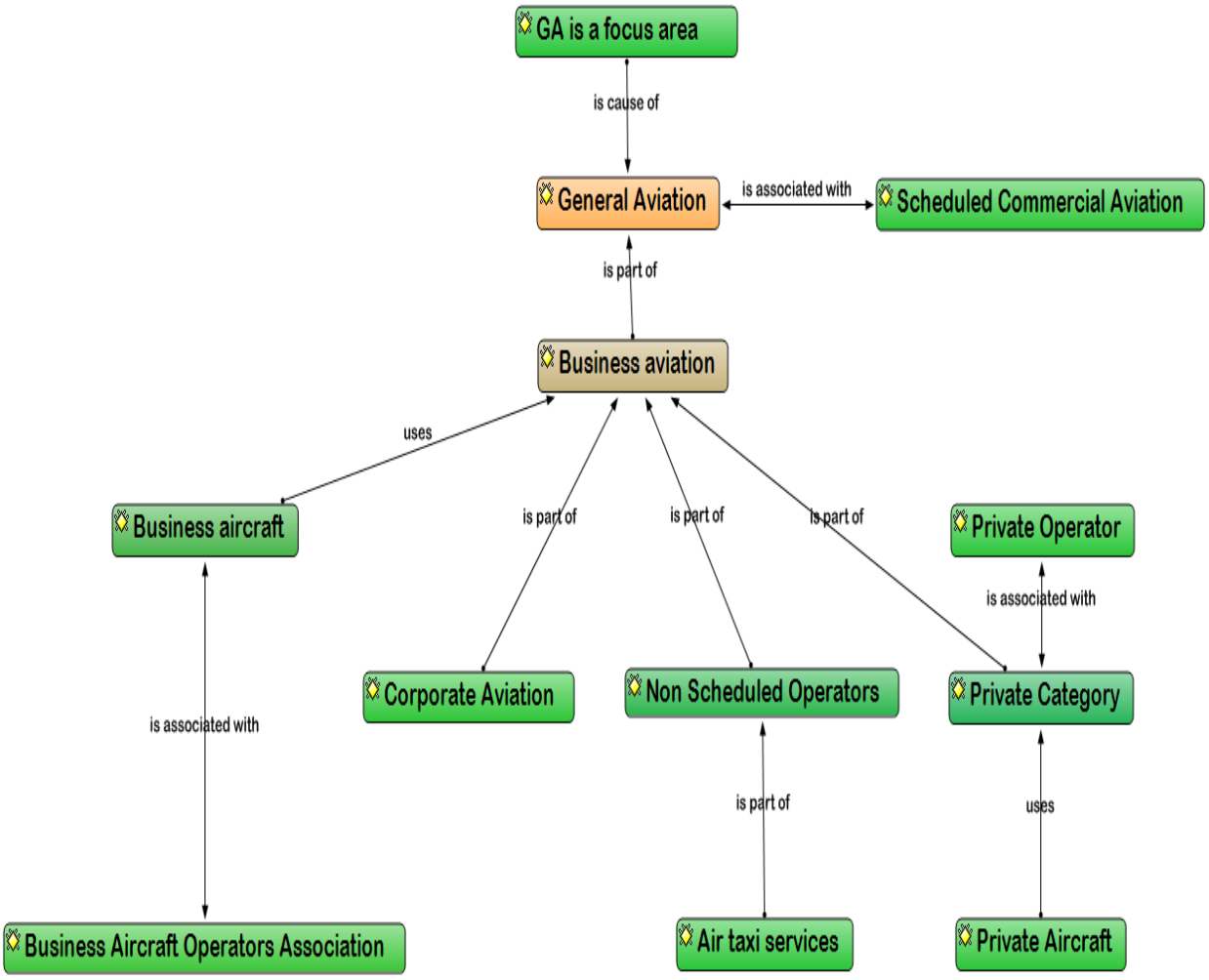
Scheduled Commercial Aviation

Focus in India has been on scheduled commercial aviation. The following quotation supports the above:

> *We do hear day-in and day-out about the difficulties that the scheduled carriers are facing in this country. Of course the reason is that the scheduled carriers have a large public interface in everything they do and what they don't do is in the limelight in some form or the other.*
>
> **Mr. Atul Sharma, Past Regional President IACC**

> *There is a thin-line between GA and scheduled commercial aviation where the latter also does the former's business.*
>
> **Mr. Inderjit Singh, Associate Director & Head Aviation, India**
> **URS Scott Wilson India Private Limited**

The following network diagram depicts the various manifestations of the term "Business Aviation":



GA is an area which is gaining importance as the experience from developed economies shows that it contributes to economic growth and ensures jobs at local level. In India GA has not received its due from the policy makers and is a neglected sector today. GA in the US not only an essential part of their transportation system but also a training ground to the aviation industry and a contributor to job creation.

This fact is established by the quotation below:

> *In US, GA is an essential part of our transportation system and that is especially critical for individuals and businesses for both who need to travel and move goods quickly and efficiently in our just in time market. I think many of you who are in this sector know the bigger picture. But let me just state that over 320,000 GA airplanes are operational worldwide; ranging from 2 seat training aircraft to international business jets to Helios to others and nearly 228 of those 320,000 are operating in the US. In the US GA aircrafts fly almost 24 million hours and carry 166 million passengers annually. Over two third of the hours flown by the GA aircraft are for business purposes and a key point is that GA is the primary training ground for most commercial airline pilots. So GA clearly is a big contributor towards US economy. It supports 1.2 million jobs and over 115 billion dollars is contributed to US economy each year through this segment alone.*
>
> - **Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy, India**

Scheduled Commercial aviation, GA and Aerial work are part of civil aviation. Development in India has had a bias towards scheduled commercial aviation with Air India and Indian Airlines as principle carriers. With the advent of the open sky policy, private scheduled carriers like Jet airways, Air Deccan, Kingfisher, Modiluft, Paramount Airways etc. emerge. Consolidation of the industry saw some of these players wither away.

Aerial work and GA as separate categories have yet to emerge, though GA is in the initial stages of developing. It is now that a separate desk for GA has been created in the Ministry of Civil Aviation.

Private Category and Non Scheduled Operator category are the two aspects of GA are gaining prominence. A Non Scheduled Operators Permit is a concept unique to India. It allows an operator to use the aircraft for non-scheduled commercial operation as against a private category through which the aircraft is used for non-commercial purposes.

In India CAR Section 8, Series "O" Part III defines GA but there is no definition of BA in the Indian rules. The Business Aircraft Operators Association has adapted the IBAC definition of BA.

As a business practice, BA means using the aircraft for business purposes. The representative quotation is produced below:

> *BA (BA) is a subset of GA (GA), which encompasses all civil aviation activity, except that of Commercial airlines.*
>
> **Capt. Rohit Kapur, President, Business Aircraft Operators Association**

Since BA is not defined in the current Indian rules, there is a need to clearly define it so that regulatory clarity emerges. It is yet to be seen how it would interact with aerial work such as commercial logging.

5.1. The Qualitative Approach: Analysis of Categories

Open and focused coding using the principles of GT was done as part of the analysis. The software to do this analysis is Atlas Ti. In order to learn the tool and its features the researcher participated in the webinar organized by the company.

From the data collected, the key quotations are marked with a series of *open codes*, which are extracted from the text. The codes are grouped using *focused coding* in order to make them more workable. From these concepts, *categories* are formed, which are the basis for the creation of a *theory*, or a reverse engineered hypothesis. This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the phenomenon to be studied (Barney Glaser and Anslem Strauss, 1967). These categories were then discussed with the industry experts for rigor and trustworthiness.

A network diagram depicting the Indian BA landscape was created using the categories. Further each category and related codes have been grouped to create the network diagrams. The discussion on each of these categories (Appendix "A") brings out the meaning in the Indian context and establishes the ground for further policy research in the area of BA. The following 35 categories emerged out of the analysis done on a qualitative basis.

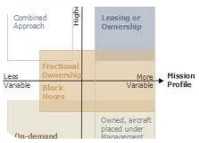
1. Access to Airports

2. Aerial Work

3. Air Traffic Services

4. Aircraft

5. Aircraft Acquisition



6. Aircraft Management

7. Aircraft Finance

8. Airports

9.Airport Management

10. Business Enabler

11.Cargo

12. Connectivity

13. Country Specific Practices

14. Economic Growth

15. Exploration and Surveys

16. Ground Handling

17. Input Costs

18. Liability

19. Media

20. Medical Services

21. Maintenance, Repair and Overhaul

22. Operations

23. Passenger Transportation

24. Policies and Procedures

25.Productivity

26.Public Services

27. Potential for Growth

28. Regional Airport

29. Regulatory Authority

30. Safety Management System

31. Security

32. Supporting Institutions

33. Taxes and Duties

34. Tourism

35. Training

1. Access to airports

Access is one of the categories that emerged out and is connected to six different codes as listed below. The term access has been used not only to indicate access to airports but also to the air side in the context of the heightened security scenario. Growth and development are possible only if communities and business have access to opportunities, resources and personnel in far flung places. Moreover the rules regarding access for domestic and foreign personnel are different. This differentia tends to reduce the flexibility inherent in business both from operations and maintenance perspective.

Code	Code
Access	No access for foreign personnel
Actual Access	Photo Identification Card
Clearance Procedure	Ramp side access

Access

Growth and development are possible only if communities and business have access to opportunities, resources and personnel in far flung places. Both fixed wing and helicopters play a vital role as demonstrated by the following statements:

> *It gives business a competitive edge; it gives the smaller communities jobs and access to the air transportation system that they've never had before. GA can have access to about 400 airstrips in the Indian FIR but only 90 are operational right now.*
>
> **Mr. Andrew Kalnoske, Washington Consulting Group**
>
> *Helicopters not only speed up point to point access but also provide access to the inaccessible places like Mountains and other remote areas.*
>
> **Mike Meyer, CEO, Indocopters Private Limited**

Equal access to information for operating an aircraft is paramount. There is a felt need for such a system. This is supported by the following statement:

"The thing we recommend for the Indian environment as a separate service be it under the AAI or another organization or entity to set up for GA aircrafts and pilots. Information, flight plan, weather data sharing between the GA service and the ATC and also to be automated is going to be very important"

- **Mr. Andrew Kalnoske, Washington Consulting Group.**

Actual Access

Access to the airport and the aircraft is an important aspect. For a financer of the aircraft, access to the runway and actual aircraft is crucial to take control of their asset. In absence of this type of access, the lenders raise the risk profile of the country higher making the cost of financing for purchase of an aircraft higher. Difficulties faced by international lenders in spite of India being a signatory to the Cape Town Convention can also be judged by Airport Authority not allowing the aircraft to be repossessed in- spite of Kingfisher airlines failing to pay its dues over a reasonable period of time.

The quotation establishing the point is as follows:

So in India, which has ratified Cape Town and made a lot of headway in this area, the main issue that lender will face here is, actually getting access to the tarmac to make sure that their assets is secure and that we can properly maintain it and have access to make sure that our defaulting borrower does not fly out with it somewhere.

Ms. Nisha, Legal Counsel, GE Capital

Clearance Procedure

The operator cannot file a multiple leg flight plan online inspite of the progress achieved by India in the field of Information technology. Pilot in Command has to go in person to sign on the register located at the control tower in order to confirm that he has been briefed Normally this travel takes 15 to 20 minutes inside the airport premises. The arcane rule of getting defence clearance number is yet another rule which depicts the need to rework the procedural rules. The difficulties and the delay related to procedural aspects of access have caused a lot of heartburn which is exemplified by the following statements:

"Building on Mr. Jindal's point difficult access issues like clearance processing and airport formalities issues will limit international companies travel to India ultimately trade and investment goes trip free".

Mr. Lex Den Herder, Vice President, Government and Industry Affairs,
Universal Weather & Aviation Inc

"It is difficult access issues like clearance processing and airport formalities issues which limit international companies coming to India".

- **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

No access for foreign personnel

Business aircraft grounded due to failure of a critical part results in loss of revenue. Difficulty in getting access to the aircraft by international personnel is supported by the following statement:

There is no access for foreign pilots / engineers hence they can't go inside the airport to fly or do the maintenance of the GA aircraft which needs some attention as per regulator.

- **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

Photo Identification Card

Access to the airport premises is controlled by the identity card issued by BCAS which takes a lot of time and is an impediment to growth of this sector. The following statement supports the critical issue of airport security passes:

Photo Identification Card (PIC) endorsements, I am not going to touch on this. Bureau of Civil Aviation Security (BCAS), again there is a huge mess going on. Security passes for pilots, engineers I am sorry to say this, but yesterday we have dispatched an aircraft with pilots going on with boarding passes.

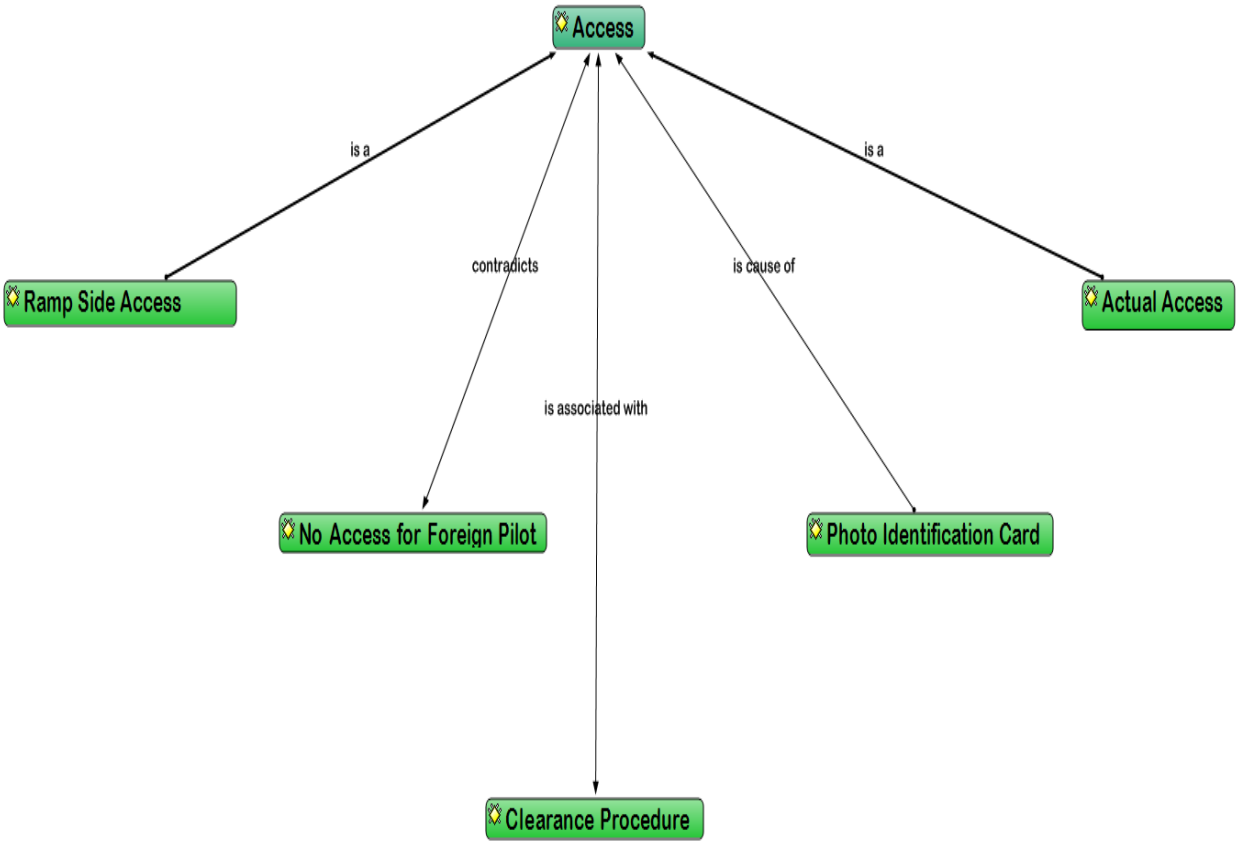
Mr. Rohit Kapoor. President BAOA

Ramp side access

Preventive Maintenance is the core of aviation safety and personnel need access to ramp side. The need to provide easier ramp side access is supported by the following quotation:

> *Develop a process allowing easier ramp side access for business aircraft pilots and support personnel can tell you many stories there; he touched on one and also going to touch on as well and develop guidelines for the regulation and support of BA.*
>
> **Mr. Lex Den Herder, Vice President, Government and Industry Affairs,**
> **Universal Weather & Aviation Inc.**

The Network diagram for the category "Access" is as follows:



2. Aerial Work

Aerial work as a category is yet to be recognized as part of regulatory structure of India, though it is a separate category in developed economies as evidenced by the following. Various codes related to aerial work are listed below:

Code
Aerial Work
Avoid Road Construction
Avoid Crane Operation

Aerial Work

Aerial work has not been defined in Indian regulations though it performs an important function as evidenced by the following quotations:

> *Aerial Work Operation would indicate an Aircraft used for specialized services like Agriculture, Photography, and Surveying etc.*
>
> **Mr. Somesh Arora, Partner, Legal Alley**

> *Eurocopter is the world specialist of Arial Work / Utility*

> **Sylvain Marie, Eurocopter**

Avoid Road Construction

Difficulty in providing access to remote construction sites by building roads can be avoided by providing last mile connectivity as evidenced by the following photograph:

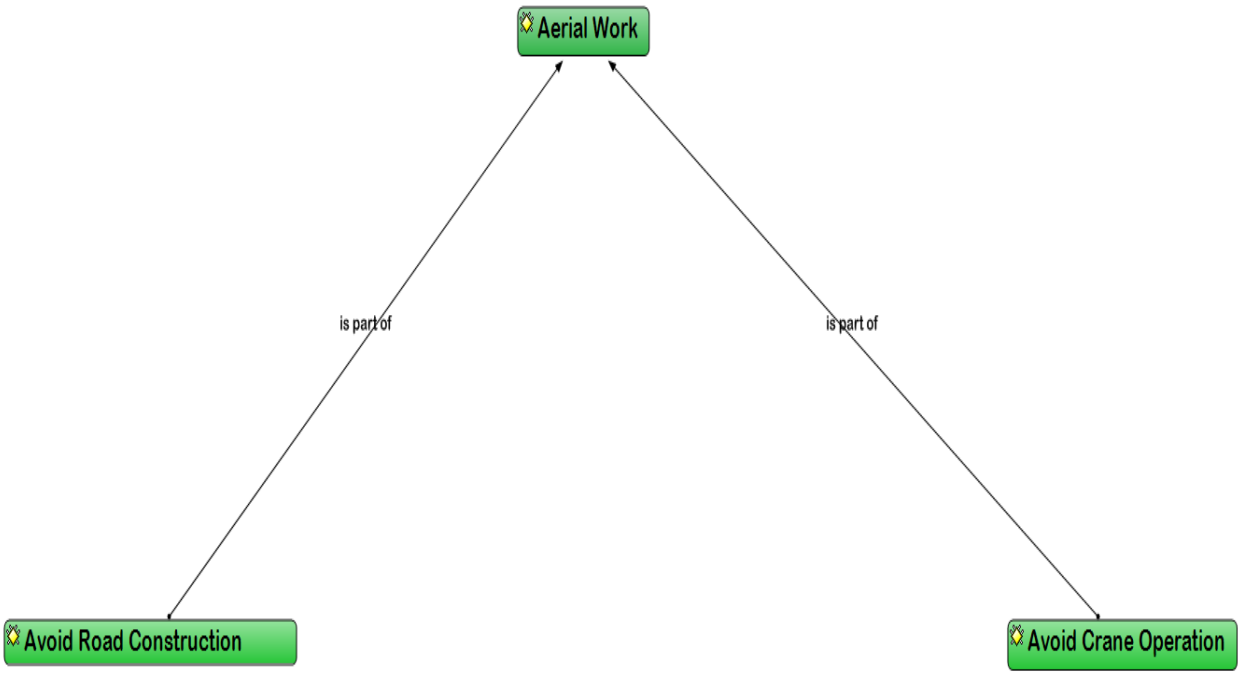
Sylvain Marie, Eurocopter

Avoid Crane Operation

Construction of skyscrapers, large towers etc. require alternative ways to complete projects. A heliborne operation of this kind can avoid an expensive crane operation as evidenced by the following picture:

Sylvain Marie, Eurocopter

The Network diagram for the category "Aerial Work" is as follows:



3. Air Traffic Services

CNS/ATM is the backbone of air traffic services. Management of the Indian airspace requires constant upgradation both in terms of technology as well as procedure and regulatory changes due to change in technology or ICAO guidelines. The issue of managing air traffic flow due to variant nature of traffic ranging from piston to jet engines becomes crucial. The following codes provide an understanding of various services:

Code	Code
Aeronautical Services	Public Information Resources
Air Traffic Control	Radar
Air Traffic Flow Management	RNFC
Air Traffic Management	Route
ATC Payment	Route Dispersal Guidelines
Flight Clearance	RVSM
Gagan	Technology
TNLC	

Aeronautical Services

Aeronautical Services is the backbone of aviation operations and it results in the safe and efficient operations. From an aeronautical services perspective, there is not much difference between a scheduled operation and a BA operation as established by the following quotation:

> *GA aircrafts are normally parked at a remote parking to facilitate the moment of scheduled aircrafts, because sometimes GA aircraft are staying at the airport overnight so they have to be parked at a remote parking place. But again, if there is a requirement that VIP or any aircraft is coming for short duration, we are parking the aircraft near the parking stand close to the terminal building.*

Second exception is for the aerodrome operating minimum; this is from the operations point of view. As per DGCA, approved minima; restricted minima has to be followed by the GA aircrafts which is higher than the scheduled airlines minima.

Mr. A.K. Jain, General Manager, Airports Authority of India

All these cost add up and that's what is threatening the whole economic sustainability of these ventures. Of course one needs to look at other non-aeronautical sources of revenue, one need to look at commercial exploitation of land.

Ravi Radhakrishnan, Reliance Infrastructure Private Ltd

Air Traffic Control

Control of air traffic and management of airspace is the backbone of aviation operations. Indian airspace is divided into multiple routes as evidenced by the following quotations:

Total airspace available with AAI to provide air traffic control services is 2.0 billion square nautical miles. Out of this, oceanic airspace is 1.7 billion square nautical miles; continental airspace is 1.1 million square nautical miles. We have total 244 ATS routes (Air Traffic Service). International ATS service routes are 88, domestic ATS routes are 124 and conditional connecting routes which we started recently are 32 air routes.

Mr. A.K. Jain, General Manager, Airports Authority of India

Service level quality of air traffic services is determined by the availability of the information.

DP Singh, Executive Director, AAI

Air Traffic Flow Management

One of the major difficulties is managing slower moving GA aircraft with that of large jets in a scheduled operation. The following quotation represents this difficulty:

Air traffic management struggles to accommodate GA into traffic flow.

Kapil Kaul, CAPA

Air Traffic Management

It is important to note that there is no distinction between scheduled and Non-scheduled operations. The fundamental building block of Air Traffic management is CNS/ATC as evidenced by the following quotation:

Air Traffic Management is composed of Communication, Navigation, Surveillance and Air Traffic Control.

- **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

Airspace priority is given to scheduled operations.

Kapil Kaul, CAPA

AAI provides only CNS/ATM at certain airports.

GK Chaukiyal, DGCA

ATC Payment

The leaps in information technology are yet to effect procedures regarding payments to ATC as evidenced by the following quotation:

ATC payments, still pilots carry wards and wards of cash in their pockets, to pay every ATC. Why can't he have a preloaded card or a credit card which he just swipes and makes his payment? This is not a rocket science it probably takes a month to some IT kind of a thing to be done and into the place.

Mr. Rohit Kapoor. President BAOA

Flight Clearance

For BA to expand in India it is necessary that time for flight clearances is minimum which results in inherent advantage of flexibility. But in India flight clearance tends to become a bottleneck. This interpretation is supported by the following statement:

> *Difficulties with 7 working days' notice for landing and 3 working days' notice for over-flight clearance processing or a landing clearance submitted on a Friday will typically not be approved until 10 or 11 days later or an over-flight submitted on a Friday will typically not be approved until 5 or 6 days late.*
>
> **Mr. Lex Den Herder, Vice President, Government and Industry Affairs, Universal Weather & Aviation Inc.**

Gagan

Managing Vertical and horizontal separation is critical both for safety as well as optimization of operations. This is reflected by the following statement:

> *Another prestigious project that is GAGAN, the satellite based augmentation system. With this we can maintain separation between incoming aircrafts and the separation in the terminal areas and en-route also. This project will be in use by June 2013.*
>
> **Mr. A.K. Jain, General Manager, Airports Authority of India**

> *GPS Aided GEOS Augmented Navigation (GAGAN) will enhance safety and Security.*
>
> **Meloth Krishnan, CK and Associates**

Public Information Resources

There is a need to collate and disseminate information about factors impacting aircraft operations to all stake holders. Current gap is evidenced by the following:

> *Another important part is the PIRAPS. The ability to get information from all the pilots especially the BA Including cloud heights, visibility, turbulence setter is important and is disseminated from*

the entire system. That way GA and commercial carriers can have access to that same information.

Mr. Andrew Kalnoske, Washington Consulting Group

Radar

ADS-B (Automatic Dependent Surveillance- Broadcast) pinpoints an aircraft's location using satellite GPS navigation, and allows the aircraft to constantly broadcast its precise location and other flight data (e.g., altitude, velocity) to nearby aircraft and air traffic controllers. Combining with RADAR it would ensure maximization of airspace. This is evidenced by the following statement:

A Radar service is provided from Chennai itself over the Mangalore, Thiruvananthapuram, and Bangalore. So at all these airports we provide RADAR services from Chennai itself. So this is a picture that shows that RADARS plus ADS-B, this will be the coverage and from this we can see the entire continental airspace is covered by RADAR or ADS-B that means surveillance will be available over the entire continent airspace. We can reduce the separation to RADAR separation of 10 nautical miles.

Mr. A.K.Jain, General Manager, Airport Authority of India

RNFC

Charges related to navigation are important for calculation of aeronautical revenue as evidenced by the following quotation:

Route Navigation Facility Charges are part of aeronautical revenue in order to calculate the airport charges.

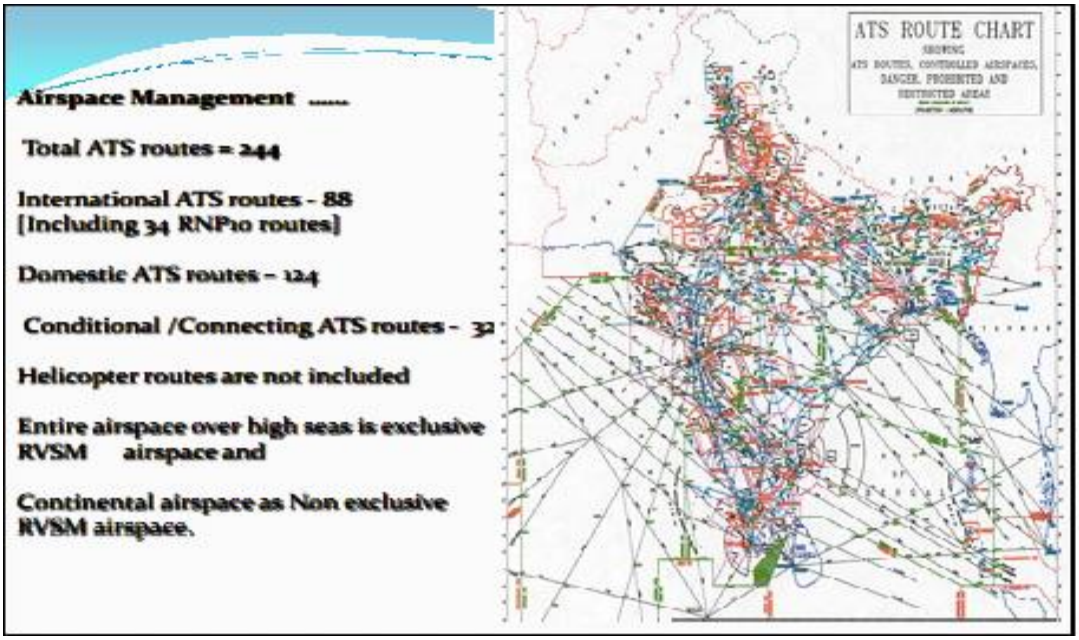
Yashwant Bhave, Chairperson AERA

Route

New technologies have made it possible for optimize route navigation. This is supported by the following statement and ATS route chart:

We have spoken about the ATS routes where we are having 244 new Route Navigation (RNAV) based Air Traffic Service (ATS) routes which we are implementing between Delhi and Mumbai. This is the 7th busiest corridor in the world.

Mr. A.K. Jain, General Manager, Airports Authority of India



Regarding helicopter routing-helicopter routes; this is also one of the items in the strategic plan. Helicopters routes for Bombay and Delhi airports have already been notified in AIPs.

Mr. Pawan Kumar, Dy. Director, DGCA

Route Dispersal Guidelines

Though route dispersal guidelines assist in providing air connectivity to far flung places but it makes it uneconomical to fly using a medium or a long haul aircraft. Not only there is a need to have an appropriate mix of aircrafts (like Q-400) but also a policy for subsidizing non-economical route by appropriate interventions by the state government. Difficulties generated under route dispersal guidelines are understood by the following quotation:

The negatives of course are difficult economics of business, higher fuel prices, constrained infrastructure, competition, archaic regulations like route dispersal guidelines, personnel guidelines and restrictions on recruitment of qualified and experienced expatriate pilots.

Mr. S K Sarkar, Regional President, IACC

RVSM

The division of Indian airspace is evidenced by the following statement:

Entire airspace is divided into two categories RVSM airspace which is oceanic, Non-exclusive RVSM for continental airspace.

A.K. Jain, General Manager, Airports Authority of India

Traffic Collision Avoidance System or TCAS for RVSM Airspace is an important issue concerning BA.

Mr. Rohit Kapoor. President BAOA

Technology

Technology tends to play a vital role in growth of aviation and relationships with mature markets for technology transfer. This is supported by the following statement:

There are tremendous opportunities for partnerships in areas of technology, raw materials, development capabilities, international airworthiness certifications, developing skills and financing.

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy

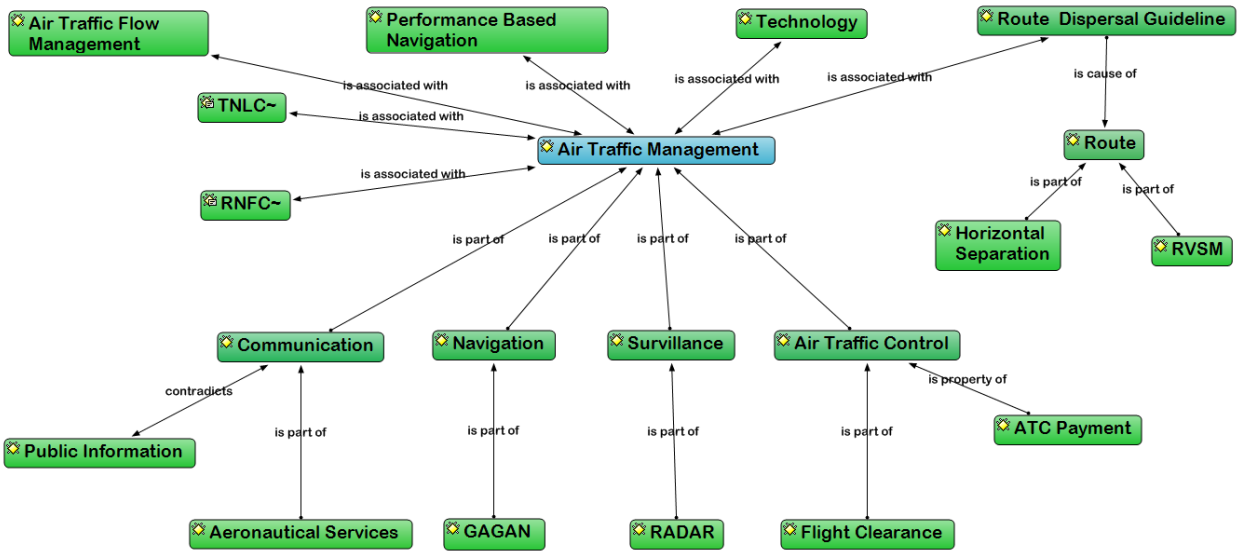
TNLC

Another way used by airports in India to generate revenue is through terminal and landing charges. This is supported by the following statement:

Terminal Navigation and Landing Charges are part of aeronautical revenue in order to calculate the airport charges.

Yashwant Bhave, Chairperson AERA

The Network diagram for the category "Aeronautical Services" is as follows



4. Aircraft

The central theme around BA revolves around the aircraft itself. An aircraft makes money when it is in air and loses -when it is on ground. Procedural delays which keep aircraft on ground are one of the biggest constraints in the growth of the industry Fixed wing aircrafts on the register with the regulator do not show the exact number of operational airplanes especially private aircraft operator, hence should be maintained by BAOA. The category "Aircraft is associated with the following listed codes:

Code	Code
Aero plane	Piston Engines
Aircraft	Pre-Owned
Aircraft on Ground	Sea Planes
Business Jets	Turboprops
Helicopters	Very Light Jets
Heliports	Water bodies
New Aircraft	

Aircraft

Aircraft is a broad category covering both airplanes and helicopters. GA aircrafts play a vital role in not only connecting places separated by distances but also provide a training ground for pilots joining the scheduled operators. This is supported by the following statement:

> *I think many of you who are in this sector know the bigger picture. But let me just state that over 320,000 GA airplanes are operational worldwide; ranging from 2 seat training aircraft to international business jets to Helios to others and nearly 228 of those 320,000 are operating in the US. In the US GA aircrafts fly almost 24 million hours and carry 166 million passengers annually. Over two third of the hours flown by the GA aircraft are for business purposes and a key point is that GA is the primary training ground for most commercial airline pilots.*
>
> **Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy**

The fleet in India is expected to reach 2000 aircrafts over the next decade up from 680 aircrafts today at a cost of $12 billion.

Mr. Inderjit Singh, Associate Director & Head Aviation,
URS Scott Wilson India Private Limited

19th edition of Honeywell's Annual BA Outlook predicts a strong recovery in global corporate jets, with 11,000 new deliveries between 2010 and 2020. This represents $225 billion in sales. International demands (Outside North America), constitute approximately 50% of these. By some estimates, it could be as high as 60%. Even by conservative estimates, if India were to get 3% to 4% of this, we are looking at adding about 450 to 500 Business Jets in this decade. Add to this the turbo props and the helicopters; we are looking at 800-900 BA aircraft.

Rohit Kapur, President BAOA

Major reason for the rise in demand for GA is that the aircraft are no longer seen in this country as a luxury but it as a tool for increase in productivity. Additional benefits of private aircraft are that it can fly to destinations, which are not normally covered by the scheduled airlines and have access to smaller airstrips.

Mr. E K Bharat Bhushan, Director General, DGCA

Aero plane

Fixed wing aircrafts on the register with the regulator do not show the exact number of operational airplanes, hence should be maintained by BAOA. It is important to note that the growth in airplanes and helicopters is similar. The following quotation is an indicator of the above:

There are certain aircrafts for which Certification of Flight Airworthiness (CoFA) have not been renewed by the owners or operators so but they still are available. This figure is airplanes we have in GA around 170, helicopters around 211. So that shows the helicopter industry in GA is probably much more dominating more than if we compare with aero planes.

Mr. Pawan Kumar, Dy. Director, DGCA

What this means is the tremendous growth and opportunity and more business aircraft designed to come to India to develop commerce. Not only those who are coming now and are based here; but also the ones who are coming to Asia. This is a headline from Black Coaches & Administration (BCA) show news from the National Basketball Association (NBA) convention last November, mentioning financial leasing, signed deal for purchasing 33 business jets, 1.2 billion dollars. 33 new airplanes and they're going to be more sold going to china i.e. growth. Lots of those airplanes are going to fly over and come to India.

Mr. Lex Den Herder, Vice President, Government and Industry Affairs,
Universal Weather & Aviation Inc.

Aircraft on Ground

An aircraft makes money when it is in air and loses money when it is on ground. Procedural delays which keep aircraft on ground are one of the biggest constraints in the growth of the industry. This is evidenced by the following statements:

An aircraft, it went Aircraft On Ground (AOG) in an Indian airfield and they flew the engineer overnight from god knows somewhere in the US who took an overnight flight and came and landed in Bombay to service this aircraft of Fortune 500 company and poor guy was stuck outside that airport for 30 days because he couldn't get inside. There was no access for him, as a foreigner he couldn't go inside the airport.

Mr. Rohit Kapoor. President BAOA

Custom duty and slow clearance procedure put yet another spoke in the process of MRO sector and also the aviation Industry in India. Custom clearance can take between 3 to 10 days if one is lucky and defeats the requirement of AOG. You can have an aircraft on Aircraft on Ground (AOG) and customs doesn't clear it.

- **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

Business Jets

The need to reach production facilities across the continents across the global supply chain requires the use of more powerful business jets. Within the airplane category business jets is the fastest growing segment. This is being supported by the following statements:

> *In terms of fixed wing business jets, statistical studies indicate that generally they are more cost effective than commercial services and hence there is this potential.*
>
> **Mr. E K Bharat Bhushan, Director General, DGCA**

> *A CEO, who logs about 600 hours of flying on his business jet every year, adds one month of productive time to his output annually.*
>
> **Rohit Kapur, President BAOA**

> *The recent rapid growth of business jets is reflected in the young profile of aircraft in the country. More than 45% of jets are aged 5 years or less, and over 70% are aged 10 years or less.*
>
> **Kapil Kaul, CAPA**

Very Light Jets

Growth of VLJs is supported by the growing order book as evidenced from the following:

> *The orders for the Embraer Phenom 100 show the potential for this segment when delivered by proven manufacturers. Others such as the Mustang, Cirrus, Diamond, Honda, Piper, Eclipse and Stratos will further establish this segment.*
>
> **Kapil Kaul, CAPA**

Helicopters

Flying to mountainous regions, rescuing people affected by disasters or providing emergency medical services is a specialty of heli-borne operations. Versatility of helicopters is supported by the following quotation:

In a rapidly growing economy increasing reliance on air transportation and diversified terrain are all pushing the Indian helicopter market to develop at a very fast pace. The field of emergency medical services as operated by helicopters is also emerging as a very important growth area.

Mr. E K Bharat Bhushan, Director General, DGCA

Dedicated corridors for helicopter operations at Mumbai and Delhi airports have been already notified. In Bangalore plans are being worked out to streamline traffic from/to HAL Airport, Jakur, Yehlanka and Bangalore international Airport while North East region is under Notification.

Mr. Pawan Kumar, Dy. Director, DGCA

Heliports

It is interesting to note that helipads build through public finances are not being utilized properly. This is indicated by the following quotation:

Even in Delhi we have Rohini, Akshardham and even one at Suraj Kunj but to see the practicality utility of helicopter, Rohini heliport had come up almost two years back and what I know after inauguration not even a single flight has taken-off even though half the helicopters are based from Delhi but why industry doesn't want to use the heliports. So much of infrastructure and so much of money has been dumped into it but nobody is utilizing it. At Common Wealth Game helipad it is still laying unutilized I would say it rusted but it is probably for the operators to do some assessment whether they want to utilize this or not. Roof top helipads; there are three at Mumbai, one at Bangalore and as I said in the strategic plan, there is a plan to encourage people to have helipad at rooftop of every 5-star hotel and every major hospital in the country.

Mr. Pawan Kumar, Dy. Director, DGCA

New Aircraft

There is a large unmet demand in India for purchase of new aircraft for business purposes. This is supported by the following statement:

There are a large number of business houses who have expressed an interest in importing a new aircraft but duties under private category discourage them.

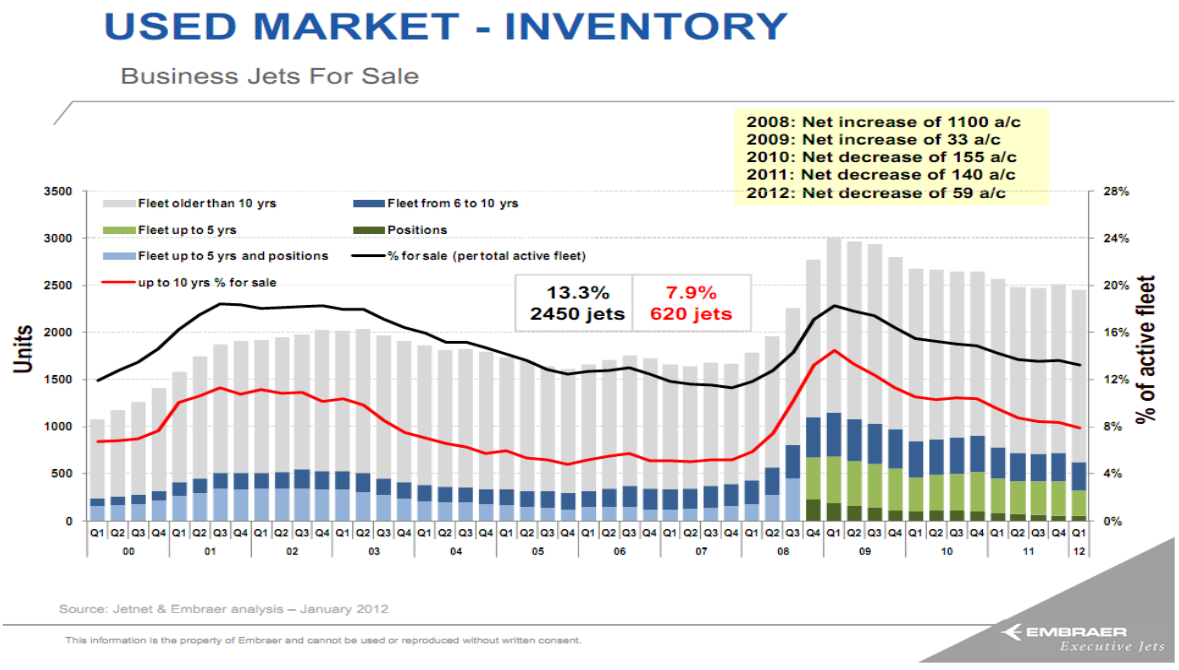
Capt. Karan Singh, Managing Director, BAOA

Pre-Owned

Limitation of budget opens up the pre-owned segment but it requires expertise to identify and procure a pre-owned aircraft. There is a need to develop and promote this expertise through the talent available in ex- air force and civil aviation officials. The following quotation supports the above:

Being open to pre-owned aircraft providers, purchasers have a much greater range of options within a defined budget. Limited knowledge has made purchasers hesitant to consider this segment. Access to trusted, independent expertise to conduct inspections, appraisals and valuations would support the growth of pre-owned equipment.

Kapil Kaul, CAPA



Jose Eduardo Costas, Embraer, Vice-President Sales & Marketing

Sea Planes

India has a vast coast line but use of seaplanes barely exists. Sea planes require limited infrastructure and a suitable policy framework would encourage its use. This is supported by the following statement:

> *My own personal experience with that, I own my own sea-plane, back in Columbia. On the coast there have been flying for over 50 years in and out of salt water and they are still going. It depends … the safety of the aircraft is always the maintenance. If you have an ongoing maintenance program for corrosion for aircraft, there would be no problem. So if you want to do sea-plane operation you need to do the safe maintenance to go with it; that is pretty much the whole part of it.*
>
> **Captain Wendy Boyce, Member ICAO**

Water bodies

The potential for seaplanes is evidenced by the following statement:

> *But the intention is that to serve the island clusters and the vast water bodies which we have in our coastal areas. Where it is not readily possible or feasible to build airports or normal land aerodromes, this facility can be used. Of course in North-East also, I am told that there are lots of areas where lakes are there, In Orissa there are lakes, in Rajasthan there are lakes. This could be used as the means of transportation and also with the hotel industry link; it could be used as tourism activity also. But at the moment within India, we have 2500 km of island clusters and 5000 km of Indian coastline. So there is a lot of scope here.*
>
> **RP Sahi, Advisor, DGCA**

Turboprops

Turbo prop market is expected to grow as regional aviation develops. This is supported by the following statement:

When you get into turboprops, there are probably five at every airfield and covered up with dust; but there are plenty of operating turboprops and we feel this is the market which is going to grow. We sell turboprops. Obviously, we are going to be optimistic too.

Mr. Todd Hattway, Regional Sales Director,
India Hawker Beechcraft Cooperation

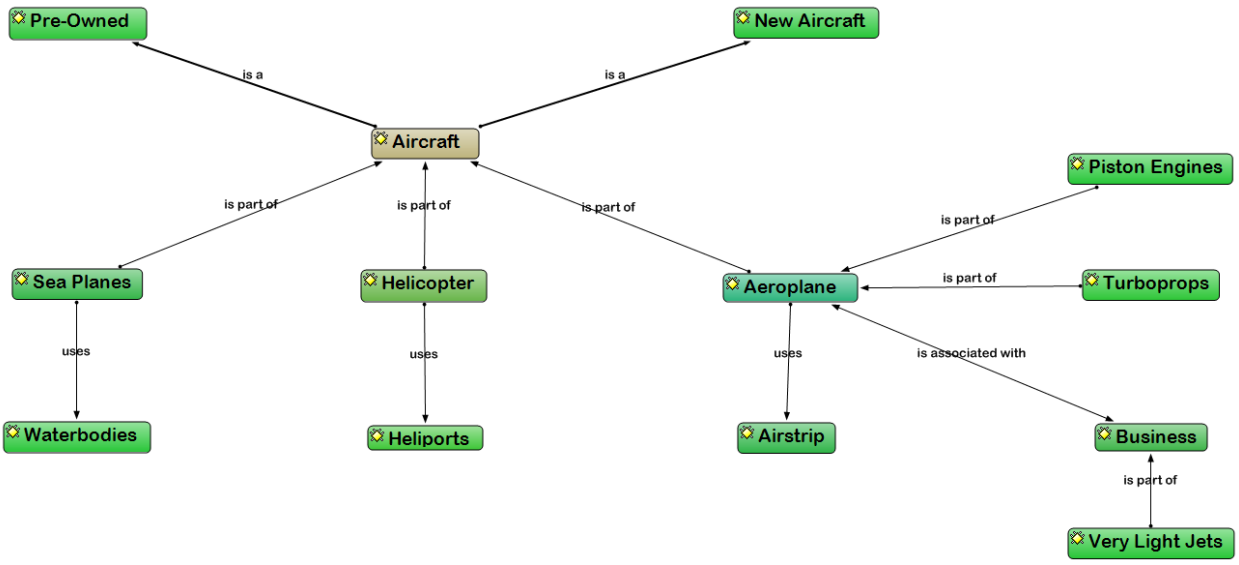
Piston Engines

Short haul aircraft especially on business and GA side are increasingly used by medium and small scale entrepreneurs. The potential of piston engine aircrafts is supported by the following statement:

According to the 2011 report CAPA had stated that India's GA sector has tremendous opportunities and has projected that the industry could see new aircrafts sales that are business jets, helicopters, turboprops and piston engines of up to US dollar 12 billion over the next decade

Rohit Kapur, President BAOA

The network diagram of the category Aircraft is as follows:



5. Aircraft Acquisition

Manufacturing of aircraft is nearly absent in India and they are normally imported. Segregating the process of acquiring a scheduled aircraft as against acquiring an aircraft for general and business purpose is a welcome policy move. The acquisition process for scheduled airlines and non-scheduled aircraft has undergone a change. The power has been delegated to a Joint Secretary level officer in the Ministry of Civil Aviation as against an acquisition committee for an airline.. The codes for aircraft acquisition are as follows:

Code	Code
Acquisition Process	Pre-delivery
Ferry Flight	Simplify Purchase Process

Acquisition Process

Acquiring an aircraft is still a cumbersome process and needs to be eased. Segregating the process of acquiring a scheduled aircraft as against acquiring an aircraft for general and business purpose is a welcome policy move. The following statements demonstrate the need to increase awareness about compliance issues before owning an aircraft:

> *During the initial stage various approvals like Issuance of NSOP or Private Operators Permit, approval of import, security clearances of Board of Directors, flight clearances, remitting funds for acquisition etc. have to be taken from Air Transport Directorate. It is only after this the aircraft can be inducted by an existing operator.*
>
> **Todd Hattaway – Hawker Beechcraft**

> *Companies are often unaware of the infrastructure and compliance challenges associated with owning an aircraft prior to acquisition. As awareness increases, this is resulting in potential acquisitions being reconsidered.*
>
> **Kapil Kaul, CAPA**

Ferry Flight

Ferry flight can be carried out using a temporary registration number as evidenced by the following statement:

> *In cases where you are buying from a manufacturer, either a new plane or used plane, the manufacturer generally has a temporary registration number and they can do the ferry flight for you, you just have to negotiate for that an extra cost.*
>
> **Ms. Nisha, Legal Counsel, GE Capital**

Pre-delivery

Financing the pre-delivery of aircraft is possible for organizations with strong balance sheet. This is supported by the following statement:

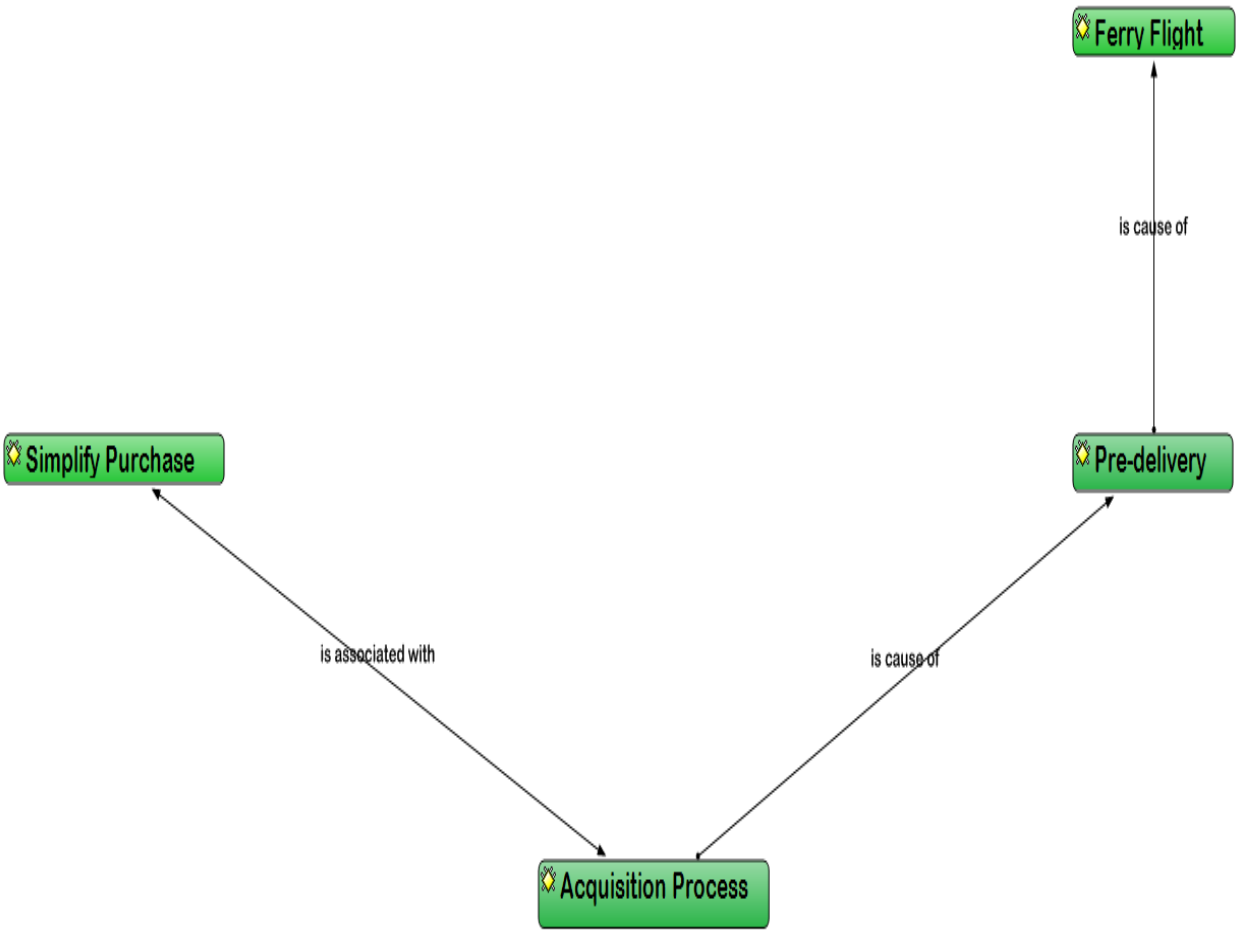
> *Pre delivery payments require limited cash outlay till delivery as Pre-delivery financing is available for strong credits.*
>
> **Ashish Sharma, GE Finance**

Simplify Purchase Process

There is a strong need to simplify the purchase process for buying additional aircraft for the same organization. This is supported by the following:

> *Other issues of course, single window clearance for imports, too many agencies involved at the moment; we want the government to simplify it. Additional aircrafts of imports, we still don't know why we need to go back to the acquisition committee for it. I am already an NSOP holder; I think it should be simple process. There is a need to simplify purchase process by doing away with acquisition committee at least for BA.*
>
> **Capt. Karan Singh, Managing Director, BAOA**

The network connecting various codes is as follows:



6. Aircraft Management

Management of aircraft and optimizing a revenue stream requires an appropriate financing and business development structure. Aircraft asset management as a specialized field is yet to develop. Fractional ownership as an innovative business model is yet to find its place in India, though it may become a pervasive model in due course of time. Ten codes have gone into creating a category called aircraft management which is listed below:

Code	Code
Aircraft Asset Management	Non Schedule Operators Permit
Foreign Registered Aircraft	Sale and Lease Back
Fractional Ownership	Separation of Ownership and Management
Good Management	Service Levels
Hire Purchase	Increasing Shareholder Value

Aircraft Asset Management

Aircraft asset management as a specialized field is yet to develop. This is supported by the following statement:

> *CAPA's surveys of corporations identified a strong interest in aircraft management, but only if offered by professional and experienced global providers.*
>
> **Kapil Kaul, CAPA**

Foreign Registered Aircraft

Landing of a foreign registered aircraft in a civil enclave is embroiled in red tape. The following statement supports this.

> *Now Area of Responsibility (AOR) this is another huge issue. AOR is foreign registered aircraft landing in India. We see no reason in why it needs to take 30 days for a foreign registered aircraft to land in defense airports with a civil enclave. He's got nothing to do with the defense*

part of the airport. People are coming in and going out in defense enclave which is totally different.

Rohit Kapur, President, BAOA

Fractional Ownership

Fractional ownership as an innovative business model is yet to find its place in India, though it may become a pervasive model in due course of time. This is being supported by the following statements:

Fractional ownership as a modal never really took-off in India. So I will not say that it is a failed model.

Rohit Kapur, President BAOA

I do not know if fractional ownership is going to be the solution to the growth of the industry. We have enough problems which have been highlighted here. It will take away most of our time. Personally I do not think initially that fractional ownership is the way forward. May be after sometime, once we have major issues sorted out, it can be examined.

Jayant, Air works

From the regulator's perspective, there are no issues with fractional ownership and there are models working.

R P Sahi, Advisor, DGCA

Fractional ownership requires a well-funded, professional operator, earlier attempts were poorly executed.

Kapil Kaul, CAPA

New players like Religare are entering the market and we might see a growth in fractional ownership.

Vijender Sharma, Fraport AG

Good Management

For an aircraft management company to flourish, it should be supported by good management. This is evidenced from the following statement:

> *Foreign buyers are obviously looking at the high connectivity, strong brand and good management.*
>
> **Mr. S K Sarkar, Regional President, IACC**

Hire Purchase

Hire purchase is one of the mechanisms of acquiring an aircraft as evidenced by the following quotation:

> *Hire Purchase is one of the options for acquiring an aircraft.*
>
> **Ms. Nisha, Legal Counsel, GE Capital**

Increasing Shareholder Value

Increasing shareholder value is one of the objectives of a corporation and a Business aircraft supports that role. This is supported by the following:

> *Business aircraft is a productivity tool which results in increasing efficiency and shareholder value.*
>
> **Capt. Karan Singh, Managing Director, BAOA**

Non Schedule Operators Permit

Globally the term "Non Scheduled operator" is not used. In India, the term Non Scheduled operator is used to club all aviation activities not related to airlines. This is supported by the following statement:

There are 391 aircraft under NSOP. Presently we have 20 hot air balloons also. 9 are with Non-Schedule Operator Permit (NSOP) and 11 are with Hot Air Balloon club.

Mr. Pawan Kumar, Dy. Director, DGCA

Sale and Lease Back

Sale and Lease back assists in managing the incidence of taxation on a capital asset like an aircraft as evidenced by the following:

One of the benefits of an operating Lease is that sale and lease back is possible for an existing aircraft.

Toennies von Limburg

Separation of Ownership and Management

Separation of ownership from management brings about efficiency, scale and optimization in operations. The following quotation supports the above:

Ownership of Aircraft should be separated from its management.

Rohit Kapur, President, BAOA

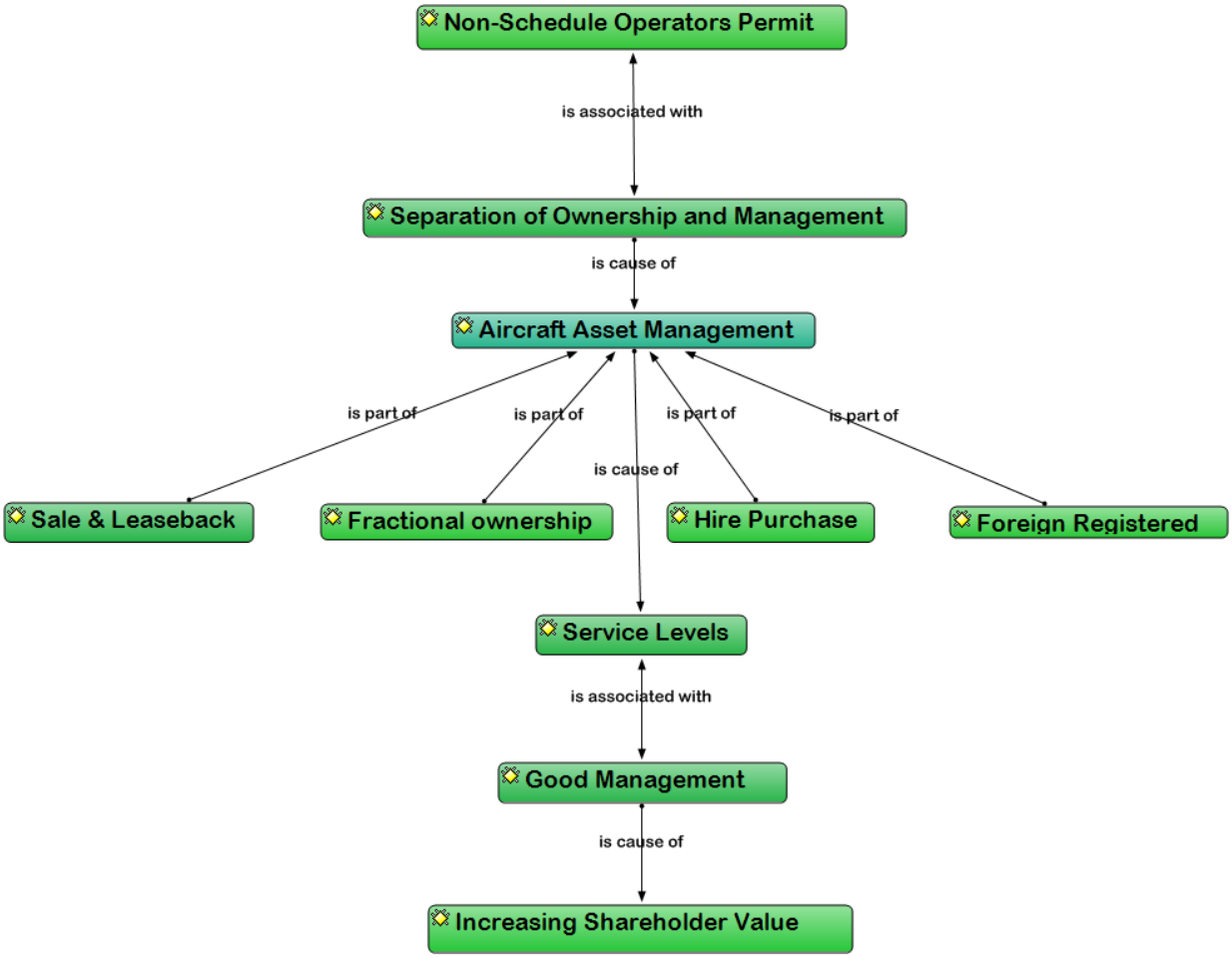
Service Levels

Service quality both at an aircraft and airport level is important as understood from the following:

The objective of Service quality monitoring and linkage to tariff determination is to ensure that quality of service provided to the users of regulated monopoly services is commensurate with tariff and takes into account users preferences.

Yashwant Bhave, Chairperson AERA

The network connecting various aspects of aircraft management is as follows:



7. Aircraft Finance

Aircraft is a capital intensive item and is rarely purchased outright. In India, it has been observed that a majority of transactions are related to leasing especially those from scheduled operator's perspective. BA at times does an outright purchase using a combination of debt and equity. Advance payment for procuring an aircraft requires the purchaser has to go through a gamut of rules which are restrictive in nature. Certain other funding structure like supplier credit and institutional finance also go into purchase of an aircraft. Financing an aircraft is a complex activity and is composed of many codes as listed below.

Code	Code
Aircraft Finance	Foreign Exchange Risk
Aircraft Register	Insurance
Asset Management	Lease Aircraft
Authorized Dealers	LIBOR
Capital Lease	Loan
Cash Flows	Operating Lease
Construction Finance	Own Funds
Depreciation	Remittances
Exim Bank	Sale and Lease Back
Tenor	Security Enforcement
Financing	Security Package
Structured Finance	Charter Brokerage
Broker	Charter Flights

Aircraft Finance

One of the major players in financing business and GA aircraft is GE Capital. This is supported by the following statements:

GE capital does GA financing in our counterparts side at GE commercial aviation finance; GE Caps, do the commercial side of the transaction.

Ms. Nisha, Legal Counsel, GE Capital

GE is one of the world's leading corporate aviation financier Dedicated resources in each major region with global Presence, Local Expertise 30 years of experience financing corporate aircraft around globe Global portfolio of over 2,000 corporate jet aircraft and helicopters Asset management expertise in India.

Ashish Sharma, GE Capital

Aircraft Register

The official aircraft register needs to be updated as evidenced by the following statement:

CAPA has recently done an extensive review of the official aircraft register. Many aircraft that are no longer economically active or no longer remain in the country are still present on the longer economically active, or no longer remain in the country, are still present on the register despite not having renewed their certificates.

Kapil Kaul, CAPA

Asset Management

The aviation assets have to be managed in a tax efficient manner and an asset based lending provides the flexibility of off balance sheet financing. This is being supported by the following statement:

One of the advantages of asset base lending is that not only it can be tax efficient but also can be off-balance sheet. There is an added flexibility of an option to purchase.

Sidanth Rajagopal, Clyde & Co LLP

Authorized Dealers

Foreign Exchange transactions are handled by authorized dealers only. This is supported by the following statement:

> *So for us as a Financer who sometimes does construction finance, we have to make sure not only our customer has RBI approval in place, but they have told RBI that we are not sending the money out, our financier is sending out the money. In cases where your bank ,where you have account, in India you have this concept of Authorization Dealers, which are specific banks that can send out money.*

Ms. Nisha, Legal Counsel, GE Capital

Capital Lease

Capital lease is a long term lease of an aircraft with an option to purchase. This is supported by the following:

> *It is similar to financial Lease or Hire Purchase in Europe. It is similar to a loan where aircraft buyer has residual value at risk. Title is held by the lessor and depreciation is taken by aircraft buyer.*

Ashish Sharma, GE Capital India

Cash Flows

Financing the purchase of an aircraft is dependent on strong cash flows of the organization. The following quotations support the above:

> *All lending institutions and banks will require similar information. For individuals: proof of sufficient cash flow*

Mr. Todd Hattway, Regional Sales Director,
India Hawker Beechcraft Cooperation

Tenor … cash flow matching

Ashish Sharma, GE Capital

Construction Finance

Aircrafts are also built to order. Advance payment has to be made and the product gets delivered after six months resulting in a FERA violation. Therefore money is normally sent by financer as supported by the following statement:

So for us as a Financer who sometimes does construction finance, we have to make sure not only our customer has RBI approval in place, but they have told RBI that we are not sending the money out, our financier is sending out the money.

Ms. Nisha, Legal Counsel, GE Capital

Depreciation

Depreciation on the aircraft is deductible as supported by the following:

Interest/Depreciation/Lease payments are tax deductible

Ashish Sharma, GE Capital India

Exim Bank

US Exim bank acts as an instrument of their trade policy and plays a vital role in export of aircrafts manufactured in USA. This is supported by the following quotation:

Exim Bank offers financing support to non-US buyers of the entire line of Hawker Beechcraft aircraft Exim Bank provides guaranteed and sometimes direct loans between five and ten years (based on their determination of your credit worthiness). For all Hawker Beechcraft aircraft, Exim Bank may finance up to no more than 85 percent of the U.S. content. Although the majority of our manufacturing is done in the US, parts of our aircraft are manufactured in the United Kingdom and Canada as well, which Exim will not finance. If desired, it is possible to syndicate financing with other Export Credit Agencies (ECA's) to finance the non-U.S. content of your new

Hawker Beechcraft aircraft, although it is important to note this will delay and complicate the process .Exim Bank financing is not currently available to individuals, only to corporations.

Todd Hattaway, Hawker Beechcraft

Financing

Financing an aircraft is a complex activity and all the possible structures should be evaluated before implementation. This is supported by the following statement:

There are various financing options available including that of a rupees Loan, an operating lease in rupee or dollar term, off shore loans using a SPV apart from other structures like finance lease or hire purchase.

Ashish Sharma, GE Capital

Structured Finance

Structured finance is one of the ways to finance the purchase of an aircraft as evidenced by the following statement:

Structured Products are different and are relatively new. They are simplistic and less varied.

Siddanth Rajagopal – Clyde & Co LLP

Foreign Exchange Risk

It is important to hedge the risk inherent in currency conversion. This is supported by the following statement:

Foreign exchange risk should be hedged.

Ms. Nisha, Legal Counsel, GE Capital

Insurance

The concept of fleet insurance is practiced in the scheduled airline business and some large fleet owners like ONGC. Fleet insurance would bring the cost of insurance down for individual aircraft owners and BAOA should take a lead in developing such a product. The following quotation supports the above:

> *Greater usage of aviation insurance; Operators having multiple aircrafts must consider taking single cover for all aircrafts.*
>
> **Dhiraj Mathur, PWC**

Lease Aircraft

A large number of procurement happens through lease and types have to be considered. This is supported by the following statement:

> *The terms of operating or finances lease of the aircraft has to be carefully weighed.*
>
> **Rahul Garg, PWC**

LIBOR

International funds for purchase of an aircraft are linked to LIBOR. This is supported by the following statement:

> *International lenders dominate market as there are advantages of Dollar or Euro Loans over Rupee loan and LIBOR mechanism prevails.*
>
> **Sidanth Rajagopal, Classis Law**

Loan

Countries finance the purchase of the products produced in their country through Export Credit Agency loan. This is supported by the following quotation:

Export Credit Agency ("ECA") Loans like that of HERMES, ECGD, COFACE, US Exim etc. are major sources of funds for purchasing an aircraft.

Sidanth Rajagopal, Classis Law

Operating Lease

An operating lease is for a shorter duration and provides flexibility. This is evidenced by the following statement:

An operating lease is kept off customer's books and results in elimination of residual value risk. Lessee returns aircraft to lessor at expiration of lease (Lessor owns the aircraft).Lease payments are expensed as operating expenses.

Mr. Todd Hattway, Regional Sales Director, India
Hawker Beechcraft Cooperation

Own Funds

Business and GA aircrafts are also purchased through internal accruals. The following statement supports the above:

Internal accruals or own funds are also a source of funds for purchasing an aircraft.

Rohit Kapur, President, BAOA

Remittances

RBI is responsible to ensure that funds going out of the country are matched by products coming in. This is supported by the following:

In India, the RBI that regulates remittances and their main concern is to make sure that remittances go out of the country are against the import that comes in.

- **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

Sale and Lease Back

Sale and Lease back is yet another way through which cash flows are managed. This is supported by the following statement:

> *Sale & leaseback is possible for existing aircraft.*
>
> - **Toennies von Limburg, Bank of America Leasing**
> - **International Corporate Aircraft Finance**

Security Enforcement

For financing of aircrafts to become easier, it is necessary that laws related to security enforcement are practical. This is supported by the following statement:

> *Security enforcement is not as robust as in western world … time consuming.*
>
> - **Ashish Sharma, GE Capital**

Security Package

Security package consists of a number of documents as evidenced by the following:

> *Security package may include Aircraft Mortgage/Hypothecation, Corporate and/or personal guarantees and a- Tri-partite Agreement with the aircraft management company.*
>
> - **Ms. Nisha, Legal Counsel, GE Capital**

Tenor

It is important to ensure cash flows are streamlined. This is supported by the following:

> *The matching of tenor with cash flow is important*
>
> - **Ashish Sharma, GE Capital**

Broker

Brokers or Aviation Consultants play a vital role in the growth and development of this sunrise industry. The value is driven by his ability to contribute in the deal in a much more detail and tends to get involved in complete structuring of the transaction.

This is supported by the following statement:

> *The role of Broker is undergoing a change in today's environment of free information.*
>
> - **J. Philip Jordan, Business Air International**

Charter Brokerage

Utilization of aircraft serves its basic purpose and an underutilized asset results in loss of value. This is supported by the following statement:

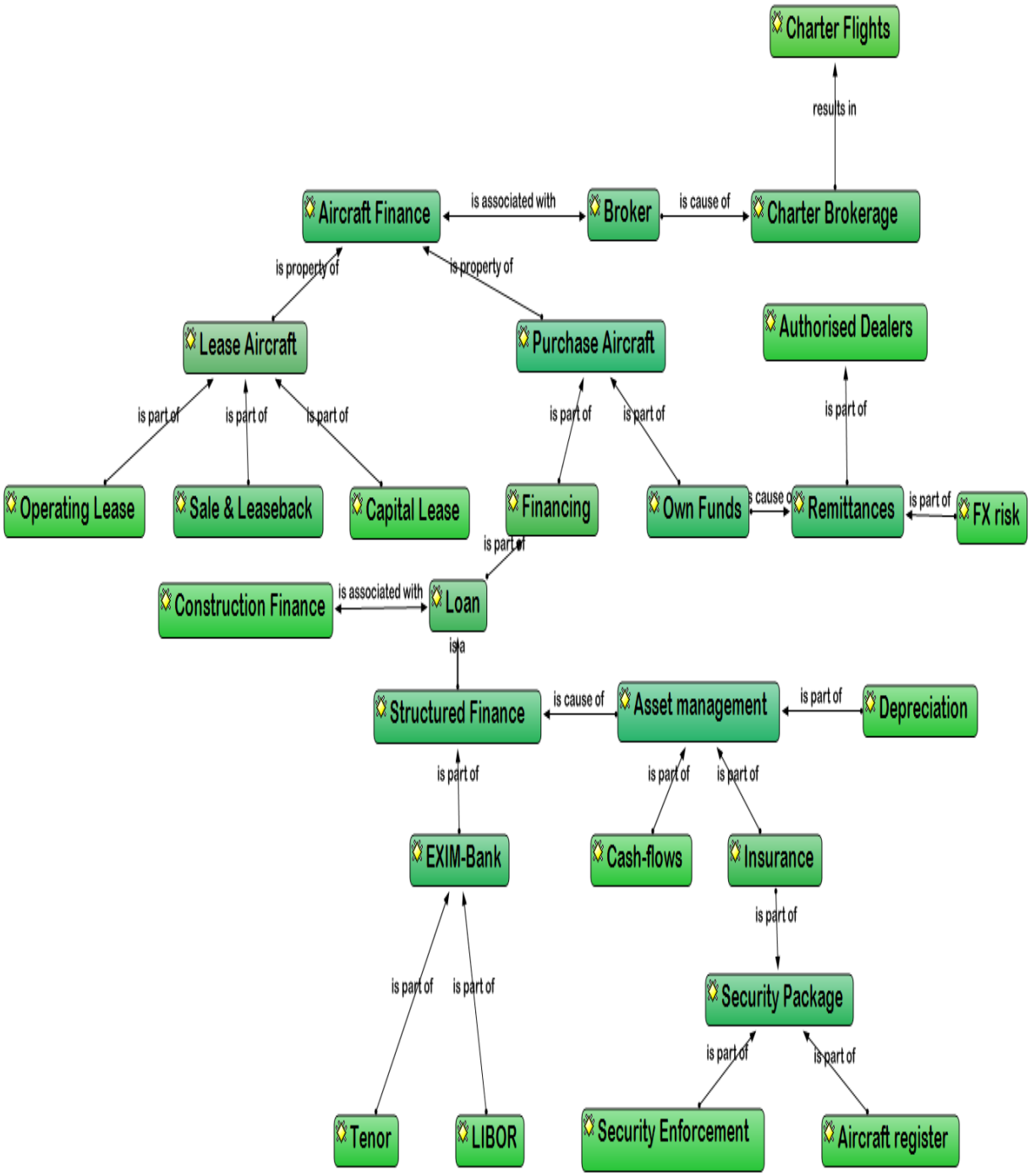
> *The fragmented nature of the industry acts as a barrier to air charters – users have to conduct too much research to find a solution for their requirements, with limited ability to assess options. Effective charter brokers would simplify the process and improve the utilization of unused equipment.*
>
> - **Kapil Kaul, CAPA**

Charter Flights

Charter flight is a growth arena in General Aviation. This is supported by the following statement:

> *Maximum use of GA is seen in the chartered business in India, tourism as well as off-shore operations.*
>
> - **Mr. E K Bharat Bhushan, Director General, DGCA**

The network diagram connects various aspects of aviation finance as depicted below.



8. Airports

Airport is considered the basic infrastructure for aircraft operation. In the recent past the ownership of airports has gone through a makeover. Lot of airports from being government owned have transformed into Public Private Partnership and Joint Venture mode. Eleven codes constitute the category Airports which is listed below.

Code	Code
AAI Website	Conventional Airports
Airports	Greenfield Airports
Airport Authority of India	Lack of Infrastructure
Brownfield Airports	Privatization
Civil Enclave	Public Private Partnership
Concession Agreement	

AAI Website

The website of Airport Authority of India should provide actionable information for pilots. One of them is the list of ground handling agents:

> *AAI website should display the ground handling agents at all their airports.*
>
> - **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

Airports

Airports which are the building blocks of aviation infrastructure are limited as compared to US. There is a need to invest in the airport infrastructure especially at a regional level. These airports could have the basic infrastructure and would become the fulcrum for development of hinterland. This is supported by the following statements:

> *India has 128 airports of which 15 are international airports; with 8 custom airports with limited international operations, and 25 are civil enclaves in defense airfields. How is that compared with US? Instead of 128 airports, the US has 19750 civil and joint use airports, heliports and*

seaplane bases. 14000 are available for civil private use. Nearly 4000 are paved GA airports open to the public. While scheduled airlines serves less than 500 airports. Clearly India has a lot of room to grow in the infrastructure sector and while India's aviation is growing rapidly it starts from a small base.

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy

For our operational and planning purposes, we had divided airports into various categories. First, where aircraft movement is more than 500, there are two airports in this list- Delhi and Mumbai, second, when the aircraft movement is from 200-500; we have 4 airports- Kolkata, Chennai, Hyderabad and Bangalore. These 6 airports have been identified as the major airports in India. Third category is where aircraft movement is from 75 to 200, 6 airports are there; for less than 75 aircraft movements- 24 airports are there. Remaining 90 airports are where movement is less than 20. This is how we have defined the classification of airports and working accordingly to provide infrastructure at these airports.

Mr. A.K. Jain, General Manager, Airports Authority of India

Airport Authority of India

Airport Authority is the principle organization which manages the airport infrastructure in India. It is now with privatization process some private players are participating in the physical infrastructure space under PPP mode. Air Traffic Control is still maintained by Airport Authority of India. The role of AAI is evidenced by the following statement:

The main Functions of Airport Authority of India are to manage air traffic of Indian Air Space and adjacent oceanic air space (excluding special user air space) extending beyond the territorial limits of the country as designated by ICAO; Installation, testing, commissioning and maintenance of Communication, Navigational & Surveillance infrastructure; construction, Operation, Maintenance & upgradation of operational Area; runways, aprons, taxiways etc. apart from Design, Development, Construction, Operation & Maintenance of Passenger Terminals & Airports and Construction Development & Management of Cargo Terminals.

GK Chaukiyal, Airport Authority of India

Brownfield Airports

Modernization and upgradation of the airport infrastructure in India presents a huge opportunity. This has resulted in interest in participation in not only building the infrastructure but also managing it. This is supported by the following statement:

> *Dublin Airport Authority is currently exploring opportunities for setting up green and brown field airports in India.*
>
> **- Meloth Krishnan**

Civil Enclave

There is a need to develop and utilize the civil enclaves till the airport infrastructure is developed across all regions. This is supported by the following statements:

> *Out of 25 civil enclaves in India, 3 are international while 3 are custom civil enclaves. AAI is in the process of development of selected Civil Enclaves in collaboration with Defence.*
>
> **GK Chaukiyal, Airport Authority of India**

> *We have the Hindan airport which is just on the outskirts of Delhi. It is an Air Force airfield. To the best of the knowledge it is not being used by fighters anymore, it is only used by helicopters flying or for training purposes. Why cannot it have a civil enclave?*
>
> **Rohit Kapur, President BAOA**

Concession Agreement

As part of the privatization process, Airport Authority signed concession agreements with parties. One of the clauses of not allowing another airport within 150 km has resulted in virtual monopoly by the initial concessionaire. New airport at Greater Noida could have become an alternative to the Indira Gandhi International airport thus bringing competitive forces into play and benefitting the consumer. The above is supported by the following statements:

Today we are sitting in a position where we have these concession agreements which were signed and which don't allow other airports to come up within 150 kms. We have got Begumpet airport sitting in Hyderabad city which is unutilized, we have got HAL airport sitting in the heart of Bangalore city unutilized, we have got Safdarjung airport sitting in central Delhi unutilized.

Again a bad law the Concession Agreement, I know my friends from GMR and GVK will be very upset with me because there is a loss of revenue to them. But I think in a larger national interest, somebody needs to have a relook at Concession Agreement given there; that you can't have more than one airport in the major city like Delhi and Mumbai.

Rohit Kapur, President BAOA,

Conventional Airports

There is an urgent need to ensure that investments in airport infrastructure is spread across all regions and not concentrated in a few areas. Capacity planning takes into account future growth, but it also has to ensure that the viability funding gap should not be so high that User development fee needs to be collected over the years. This is supported by the following statement:

Low-cost airports versus conventional airports: low-cost airports should be minimal where as our conventional airports are extravagant and they are world-class. Sometimes I wonder if there is anything like world-class, that in the name of world-class sometimes, we build Taj-Mahal, which we don't know and we don't need also at times and we suddenly realize that was there a need to make such a lavish airport such that tomorrow I need to ask for User Development Fee's (UDF) not for today or tomorrow but for eternity.

Mr. Inderjit Singh, Associate Director & Head Aviation, India,
URS Scott Wilson India Private Limited

Greenfield Airports

Investment in Greenfield airports is the need of hour as evidenced by the following statement:

One of the initiatives of the government is to develop Greenfield airports

Mr. Pawan Kumar, Dy. Director, DGCA

There are several Greenfield airport projects in pipeline

List of upcoming green-field airports in India	
Mopa in Goa	Shimoga Airport in Karnataka
Navi Mumbai in Maharashtra	Gulbarga in Karnataka
Kannur in Kerala	Dabra, Gwalior/ Datia in Madhya Pradesh
Pakyong in Sikkim	Andal–Faridpur Blocks of Barddhaman District in West Bengal
Sindhudurg in Maharashtra	Paladi-Ramsinghpur tehsil near Jaipur in Rajasthan
Bijapur Airport in Karnataka	Kushinagar International Airport in Uttar Pradesh
Hassan Airport in Karnataka	Karaikal Airport in Pudduchery

Source: Secondary research, PwC Analysis

Business Aviation: Unfolding Horizons • Aerospace Seminar on Business and General Aviation
PwC

Dhiraj Mathur, Pricewaterhouse Coopers

Lack of Infrastructure

The biggest constraint in the growth of business and GA is that of lack of infrastructure at regional level. The growth in numbers of aircraft has to proportionately match the growth in capacity otherwise the problems like that of MIAL would only multiply. This is supported by the following statements:

There is Low airport density in India with about 1 airport for every 4.6 million people.

Dhiraj Mathur, Pricewaterhouse Coopers

There is a need to build infrastructure related to airports, heliports, FBOs, maintenance facilities etc.

Capt. Karan Singh, Managing Director, BAOA

In order to spur this growth it would be essential to continue to give top priority to infrastructure, to support this growth and address important issues like taxation, input costs, security, regulation of monopolies, environment as well as issues related to liberalization. We do not only need to equip and strengthen the aero industry base to cater to the growing aircraft operations but also strengthen maintenance infrastructure.

Mr. E K Bharat Bhushan, Director General, DGCA

So it is established that aviation, air traffic is there to stay and we better get ourselves geared up and create a robust infrastructure to face the consequences. They say that for every one dollar spent in aircraft purchase, 50 cents should be set aside for aviation infrastructure.

Mr. Inderjit Singh, Associate Director & Head Aviation, India,
URS Scott Wilson India Private Limited

So it has come out time and again that infrastructure is indeed one of the biggest bottlenecks and one of the main components of this bottleneck is of course infrastructure on ground. So hopefully that will change with time as the regional economy develops, as social infrastructure at this destinations improve and as the facilities that we want to provide at these smaller airports improve.

Ravi Radhakrishnan, Reliance Infrastructure Private Ltd

More investment required in Separate airports (e.g. upgrade of Juhu to accept business jets), Improved infrastructure at existing airport, Heliports (ideally led by the private sector), Air traffic management systems etc. Government needs to encourage private sector to invest in airport infrastructure.

Kapil Kaul, CAPA

Privatization

Airports are like public goods and investments start giving returns over long period of time. Privatization of metropolitan airports like Delhi, Mumbai, and Hyderabad etc. is a welcome step but private participation in building airport infrastructure especially at regional level requires that

government plays a leading role in its development. This is supported by the following statements:

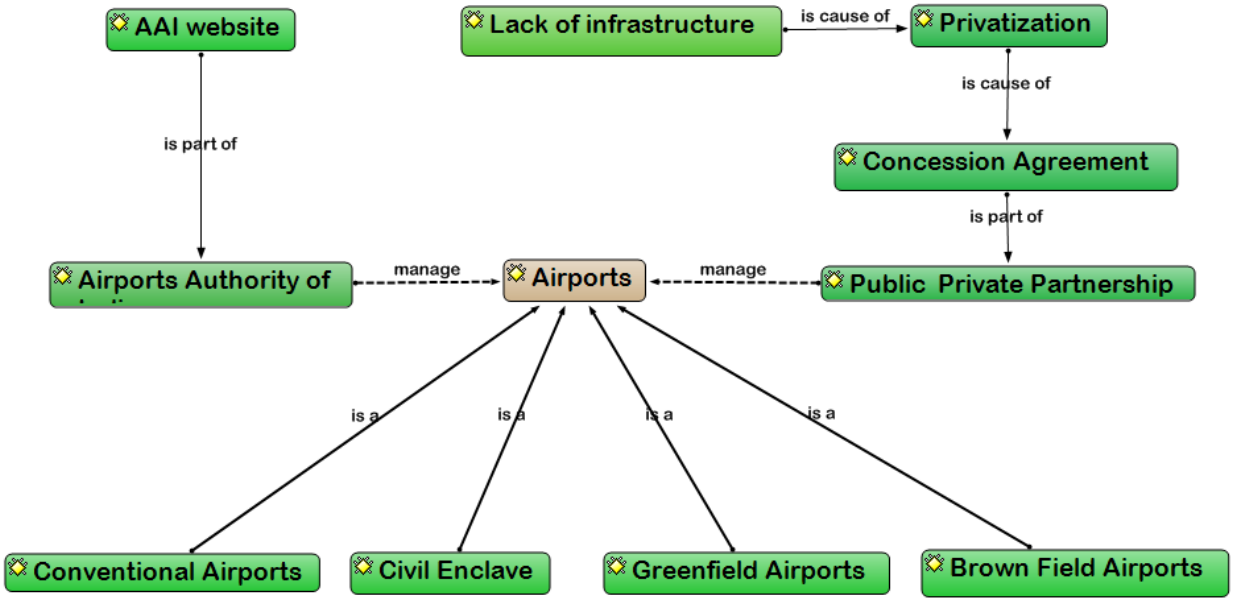
> *Airports were a public monopoly till 2003. Unprecedented growth in air traffic led to considerable strain on airport infrastructure. From 2000 till 2010 Indian aviation had to cope with additional 84 million passengers, at times this truly stretched the system and the need to attract private investment to create world class airport infrastructure was felt.*
>
> **Yashwant Bhave, Chairperson AERA**
>
> *When it came to privatization of airports, we all started privatizing airports without understanding the consequences of that in the long run.*
>
> **Mr. Inderjit Singh, Associate Director & Head Aviation, India,**
> **URS Scott Wilson India Private Limited**

Public Private Partnership

The term "Public Private Partnership" has been used not only in commercial venture but also in creating a policy framework. The following statements support the above:

> *My agency is the US Department of Commerce as Mr. Sarkar mentioned and other agencies in the US Government work together with the Government of India (GOI) as well as the private sector in India and the US to develop faster opportunities in GA to benefit both nations. We do this through government-to-government initiatives, public private partnership (PPP) such as for example; the Aviation Corporation Program (ACP) that Mr. Sarkar referred to. ACP is the public private partnership between FAA, the US Trade and Development agency, my office the US commercial service and private US Industries together with Government of India.*
>
> **Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy**
>
> *The activation of unused airports through PPP model is also being explored.*
>
> **GK Chaukiyal, AAI**
>
> *The way forward is infrastructure development aggressively and immediately through private, government and PPP mode.*
>
> **Capt. Karan Singh, Managing Director, BAOA**

The following network connects the elements of the category, Airports together:



9. Airport Management

Managing an airport is a process in such a way that revenue streams are optimized. Globally there is a move towards increasing the percentage of non-aeronautical revenue higher that aeronautical revenue which has led to development of travel retail. In India the aeronautical revenue tends to form a substantive element which goes into tariff determination. In some of PPP airports this is beginning to change. The category airport management emerged out of a combination of the following sixteen codes:

Code	Code
ADF	No Concept of Fixed Base Operators
Aerodrome Operating Minima	Parking
Aerotropolis	PSF
Airport Management	Security Queues
Airport Procedures	Slots
Environmental Management	Tariff Determination
Infrastructure	Terminal Retail
Landing and Parking Charges	UDF

Airport Management

Airport Authority of India is responsible for managing airports around India. With privatization, the management is being done by private enterprise under the PPP mode. This is supported by the following statements:

> *One of the objectives of Airport Authority of India is to provide highest standards of Airport Management by providing state of-the-art infrastructure for total Customer Satisfaction.*
>
> **DP Singh, Executive Director, AAI**

Dublin Airport Authority is exploring Opportunities in Airport management.

Meloth Krishnan, C&K Associates

Airport Procedures

There is an urgent need to streamline the procedural issues in the context of requirement of flexibility in BA. This is supported by the following:

It is difficult access issues like clearance processing and airport formalities issues which limit international companies comes to India. DGCA needs a seven days' notice for an international company required to come to India, which needs rationalization.

- **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

Environmental Management

Environmental concerns have become important as is evidenced by the following statements:

In aerial work a helicopter would not only be cost effective but also environmentally friendly.

Sylvain Marie, Eurocopter

Environmental, political, regulatory and safety considerations will change market dynamics

Lars Welinder, Partner and Director, Mango Aviation

Infrastructure

Though there is a large investment planned for infrastructure, there is a need to have dedicated policy initiative for building BA infrastructure:

The 12th Plan (2012-2017) envisages investment in infrastructure sector to the extent of USD 1 trillion. The Planning Commission estimates that around 50% of this investment will come from private sector.

Meloth Krishnan, C&K Associates

The Paradox of business and GA in India is that it has huge potential but virtually no dedicated policy or regulatory framework nor infrastructure to support it. Dedicated infrastructure needs to be made available.

Kapil Kaul, CAPA

In 2009, the airport set up a corporate terminal equipped with conference rooms, crew rest lounges, eating outlets and a bar for fliers using private aircraft on domestic routes. The terminal has a separate entrance from Kalina. Last September, the aviation ministry allowed passengers using private jets to use the terminal for international travel. This will help high-end travelers avoid long queues at immigration and customs clearance points. However, five months on, the absence of a dedicated custom and immigration staff has delayed the international service from taking off custom and immigration staff has delayed the international service from taking off.

Toennies von Limburg, Bank of America Leasing, International Corporate Aircraft Finance

Aerotropolis

Airports in the modern world are center of trade and cities are developing around it. This is supported by the following statements:

Dubai World Central is a purpose-built Aerotropolis for Dubai and the world. In the past, airports were built to serve cities. Now the formation of cities is dictated by airports (similar to roads, sea ports and railways did in the past). It gives businesses a platform with speed and connectivity at its core and the capacity to grow and expand.

Khalid Al Massery, Dubai World Central

To cater to the demands of the upcoming Aerotropolis CIAL has constructed a 110 KV Substation to ensure sufficient power.

ACK Nair, Director, Cochin International Airport

No Concept of Fixed Base Operators

The concept of fixed based operators is virtually absent. This is supported by the following statement:

> *An FBO as a business operating under the lease with an airport owning authority and that dispenses aviation fuel. In addition, an FBO must perform at least one of the 4 other basic services like– Line Service; Technical service, such as airframe and engine maintenance;– Aircraft rentals, charters, aircraft management and/or sales or Flight instruction. Today we talk about Fixed Base Operators (FBO's) and heliports but when the master visions for these airports were being made they could not even think about it.*
>
> **Mr. Rohit Kapoor. President BAOA**
>
> *We have handled two and half a million legs since we were founded and we have been doing this. We have our own FBO's, ground support facilities in 20 countries, 40 locations within those countries. We have been supporting flights for India since 1974.*
>
> **Mr. Lex Den Herder, Vice President, Government and Industry Affairs,**
> **Universal Weather & Aviation Inc.**

Parking

Parking and parking charges are important and have been the cause of much anger among business aircraft operators. Penalty imposed by Mumbai International airport led to litigation and subsequent stay on the penalty. Importance of penalty is supported by the following statement:

> *There is no separate parking and helicopters operate out of airport.*
>
> **Mr. E K Bharat Bhushan, Director General, DGCA**
>
> *While they seem to be in proximity to city like Mumbai or Pune, but at the same time from our experience we found that say an High Net worth Individual (HNI) from Mumbai that owns a business jet he wants it right there so whether he has to pay extra or whether he has to bend the rules and do an unauthorized parking somewhere in Mumbai or Juhu. They will much larger prefer that then driving a couple of hours to a secondary airport where he can park his GA assets.*

Ravi Radhakrishnan, Reliance Infrastructure Private Ltd

Landing and Parking Charges

There is a need for use of technology based solution in payment of charges. This is supported by the following statement:

> *Landing and parking charges should be through a preloaded card or a credit card.*
>
> - **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

Security Queues

Security queues and procedural issues are detrimental to a feel good factor at airports. This is supported by the following statement:

> *One of the advantages of taking off from regional airports is Relief from tiresome procedures and long security queues.*
>
> **Ravi Radhakrishnan, Reliance Infrastructure Private Ltd**

Slots

Parking slots are not available and a new aircraft has to be parked away its principle area of business. This is supported by the following statements:

> *One of the major issues related to BA is that of parking slots.*
>
> **Rohit Kapur, President BAOA**
>
> *Air traffic management struggles to accommodate GA into traffic flow management because movements cannot be predicted and slots are constrained.*
>
> **Kapil Kaul, CAPA**

Aerodrome Operating Minima

The aerodrome operating minima is higher for GA aircraft is higher as they operate under VFR conditions. This is supported by the following conditions:

Aerodrome Operating Minima for GA aircraft is higher than that of scheduled airlines.

Mr. A.K. Jain, General Manager, Airports Authority of India

Tariff Determination

Tariff is determined by taking into account a large number of factors. India should sign the agreement on trade in civil aircraft thus reducing tariff in order to encourage the growth of business aircraft. The following quotations support the above:

We would encourage India's accession on World Trade Organization (WTO)'s Agreement on Trade on Civil Aircraft called ACTA. India is an observer and not yet a signatory to the WTO ACTA and we believe joining would lead to India's elimination of tariffs on aircraft and aircrafts parts and go to further accelerate growth in this sector.

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy

Factors for tariff determination include capital expenditure incurred and timely investment in improvement of airport facilities; Services provided, its quality and other relevant factors; Cost for improving efficiency; Economic and viable operation of major airports; Revenue received from services other than the aeronautical services;) Concession offered by the Central Government in any agreement or memorandum of understanding etc.

Yashwant Bhave, Chairperson, AERA

Terminal Retail

Non aeronautical revenue is an important factor in determining the revenue from airport operations. World over the proportion of non-aeronautical revenue is higher than that of aeronautical revenue and India is also moving in that direction:

Terminal retail includes Shopping Facilities including Restaurants and Snack Bars.

DP Singh, Executive Director, AA1

In 2011, managed turnover of over $1 bn / 3500 staff; Manages 3,500 sq. of retail space at the T3 in Delhi. Delhi Duty Free Services (DDFS), a JV between DIAL (Delhi International Airport Limited), IDFS (Indian Duty Free Services) and ARI.

Meloth Krishnan, C&K Associates

Airport Development Fund (ADF)

The viability gap funding is met by Airport Development Fund. This is supported by the following statement:

ADF is a measure of last resort. ADF is akin to viability gap funding and is a capital receipt and is not a part of Regulatory Asset Base (RAB). Monthly audit of ADF collected is done on a regular basis.

Yashwant Bhave, Chairperson AERA

UDF

UDF is part of the revenue stream for airport operations. The following statement supports the above.

AERA also determines the amount of development fee (DF) including User Development Fee (UDF)

Yashwant Bhave, Chairperson, AERA

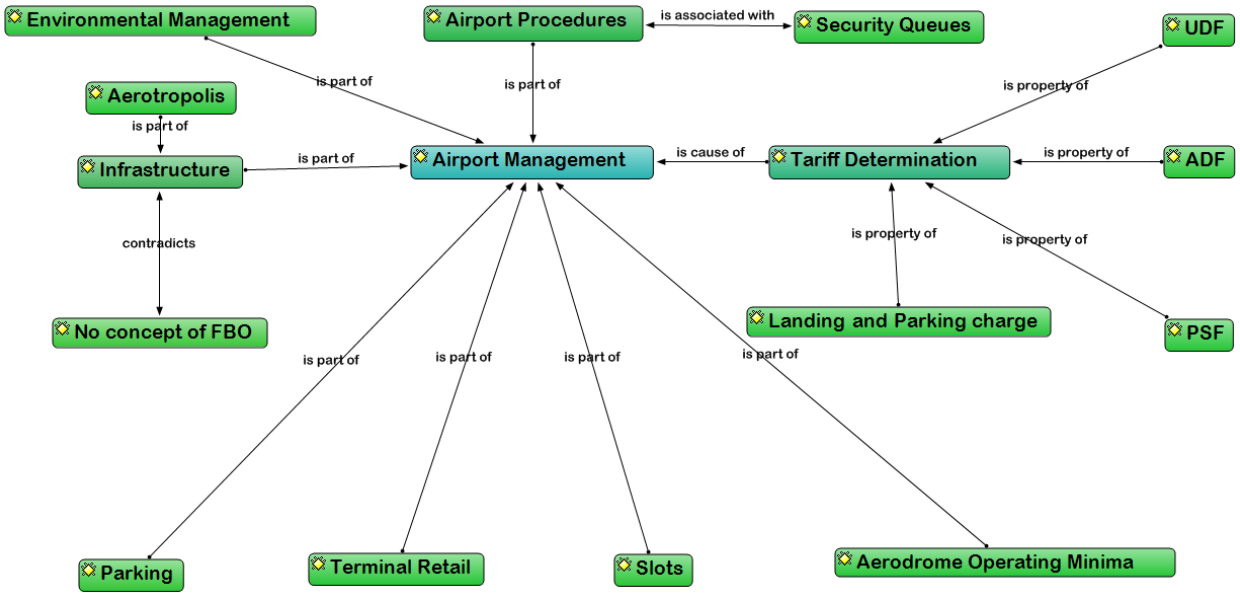
PSF

AERA also determines the amount of PSF to be charged as evidenced by the following.

One of the functions of AERA is to determine amount of Passenger Service Fee.

Yashwant Bhave, Chairperson AERA

The following network connects the various elements related to airport management.



10. **Business Enabler**

One of the fundamental reasons why business aircraft is being used by Corporate India is that it enables business by reaching out to far flung business entities resulting in thin connectivity. Apart from large corporates, medium enterprises and small scale entrepreneurs have started using business aircraft. The following codes represent how it is a business enabler:

Codes	Codes
Business Enabler	Customer Experiences
Comfort and Equipment	Intangible Advantages
Corporate Shuttles	Reliability
Cost Effectiveness	Versatility
Crowded Aircraft	

Business Enabler

A change in the mindset has resulted in corporates using the aircraft as a business enabler. Apart from large corporates, medium enterprises and small scale entrepreneurs have started using business aircraft. This is supported by the following quotation:

> *There is a paradigm shift in perception - from luxury to business enabler*
>
> **Capt. Karan Singh, Vice President BAAI**

Comfort and Equipment

Comfort and equipment on board the aircraft enable the business aircraft varied roles including support during a medical emergency as can be seen by the following quotation:

> *There are many advantages of a helicopter during a medical crisis comfort and equipment, reaches victims far from road, increases the comfort for the patient and carries all the EMS equipment.*
>
> **Sylvain Marie, Eurocopter**

Corporate Shuttles

With supply chains expanding, manufacturing units are located at remote locations; corporate shuttles from base station to the units on a regular basis will become the norm. This is supported by the following quotation:

> *Corporate shuttles could use using aircraft and helicopters to ferry employees to and from new industrial or manufacturing belts and mining sites, which are often in remote locations. May require helicopter fleets to be based in Tier 2 cities. State governments should support such operations due to their economic significance.*

Kapil Kaul, CAPA

Cost Effectiveness

Regional airports tend to follow a low cost model hence cost effectiveness is one of the pillars for its economic viability. This is supported by the following quotation:

> *The focus should be on two critical aspects- reliability and cost effectiveness, which is a case for low-cost airports.*

Mr. Umesh Baveja, Chairman RAHI

Crowded Aircraft

Due to paucity of corporate travel by air has become the norm for middle and senior management. The time spent at the airport and the aircraft is not utilized productivity due to lack of privacy and the atmosphere required to think and decision making. This is supported by the following quotation:

> *One of the negatives of corporate travel using an airline is a crowded aircraft.*

Lars Welinder, Mango Aviation Partners Limited

Customer Experiences

Experiences of people using BA in India have not been good due to a number of procedural complexities thus encroaching on flexibility which is fundamental to BA. This is supported by the following quotation:

> *Xerox felt that Visas are complicated and would be nice to not require them for crew or at least make it easier somehow (invitation letters, process etc). India holiday's frequently make trip planning, landing permit, parking permit and visas difficult to obtain.*
>
> *Adding or Deleting passengers seem to be an issue and we are always worried by adding or deleting a pax we will lose all previous authorizations. Departing the airport seems to be a very lengthy process; we arrived 3 hours early in Delhi and still took-off 30minutes late! Arriving at the airport it seems most pilots try to plan to arrive overhead the airport with excess fuel because you can get 1 hour holding due to traffic saturation…we didn't experience this, but we did try to plan for it!"*
>
> **Lex den Herder/Vice President, Government& Industry Affairs**
> **Universal Weather and Aviation, Inc.**

Intangible Advantages

BA tends to provide a number of intangible advantages to the user community as evidenced by the following statement:

> *There are many intangible advantages which enhance productivity using BA.*
>
> **Capt. Karan Singh, Vice President, BAAI**

Reliability

Reliability is the crux of BA. This is supported by the following statement:

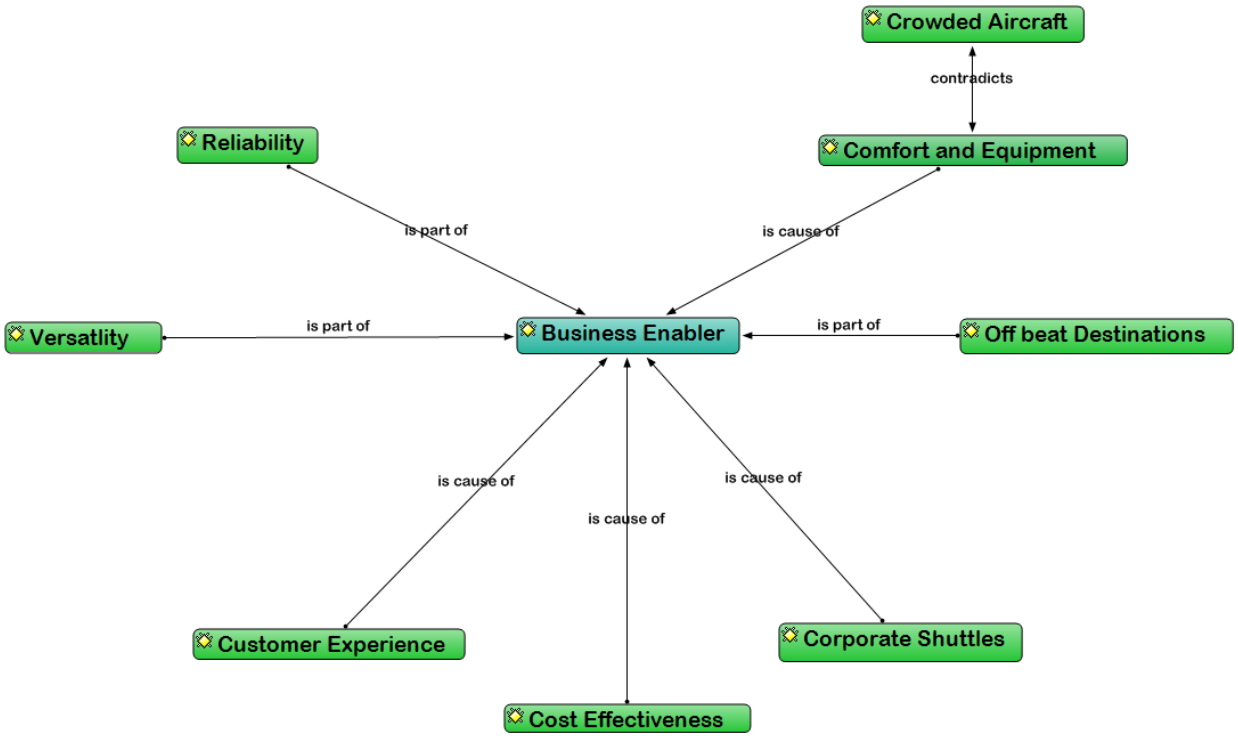
> *The legacy 650 has an advantage of intercontinental range with superb comfort and outstanding reliability.*
>
> **José Eduardo Costas, Embraer, Vice-President Sales & Marketing**

Versatility

Business aircraft are versatile and can be utilized in various roles. This is supported by the following statement:

> *Use of business aircraft in varied roles such as tourism, disaster relief, medevac service, emergency evacuation, pilgrimage flights, volunteer transportation, oil and gas, mining and geological survey makes it versatile.*
>
> **Capt. Karan Singh, Vice President BAAI**

The network diagram connecting various elements is as follows:



11. Cargo

Business aircraft also carry cargo which may not only be precious but also required for a number of emergent situations like break down of machinery or stranding of a ship due to failure of a crucial component. Codes under the category "Cargo" are as below:

Codes	Codes
Cargo Charges	Raw Material
Cargo Movement	Warehousing
Just in Time	

Cargo Charges

Private airports have to be economically independent and cargo charges are one of the ways to earn the revenue. This is supported by the following statement:

> *A cargo charge is also one of the ways to earn revenue at the airport.*
>
> **Yashwant Bhave, AERA**

Cargo Movement

It is necessary that airports are set up close to manufacturing hub so that there is consistent cargo movement. This is supported by the following statement:

> Proximity to Agricultural, Industrial and Manufacturing centers results in a higher air cargo movement.
>
> **Ravi Radhakrishnan, Reliance Infrastructure**

Just in Time

Concept of JIT and its use by industry has resulted in rapid growth of logistics industry. This is supported by the following:

> The rise of JIT has resulted in growth of cargo.
>
> **Yashwant Bhave, AERA**

Raw Material

Raw material is still a large component of international trade as evidenced by the following statement:

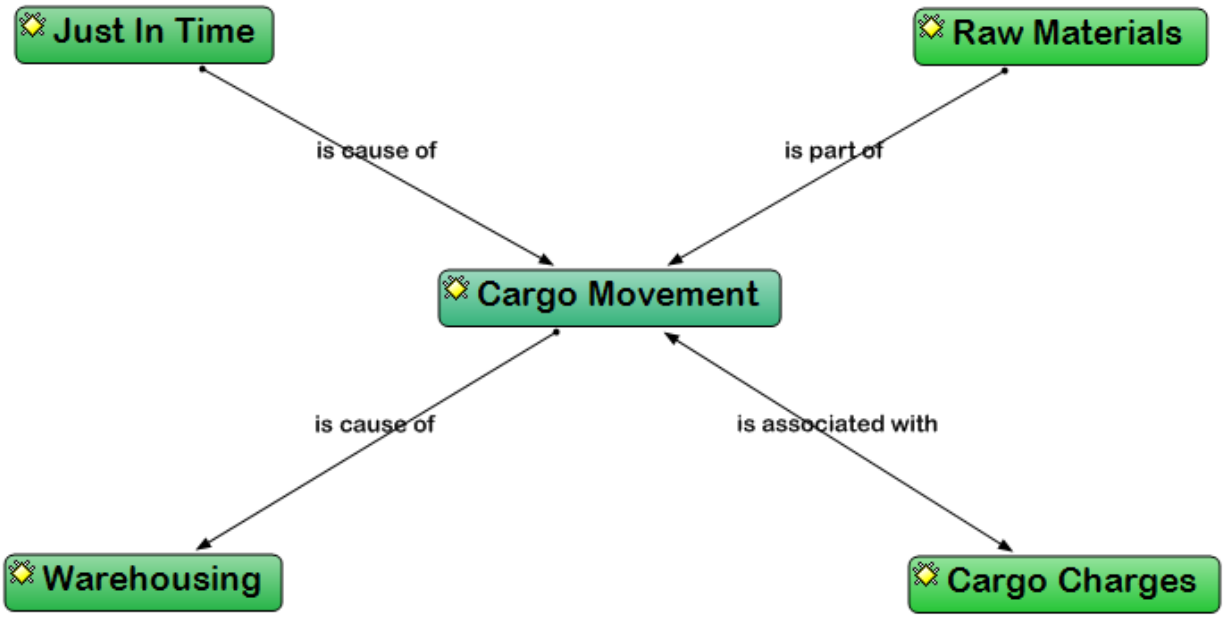
> *There are tremendous opportunities for partnerships in areas of technology, raw materials, development capabilities, international airworthiness certifications, developing skills and financing. GA supports jobs and economic growth in both our countries and the US Government will continue working with our counterparts in Government of India and cooperative organizations such as IACC to ensure the US capabilities are brought to the market in support of India's future.*
>
> **Ms. Judy Reinke, Minister Counselor for Commercial Affairs,**
> **US Embassy**

Warehousing

The growth of logistics industry has resulted in new business opportunities in warehousing. This is supported by the following statement:

> *There are a lot of business opportunities in warehousing.*
>
> **Ravi Radhakrishnan, Reliance Infrastructure**

The network diagram related to cargo movement is as follows:



12. Connectivity

Business aircraft tend to complement connectivity to far flung places which are not connected by the scheduled airlines due to financial viability. On the other hand business opportunities tend to arise in places which are hitherto unexplored. Thin connectivity is a harbinger of change and business aircraft by connecting to inaccessible places open up new opportunities.

The codes for the category "Connectivity" are as follows:

Codes	Codes
Connectivity	Connectivity with Flexibility
Connectivity to Inaccessible	Emerging Tier 2 and 3 Cities

Connectivity

Economic development of the country is dependent on the connectivity. Non Metro airports not only connect places but also are a change agent in lives of people. This is supported by the following statement.

> *Non Metro airports are important for regional connectivity and development of regional Hubs.*
>
> **GK Chaukiyal, Airport Authority of India**

Connectivity to Inaccessible

Thin connectivity is a harbinger of change and business aircraft by connecting to inaccessible places open up new opportunities. This is supported by the following statement:

> *Business aircraft tends to provide connectivity to inaccessible areas.*
>
> **Capt. Karan Singh, Vice President BAAI**

Connectivity with Flexibility

The raison d'êtr of BA is flexibility as evidenced by the following statement:

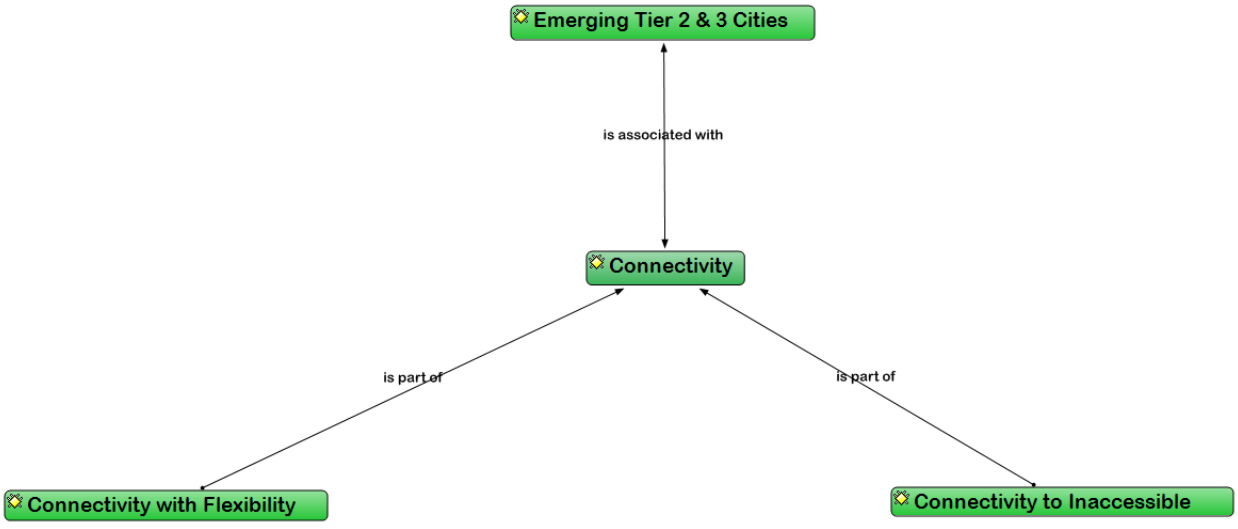
> *Frequent changes in the schedule due to business requirements can easily be handled through BA.*
>
> **Capt. Karan Singh, Vice President BAAI**

Emerging Tier 2 and 3 Cities

New opportunities are emerging in tier 2 and 3 cities and regional airports provide an impetus to this growth. This is supported by the following statement:

> *Regional airports enhance regional connectivity. It is a huge growth opportunity; they provide an alternative to heavily congested and land-locked metro airports.*
>
> **Ravi Radhakrishnan, Reliance Infrastructure**

The following network diagram tends to connect various elements together.



13. Country Specific Practices

BA is a sunrise industry in India and the experiences provide a guideline as to what may work and what may not succeed. One must evaluate what already exists in India and compare it to other aviation successful countries. One must also consider what has not worked or has been unsuccessful in other countries to determine if it would work for India GA has been a change agent and India would not be wrong in using aviation as a change agent for economic development. It is also important to understand then experiences of emerging markets apart from mature markets.

Codes for the category "Country Specific Experiences" are as follows:

Codes	Codes
Brazil	India
Canada	Japan
China	USA
Europe	

Brazil

Brazil as an economy with similar geopolitical structure has developed an aviation ecosystem worth emulating. This is evidenced by the following statement:

> *Let us go to Brazil for a minute, a totally vice-versa situation, which is private sector dominated. Embraer, one of the leading manufacturers of both civil and military airplanes in Brazil is the fourth largest aviation company in the world. As per Department Civil Aviation, Brazil has 3rd largest BA fleet after U.S and Mexico. Interestingly all products pertaining to aviation such as engine and equipment, board systems, structural parts, airplanes, helicopters as well as traffic control systems are available in Brazil. Embraer has also entered into number of joint ventures and collaboration with International Companies.*
>
> **Mr. Somesh Arora, Partner, Legal Alley**

Canada

From a geographical perspective, the varied nature of Canadian landscape provides us with experiences which one could benefit from:

> *The vast size of the country with varied terrain makes it an ideal market for air connectivity. Canada has fourth largest business jet fleet in the world.*
>
> **Kapil Kaul, CAPA**

China

The growth of Chinese economy in the recent times has been an eye opener. With a different politico legal system, they have taken giant strides in the area of BA to become one of the bigger markets. This is supported by the following statement:

> *The Chinese Government permits foreign investment in all areas of the civil aviation be it Civil Airport, public air transport enterprises, GA enterprises or projects related to air transport. The only area, which is forbidden, is Air-Traffic control system and put it with India there is big not in between. Interestingly in China, this kind of situations has helped at least the consumers at large because the prices are fixed at government level. The middle kingdom apparently is becoming a hub for production of just not aircraft components but also venturing into aircraft manufacture.*
>
> **Mr. Somesh Arora, Partner, Legal Alley**

Europe

Europe with its single sky policy and EASA guidelines provides us lessons in safety and certifications. This is evidenced from the following:

> *I think finally, support from the OEMs, we need to do things ourselves; or we need to get authorities working with us and giving us the most advantageous regulatory and safe environment. But I think we are looking more for OEMs as well. I think the costs we have to live with, are out of line with lot of customers willing to pay. I think if you look at the possibilities in terms of the local training, so we don't have to send people to Europe to be trained on Euro-copter Augusta Westland machines, localization of the completion of the helicopters, painting,*

interiors that sort of things, an area where we have very significant cost advantage compared with OEMs doing that sort of thing themselves in Europe or US.

Mr. Mike Meyer, CEO, Indocopters Pvt. Ltd

India

The potential for aviation in India is huge and with the growth of the economy the sector will take place in the sun. This is supported by the following statement:

India is the ninth biggest aviation market in the world and in terms of domestic traffic, the fourth largest in the world behind the US, China and Japan and yet India is one of the least penetrated markets in the world even lower than Sri Lanka, Pakistan and Nigeria.

Ms. Judy Reinke, Minister Counselor for Commercial Affairs,
US Embassy

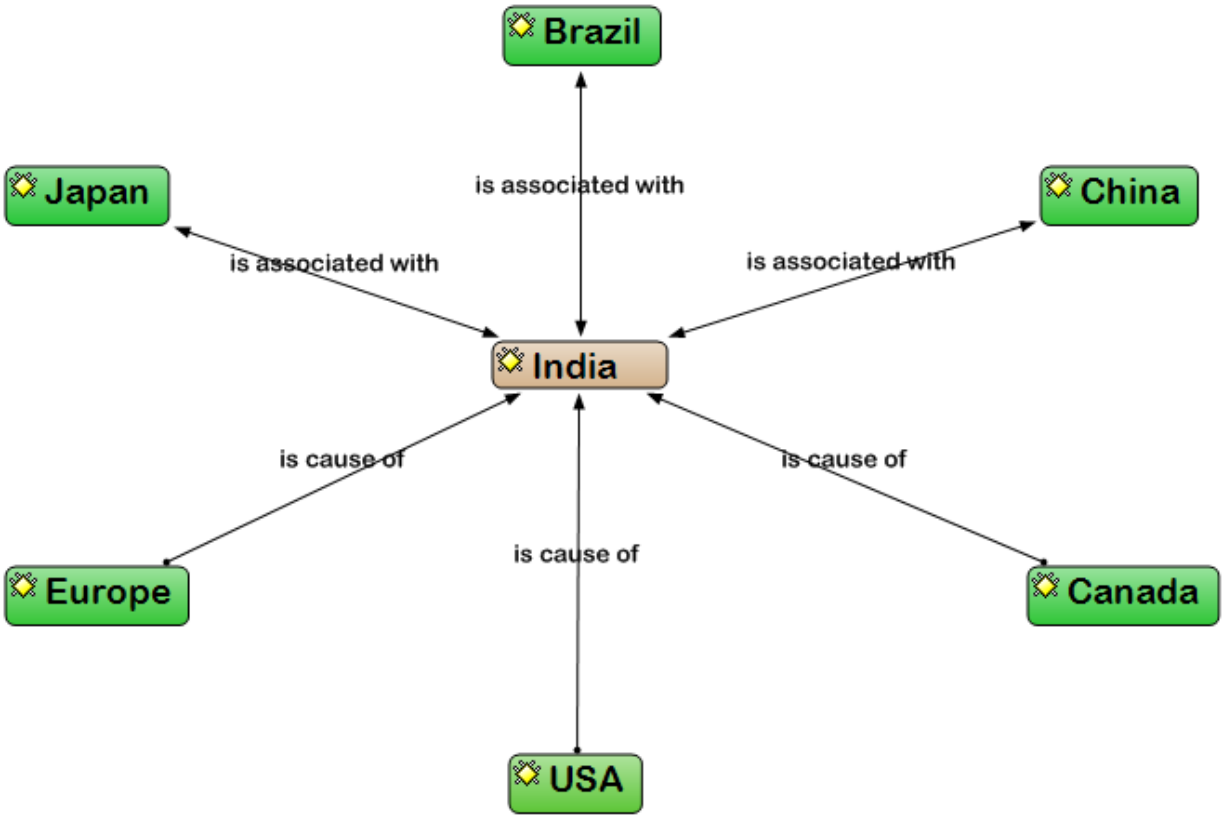
USA

USA is the birth place of aviation and its policies have matured due to varied and long experiences. GA has been a change agent and India would not be wrong in using aviation as a change agent for economic development. This is supported by the following statement:

But let me just state that over 320,000 GA airplanes are operational worldwide; ranging from 2 seat training aircraft to international business jets to Helios to others and nearly 228 of those 320,000 are operating in the US. In the US GA aircrafts fly almost 24 million hours and carry 166 million passengers annually. Over two third of the hours flown by the GA aircraft are for business purposes and a key point is that GA is the primary training ground for most commercial airline pilots. So GA clearly is a big contributor towards US economy. It supports 1.2 million jobs and over 115 billion dollars is contributed to US economy each year through this segment alone.

Ms. Judy Reinke, Minister Counselor for Commercial Affairs,
US Embassy

The following network diagram brings the varied elements together.



14. Economic Growth

BA contributes directly and indirectly to economic growth resulting in growth of GDP. Foreign Direct Investment in new or pre-owned aircraft, airports results in development of ancillary industries and job creation.

The codes for the category "Economic Growth" are as follows:

Codes	Codes
Competition	Globalization of Trade
Development of Civil Aviation	Increasing Disposable Income
Domestic Indian Market	Increasing Marketing Demand
Economic Growth	Investment
Financial Crisis	Liberalization
Foreign Direct Investment	Linkage with Civil Aviation
GDP	Trade

Competition

Technology has provided alternative ways to connect with people thereby making the need to travel almost redundant. This is supported by the following quotation:

> *I guess the competitor to GA as of today is not Commercial aircraft or the Low Cost Carriers (LCCs); I think the biggest competitors are companies like Cisco and Siemens. Because the Indian corporate has embraced technology, the need for physical transportation from point A to B has actually been done away with.*
>
> **Robin, Legal Alley**

Domestic Indian Market

The rise of the Indian middle class coupled with the rapid growth of the Indian economy would result in large number of domestic travelers at an appropriate price point. This is supported by the following statement:

According to reports by Airbus and Boeing, domestic Indian market is the fastest growing global market over the next 20 years.

Yashwant Bhave, AERA

Development of Civil Aviation

There is strong cooperation between governments of India and US in the airport infrastructure sector as evidenced by the following statement:

> *We are also working with the AAI on its proposal to the USTDA to find the feasibility study of three target airports. These are Pondicherry, Tuticorin and Jharasguda which will be the focus of the joint effort of US business and the development of India's civil aviation infrastructure. I recognize these as very exciting opportunities in the airport infrastructure sector.*

Ms. Judy Reinke, Minister Counselor for Commercial Affairs,
US Embassy

Economic Growth

Business and GA are change agents acting as force multipliers in the economic growth. The duties for importing business and GA aircraft should be reduced so that a larger number of aircrafts can be imported and act as harbingers of change. This is supported by the following statement:

> *GA is also considered as a catalyst for the economic growth. Businesses that use GA are said to gain competitive advantage while the communities gain job opportunity and access to nation's extended air transportation system.*

Mr. E K Bharat Bhushan, Director General, DGCA

> *We'll add to economic growth, to GDP, government will collect taxes, you name it. The revenue which government expects to collect by this revenue, by this import duty, we are pretty confident that government will collect "x" number more times up of duty if they open this sector up.*

Rohit Kapur, President BAOA

Financial Crisis

An economic crisis tends to affect the small and medium scale companies much more as is evidenced by the following statement:

> *Small & mid-sized customers are less wealthy and are more affected by economic crisis.*
>
> **Toennies Von Limburg, Bank of America**

Foreign Direct Investment

For the MRO Industry to expand and flourish drawing from international experiences it is necessary that foreign investment comes in. This is supported by the following quotation:

> *There are foreign direct investments in MRO industry at the moment, but limited to very small stakes, because people want to test the waters.*
>
> **Mr. Pullock Sen, Chairman MRO India**

GDP

Once BA becomes the norm for corporate India its multiplier effects would be visible and contribution to GDP would be manifested in multifold ways. This is supported by the following statement:

> *BA should be allowed to grow legitimately as a business venture - that creates profits both tangible & Intangible whilst contributing to national GDP.*
>
> **Capt. Karan Singh, Vice President BAAI**

Globalization of Trade

The winds of change have reduced the world to a global village resulting in rapid growth of international trade. With supply chains expanding, BA is gradually becoming the norm. This is supported by the following statement:

One of the key drivers for growth of BA is globalization of trade.

Ashish Sharma, GE Capital

Increasing Disposable Income

The increased disposable income has also resulted in more people looking at BA as a means to further their businesses. This is supported by the following statement:

One of the key growth drivers is rising disposable income and booming economy.

Dhiraj Mathur, PWC

Increasing Market Demand

The demand for business aircraft has emerged due to need to connect to inaccessible places rapidly and comfort for purposes of business:

In India, business aircrafts have continuously evolved to meet the increasing market demands for speed and comfort and with a number of high net-worth individuals.

Dr Arjun Singh, Program Director US-India Aviation Cooperation Program

Investment

An investment in airport infrastructure tends to have a long payback period thereby limited number of private enterprise invest in such ventures. Governments should continue to initiate and develop such ventures. This is supported by the following statement:

Airport is capital intensive Industry and have long payback period.

DP Singh, Airport Authority of India

Liberalization

Liberalization of aviation sector has resulted in new business opportunities and new business models. This is supported by the following statement:

With the liberalization the Indian aviation sector the industry has been gone through a transformation with the entry of the several privately owned full service airlines and as well as low cost airlines.

Mr. E K Bharat Bhushan, Director General, DGCA

Linkage with Civil Aviation

Civil aviation tends to contribute to economic development in a number of ways to economic growth. This is supported by the following statement:

The linkage between the civil aviation sector and economic activity; and its catalytic impact on development is also well recognized In order to spur this growth it would be essential to continue to give top priority to infrastructure, to support this growth and address important issues like taxation, input costs, security, regulation of monopolies, environment as well as issues related to liberalization.

Mr. E K Bharat Bhushan, Director General, DGCA

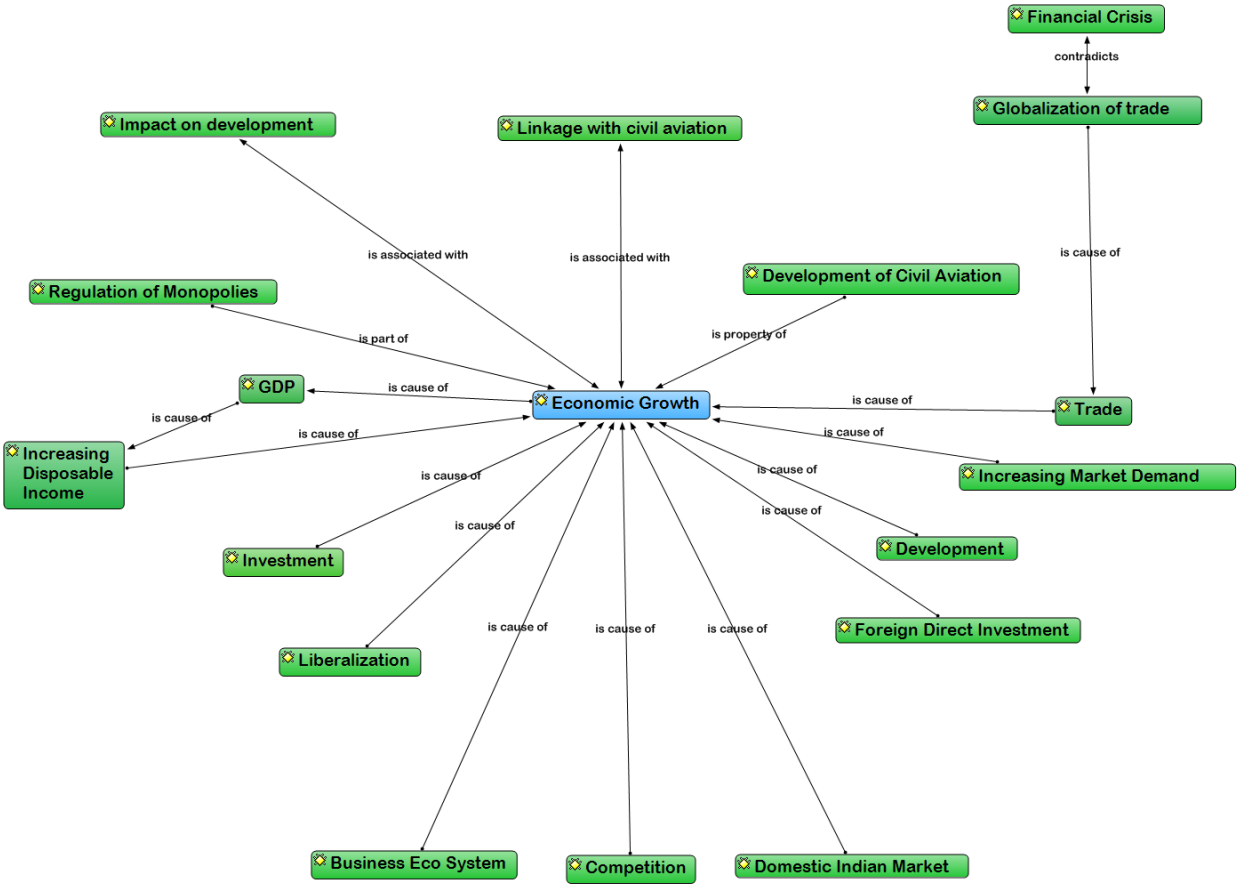
Trade

The rapid growth of international trade has to be supported by BA. This can be achieved by reducing the formalities which are encountered while flying a business aircraft into India. This is supported by the following statement:

Addressing the current climate for BA he is quoted as saying, "We are too conservative; we need to make it easier." Building on Mr. Jindal's point difficult access issues like clearance processing and airport formalities issues will limit international companies travel to India ultimately trade and investment goes trip free. I have seen it happen.

Mr. Lex Den Herder, Vice President, Government and Industry Affairs

Various elements related to Economic growth are networked in the following manner.



15. Exploration and Surveys

Discoveries and innovations are the hallmark of progress. Often these are made by individuals and organizations following a less beaten path. Expeditions to Antarctica, washing of the power lines or using advance techniques for mining potential of a newly leased mine often use business aircraft.

The codes for the category "Exploration and Surveys" are as follows:

Codes	Codes
Exploration	Pipeline Survey
Off shore operations	Power Transmission Line
Surveying	

Exploration

The quest for oil across the maritime boundaries of India has resulted in the need for exploration using helicopters flying on special missions. The need for these helicopters is supported by the following statement:

> *Another area of visible growth in India will be the oil and gas industry and in order to support exploration and development of new sources, there will be a need of longer-range helicopters and which ONGC and the Ministry of Petroleum is addressing.*
>
> **Dr Arjun Singh, Program Director, US India Aviation Cooperation Program**

Off shore operations

Both fixed wing and rotary assets are being used for off shore assignments in multiple roles. This is supported by the following statement:

> *GA facilitates emergency medical services, disaster management, offshore operations, scientific research and security as well as law enforcement.*
>
> **Dr Arjun Singh, Program Director, US India Aviation Cooperation Program**

Pipeline Survey

Pipeline surveys are conducted by helicopters to ensure that they are safe and not liable to break. This is supported by the following statement:

> *Helicopters conduct pipeline surveys as part of offshore and/or onshore missions for the Oil & Gas industry.*
>
> **Sylvain Marie, Eurocopter**

Power Transmission Line

The need to remove accumulated carbon requires washing of the pipeline through the downwash from helicopter blades. This is supported by the following statement:

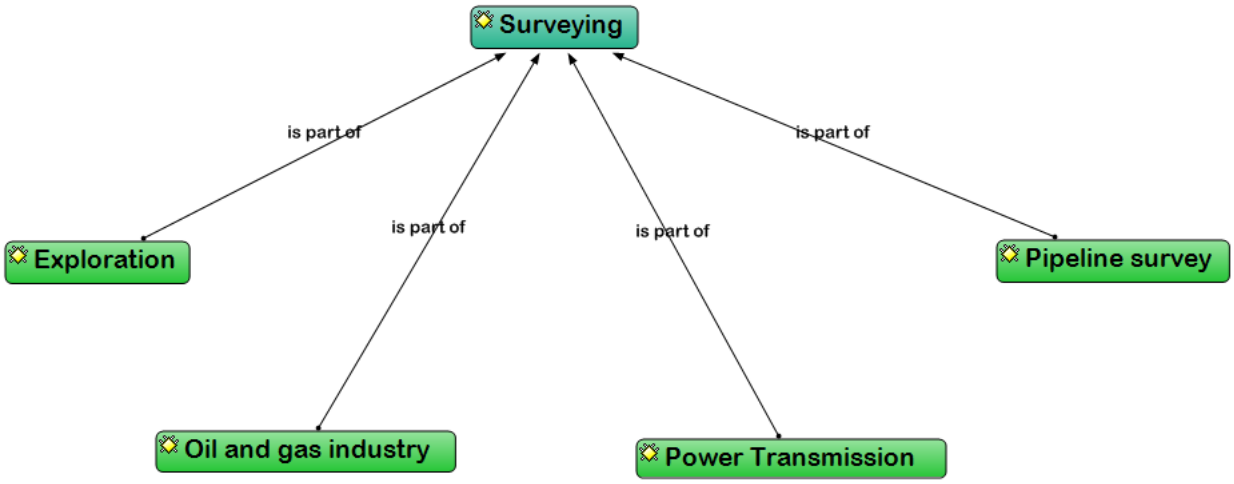
> *Washing of power transmission line is another important function for which these aircrafts are used especially in India.*
>
> **Capt. Karan Singh, Vice President BAAI**

Surveying

Surveying is one of the specialized functions performed by GA. This is supported by the following statement.

> *As per ICAO Annex -6 GA is defined as operations used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial development.*
>
> **DP Singh, Airport Authority of India**

Exploration and surveys are networked as per the following diagram.



16. Ground Handling

Ground Handling is one of the pivots over which BA balances. A good handler takes care of all the issues once an aircraft lands resulting in a low turnaround time. The codes for the category "Ground Handling" are as follows:

Codes	Codes
Ground Handling	Multiple Agencies
Handling and Support Services	

Ground Handling

Ground handling is an important function which supports BA by providing rapid turnaround. An aircraft operator should not only have an option to choose the ground handler but also know the charges for services performed in advance. This is supported by the following statement:

> *Ground handling, we want more transparency as to who are the people who have been authorized as ground handling agents at various airports. We found AAI in a return reply to a RTI says, we have not appointed any ground handling agents in any airports and when you go and land in Lucknow, there is somebody standing there saying that I am the ground handler and unless you pay me "X" amount of money I will not let your aircraft operate. There is a mismatch; here we want it to be transparent. I should be able to go to AAI website which should be able to tell me who was the ground handling agents, what are their charges. We need more transparency in the system.*
>
> **Mr. Rohit Kapoor. President BAOA**

Handling and Support Services

Handling and support services at the airport result in employment generation. This is supported by the following statement:

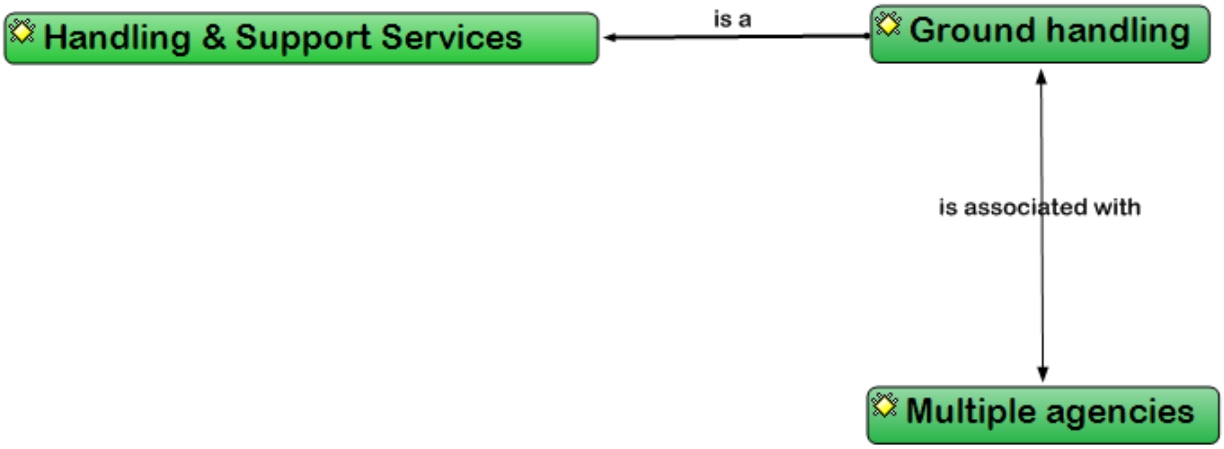
> *Handling & support services result in a lot of employment*
>
> **Capt. Karan Singh, Vice President BAAI**

Multiple Agencies

There is a need to increase the number of ground handling agencies as evidenced from the following statement:

> *Numbers of agencies for ground handling are extremely restricted*
>
> **Dr Arjun Singh, Program Director, US India Aviation Cooperation Program**

The following diagram connects the various elements together.



17. Input Costs

From an input perspective, one of the major costs is that of high cost of aviation turbine fuel. Different State governments charge different rates of sales tax resulting in an uneven cost regime for the fuel.

Codes reflecting the category are as follows:

Codes	Codes
Aviation Turbine Fuel	Input Costs
Higher Fuel Prices	OEM

Aviation Turbine Fuel

The escalating cost of jet fuel means that about fifty percent of input cost is merely fuel. The importance of aviation turbine fuel is established by the following statement:

> *In the year 2005, 4 billion passengers (10.5 m a day) handled by the world's airports, airlines and aircraft - 65% of global population, and all this against a backdrop of negative aspects such as terrorism, the second Gulf war, 9/11, SARS, avian influenza and soaring cost of jet fuel.*
>
> **Mr. Inderjit Singh, Associate Director & Head Aviation, India,**
>
> **URS Scott Wilson India Private Limited**

> *FBOs should be permitted to dispense fuel to GA aircraft as being allowed to Commercial airlines for direct import, under the new policy.*
>
> **Rohit Kapur, President, Business Aircraft Operators Association**

Higher Fuel Prices

Higher fuel prices are a constraint in growth of BA. This is supported by the following statement:

The negatives of course are difficult economics of business, higher fuel prices, constrained infrastructure, competition, archaic regulations like route dispersal guidelines, personnel guidelines and restrictions on recruitment of qualified and experienced expatriate pilots.

Foreign buyers are obviously looking at the high connectivity, strong brand and good management.

Mr. S K Sarkar, Regional President, IACC

Input Costs

Various Input costs have to be taken into account in order to calculate the cost of operations. This is supported by the following statement:

In order to spur this growth it would be essential to continue to give top priority to infrastructure, to support this growth and address important issues like taxation, input costs, security, regulation of monopolies, environment as well as issues related to liberalization.

Mr. E K Bharat Bhushan, Director General, DGCA

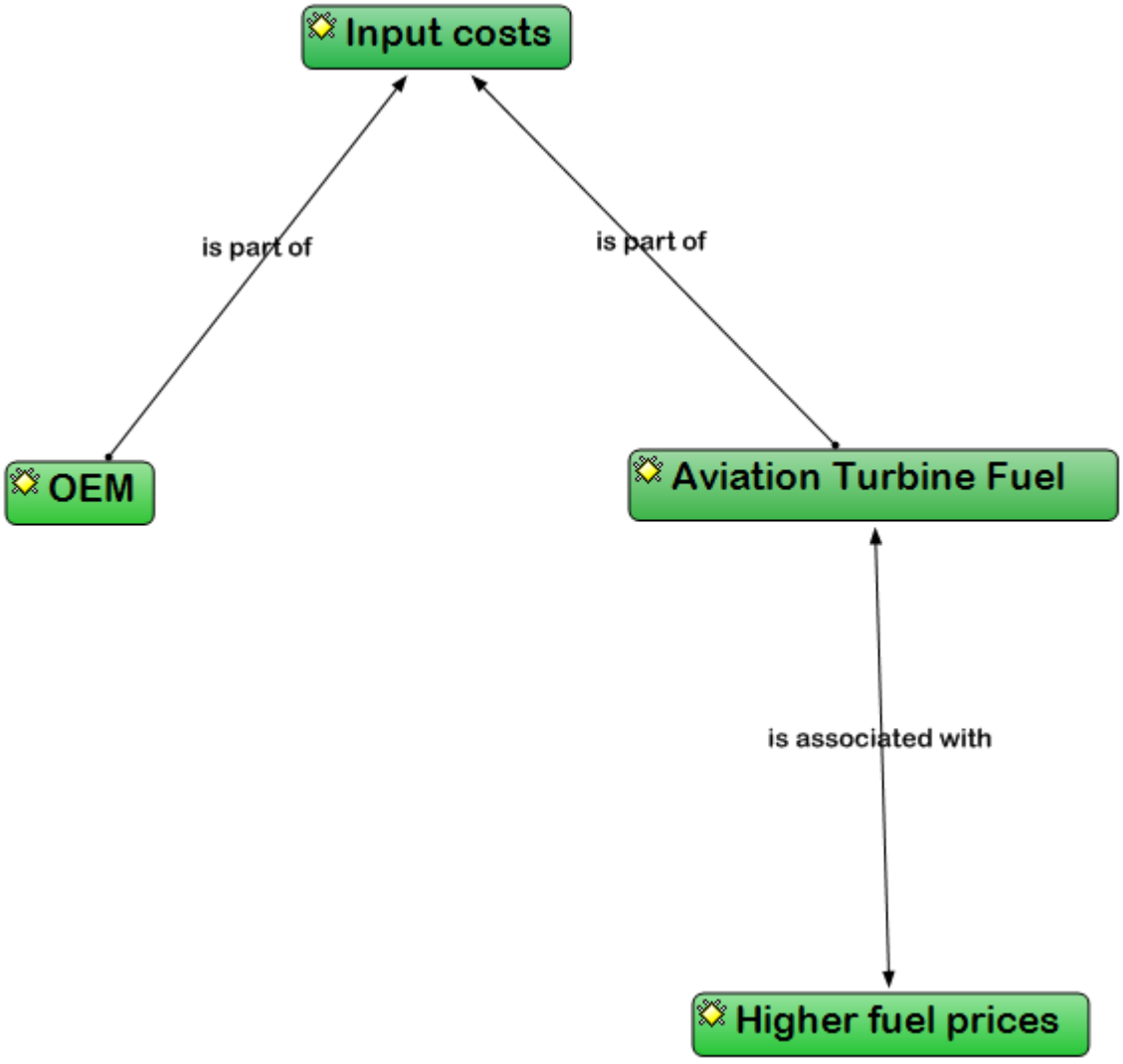
OEM

The selling price of an aircraft tends to higher due to a number of India specific factors. This is supported by the following statement:

These are the type of things you want to see, because now it's going to start linking something together, you know you can't do a presentation from an OEM's perspective without saying you were building an aircraft, a multi-million dollar aircraft in hundred thousand dollars. Number One, You are going to pay more for your aircraft when you are buying from India. Number two, if I am buying same aircraft from US, he is probably going to get the nod. And the reason is that we can't .Building an aircraft at very expensive venture, and you can't wait for 6 months to get rest of your money.

Mr. Todd Hattway, Regional Sales Director, India Hawker Beechcraft Cooperation

The various elements are connected as per the following network diagram.



18. Liability

Potential Liability during the operations of a business aircraft are always high and are typically covered through a system of Insurance. Codes for category "Liability" are as follows:

Codes	Codes
Liability	Litigation

Liability

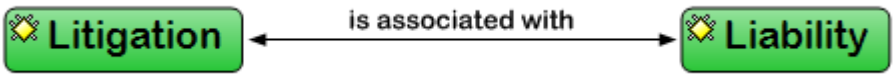
The vicarious liability of owner has to be insured through additional insurance. This is supported by the following statement:

> *Owner must be added as an additional insured for liability purposes*
>
> **Richard Gimblett, Partner, HFW Dubai**

Litigation

Disclosure of ongoing litigation is important during acquisition of an aircraft. This is supported by the following statement.

> *I was involved in acquisition, sale and lease back of 30 or 40 aircraft for an airline and this was spread over for obviously 3 years. Every time I use to issue the opinion for a delivery, there used to be disclosure schedule, disclosing various litigations and relations to the company and right until the last aircraft. Every time I would get a question that you compare this with first delivery and the status of the case is same.*
>
> **Atul Sharma, Legal Alley**



19. Media

Business aircraft play a crucial role in today's media by not only gathering but also transmitting live images from far off locations. Gathering of news at the place of incident and broadcasting as a live feed is an important function of helicopters. . Codes for the category "Media" are as follows:

Codes	Codes
Electronic News	Photography
Media	

Electronic News

Gathering of news from far off places at the place of incident and broadcasting as a live feed is an important function of helicopters:

Helicopters performing missions like Electronic News gathering as a commercial service.

Sylvain Marie, Eurocopter

Media

Media uses helicopters to reach difficult location. This is supported by the following statement:

Business aircraft can be used by media in reaching difficult locations quickly.

Rohit Kapur, President, *Business Aircraft Operators Association*

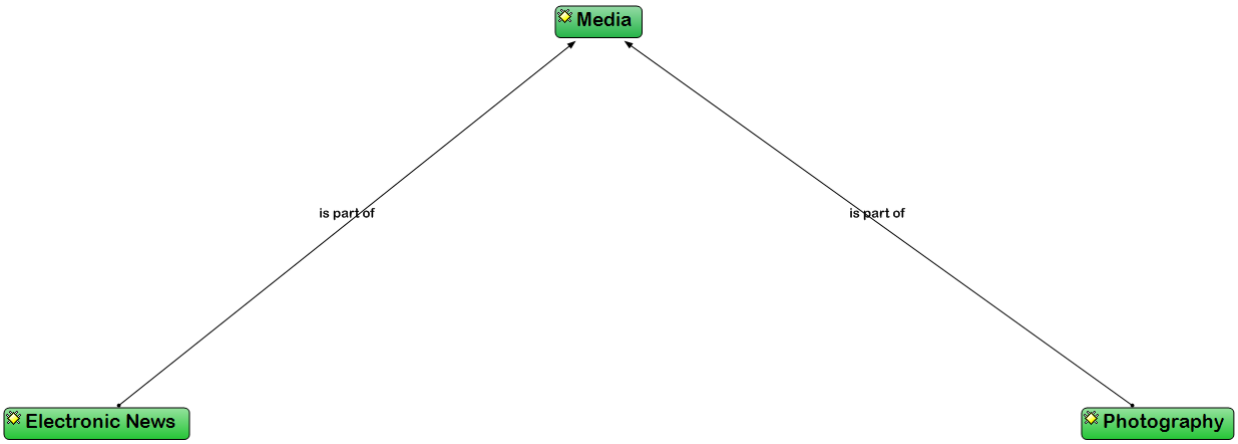
Photography

Aerial photography is an important function performed by helicopters. This is supported by the following statement:

Aerial photography is another use of business aircraft.

Capt. Karan Singh, Managing Director Business Aircraft Operators Association

Various codes are connected through a network diagram for the category media.



20. Medical Services

Business aircraft can play a vital role in the advancement of medical services across the country. The linkage between primary, secondary and tertiary hospital using a business aircraft can save lives especially during the golden hour. As a device for disaster management its role was seen during the onslaught of Hurricane Sandy. Codes for category "Medical Services" are as follows:

Codes	Codes
Disaster Management	Medical Evacuation
Emergency Evacuation	Medical Services
Emergency Medical Services	Medico Tourism

Disaster Management

Helicopters play a major role in disaster management and the National Disaster Management Authority will coordinate with DGCA in any such eventuality. This is supported by the following statement:

> *Tourism and Medical evaluation is to be promoted through National Disaster Management Authority (NDMA), National Health Insurance (NHI) and by roping in insurance companies; to develop helipads and major government and private hospitals, separate wings for the helicopters to be created in DGCA and AAI which has already been done.*
>
> ***Mr. Pawan Kumar, Dy. Director, DGCA***

Emergency Evacuation

Business aircraft can also be used in emergency evacuation as happens during various tornados and storms. This is supported by the following statement:

> *Business aircraft are also used for emergency evacuation.*
>
> **Capt. Karan Singh, Managing Director Business Aircraft Operators Association**

Emergency Medical Services

Helicopters provide emergency medical services and have proved to be more cost effective as compared to fixed wing:

> *The field of emergency medical services operated by helicopters is also emerging as a very important growth area. In terms of fixed wing business jets, statistical studies indicate that generally they are more cost effective than commercial services and hence there is the potential.*

Dr Arjun Singh, Program Director, US India Aviation Cooperation Program

Medical Evacuation

The time taken to evacuate a person under emergency is much less as compared to by road. This is supported by the following visual illustration:

Sylvain Marie, Eurocopter

Medical Services

Helicopters tend to play a major role during the golden if they are equipped with necessary medical equipment as evidenced by the following statement and illustration:

> *Helicopters play a major role in medical services especially during the golden hour.*

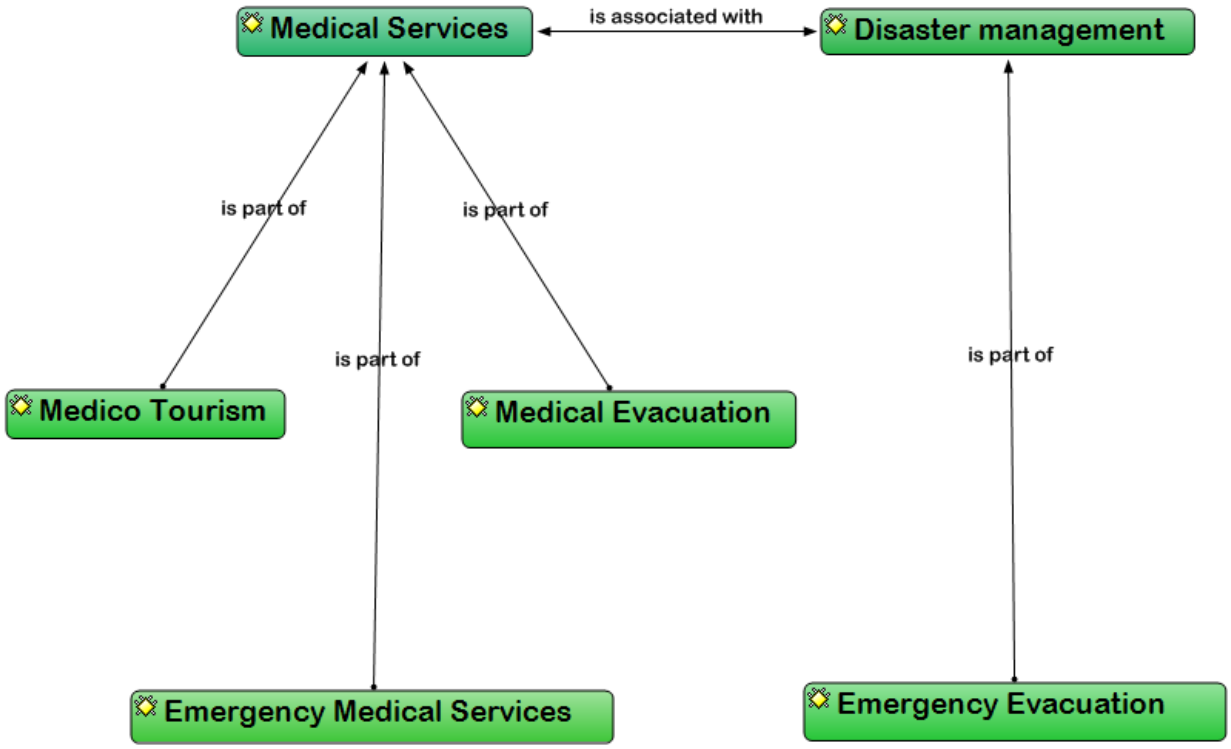
Sylvain Marie, Eurocopter

Medico Tourism

India, of late has become a center for medical tourism with its network of quality hospitals and lower cost as compared to places like US and Canada. This is supported by the following statement:

> *AAI has undertaken development at about 62 airports covering state capitals, places of tourist interest and airports with specific catchment area (Medico tourism etc.).*
>
> **GK Chaukiyal, Airport Authority of India**

This network connects the various elements of the category, “medical services” together.



21. Maintenance, Repair and Overhaul

Maintenance, Repair and Overhaul (MRO) is a function which is crucial for flying a business aircraft. Without this crucial function flying operations could come to a standstill.. Codes for this important category are as follows:

Codes	Codes
Component Overhaul	MRO
Differential Taxation for MRO	No Exemption
Growth of MRO Segment	Service Tax
Importing Spares	Maintenance

Component Overhaul

Component overhaul is a major element of MRO business and there is an urgent need to keep costs low through the duty structure. Cost advantage in India is gradually getting lost. This is supported by the following statement:

> *Component overhaul, my company is looking and trying what we can do to try and prevent all these components going out of India, being repaired elsewhere. What we can do to keep them in the country? Needless to say, that we are also running into the problem of tax and so forth. I think the way forward for us, is to take our own component and that starts opening up the field to pull components from outside, as long as we can keep our costs, so that there is a significant difference. The costs are creeping up so that they are comparable with the Middle East, OEMs in US or Europe; then I think; that we have got real issues.*
>
> **Mr. Mike Meyer, CEO, Indocopters Pvt. Ltd**

Differential Taxation for MRO

Customs duty on spares is different when spares are imported for an airline as compared to the imports done for MRO itself. This is supported by the following statement:

> *The imposition of the custom duty is particularly unusual, because Indian airlines importing spares are exempted conditionally. If an MRO is doing work for an airline industry and the airline*

imports the spares that are required, airline is not charged any custom duties, whereas the MRO if it does import for any other private operator or BA aircraft it is charged custom duty. Currently no exemption is provided from service tax on taxable services which include maintenance and repair provided to the aviation sector.

Mr. Pullock Sen, Chairman MRO India

Growth of MRO Segment

There is a huge potential growth in the MRO segment as evidenced by the following statement:

Indian commercial aviation MRO business is around $700 million per annum, with a potential to grow US $ 1.2 billion in 2020.

Mr. Pullock Sen, Chairman MRO India

Importing Spares

All duties combined tend to have a large impact on the cost structure of the spare parts. This is supported by the following statement:

Importing spares involves custom duties of up to 18% plus value added tax of 12.5% and octroi of 5.5%, totaling about 41% or there about.

Dr Arjun Singh, Program Director, US India Aviation Cooperation Program

Maintenance

When an aircraft is maintained in India, it tends to provide employment opportunities. This is supported by the following statement:

Maintenance tends to provide direct employment.

Capt. Karan Singh, Vice President BAAI

MRO

Maintenance, Repair and Overhaul is a primordial support function and will grow in times to come as evidenced by the following statement:

> *The opportunity to provide maintenance, repair and operations (MRO) activities will grow with the industry*
>
> **Dhiraj Mathur, PwC**

No Exemption

There is a need to provide some exemptions to assist the fledgling industry. This is supported by the following statement:

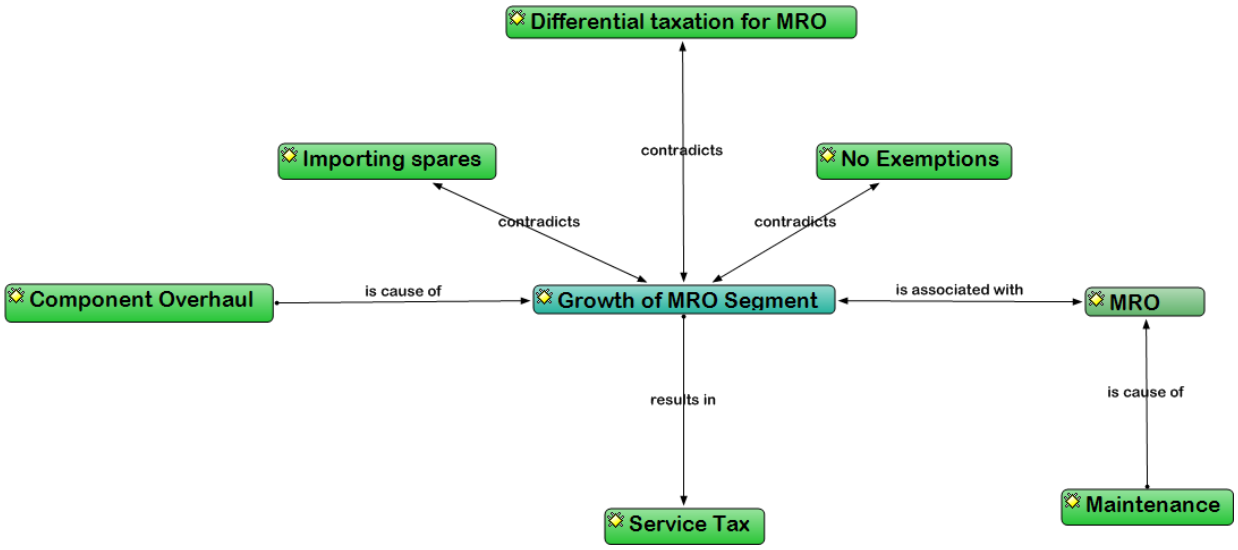
> *Currently, no exemption is provided for service tax on taxable services which include maintenance and repair provided in the aviation sector. Moreover general concessions are not currently provided on VAT and CST laws.*
>
> **Dr Arjun Singh, Program Director, US India Aviation Cooperation Program**

Service Tax

Service tax is charged in India for servicing an aircraft in India while it is absent internationally. This is supported by the following statement:

> *For instance, servicing an aircraft in India, would entitle service tax of 10.3 %, overseas MROs do not charge this.*
>
> **Mr. Pullock Sen, Chairman MRO India**

The following network diagram connects the various elements of MRO together.



22. Operations

The heart of BA is aircraft operations which are dependent upon regulatory, planning and operational issues. Filing of multiple flight plans is absent at the moment and should be encouraged. Codes for this category are as follows:

Codes	Codes
Flight Inspection Directorate	Operational Agility
Flight Plan	Inappropriate aircraft

Flight Inspection Directorate

There is a shortage of flight examiners with appropriate qualifications and experience. This is supported by the following statement:

> *Of course shortage of examiners, we don't know why the Flight Inspection Directorate (FID) is so short of examiners while the country is over flowing with underemployed pilots? So need to have a look at it. The policy of only is having FID from Air India and Pawan Hans needs a relook.*
>
> **Mr. Rohit Kapoor. President BAOA**

Flight Plan

Filing of multiple flight plans is absent at the moment and should be encouraged. There are technologies which would support this. This is supported by the following statement:

> *Multiple leg flight plans is again a major issue with people. I want to fly A to B to C to D. I have to file a flight plan at every leg. I have to get off, as a pilot, on every leg, go and report to every ATC, pay my landing fee and parking fee at that ATC, come back to my aircraft startup again, why can't I get my clearance for A at A B C D. I can't still figure it out, what are the major issues there?*
>
> **Mr. Rohit Kapoor. President BAOA**

Inappropriate aircraft

Mission of the aircraft is a critical parameter in selection of the aircraft. This is supported by the following statement:

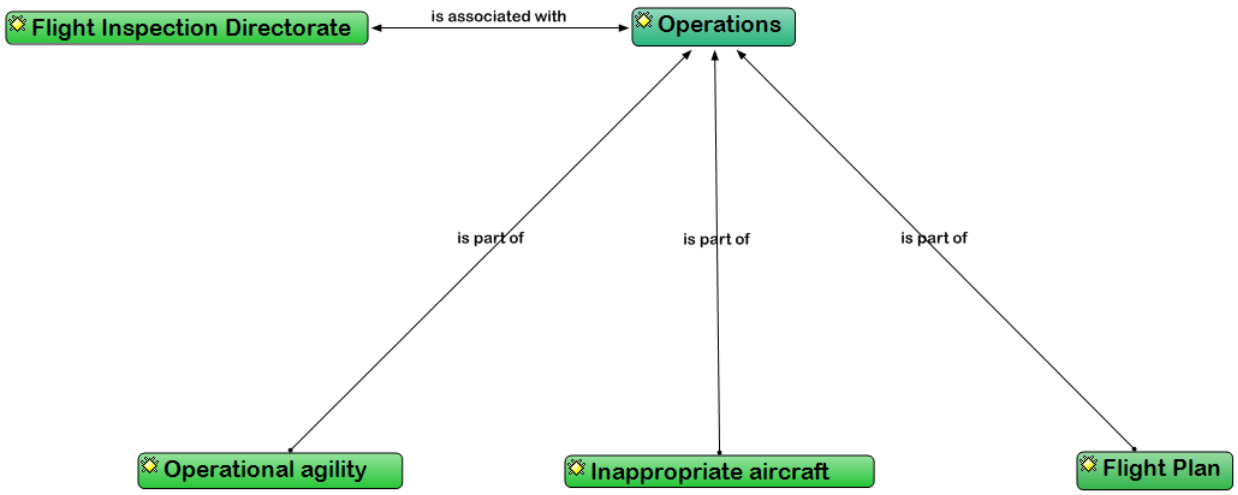
> *Aircraft selection is often guided by brokers that do not base advice on careful understanding of mission requirements and often select inappropriate aircraft.*
>
> **Kapil Kaul, CAPA**

Operational Agility

Operational agility is important to retain competitive advantage. This is supported by the following statement:

> *Finding a niche in the airport industry is to remain competitive. Focus on tapping connectivity between tier-II and tier-III cities. That's where the business of GA will come up in a big way. Expanding customer reach to increase passenger numbers, instilling operational agility and streamlining cost competitiveness. Operational agility is probably most important. I had this opportunity of working at the Delhi Airport and we were exposed to the several operational things and we thought there was a lot of duplicity.*
>
> **Mr. Inderjit Singh, Associate Director & Head Aviation, India,**
> **URS Scott Wilson India Private Limited**

Elements of the category, “Operations” are networked in the following manner.



23. Passenger Transportation

A major area for BA is that of transportation of passengers to remote locations reliably. Codes for the category, "passenger transport" are as follows:

Codes	Codes
Harbor Pilot Transportation	VIP Travel
Passenger Transportation	

Passenger Transportation

Passenger transportation is a fundamental need and rationale for BA. This is supported by the following statement:

> *In Aerial Work, the Helicopter can be a profitable multi-function tool and is used in rescue, passenger transport and internal cargo.*
>
> **Sylvain Marie, Eurocopter**

Harbor Pilot Transportation

Large maritime vessels need the specialized knowledge of the harbor pilot to bring the vessel to the dockyard. The harbor pilots are flown out to sea in order to assist the master to bring the ship in. This is supported by the following statement:

> *Helicopters performing missions in the form of a paying service like transportation of harbor pilots.*
>
> **Sylvain Marie, Eurocopter**

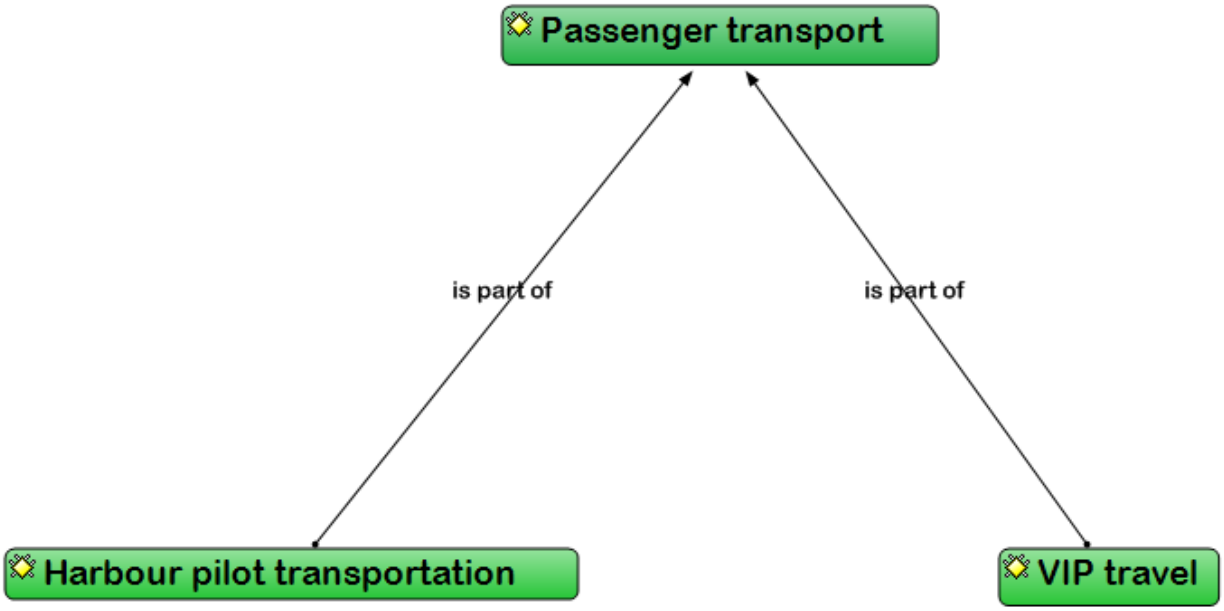
VIP Travel

Business and political leaders tend to use business aircrafts to connect to their stakeholders across a diversified terrain. This is supported by the following statement:

In a rapidly growing economy increasing reliance on air transportation and diversified terrain are all pushing the Indian helicopter market to develop at a very fast pace. It is expected that the commercial sector of corporate and VIP transport will also grow rapidly.

Mr. E K Bharat Bhushan, Director General, DGCA

Passenger transportation is connected to its elements as per the following network.



24. Policies and Procedures

BA is a heavily regulated sector with multiple governmental agencies stranding over multiple regulations. With the winds of change blowing across the sector there is a gradual easement of the stringent governmental oversight. Business travel tends to happen at short notice and red tape results in business travel not happening in a large number of cases. Codes for the category "Policies and Procedures" are as follows:

Codes	Codes
7 Day Rule	Policies and Procedures
AOC	Procedural Issues
Certification	Reduction in Time Requirement
Clearance of Foreign Registered Aircraft	Simplify Procedure
License	Slow Clearance Procedure
Multiple Agencies	Special Approval Process

7 Day Rule

Business travel tends to happen at short notice and red tape results in business travel not happening in a large number of cases. This is supported by the following statement:

> *It is difficult access issues like clearance processing and airport formalities issues which limit international companies comes to India. DGCA needs a seven days' notice for an international company required to come to India, which needs rationalization.*
>
> **Dr Arjun Singh, Program Director, US India Aviation Cooperation Program**

Air Operations Certificate

There is a need a do away with the distinction between scheduled and non-scheduled operators. The time has come to introduce AOC (small aircraft), AOC (medium aircraft) and AOC (large aircraft). This is supported by the following statement:

Operation by a third party AOC holder would result in change in the management and insurance structure.

Richard Gimblett, HFW Dubai

Certification

The idea of a product certification which would be acceptable mutually by different regulatory regime is a great step. The following quotation supports the above:

The third area is the US-India strategic dialogue itself. A key deliverable of the India-US strategic dialogue held last June was the signing of the executive agreement portion of the Bilateral Aviation Safety Agreement (BASA), which we all know is BASA. BASA provides for reciprocal inspection and certification of aerospace products and allows for mutual recognition by DGCA and FAA, a big step forward in creating a more cost effective mechanism for procuring products in India and ensuring increased trade between the two countries.

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy

Clearance of Foreign Registered Aircraft

Due to lack of aviation infrastructure at a regional level, foreign registered aircraft have to land at civil enclaves. The need to seek permission 30 days prior is an oxymoron and should be rationalized. This is supported by the following statement:

We see no reason in why it needs to take 30 days for a foreign registered aircraft to land in a defense airport with a civil enclave. He's got nothing to do with the defense part of the airport. People are coming in and going out in defense enclave which is totally different. So why would it take 30 days. I am sure there are certain security requirements in there. But they need to decentralize it give it to the local commanders, who you can probably pick up the phone and call the naval base commander there in or just apply to him on-line and get your clearance.

Mr. Rohit Kapoor. President BAOA

License

There is a need to introduce a new category called, "BA" in the licensing schema of the regulator as it serves a different and distinct segment. This is supported by the following statement:

> *BA is totally different from the commercial airline business fact. We need to make distinctions where appropriate facilities I will not go into that a separate license or approval to handle BA. The license such required to handle an airline should not be the same thing that is required to handle a business aircraft that is something totally different. That is what rest of the world does. It is a separate type of operation.*
>
> **Mr. Lex Den Herder, Vice President, Government and Industry Affairs, Universal Weather & Aviation Inc.**

Multiple Agencies

The existence of multiple agencies playing different roles on the same subject matter makes coordination difficult. This is being supported by the following quotation:

> *Our concern at the moment obviously is that there are various players in this sector, Ministry of Civil aviation, DGCA. We find there is lot of cooperation between civil aviation and DGCA they are hearing us, they listen to us had special session with us. The concern which is coming out we are not getting attention of some of the other players like the Ministry of Finance who see it from a very different point of view and I like to think that probably there is a difference of view between two ministries themselves, as to how to approach this problem. So this is at the government level, we need to I think raise the stakes little higher rather than only at the ministry of civil aviation we need to start looking at it in larger picture.*
>
> **Mr. Rohit Kapoor. President BAOA**

Policies and Procedures

Civil aviation policy in India has concentrated only on the scheduled carriers and has neglected GA which has wider economic and social ramifications. This is supported by the following statement:

But so far the aviation in this country is concerned I believe it is time that the GA also get its due because all the policies, guidelines are currently and in fact for the last many years have been driven by the requirements of the scheduled carriers. And it is time that we really move from a position of just taking care of scheduled carriers because everything in scheduled carriers is substantially more or less standardized and GA also has a much wider implications for the business and industry as a whole.

Mr. Atul Sharma, Past Regional President IACC

Procedural Issues

Procedural issues tend to reduce the flexibility inherent in BA. This is supported by the following statement:

If I want to take a flight, how much time you would take to clear the flight. Mr. Ricky said three days. If he had asked this question somewhere outside, the answer would be two weeks. Because seven working days' notice is required, this means ten days total. It is not that, it just that it is the cooling period; not that any value addition or processing time is needed for that. But I can assure you that based on the input he has given; at a very high level at the government, the matters are being reconsidered.

RP Sahi, Advisor DGCA

Reduction in Time Requirement

A reduction in time required for various approvals would be advantageous. This is supported by the following statement:

There is a need to reduce the time requirements for landing and over-fly approvals

Dr Arjun Singh, Program Director, US India Aviation Cooperation Program

Simplify Procedure

A need to simplify procedures is required across various ministries as new business models evolve. This is supported by the following quotation:

There is a need to have an industry specific approach by simplifying procedures not just in aviation but also in home, finance, defence as new management and fractional models evolve.

Capt. Karan Singh, Vice President, BAAI

Slow Clearance Procedure

The delay in custom clearance tends to defeat the purpose and the aircraft remains on ground for a longer time. This is supported by the following statement:

Custom duty and slow clearance procedure put yet another spoke in the process of MRO sector and also the aviation Industry in India. Custom clearance can take between 3 to 10 days if one is lucky and defeats the requirement of AOG. You can have an aircraft on Aircraft on Ground (AOG) and customs doesn't clear it.

Dr Arjun Singh, Program Director, US India Aviation Cooperation Program

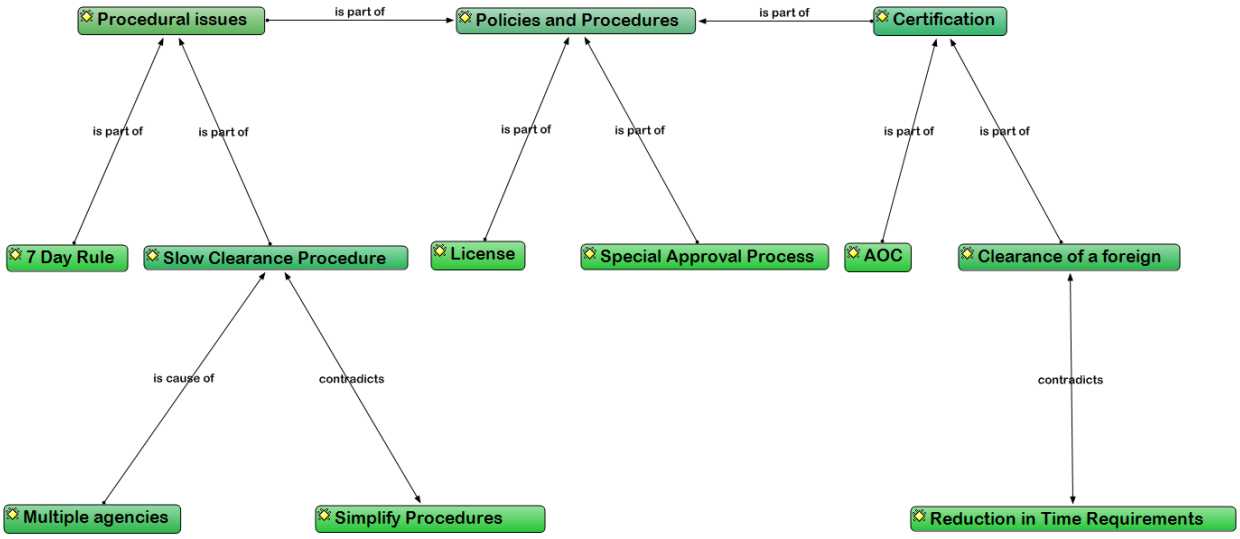
Special Approval Process

Aircrafts take a long time to build and every time a special approval is required. A standard process could be evolved to make the process simpler. This is supported by the following statement:

RBI as most of you know regulates remittances and their main concern is to make sure that remittances go out of the country are against the import that comes in. So if Todd is building an aircraft or helicopter for you in U.S, he may want some advance payment as he requested. The RBI wants you to bring in a good that counter balances those remittances and we get into complications because there is a lag time to build planes. So you may have 6 to 9 months or may be a year to build these planes sometimes, you have to go through a special approval process with RBI, to get that special type of clearance. So for us as a Financer who sometimes does construction finance, we have to make sure not only our customer has RBI approval in place, but they have told RBI that we are not sending the money out, our financier is sending out the money.

Ms. Nisha, Legal Counsel, GE Capital

Policies and procedures are networked with their codes as per the following diagram.



25. Productivity

Business Aircraft as a tool of productivity is already established in mature markets like US. In India there seems to be a gradual shift and a change in the mindset towards the same and away from it being considered a rich man's toy. GA is a pillar of American transportation system connecting people and places. Codes for the category "Productivity" are as follows:

Codes	Codes
Critical for Business	Hub and Spoke
Employment	Productivity
Flexibility of workday	

Critical for Business

GA is a pillar of American transportation system connecting people and places. This is supported by the following statement:

> *In US, GA is an essential part of our transportation system and that is especially critical for individuals and businesses for both who need to travel and move goods quickly and efficiently in our just in time market.*
>
> **Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy**

Employment

BA is a source of employment. This is supported by the following quotation:

> *BA is an emerging catalyst for employment.*
>
> **Capt. Karan Singh, Vice President BAAI**

Flexibility of workday

BA assists people in planning their day and ensuring work life balance:

> *Predictability of itinerary & flexibility of work day is an intrinsic advantage of BA.*
>
> **Capt. Karan Singh, Vice President BAAI**

Hub and Spoke

Hub and spoke model is suitable to scheduled airlines using large aircraft. Business and GA using small aviation assets tend to find a point to point system more suitable. This is supported by the following statement:

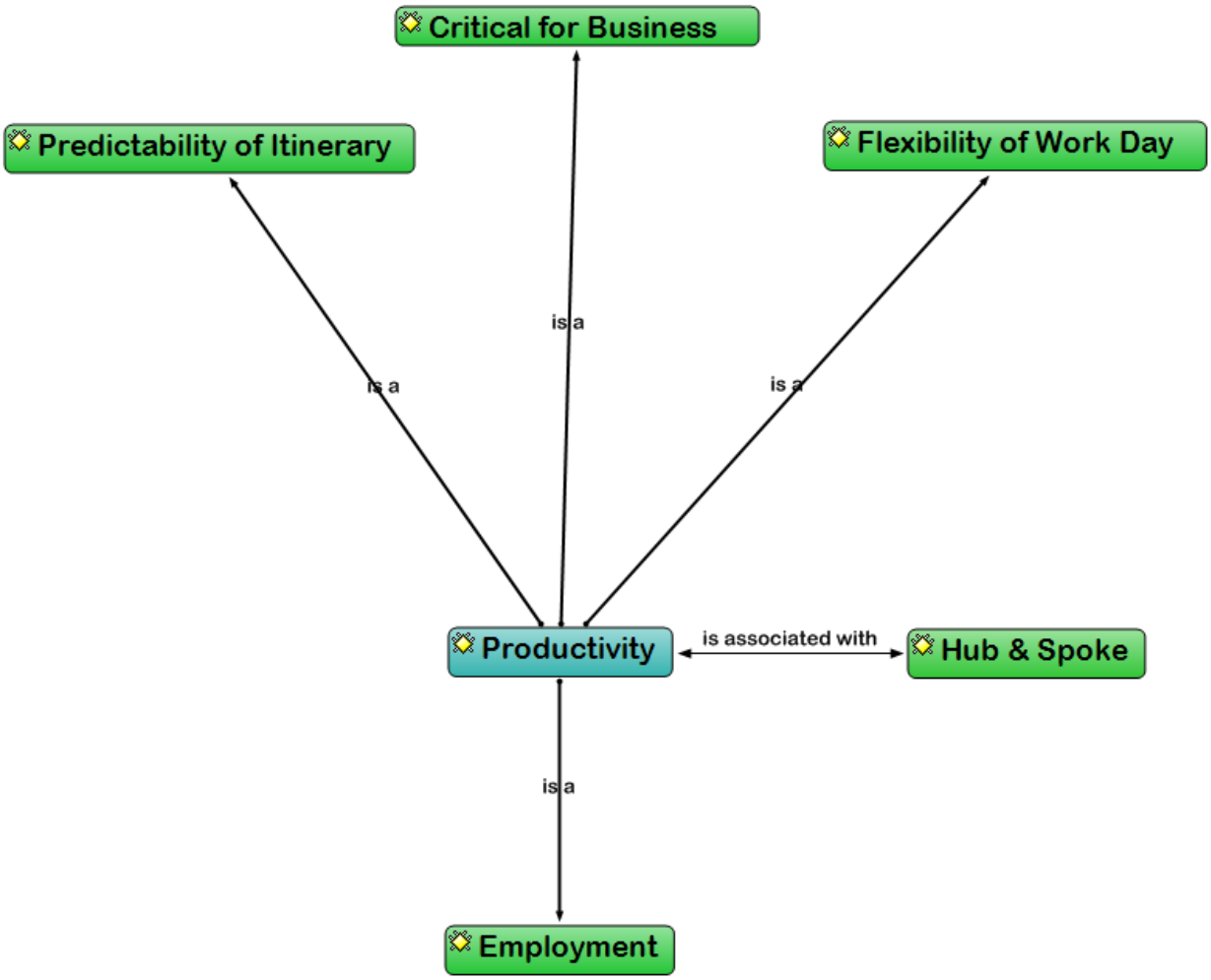
> *We can actually think of selecting point-to-point versus hub and spoke development. Our metro airports are on hub and spoke so we could possibly go for point- to-point as that becomes cheaper, small aircrafts can fly on those routes. Traffic strategies should be made in consultation with low-cost carriers. Now we build airports not having any dialogues with airlines. I think airports and airlines are two sides of the same coin.*
>
> **Mr. Inderjit Singh, Associate Director & Head Aviation, India,**
>
> **URS Scott Wilson India Private Limited**

Productivity

Business aircraft enhances productivity. This is supported by the following statement:

> *Business aircraft is no more a luxury but a tool for enhancing productivity*
>
> **Ravi Radhakrishnan, Reliance Infrastructure**

Productivity is connected to its elements as per the following network



26. Public Services

Business aircraft has also contributed to public services as a backup to national air transportation system in case of a national emergency. Codes for the category "Public Services" are as follows:

Codes	Codes
Fire Fighting	Search and Rescue
Law Enforcement	Volunteer Transportation
Observation and Patrol	

Fire Fighting

Helicopters play a vital role in firefighting. This is supported by the following quotation:

> *Helicopters are used to provide public services like firefighting by government to its citizens for the benefit of the community.*
>
> **Sylvain Marie, Eurocopter**

Law Enforcement

Economic development of India also has its underbelly of crime where airborne law enforcement becomes critical. This is supported by the following statement:

> *The 3rd group is going to come up with regulations for airborne law enforcement thus on-line of homeland security which is done on-line somewhere in the west.*
>
> **Mr. Pawan Kumar, Dy. Director, DGCA**

Observation and Patrol

Observation and patrol especially of the vast maritime boundary is part of GA. This is supported by the following statement:

Anyhow GA has basically different problem than scheduled operations. As per ICAO Annex -6 GA is defined as operations used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial development.

DP Singh, Executive Director, Airport Authority of India

Search and Rescue

Search and rescue mission in a congested area is possible through the use of helicopters. This is supported by the following statement:

One of the advantages of a helicopter is its ability to rescue in a congested area.

Sylvain Marie, Eurocopter

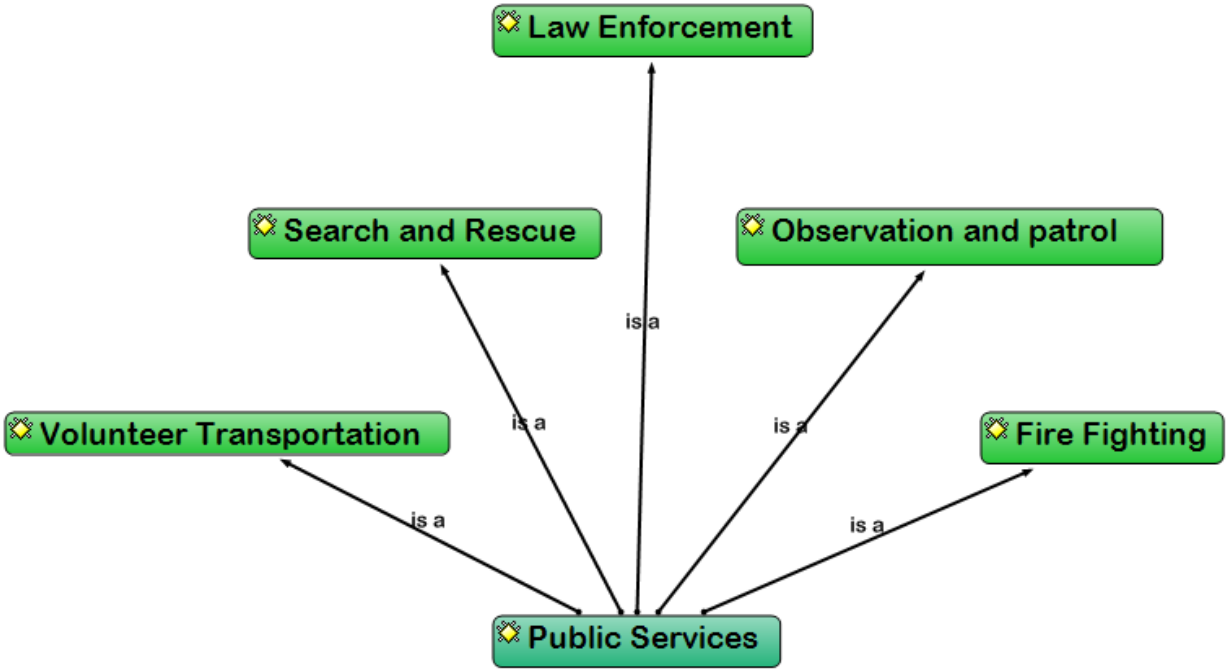
Volunteer Transportation

Transportation of volunteers quickly to a disaster prone area is an inherent advantage. This is supported by the following statement:

Transportation of volunteers to the areas of a disaster is an inherent advantage.

Capt. Karan Singh, Vice President BAAI

Public services is connected with its elements as per the following network



27. Potential for Growth

Growth of BA is a cardinal theme emerging out of the analysis as a result of triangulation of data. The emerging theme of "Potential for Growth" of BA is related to nine codes as listed below:

Code	Code
Attractive Opportunities	Growth of BA
Millionaire	High Net worth Individuals
Business Jet Fleet	Jobs
Demand for Business Jet	Strategic Plan
GA Potential	

Attractive Opportunities

Discussions with Industry experts as well as reports have indicated that Indian BA sector is poised for growth. In fact world over India stands only second to China from a growth perspective. Developed markets like the US and Canada have matured while in India it is a sunrise industry. The opportunities for growth in this market are large and would result in a substantial growth in the fleet size. The representative quotation is produced below:

> *"India's GA sector has tremendous opportunities and has projected that the industry could see new aircrafts sales that are business jets, helicopters, turboprops and piston engines of up to US dollar 12 billion over the next decade. By that time the fleet is expected to touch 2000 aircrafts".*
>
> **-E K Bharat Bhushan, Director General, DGCA**

GA Potential

The potential of GA to contribute to the national economy is established by the following quotations:

"As per Airbus and Boeing forecasts Indian domestic market is the fastest growing market in next twenty years".

Yashwant Bhave, Chairperson AERA

"The reason for the rise in demand for GA is that the aircraft are no longer seen in this country as a luxury but it as a tool for increase in productivity. There are tremendous opportunities for partnerships in areas of technology, raw materials, development capabilities, international airworthiness certifications, developing skills and financing. GA supports jobs and economic growth in both our countries and the US Government will continue working with our counterparts in Government of India and cooperative organizations such as IACC to ensure the US capabilities are brought to the market in support of India's future".

Mr. E K Bharat Bhushan, Director General, DGCA

"The vast size of the country, with varied terrain and often poor surface transportation makes it an ideal market for air connectivity".

Kapil Kaul, CAPA

Millionaire

The number of millionaires across the world increased at a rapid pace contributing to the growth of BA. The representative quotation is as follows:

"World millionaire numbers have rebounded to 9.5 Million over $1 Million and 95,000 over $30 Million towards the end of 2007."

J Philip Jordan, Business Air International

High Net worth Individuals

The population of HNIs and billionaires worldwide is increasing and there is an increased demand for BA. BRIC nations have seen the growth of billionaires the quickest. As the Indian economy grows, the HNI segment and companies have expressed their keenness to buy business aircraft. The representative quotations are produced below:

"India's growing roster of HNIs and Corporates keen to buy business aircraft"

-Ravi Radhakrishnan, Vice President, Reliance

"The population of HNWI is growing in the Asia Pacific region".

Jose Eduardo Costas, Embraer, Vice-President Sales & Marketing,

Asia Pacific, Embraer Executive Jets

Business Jet Fleet

Business Jets are increasingly used for business and commerce shrinking the world. The increase in the fleet can be understood by the following statements:

"The global business jet distribution across all OEMs is about 18500 aircraft".

Jose Eduardo Costas, Embraer, Vice-President Sales & Marketing, Asia Pacific, Embraer Executive Jets

"The business jet fleet has growth dramatically over the last 5 years from 26 in 2005 to 127 in 2011. The growth has continued strongly during the global downturn of 2008/09.The growth has been driven primarily by private corporate aviation rather than commercial charters - growth could have been even faster if commercial charters had taken off".

Kapil Kaul, CAPA

Demand for Business Jet

This growth in BA has led to a surge in demand for business jet creating a market both for new and pre-owned market. The representative quotation is reproduced below:

"The demand for business jets in the country is expected to go up by more than 10% a year in the next decade. In India, business aircrafts have continuously evolved to meet the increasing market demands for speed and comfort and with a number of high net-worth individuals. No doubt the

business jets market will increase and jet manufacturers will be intensifying their efforts to sell more aircrafts in the country".

- **Dr. Arjun Singh, Program Director, US- India Aviation Cooperation Program**

-

Growth of BA

In fact in India, the mindset is gradually changing and hassle free status of BA is contributing to the growth. The following quotation establishes the point:

"Asia is now the leader in business aircraft purchases and more new investment and business aircraft will come from Asia. More than 50% of business aircraft are now sold to the international marketplace. China and India are the leaders".

Mr. Lex Den Herder, Vice President,

Government and Industry Affairs, Universal Weather & Aviation Inc.

"Maximum use of BA is seen in the chartered business in India, tourism as well as off-shore operations. GA in India is a niche market, especially since it is relatively hassle free and has instant availability status. The value of additional benefits of private aircraft is that it can fly to destinations, which are not normally covered by the scheduled airlines and have access to smaller airstrips".

-E K Bharat Bhushan, Director General, DGCA

Jobs

Jobs as a result of growth of BA have contributed to economic growth as can be understood by the following statement:

"It supports 1.2 million jobs and over 115 billion dollars is contributed to US economy each year through this segment alone".

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy

"We have been talking about it that this is not something which is for luxury, it is a tool for economic *growth, it allows you to reach communities, grow jobs, adds to the Gross Domestic Product (GDP)".*

Mr. Rohit Kapoor. President BAOA

Strategic Plan

Government of India understands how GA can become a driver of economy and needs to devise a suitable policy for converting thought into action. Following statements establish the point:

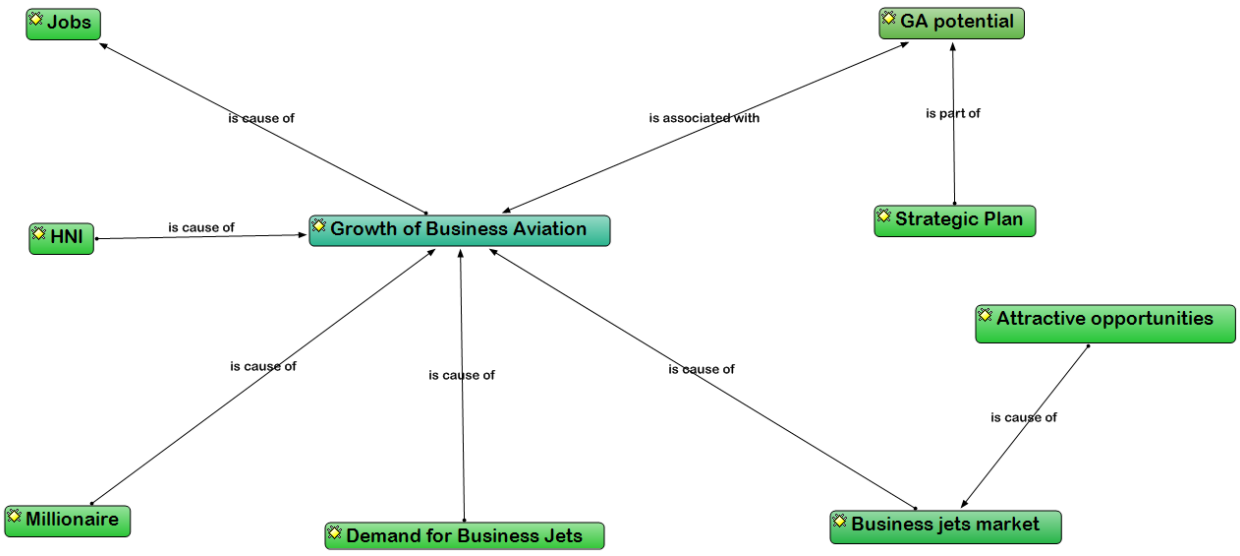
"GA has been given a prime place in strategic plan by the government".

Mr. Pawan Kumar, Dy. Director, DGCA

"There is need for a strategic plan at the national level to plan for GA infrastructure growth in the country".

Rohit Kapur, President, Business Aircraft Operators Association

The following network diagram depicts the relationship of this code family with other codes.



28. Regional Airports

Regional Airports play a vital role in the economic development of the country. Thin connectivity out of regional airports not only helps in the growth of business but also tends to bind the country in a single thread. Codes for the category "Regional Airports" are as follows:

Codes	Codes
Airstrip	Location
Economic Viability	Low Cost Airports
Flight School	Non Metro
GA Infrastructure	Non Operational Airports
GA Terminal	Proximity
Regional Airports	

Airstrip

GA tends to use airstrip at remote locations not normally accessed by airlines. This is supported by the following statement:

> *GA in India is a niche market, especially since it is relatively hassle free and has instant availability status. The value of additional benefits of private aircraft is that it can fly to destinations, which are not normally covered by the scheduled airlines and have access to smaller airstrips.*
>
> **Mr. E K Bharat Bhushan, Director General, DGCA**

Economic Viability

The economic viability of regional airports is called into question when business aircrafts are parked by users closer to their place of work. This is supported by the following statement:

> *I had the opportunity of running the Greater Noida airport. My friend Mr. Mike Myer is here and he runs it. State-of-the-art at Greater Noida, again we found that people are reluctant to come and give business to us. How to we sort this out? You said that HNI are going to keep close to*

them even if they bend the rules they want to park it next to them. You have an airport which is one and a half hour drive away from Mumbai. You got to convince him don't park it here; park it there, you will get state-of-the-art hanger. Do it at that time. How do we solve this problem I am not getting a fix on this? How do I convince this man that you are a better-off man? When you drive 3 hours to sit in a business aircraft for a one hour flight? I can't put my fix on it.

Rohit Kapoor, President BAOA

Flight School

Flight schools are normally located at regional airports and become one of the sources of revenue for the airport operator. This is supported by the following statement:

Enhancing regional connectivity is a huge growth opportunity. Scheduled airlines are coming in with smaller aircrafts; that is of course the crying need of the hour. Some airlines have gone in for 72-78 seaters' aircraft like the bombardier Q400s. As we move forward perhaps there will be more regional airlines with more non schedule services that provide connectivity between tier-II and tier-III cities. As we do this, there will be elements of more flight schools, for more MROs which cater specifically to GA, FBOs etc.

Ravi Radhakrishnan, Reliance Infrastructure Private Ltd

GA Infrastructure

Airport infrastructure is not only capital intensive but also has a long payback period. It is also necessary that adequate attention should be paid to general and BA in the master plan. This is supported by the following quotation:

You know infrastructure projects are capital intensive and they takes a long time. In India that takes a longer time than at most of the places I mean GMR built I think Delhi international airport in 3 years after a process of 10 years of tendering. Navi Mumbai has been probably in the process of planning for don't know how many years and god knows how many years it will take. I was surprised to see that, in our master plan and master visions of all these big airports that we are building, we have actually not catered for anything to GA. There are no plans, I am sorry to say this there is probably in a 1000 page documents there is a half-page dedicated to GA. It is

only now that we are waking up that there is something about GA infrastructure also that is required. Today we talk about Fixed Base Operators (FBO's) and heliports but when the master visions for these airports were being made they could not even think about it. This is again a very typical problem here. You make a highway; you make an express way and forget to make foot over bridge, so it's a typical example of the same thing.

Mr. Rohit Kapoor. President BAOA

GA Terminal

General and BA terminal need not be fancy but should have adequate facilities. This is adequately supported by the following quotation and picture:

This is licensed and is night IFR equipped airfield. Others are all airstrips which are more day operation VFR. But the patrons are primarily GA aircraft. We have 500 to 600 movements in a year. They are quite vibrant though at times they appear to be barren patches of land in the middle of nowhere but they are pretty vibrant. There is seasonality in GA operations, particularly those which are patronized by the political class. Election season is a peak and that's when our small terminals buildings and infrastructure are put to test.

Ravi Radhakrishnan, Reliance Infrastructure Private Ltd

Location

Location is critical for BA as users park their assets closer to their work place. This is supported by the following statement:

> *While the location, is just like someone said, in the real estate scenario there are three things which are of utmost importance location, location and location. So I think that apply to this business as well. While they seem to be in proximity to city like Mumbai or Pune, but at the same time from our experience we found that say an High Net worth Individual (HNI) from Mumbai that owns a business jet he wants it right there so whether he has to pay extra or whether he has to bend the rules and do an unauthorized parking somewhere in Mumbai or Juhu. They will much larger prefer that then driving a couple of hours to a secondary airport where he can park his GA assets. So hopefully that will change with time as the regional economy develops, as social infrastructure at this destinations improve and as the facilities that we want to provide at these smaller airports improve.*

Ravi Radhakrishnan, Reliance Infrastructure Private Ltd

Low Cost Airports

Operational agility and multiple use of infrastructure would ensure viability of the low cost airport. This is supported by the following statement:

> *Operational agility is probably most important. I had this opportunity of working at the Delhi Airport and we were exposed to the several operational things and we thought there was a lot of duplicity. Hence when we develop small low cost airports we have to be careful of that. Adding efficiency and reducing redundancy and enhance commercial activities to subsidize the airport operations as the small tier-II and III cities would have enough land as compared to Delhi and Mumbai airport. There would be a choice of developing commercial activities that generate money that we can plough back into the airport and make them sustainable.*

Mr. Inderjit Singh, Associate Director & Head Aviation, India,

URS Scott Wilson India Private Limited

Non Metro

Non metro airports tend to have a limited social infrastructure resulting in pilots not willing to be based there. This is supported by the following statement:

> *The roads are bad and he has to take four hours' drive, there is no way it's going to work. So that's why, it referred to Social Infrastructure connectivity and improving of these places. Another thing is even for charter operator to park an aircraft at a non-metro place, he has to station pilots there, and he has to have maintenance crew and technicians there. They have to move with their families, there has to be schools. So in the present day these are the issues that we are facing. As an airport operator alone you can't handle all these problems by yourself. That's why it has to be done in consultation with state administration and that is the whole challenge.*
>
> **Ravi Radhakrishnan, Reliance Infrastructure Private Ltd**

Non Operational Airports

In order to enhance regional connectivity, airport authority of India is planning to develop the unused airports apart from more number of civil enclaves:

> *There are 28‰ Non Operational (Unused) AAI Airports.‰ AAI intends to take up the development of selected airports with non-schedule operations and non-operational airports - through own resources; through PPP (Possibility being explored); development of selected Civil Enclaves in collaboration with Defence.*
>
> **GK Chaukiyal, AAI**

Proximity

The proximity of small airports to tier II and tier III cities is an advantage as there are new business opportunities. This is supported by the following quotation:

Small airports tend to have new opportunities in their catchment area due to proximity of high growth Tier II & III cities, proximity to industrial areas and proximity to potential tourist locations.

Vijender Sharma, Head of Commercial Operations & Network PlanningFraport Saudi Arabia

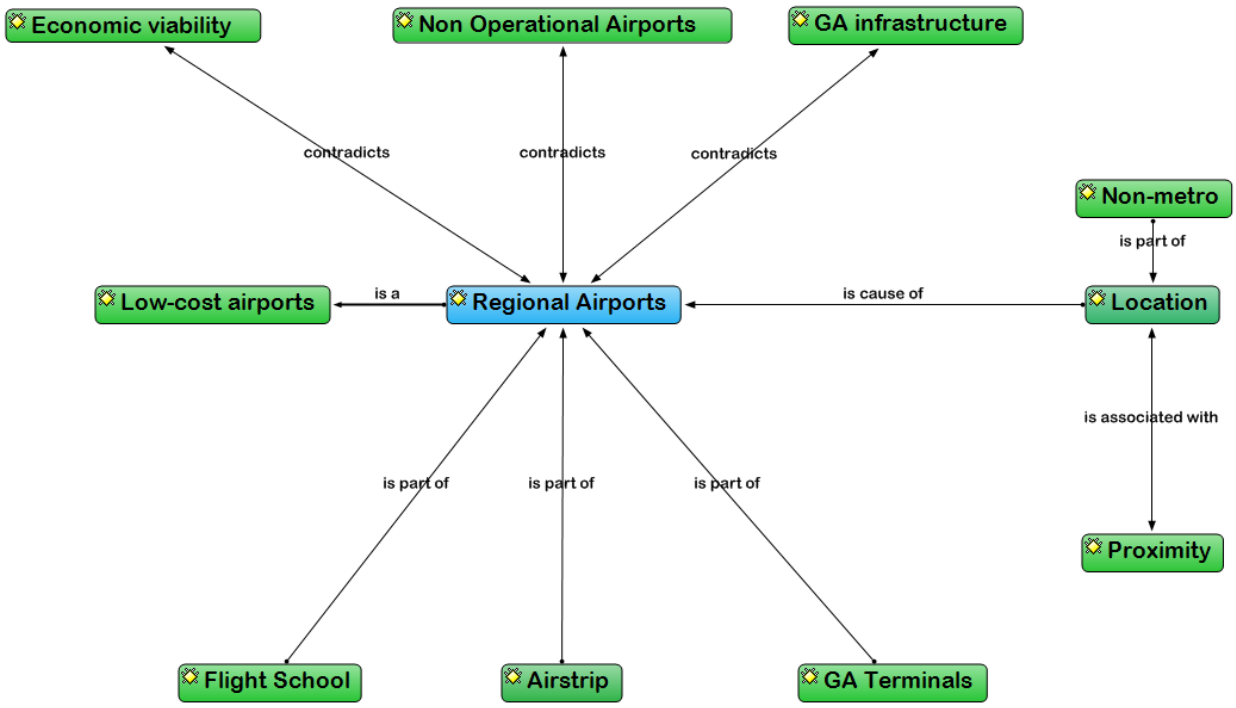
Regional Airports

In order to develop regional airports in India, experience of other countries like Australia is important. This is supported by the following statement:

The objective of Regional Airports Development Scheme (RADS) – Australia is to ensure regional aviation infrastructure and airport services are developed and maintained to facilitate air access and enhance economic growth in Western Australia.

Dhiraj Mathur, PWC

Regional airports are connected with its various elements as per the following diagram.



29. Regulatory Authority

Regulatory Infrastructure both at national and international level tends to be complex with a multitude of agencies covering different aspects of BA. Codes for the category "Regulatory Authority" are as follows:

Codes	Codes
AERA	International Civil Aviation Organization
Bureau of Civil Aviation Security	Ministry of Civil Aviation
DGCA	Ministry of Finance
EASA	Reserve Bank of India
FAA	

AERA

AERA is the regulatory authority responsible for oversight function of all airports in India and to fix tariffs and return on investments. This is supported by the following statement:

> *Determining tariff at airports is the responsibility of AERA. It takes into account capital expenditure incurred and timely investment in improvement of airport facilities; services provided and its quality; cost for improving efficiency; Economic and viable operation of major airports; Revenue received from services other than the aeronautical services; concession offered by the Central Government in any agreement or memorandum of understanding etc.*
>
> **Yashwant Bhave, Chairperson AERA**.

Bureau of Civil Aviation Security

Bureau of civil aviation plays a primordial role in security at the airport and tends to function independently resulting in lack of coordination with other ministries. This is supported by the following statement:

> *So BCAS needs to actually get into the loop of the main stream, problem we find is BCAS is totally out of sync. They are independent, though it's a part of MoCA. It works as an independent*

agency and it is absolutely not approachable.

Mr. Rohit Kapoor, President BAOA

DGCA

DGCA is the safety regulator and all powers are vested in one individual. There is a need to have a board which is vested with these powers like the civil aviation authorities in a number of countries like USA, UK etc. This is supported by the following statement:

From the point of view of the Safety Regulator, we have a large number of issues to tackle both in terms of equipping ourselves with necessary manpower as well as training our personnel to undertake the responsibilities which are with us. These are exciting times in terms of growth but we are also extremely conscious that the growth has to be tempered in a manner, which will ensure that the safety concerns are kept in proper focus.

Mr. E K Bharat Bhushan, Director General, DGCA

EASA

EASA is the safety regulator in Europe under One European Sky policy. It provides certification for aviation related activities within Europe and the proximity to Europe makes it easier to get EASA approval for Indian organizations. This is supported by the following statement:

FAA will not give you an approval in India, to be FAA certified; unless you say that you have American aircraft flying into the country that need that maintenance. With us because of the proximity, it is much easier to get the EASA approval. So we have had inquiries in the past where the customers has been flying into India, specially, Delhi, on the GA side and have asked us, is it possible for me to get the maintenance done here locally and we have used that to try and get the approval.

Dhiraj Chabbra, Air works

FAA

FAA is the aviation regulator of US of America and tends to occupy a lead role among all regulators across the world. The American regulators are replicated by various regulatory authorities with minor modifications. The close relationship India has with US is also reflected by a FAA office in New Delhi. This is supported by the following statement:

> *The Ministry of Civil aviation (MoCA) and the FAA (FAA) have a regularly scheduled "Joint Aviation Steering Committee". I think we probably are all aware that the FAA does have the representative office in our embassy here in New Delhi and they are very active working with MoCA.*
>
> **Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy**

International Civil Aviation Organization

ICAO is a specialized agency of United Nations responsible for providing standardization. The annexes to Chicago convention are the basis of regulations among all signatories. ICAO also provides guidelines to various countries in bringing about changes in their regulations in line with ICAO annexes. This is reflected through the following statement:

> *We have recently commissioned a study with ICAO specialists to address these issues, which relate to GA in some depth. We expect to get these recommendations implemented very shortly as soon as we have had the consultation process completed.*
>
> **Mr. E K Bharat Bhushan, Director General, DGCA**

Ministry of Civil Aviation

Ministry of Civil Aviation is an independent ministry under government of India. This is supported by the following statement:

If you see India has an independent ministry that is Ministry of Civil Aviation, DGCA, AAI, BCAS, AERA. So from registration to revenue everything is covered. The structure is formulated in such a way that is very comprehensive & substantiated.

Mr. Somesh Arora, Partner, Legal Alley

Ministry of Finance

Ministry of Finance needs to coordinate with other stakeholders to ensure growth of civil aviation. This is supported by the following statement:

But I think what needs to change is that the short-term issues will change quickly enough but at the larger perception, policy, infrastructure level involving other stake holders like ministry of finance and stuff like that.

Mr. Rohit Kapoor. President BAOA

Reserve Bank of India

Advance payment for the purchase of aircraft and import of the same aircraft is a lengthy process. This requires special approval which needs to be standardized. This is supported by the following quotations:

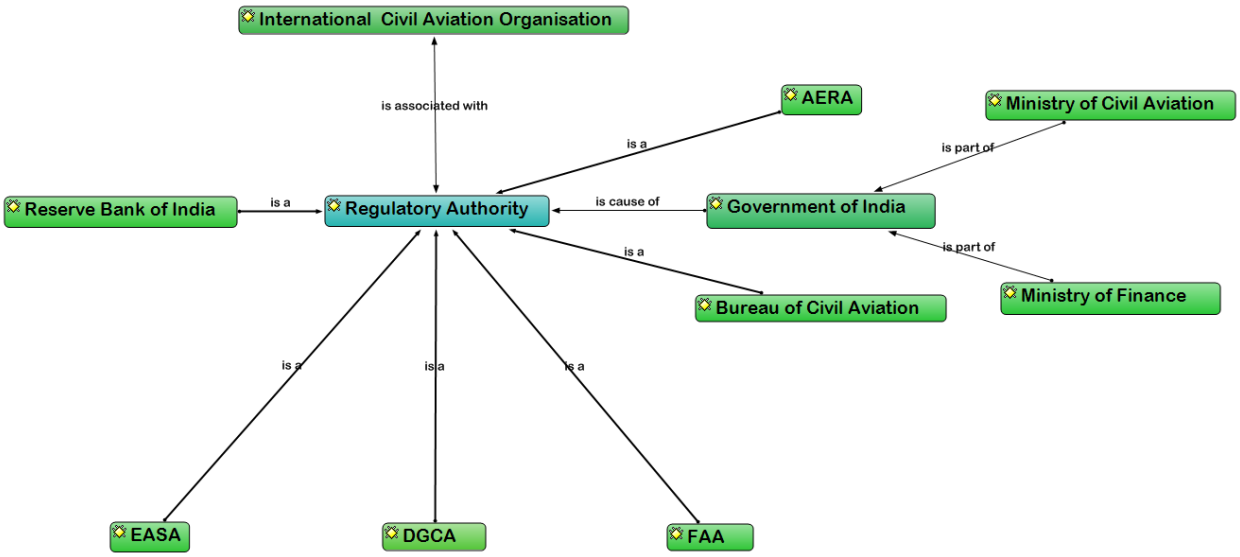
GA issues like importation approval processes and the Reserve Bank of India (RBI) currency restrictions are under review process by DGCA.

Dr Arjun Singh, Program Director, US India Aviation Cooperation Program

Building an aircraft at very expensive venture, and you can't wait for 6 months to get rest of your money.

Mr. Todd Hattway, Regional Sales Director, India Hawker Beechcraft Cooperation

The following network diagram connects all the elements together.



30. Safety Management System

An international Safety Management System grown out of global experiences is not merely "a good to have" but should be a mandatory part of BA. Codes for the category "Safety Management System" are as follows:

Codes	Codes
Safety Awareness	Standardization
Safety Management System	State Safety Program
Standard Operating Procedures	Urgent need to increase safety

Urgent need to increase safety

A culture of safety starts with safety awareness. It is only after problem identification, problem can be resolved. The following quotation establishes the need for safety awareness:

> *But the same time there is an urgent need to increase safety awareness and compliance culture in GA. This is due to the fact the GA aircraft are more at risk due to the nature of flying, VVIP carriage, infrastructural issues as well as CEO concerns*
>
> **Dr Arjun Singh, Program Director, US India Aviation Cooperation Program**

State Safety Program

The State Safety Program follows the guidelines from ICAO in order to ensure commonalities in the area of BA. The following quotation establishes the relevance and importance of State Safety Program:

> *International Civil Aviation Organization (ICAO) has placed responsibility on Contracting States to formulate a State Safety Program (SSP). The Program is an integrated set of Regulations and activities aimed at improving safety. Directorate General of Civil Aviation (DGCA) has regulatory responsibility for aviation safety. The SSP is based on comprehensive analysis of the State's aviation system, safety policies and risk management, safety assurance and promotion. Safety oversight of DGCA is now focused on areas of significant safety concerns or higher safety risks.*

Thus, SSP provides the means to combine prescriptive and performance-based approaches to safety rulemaking, policy development and oversight by DGCA India.

Mr. Pawan Kumar, Dy. Director, DGCA

Safety Management System

After the establishment of State Safety Program, it is the duty of operator to establish a safety management system in accordance with the SSP. A good Safety Management System is a proof of compliance of the national regulations. The following quotations establish the need for a strong oversight function:

There is a need to have close monitoring of their operations and DGCA is now gearing up with this end in view and we have taken up an initiative in this regard through implementations of safety management system and their further operations.

Mr. E K Bharat Bhushan, Director General, DGCA

The Safety Policy has been laid down. It is being ensured that all operators and service providers effectively establish and maintain the safety management system (SMS) in their operations and service providers effectively establish and maintain the safety management system (SMS) in their operation.

Mr. Pawan Kumar, Dy. Director, DGCA

Standardization

Though there are different ways to ensure compliance, it is a good idea to follow standards born of years of experience and accepted worldwide by the aviation community. IS-BAO is a program which has been accepted both By US and European authorities and DGCA could accept it as a national standard. The need and importance of IS-BAO is established by the following:

IBAC also developed the International Standards for Business Aircraft Operations (IS-BAO) program an International standard for business aircraft operations, which is a code of best practices for flight departments worldwide to achieve high level of safety and professionalism.

Mr. Lex Den Herder, Vice President, Government and Industry Affairs

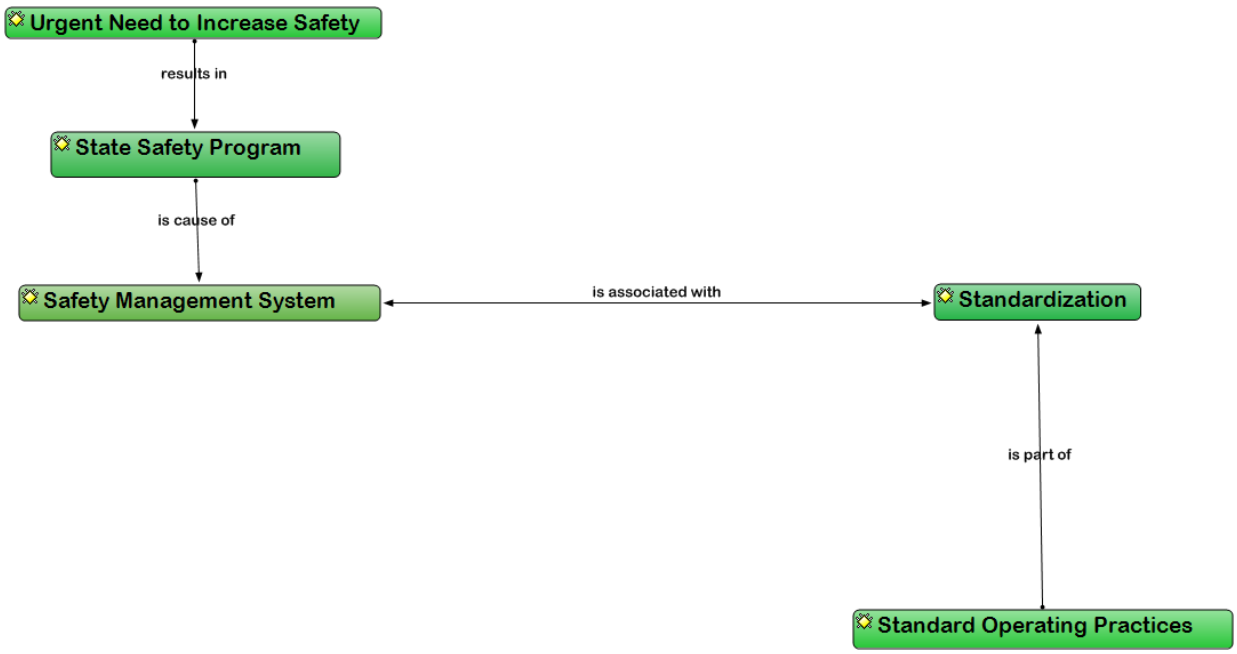
Standard Operating Procedures

Standard operating procedure assists in avoiding accidents as reflected by the following statement:

The regulations on minimum safety requirements for helicopter landing areas based on regular basis has been laid down this was aftermath of accident in Tawang, because nobody was owing the responsibility that who is responsible for maintaining those helipads and heliports. This regulation lays down what should be the minimum requirements one needs to adhere to in case they intend to use the heliports and helipads on regular basis. Adherence to Standard Operating Practices (SOP)'s for stabilized approach, SOP's have been laid down.

Mr. Pawan Kumar, Dy. Director, DGCA

The various elements of safety management system are reflected in the following diagram.



31. Security

The growing concern for security in the aftermath of 9/11 attacks in the USA has resulted in stringent rules. It is equally necessary that the rules are implemented without causing inconvenience to genuine users of business aircraft. Codes for the category "Security" are as follows:

Codes	Codes
Terrorism	Security Passes for Pilots
Security	

Terrorism

The growth of terrorism in recent past has shifted focus on need for security as passenger traffic is also increasing. This is supported by the following statement:

> *Move over to 2005, 4 billion passengers which is 10.5 million a day vis-à-vis 9 million in one full year handled by the world's airports, airlines and aircrafts and that was 65% of the total world's population and that too against a backdrop of negative aspects such as terrorism, the 2nd Gulf War, 1911, SARS, Avian Influenza and Soaring costs of jet fuel.*
>
> **Mr. Inderjit Singh, Associate Director & Head Aviation, India,**
>
> **URS Scott Wilson India Private Limited**

Security

The role of CISF is bound to increase as regional aviation develops further. This is supported by the following quotation:

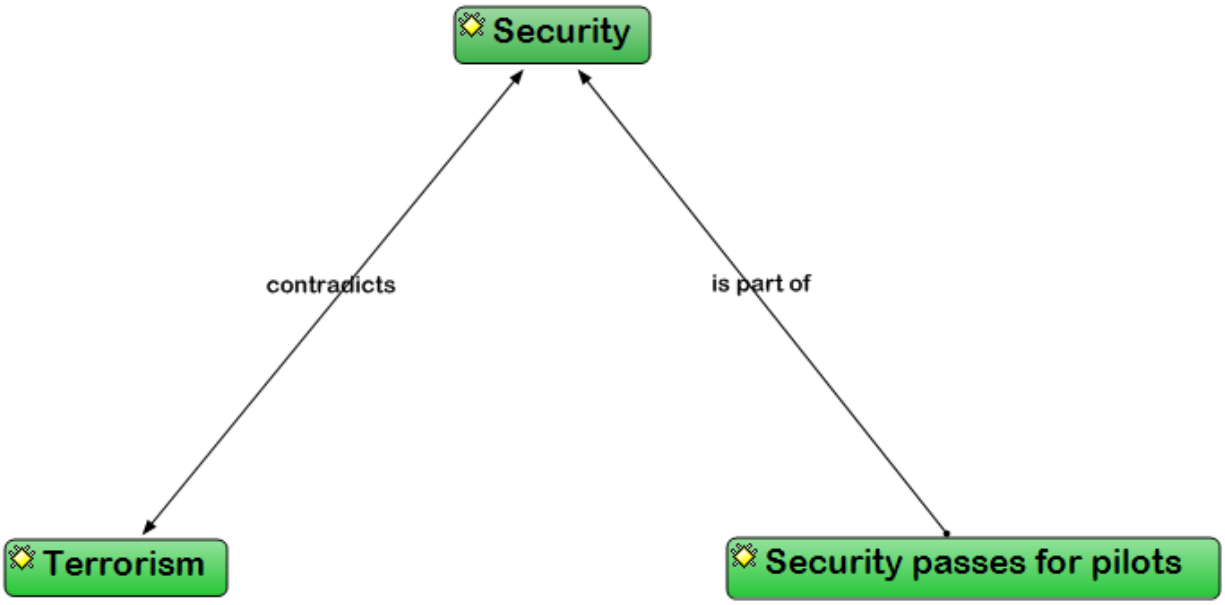
> *Security, it is essential I'm sure it's going to be an issue in the days ahead also as people takes-off from all the small airfields. Today it's the state police which are providing security in most of the small airstrips but going forward it might be Central Industrial Security Force (CISF) as in the other airports. That is a huge cost that also is passed on to the airport operator.*
>
> **Ravi Radhakrishnan, Reliance Infrastructure Private Ltd**

Security Passes for Pilots

The need to streamline the security passes for pilots is an industry need. This is supported by the following statement:

> *The Bureau of Civil Aviation Security, again there are issue on Security passes for pilots and engineers which is happening every day. For example- when Pilot actually fills in the boarding pass, he does not know whether he is getting in time or not. If the pilot's pass is not ready, how can he be expected to fly? Sit on the ground for as and when receive the passes.*
>
> **Dr Arjun Singh, Program Director, US India Aviation Cooperation Program**

The following network diagram connects the elements of security together.



32. Supporting Institutions

BA in India is linked to global BA and requires the support of a number of institutions in order to move to the next level. Codes for the category "Supporting Institutions" are as follows:

Codes	Codes
ACI	US India Aviation Cooperation Program
Aviation Resource Group International	IBAC
Agreement on Trade in Civil Aircraft	Government to Government Initiatives
Bilateral Aviation Safety Agreement	Homeland Security
Cape Town Convention	

Airport Council International

Airport Council International collects data and forecasts passenger traffic. This is supported by the following statement:

> *As per an ACI Forecast (2008-2027) growth in passenger traffic is at 9.2% pa while the projected traffic in 2027 is 580.78 million.*
>
> **Yashwant Bhave, AERA**

Aviation Resource Group International

Aviation Resource Group International is yet another group collecting data in North America. This is supported by the following quotation:

> *In North America as per data available with Aviation Resource Group International Ltd. (ARGI), there are a total of 5650 heliports, 13,473 airports, and 2987 FBOs.*
>
> **Rohit Kapur, President, Business Aircraft Operators Association**

IBAC

IBAC is top of the chain in the BA world and has a permanent observer status in ICAO. This is supported by the following statement:

> *BAOA is a member of International BA Council (IBAC). IBAC is an international nongovernment nonprofit organization based out of Montreal in the ICAO building. They represent business operators including On-demand charters at ICAO and in international forums*
>
> **Mr. Lex Den Herder, Vice President, Government and Industry Affairs,**
>
> **Universal Weather & Aviation Inc.**

US India Aviation Cooperation Program

US India Aviation cooperation program has been successful in bringing the aviation program of both the countries on a common platform. This is supported by following quotation:

> *We will have a lot of cooperative programs with the US government and ACP is a very successful program which has been running from the last few years.*
>
> **Mr. E K Bharat Bhushan, Director General, DGCA**

Agreement on Trade in Civil Aircraft

India is yet to sign ACTA and India's signing the same could give a big boost to the aviation by rationalizing tariff bringing in alignment with global practice:

> *We would encourage India's accession on World Trade Organization (WTO)'s Agreement on Trade on Civil Aircraft called ACTA. India is an observer and not yet a signatory to the WTO ACTA and we believe joining would lead to India's elimination of tariffs on aircraft and aircrafts parts and go to further accelerate growth in this sector.*
>
> **Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy**

Bilateral Aviation Safety Agreement

The signing of BASA has opened the way for manufacturing of aircraft components in India using the FAA shadow certification system. This in due course of time could move aircraft and component manufacturing to India. This is supported by the following quotation:

> *I want to make very clear, if any problem is there, we have the Airworthiness Inspection Department (AID) well developed because during our Bilateral Aviation Safety Agreement (BASA) process with US FAA, we have developed a system and as per the system we can give the Supplemental Type Certificate.*
>
> **Mr. Charandas, Joint Director General, DGCA**

Cape Town Convention

Cape Town Convention does give primacy to lender's interests but lack of access to aircraft itself as was seen in the episode related to the kingfisher airlines at Chennai airport does dilute its efficacy. The following quotation supports the above statement:

> *So in India, which has ratified Cape Town and made a lot of headway in this area, the main issue that lender will face here is, actually getting access to the tarmac to make sure that their assets is secure and that we can properly maintain it and have access to make sure that our defaulting borrower does not fly out with it somewhere.*
>
> **Ms. Nisha, Legal Counsel, GE Capital**

Government to Government Initiatives

A number of governmental initiatives and partnerships are working between USA and India. This is supported by the following statement:

> *And a fourth example of government-to-government cooperation comes under the High Technology Cooperation Group (HTCG). In 2010 the HTCG added a new sub-committee. Having been constituted in 2002, the new subcommittee dealing with aviation was created in 2010 joining other discussions on defense strategic trade, biotechnology and Nano-technology. The sub-committee on aviation met in July 2011 in New Delhi to discuss areas of mutual cooperation*

in airport infrastructure followed by lateral meetings held on November last year with participants from the FAA, other US government agencies such as the US Trade and Development Agency (USTDA), Overseas Private Investment Cooperation and a lot of US government entities and not to mention my own office, the Department of State and of course the MoCA and Airports Authority of India (AAI).

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy

Homeland Security

Security practices especially on the aviation side have borrowed from the US as evidenced by the following:

There is also a "Homeland Security" dialogue and through this bilateral dialogue our Transportation Security Ministry interacts regularly with MoCA to exchange data and training methods to ensure aviation security

Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy

The following network connects all the elements together.

33. Taxes and Duties

Business aircraft needs to be treated by the government as a tool of productivity and not an item of luxury. There is a need to rationalize taxes and remove differential taxation scheme based on stated purpose. Codes for the category "Taxation and Duties" are as follows:

Codes	Codes
Customs Duty	Taxation
Direct Import of ATF	Withholding Tax
Duties	

Customs Duty

Differential taxation based upon the category "private" or "Non Scheduled Operator" is bad in practice and should be done away with. This is supported by the following statement:

> *So we have got a duty which is almost 18.5% in one way and 2.5%, so immediate concern at moment is the government must take two steps back This is the bad law it needs to be reconsidered we are having a very myopic vision at this moment. we are collecting this duty of 18% wherein we are restricted to growth 7-8% if we do not do this and we go back to the growth of 20-25% that I think we can achieve; We will immediately open up to this sector we will create job, we'll add to economic growth, to GDP, government will collect taxes, you name it. The revenue which government expects to collect by this revenue, by this import duty, we are pretty confident that government will collect "x" number more times up of duty if they open this sector up.*
>
> **Mr. Rohit Kapoor. President BAOA**

Direct Import of ATF

Importing of ATF by private agencies is a good step though it will be a while before private infrastructure for storage and transportation is developed. This is supported by the following statement:

Private carriers now can import jet fuel directly, so that does help because it has been endorsed and cleared by minister's panel also headed by the finance minister. This avoids the State level levies, taxes on Aviation Turbine Fuel (ATF) ranging between 25%-30%, possibilities of credit from foreign supplies is an added advantage. Importers are required to pay about 8% customs duty.

Mr. S K Sarkar, Regional President, IACC

Duties

There is need to rationalize various duties as evidenced by the following statement:

Custom duties on the GA aircraft, spare parts for MRO etc. need to be relooked and liberated.

Dr Arjun Singh, Program Director, US India Aviation Cooperation Program

Taxation

A number of laws related to taxation impact the growth of BA. This is supported by the following quotation:

Gamuts of laws that are going to affect the business are phenomenal including the basic laws like taxation, the VAT etc.

Mr. Atul Sharma, Legal Link

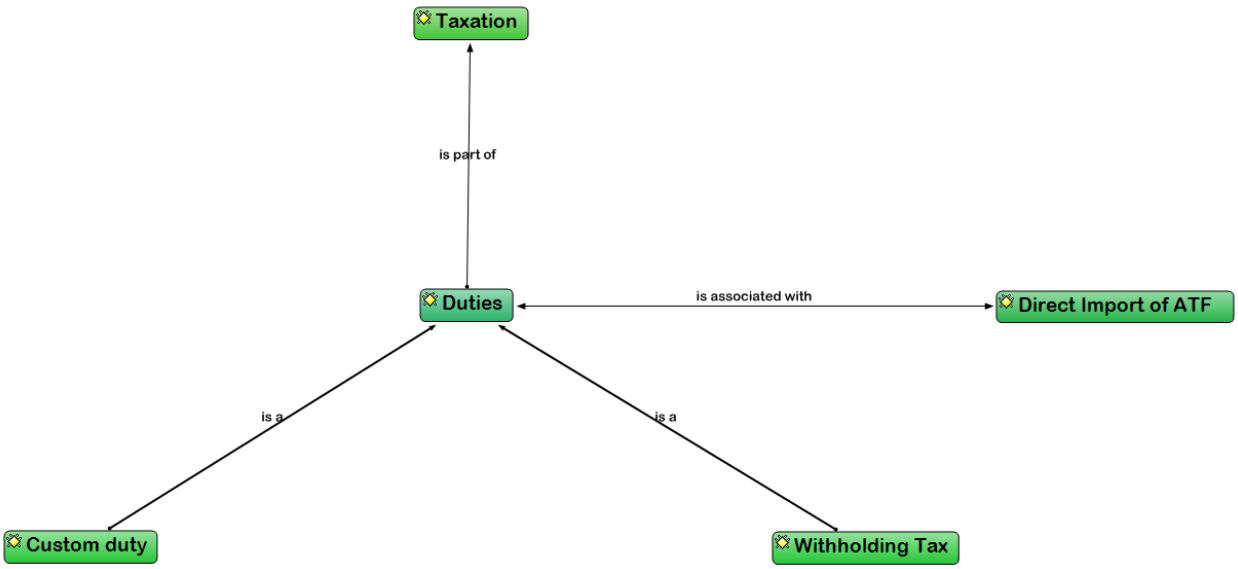
Withholding Tax

Withholding tax is an important element in leasing an aircraft. This is supported by the following statement:

There is a need to review the norms of withholding tax especially in cases of an aircraft lease.

Capt. Karan Singh, Vice President BAAI

Various elements are networked as follows.



34. Tourism

Tourism is global industry and India offers a number of options both for the low as well as high budgeted traveler. Business aircraft support and are used in transportation of high end budgeted traveler. This is supported by the following quotation:

Codes for category, "Tourism" are as follows:

Codes	Codes
Hospitality	Pilgrimage Flights
Leisure	Tourism

Tourism

Event based tourism is another way of raising non-aeronautical revenue at regional airports. This is supported by the following quotation:

> *Regional airports should create events like Hiking, Camping, Fishing, Kite flying etc. to promote tourism.*
>
> **Vijender Sharma, Head of Commercial Operations & Network Planning**
>
> **Fraport, Saudi Arabia**

Hospitality

Hospitality industry is a major source of employment as evidenced by the following quotation:

> *One of the indirect benefits of BA is in employment in the hospitality industry.*
>
> **Capt. Karan Singh, Vice President BAAI**

Leisure

Leisure activities are also a major source of employment. This is supported by the following statement:

Leisure activities could also become a source of non-aeronautical revenue.

Khalid Al Massrey, Dubai Central

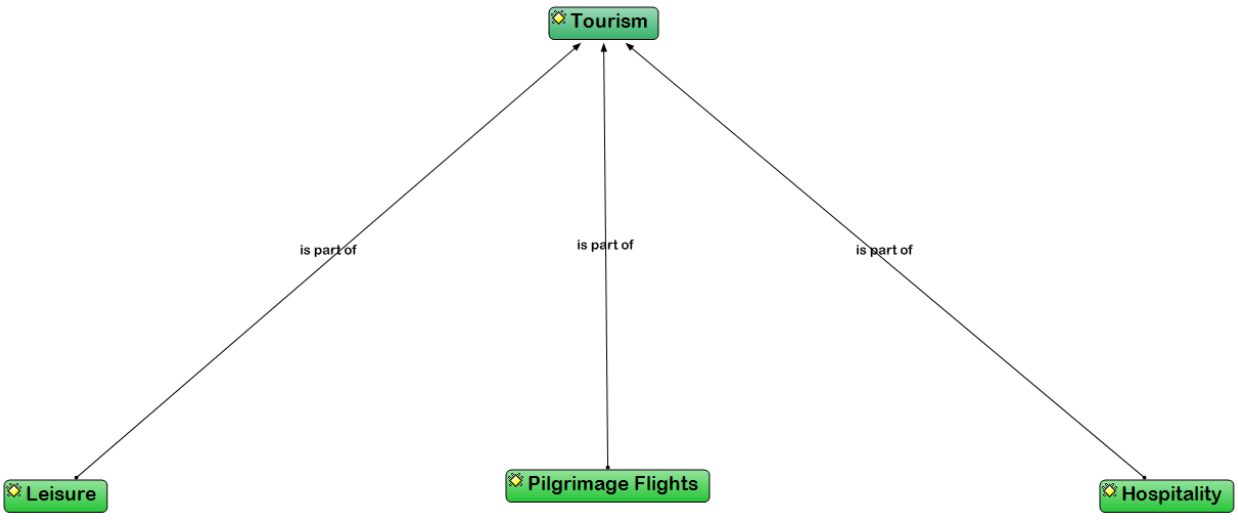
Pilgrimage Flights

Helicopters are used for pilgrimage flights in difficult terrain. This is supported by the following statement and photograph:

Helicopters of Global Vectra deployed at 12 729 feet above mean seal level in Kashmir perform routine transportation for pilgrimage.

Sylvain Marie, Eurocopter

Various elements under category of tourism are networked as follows.



35. Training

Training is the bedrock over which the superstructure of BA is built. An institutional network in conjunction with the user industry is the need of the hour. The process to establish a National Aviation University is a step in the right direction.

Codes for the category, "Training" is as follows:

Codes	Codes
AME Institutes	Shortage of Skilled Manpower
Aviation University	Simulator
Manpower Requirement	Skill set requirement
Online Examination	

AME Institutes

AME institutes provide manpower for the maintenance function for an aircraft. This is supported by the following statement:

> *AME institutes provide the manpower for manning the support function in the industry.*
>
> **Capt. Karan Singh, Vice President BAAI**

Aviation University

Government of India has plans to start a specialized aviation university to tackle the expected shortage of manpower. Private enterprises like CAPA also plan to involve themselves in aviation education. This is supported by the following quotation:

> *CAPA Aero Park plans to start a world class aviation university and training campus providing academies for pilots, engineers, cabin crew, air traffic controllers, regulators and management.*
>
> **Kapil Kaul, CAPA**

Manpower Requirement

Manpower shortage in aviation is expected to grow further as evidenced by the following quotation:

> *The shortage of quality manpower will only grow further*
>
> **Dhiraj Chhabra, AVP – Marketing, Air Works**

Online Examination

Use of technology to conduct examination will introduce credibility in the examination system. This is supported by the following quotation:

> *We have introduced online examination it is specially should be heartening for pilots. Experts committee was set up by government to examine and suggest the improvements in examining systems and licensing system for the pilots and engineers etc. The intent was for secure credible efficient examination system using electronic technology; online examination has been introduced and already it has commenced for GA and technical papers. There is one or two papers still we are working on, everything else is on-line. The intent was to remove the human element in the examination system.*
>
> **Mr. Pawan Kumar, Dy. Director, DGCA**

Shortage of Skilled Manpower

Shortage of skilled manpower has driven wages to an unviable level. This tends to hurt the industry in the long term as evidenced by the following statement:

> *At present there is also an acute shortage of trained and skilled manpower in the aviation sector. As a consequence of which there is an unhealthy competition for employees, which is driving wages to an unacceptable levels.*
>
> **Mr. E K Bharat Bhushan, Director General, DGCA**

Simulator

Simulators reduce the cost of training substantially and provide a safe environment in case of mistakes. This is supported by the following statement:

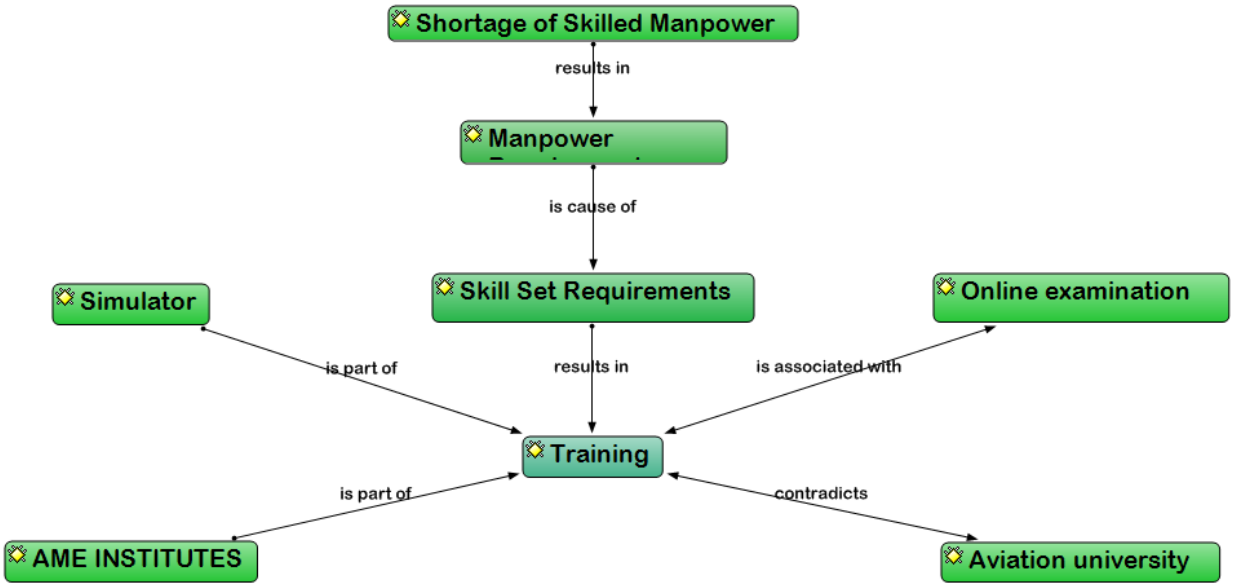
> *Flight schools and simulators are necessary for providing training.*
>
> **Capt. Karan Singh, Vice President BAAI**

Training

General and BA are training grounds for scheduled operation as evidenced by the following statement:

> *A key point is that GA is the primary training ground for most commercial airline pilots.*
>
> **Ms. Judy Reinke, Minister Counselor for Commercial Affairs, US Embassy**

Various elements of training are networked as per the following diagram.



Mapping BA in India

The single link connecting how is a Business aircraft is utilized is best understood by looking at the linkage between BA, its growth and utilization as depicted in the following diagram. The diagram in figure 13 represents the outcome of the textual analysis of above primary and secondary data. The BA sector in India is categorized in three major categories: BA, growth potential and utilization.

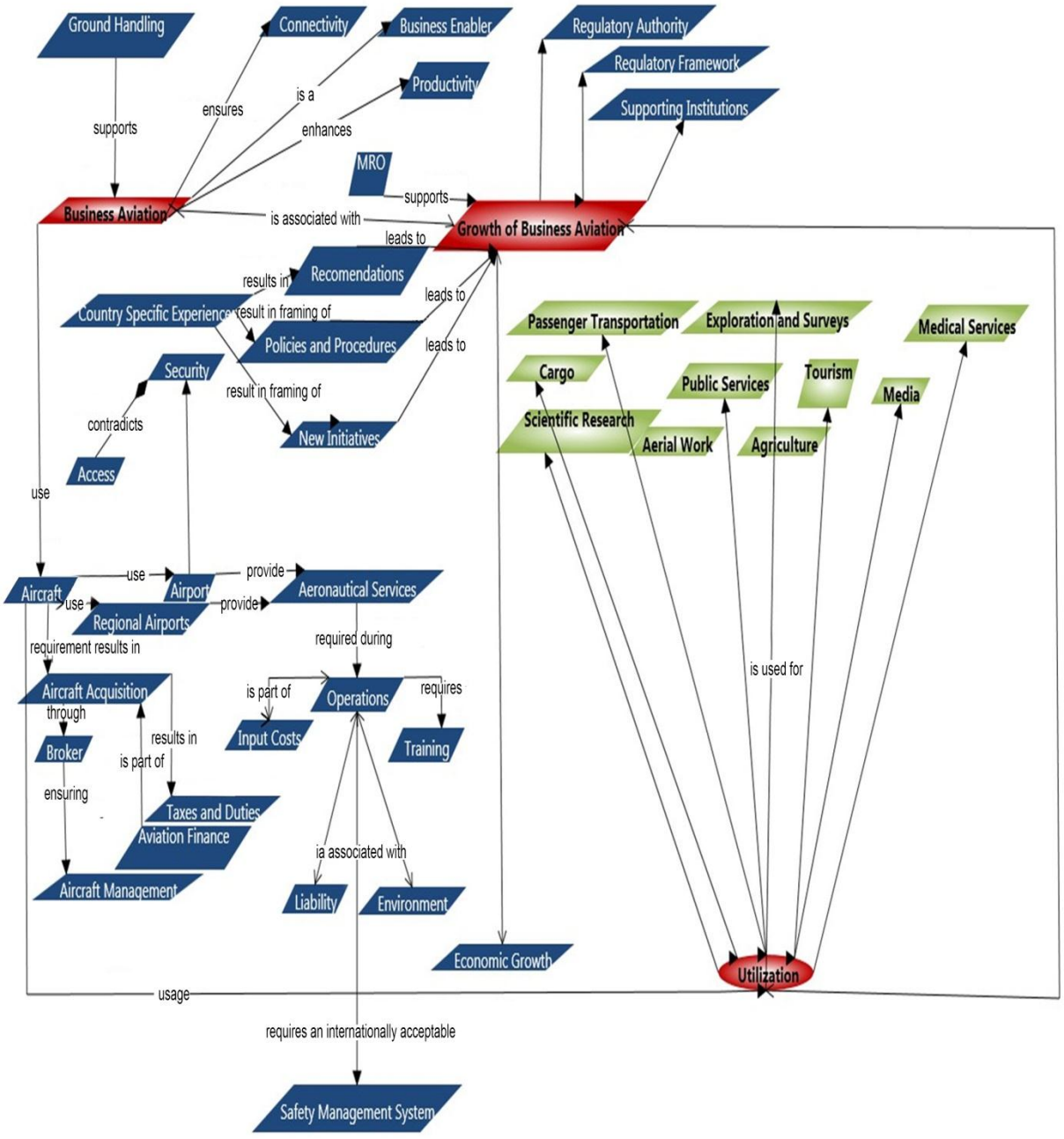
Discussion with various experts during the conferences and interviews revealed that BA enables business to happen by ensuring connectivity and enhancing productivity. For BA to happen, the central instrumentality is the aircraft itself. Both fixed wings as well as helicopters play a vital role, though the use of Sea Planes is extremely limited in spite of a large coastline. Currently there is only one sea plane operating out of Andaman and Nicobar Islands.

Business aircraft can be utilized for medical services, tourism, surveys, media, and scientific research apart from cargo and passenger transportation. The utilization tree details how a business aircraft is used.

An airplane requires an airport to land while a helicopter could use either an airport or a heliport apart from special landing sites like rooftop. In order to ensure connectivity to far flung places and enhancing productivity there is a strong need to develop infrastructure. These Regional airports would ensure development of the surrounding area giving an impetus to economic growth. Airports provide aeronautical services like air traffic control and air navigation services which ensure that aircraft operations can take place. Security at the airports is related to access of people to various installations and the aircraft itself.

Trained manpower for operating efficiency results in a successful mission. The economic viability of the mission not only depends upon the aircraft but also the various charges at the airport and the ground handling services provided. Environmental issues like noise pollution are beginning to play a role in deciding the operating limits of the aircraft. Operations and Safety are interrelated. An unfortunate incident could result in a financial liability upon the operator apart from a significant loss of life. An exhaustive Safety Management System like IS-BAO program is expected to integrate safety issues with those of human resource and financial liability.

Figure 13: Linking BA



India does not have a successful track record in manufacturing BA aircraft; thereby most of them are imported from American or European regions. Classification of the aircraft for a Non Scheduled Operators permit or a private use results in a differential duty structure. Brokers tend to play a role in acquisition of a business aircraft. Being a capital intensive acquisition, treaty shopping is not unheard. Of late experiences of different countries have been taken into account in order to develop policies and procedures. New initiatives and recommendations have been made for the growth of this vital sector.

A complex and highly technical area like BA has to be supported by a separate policy regime. Unfortunately there is no separate policy, though it can be distilled from the larger civil aviation policy. The Indian safety regulator, Directorate General of Civil Aviation is expected to be transformed into a Civil Aviation Authority like that of USA and UK.

5.2. The Quantitative Approach: Factor Analysis

Factor Analysis has primarily used to create the FABA (Factors Affecting Business Aviation) India Framework resulting in data reduction in order to remove redundant (highly correlated) variables from the data file, replacing the entire data file with a smaller number of uncorrelated variables. The principal components method of extraction begins by finding a linear combination of variables (a component) that accounts for as much variation in the original variables as possible. It then finds another component that accounts for as much of the remaining variation as possible and is uncorrelated with the previous component, continuing in this way until there are as many components as original variables. Usually, a few components will account for most of the variation, and these components can be used to replace the original variables. This method is most often used to reduce the number of variables in the data file.

FABA India framework explains 55 percent of variables reduced to 9 factors with 3% loss of information

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in your variables that might be caused by underlying factors. A value of .858 indicates that sample is adequate for carrying out factor analysis. High values (close to 1.0) generally indicate that a factor analysis may be useful with your data.

Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with the data. In the current case significance level of .000 indicates that a factor analysis is useful.

Table 10: KMO and Bartlett Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.858
Bartlett's Test of Sphericity	Approx. Chi-Square	2.776E3
	df	595
	Sig.	.000

Communalities

Communalities indicate the amount of variance in each variable that is accounted for. Initial communalities are estimates of the variance in each variable accounted for by all components or factors. For principal components extraction, this is always equal to 1.0 for correlation analyses. Extraction communalities are estimates of the variance in each variable accounted for by the components. The communalities in this table are all high, which indicates that the extracted components represent the variables well.

Table 11: Communalities

Communalities		
	Initial	Extraction
(1) Access to major airports	1.000	.540
(2) Aerial work	1.000	.628
(3) Aeronautical Services	1.000	.638
(4)Usage of business aircraft in agriculture.	1.000	.631
(5) Type of aircraft	1.000	.555
(6) Ease of Acquisition	1.000	.490
(7) Use of aircraft for business purposes	1.000	.675
(8) Build regional airports	1.000	.548
(9) Aircraft Financing	1.000	.616
(10) GA	1.000	.484
(11) Aircraft as a business enabler	1.000	.550
(12) Transportation of cargo	1.000	.623
(13) Connectivity to tier 2 and tier 3 cities	1.000	.683
(14) Economic development of India	1.000	.665
(15) Business environment	1.000	.630
(16) Explorations and surveys	1.000	.495
(17) Ground handling	1.000	.455

(18) Potential for growth	**1.000**	**.505**
(19) Input costs	**1.000**	**.495**
(20) Potential liability costs	**1.000**	**.603**
(21) Gathering news for media	**1.000**	**.527**
(22) Tourism	**1.000**	**.610**
(23) Scientific Research	**1.000**	**.581**
(24) Medical Services	**1.000**	**.487**
(25) MRO	**1.000**	**.442**
(26) Transportation of passengers	**1.000**	**.494**
(27) Policies and Procedures.	**1.000**	**.341**
(28) Tool of productivity	**1.000**	**.689**
(29) Public services	**1.000**	**.612**
(30) New regulatory authority	**1.000**	**.549**
(31) Safety Management System	**1.000**	**.409**
(32) Current Security scenario	**1.000**	**.450**
(33) Supporting Associations	**1.000**	**.510**
(34) Training	**1.000**	**.546**
(35) Experience of other countries	**1.000**	**.418**
Extraction Method: Principal Component Analysis.		

Total Variance

The variance explained by the initial solution, extracted components, and rotated components is displayed.

This first section of the table shows the Initial Eigenvalues. The Total column gives the eigenvalue, or amount of variance in the original variables accounted for by each component. The % of Variance column gives the ratio, expressed as a percentage, of the variance accounted for by each component to the total variance in all of the variables. The Cumulative % column gives the percentage of variance accounted for by the first n components. For example, the cumulative percentage for the second component is the sum of the percentage of variance for the first and second components.

For the initial solution, there are as many components as variables, and in a correlations analysis, the sum of the eigenvalues equals the number of components. In the current case eigenvalues greater than 1 have been extracted, so the first nine principal components form the extracted solution.

The second section of the table shows the extracted components. They explain nearly 55% of the variability in the original ten variables, with only a 3% loss of information. The rotation maintains the cumulative percentage of variation explained by the extracted components, but that variation is now spread more evenly over the components.

The changes in the individual totals suggest that the rotated component matrix will be easier to interpret than the unrotated matrix.

Table 12: Total Variance

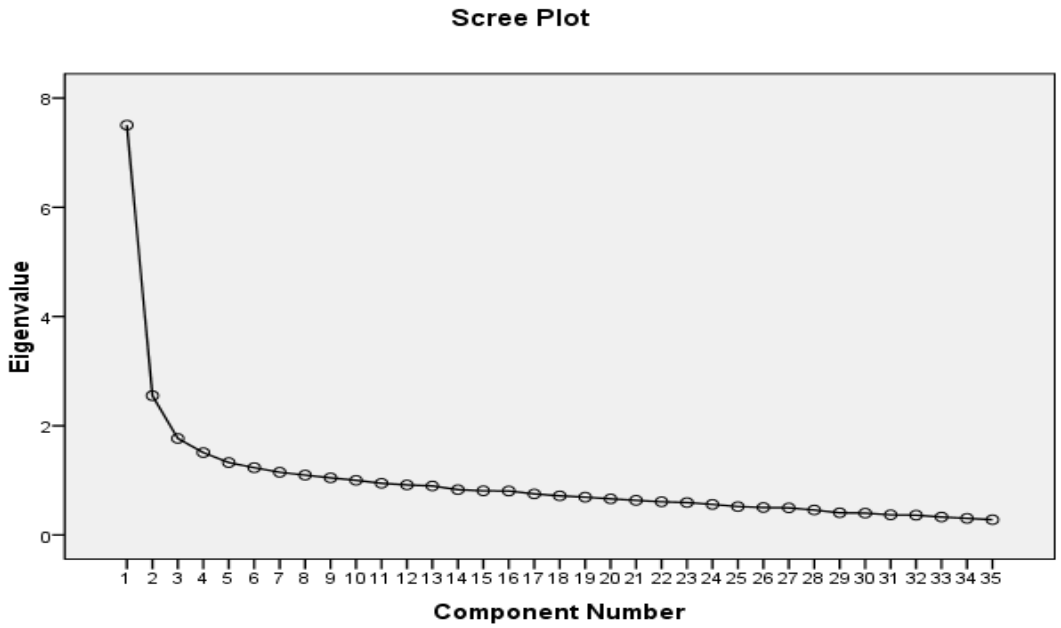
Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.505	21.443	21.443	7.505	21.443	21.443	3.197	9.134	9.134
2	2.550	7.286	28.729	2.550	7.286	28.729	2.776	7.933	17.067
3	1.766	5.045	33.774	1.766	5.045	33.774	2.655	7.587	24.654
4	1.508	4.309	38.082	1.508	4.309	38.082	2.303	6.581	31.235
5	1.325	3.785	41.868	1.325	3.785	41.868	1.963	5.609	36.844
6	1.231	3.518	45.385	1.231	3.518	45.385	1.760	5.028	41.871
7	1.148	3.279	48.665	1.148	3.279	48.665	1.662	4.747	46.619
8	1.095	3.129	51.794	1.095	3.129	51.794	1.435	4.101	50.719
9	1.045	2.985	54.779	1.045	2.985	54.779	1.421	4.060	54.779
10	1.000	2.857	57.636						
11	.946	2.703	60.339						
12	.915	2.615	62.954						
13	.897	2.562	65.516						
14	.829	2.368	67.883						
15	.808	2.307	70.191						
16	.805	2.300	72.491						
17	.751	2.145	74.636						
18	.715	2.044	76.680						
19	.692	1.977	78.657						
20	.660	1.887	80.543						
21	.633	1.808	82.352						
22	.608	1.737	84.088						
23	.593	1.695	85.783						
24	.558	1.595	87.378						

25	**.519**	**1.484**	**88.863**						
26	**.502**	**1.436**	**90.298**						
27	**.495**	**1.415**	**91.713**						
28	**.456**	**1.303**	**93.016**						
29	**.406**	**1.159**	**94.175**						
30	**.398**	**1.138**	**95.314**						
31	**.368**	**1.052**	**96.366**						
32	**.362**	**1.034**	**97.400**						
33	**.328**	**.936**	**98.337**						
34	**.303**	**.867**	**99.203**						
35	**.279**	**.797**	**100.000**						
Extraction Method: Principal Component Analysis.									

Scree Plot

The scree plot reconfirms and helps us to determine the optimal number of components. The eigenvalue of each component in the initial solution is plotted. Values above 1 are cardinal are contribute to understanding the factors affecting BA. Values below 1 are on the shallow slope and contribute little.

Figure 14: Scree Plot



Rotated Component Matrix

The rotated component matrix helps determine what the components represent.

Table 13: Rotated Component Matrix

Rotated Component Matrix									
	Component								
	1	2	3	4	5	6	7	8	9
(1) Access to major airports	.115	.059	.099	.005	.063	.677	.202	-.080	.070
(2) Aerial work	.246	-.092	.017	.207	.351	.535	.130	.252	-.159
(3) Aeronautical Services	.049	.064	.162	.204	.061	.713	-.218	.023	.057
(4)Usage of business aircraft in agriculture.	.265	.119	-.076	.030	.452	.012	.041	.504	.283
(5) Type of aircraft	.223	.271	.211	-.076	.004	.044	-.027	.615	-.033
(6) Ease of Acquisition	-.040	.447	.276	.152	.120	-.069	-.051	.386	.137
(7) Use of aircraft for business purposes	.052	.801	.052	.063	-.014	.069	.059	.123	.003
(8) Build regional airports	-.029	.163	.077	.649	.046	.280	.030	-.034	.107
(9) Aircraft Financing	-.010	.080	.118	.076	.246	.006	.713	.063	.127
(10) GA	.303	.094	-.156	.350	.107	.099	.334	.115	.300
(11) Aircraft as a business enabler	.140	.696	.043	.155	.055	.027	.125	.007	.004
(12) Transportation of cargo	.651	-.013	.029	.046	.199	.142	-.183	.320	.038
(13) Connectivity to tier 2 and tier 3 cities	.148	.024	.255	.719	-.158	-.047	.061	.166	.145
(14) Economic development of India	.110	.301	.139	.630	.188	.084	.010	-.174	-.270
(15) Business environment	.134	.263	.194	.479	.339	-.116	.203	.008	-.325
(16) Explorations and surveys	.621	.151	-.008	.216	.165	.038	.026	-.055	-.085
(17) Ground handling	.216	.075	.579	-.037	.019	.175	.173	.075	.006
(18) Potential for growth	.317	.187	.257	.124	.077	.099	.475	-.136	-.167
(19) Input costs	.366	-.018	.229	.085	.428	.104	.309	-.083	.065
(20) Potential liability costs	.329	-.010	.320	.104	.558	.177	.184	-.013	-.068

(21) Gathering news for media	**.590**	**.134**	**.350**	**.043**	**.104**	**-.110**	**.115**	**.024**	**-.007**
(22) Tourism	**.709**	**-.062**	**.133**	**-.046**	**.046**	**.185**	**.154**	**.047**	**.145**
(23) Scientific Research	**.608**	**-.051**	**.042**	**.027**	**-.018**	**.121**	**.060**	**-.024**	**.432**
(24) Medical Services	**.418**	**.233**	**.193**	**.202**	**-.049**	**.083**	**.204**	**.039**	**.357**
(25) MRO	**.107**	**.250**	**.391**	**.369**	**-.082**	**.198**	**.085**	**-.010**	**.159**
(26) Transportation of passengers	**.186**	**.259**	**.296**	**-.114**	**.002**	**.365**	**.365**	**.141**	**-.072**
(27) Policies and Procedures.	**.029**	**.131**	**.506**	**.200**	**.082**	**.071**	**-.020**	**.020**	**-.118**
(28) Tool of productivity	**-.061**	**.773**	**.088**	**.178**	**.165**	**.045**	**.067**	**-.026**	**.117**
(29) Public services	**.208**	**.166**	**.129**	**.027**	**.304**	**-.005**	**.021**	**.055**	**.654**
(30) New regulatory authority	**.271**	**.253**	**.207**	**-.061**	**.279**	**-.014**	**-.132**	**-.519**	**.012**
(31) Safety Management System	**.233**	**-.071**	**.472**	**.058**	**.229**	**.114**	**-.128**	**-.188**	**.080**
(32) Current Security scenario	**.055**	**.163**	**.122**	**-.053**	**.603**	**.086**	**.101**	**.008**	**.146**
(33) Supporting Associations	**-.039**	**.300**	**.399**	**.131**	**.340**	**.106**	**.236**	**-.098**	**.224**
(34) Training	**-.001**	**-.008**	**.664**	**.119**	**.186**	**.022**	**.134**	**.112**	**.160**
(35) Experience of other countries	**.111**	**.208**	**.430**	**.276**	**.008**	**-.013**	**.318**	**.015**	**-.002**

- **Extraction Method: Principal Component Analysis.**
- **Rotation Method: Varimax with Kaiser Normalization.**
- **Rotation converged in 21 iterations.**

Component Transformation Matrix

For each case and each component, the component score is computed by multiplying the case's standardized variable values (computed using listwise deletion) by the component's score coefficients. The resulting nine component score variables are representative of, and can be used in place of, the 35 original variables with only a 3% loss of information.

Table 14: Component Transformation Matrix

Component Transformation Matrix									
Component	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	**.480**	**.386**	**.457**	**.348**	**.343**	**.249**	**.284**	**.093**	**.146**
2	**.614**	**-.612**	**-.107**	**-.375**	**.150**	**.160**	**-.026**	**.084**	**.203**
3	**.140**	**.485**	**-.379**	**-.238**	**-.043**	**-.269**	**-.096**	**.541**	**.411**
4	**.190**	**-.112**	**-.339**	**.637**	**-.388**	**.365**	**-.304**	**.229**	**-.050**
5	**-.463**	**-.036**	**.173**	**-.274**	**.070**	**.694**	**.003**	**.426**	**.102**
6	**.045**	**.283**	**-.613**	**-.098**	**.486**	**.343**	**.006**	**-.310**	**-.287**
7	**.260**	**.340**	**.312**	**-.348**	**-.258**	**.169**	**-.650**	**-.228**	**-.172**
8	**-.140**	**.039**	**-.080**	**.072**	**-.109**	**.188**	**-.038**	**-.545**	**.788**
9	**-.184**	**-.171**	**.111**	**.255**	**.622**	**-.209**	**-.627**	**.113**	**.148**
Extraction Method: Principal Component Analysis. **Rotation Method: Varimax with Kaiser Normalization.**									

Chapter 6 : Conclusion and Suggestions

6.1 Findings

Factor Analysis helped in reduction of the 35 categories which had emerged during the qualitative phase into nine major factors responsible for growth of Business Aviation in India. The significant factor loadings, percentage of variance along with the variables affecting the factor are explained in Table 15.

Table 15: Factors for Business Aviation

Factors	Factor Interpretation (% Variance Explained)	Factor Loading	Variables included in the Factor
FI	FUNC 9.13%	0.709	Tourism (22)
		0.651	Transportation of Cargo (12)
		0.621	Exploration and Surveys (16)
		0.608	Scientific Research (23)
		0.59	Gathering News for Media (21)
F2	PRDTY 7.933%	0.801	Use of aircraft for business purpose (7)
		0.773	Tool of Productivity (28)
F3	GRHAND 7.59%	0.579	Ground Handling (17)
F4	INFRA 6.58%	0.719	Connectivity to tier 2 and 3 cities (13)
		0.649	Building regional airports (8)
		0.63	Economic Development of India (14)
F5	LIAB 5.61%	0.558	Potential Liability Costs (20)

F6	**ATMAN 5.03%**	**0.713**	**Aeronautical Services (3)**
		0.677	**Access to major Airports (1)**
		0.535	**Aerial Work (2)**
F7	**AIRFIN 4.75%**	**0.713**	**Aircraft Financing (9)**
F8	**U&T 4.10%**	**0.504**	**Usage in agriculture (4)**
		-0.519	**Type of Aircraft (5)**
F9	**PUBSER 4.06%**	**0.654**	**Public Services (29)**

- The first factor (F1) contributing to the growth of Business aviation is its functionality for variance of 3.179 which is 9.13% of total variance and is named as **FUNC**. It represents the aspects which demonstrate the functionality of business aviation like tourism, media, transportation of cargo etc.

- The second factor (F2) depicts that productivity is an important factor and it is used for purposes of business by organization. It is a tool of productivity and is named as **PRDTY**. This factor shows variance of 1.574 which collectively comes out to 7.933% of total variance.

- The third identified factor (F3) is **GRHAND** which indicates its importance and relevance for operation of a business aircraft and in reducing the turnaround time. This factor explains variation of 0.579, which is 7.59% of the total variance.

- The fourth factor (F4) relates to infrastructure which shows variance of 1.998 and contributes 6.58% in total variance. Building regional airports and connecting tier 2 and 3 cities contributes to economic development of India and is named as **INFRA**.

- The fifth factor (F5) connotes the potential liability costs and is named as **LIAB**. This represents variance of 0.558 which is 5.61% of the aggregate.

- Air Traffic Management is an important factor (F6) and a number of important aspects like aeronautical services, aerial work and access to major airports. This factor is named as **ATMAN** and explains variation of 1.925. This is 5.03% of total variance.

- The seventh factor (F7) accounts for a variation of 0.713 which explains 4.75% of the total variance. This factor emphasizes aspects related to aircraft financing, hence has been named as **AIRFIN**.

- The eighth factor (F8) explains usage and type of the aircraft and has been abbreviated as **U & T**. It represents a variance of 1.023 which accounts for 4.1% of total variance.

- The ninth factor (F9) is public services and is represented as **PUBSER**. It represents a variation of 0.654 accounting for 4.06% of total variance

The factors responsible for growth of business aviation have emerged as a result of qualitative and quantitative analysis and could provide direction to policy makers on its relative importance.

F1 indicates that the government should provide an enabling environment across a cross section of business sectors where business aviation functions like heli-tourism and religious tourism with suitable concessions in taxation from a green perspective. The development of cargo flights will help India's growth by providing shipment of medical supplies, food, mail, and many more items which will begin the growth process for the areas they serve.

F2 provides an insight to business organizations in sweeping away the mental cow-webs and using business aviation as a tool of productivity. Chambers of Commerce like FICCI and CII should create awareness about its use across its members. Business aviation is crucial for the rapid development of major businesses. Organizations today tend to be

relatively flat with few major decision makers who need to be on the ground to meet, greet, see, and close the deal. Fixed wing jet aircraft excel at this.

F3 indicates the importance of ground handling and the industry needs to establish a system of best practices that would reduce the turnaround time in a safe manner as currently the ground handling services cancels out the time benefits of private aircraft travel in India. Business aircraft typically utilize authorized service centers as against an MRO which takes care of business aviation services like Livery painting, conversions, calculation of residual values of aircraft/helicopters etc.

As per F4 regional airports can become the conduit to economic development. Union government should encourage development of regional aviation as an agent for change. India needs more and better airport facilities, support facilities, ATC management, and all the infrastructure that enables aircraft to perform, deliver their passengers, so they can build their businesses, do their work and grow the Indian economy. Govt. of India needs to identify aviation industry as the key economic engine for the growth of the country since it not only generates aeronautical and non-aeronautical revenues but acts as an international gateway for the business development and growth as a whole.

The intent of F5 is to encourage aviation companies to plan for potential liability thorough a system of group insurance.

F6 showcases the importance of air traffic management and government should develop a policy for air traffic management using latest technology from the aerospace sector. ATC and the civil aviation infrastructure needs to understand the way business is done in this sector at an international level.

New and innovative aircraft financing models as per F7 would be required for the growth of business aviation in India. The most important aspect is breaking down governmental inhibitors, especially in the realms of customs and import duties, tax credits for purchase and accelerated depreciation. There is presently too much regulation around the importation of aircraft and the currency controls affecting a buyer's ability to wire hard currency to an international aircraft manufacturer.

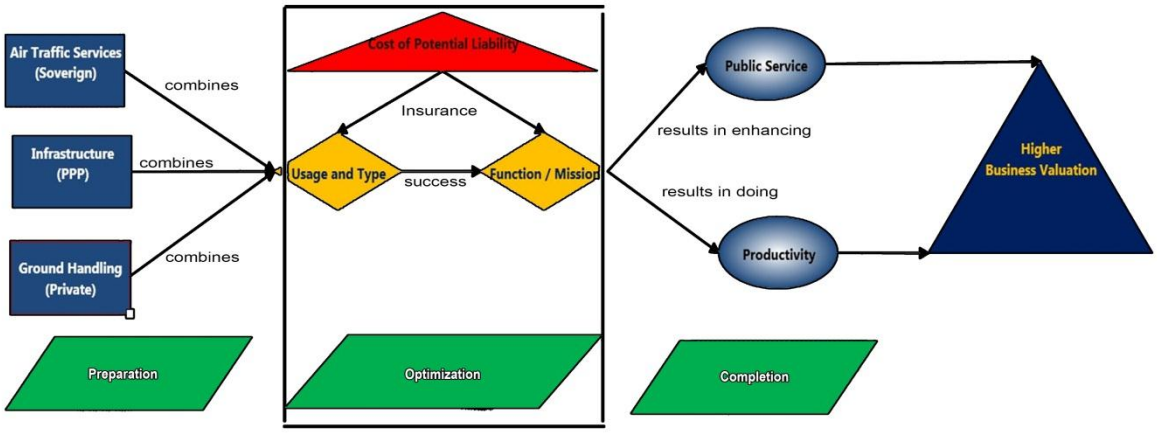
It is also crucial to develop a policy both at union and state level to encourage use of aircrafts in agriculture like cropping and dusting as per F8.

A policy conducive to encourage use of aircraft for public services like police, disaster management, and medical evacuation under F9 is required. Suitable outsourcing policies for Utility aviation like agriculture, patrol, media, heavy lift, firefighting etc. should be developed. Lack of medical facilities in the hinterland can be augmented with medevac's and HEMS services.

6.2 FABA India Framework

FABA India is a systems approach looking at BA from an input, process and output perspective as shown in figure 15.

Figure 15: FABA India Framework



Objective of any commercial organization is to enhance productivity leading to higher revenue generation and higher market valuation. In this framework both of them are combined in the term business valuation. Being a process driven activity, the FABA India framework describes how business aircraft operators could ensure higher business valuation.

Infrastructure, Air Traffic Services and ground handling are the fundamental building blocks in the preparation of the sortie. The length of the runway, stated usage by the manufacturer along with navigation coverage and the availability of IFR is an important factor in deciding the type of aircraft. Optimization of resources due to the constraints is responsible for success of the mission. Optimization of the mission increases the possibility of costs due to arising of liability in case of an incident or mishap. Optimization stage needs to be protected by an individual or a fleet insurance. A successful mission would result in enhancing productivity of Corporate India and a higher valuation of the company in the stock market. Public Service using a business

aircraft results in corporate social responsibility enhancing the image and brand value of the company. This also leads to higher valuation on the bourses.

The larger base shows that primary activity of the business aircraft is to enhance productivity for the organization and should be used as a tool of productivity. Public Service at the apex of the triangle indicates the limited nature of use of business aircraft as a part of corporate social responsibility.

Chapter 7 : Recommendations

7.1. Recommendations

Based upon the entire research conducted spanning across qualitative and quantitative dimensions, the findings were placed in chapter VI. No research is complete until the findings are converted into suitable recommendations which can be acted upon for better policy making. Following are the recommendations on the basis of data analysis and interpretation done by the researcher in this study of BA.

F1: Functional

The growth of BA is dependent on how the aircraft is utilized from a commercial perspective hence calls for policy interventions and a focused approach.

The following is specifically recommended.

- Create a policy for promoting the use of Helicopters as tool of connectivity in the hilly regions of north and north eastern India
- Create a supportive policy for movement of cargo in some of the core industries like Mining, off shore and hydroelectric Projects.
- Focus should be on point-to-point connectivity from a tourism perspective as against Hub and Spoke Model of scheduled carriers as it becomes cheaper for smaller aircraft to fly on these routes.
- Focus on development of heliports and roof top landing facilities.
- Focus should be more on tapping connectivity between tier 2 and tier 3 cities.

F2: Productivity

An aircraft is a tool of productivity and there is need to change the mindset both of policy makers and Corporate India.

Following is being specifically recommended.

- Business Aircraft Operators Association should institute a large scale study on benefits of usage of business aircraft within India both among companies listed on the stock exchange and the MSME segment like those sponsored by NBAA (USA). The results of such study need to be communicated across India
- Policy giving tax breaks should be formulated in order to encourage companies to use aircraft as a tool of productivity.

F3: Ground Handling

Ground Handling is a crucial activity of business aircraft operations and needs to be streamlined.

The following is being specifically recommended.

- In order to ensure transparency, Ground Handlers should be selected by a bidding process at airports where there are multiple contenders
- The list of Ground Handlers and the services provided along with charges should be displayed at Airport Authority of India Website both for AAI and PPP airports.
- Ground Handler should be a single point of contact for both aeronautical and non-aeronautical services and should be able to accept all payments through electronic medium and subsequent transfer to all service providers.
- Use of Information Technology to create a BAOA endorsed Aviation Card to pay ATC Charges, landing, Parking, and Refueling etc.
- Universities and Educational Institutions to create a separate certification program for Ground Handling.

F4- Building Infrastructure in tier 2 and 3 Cities is important for growth as it would not only add to job creation but also add to economic activity.

As an active agenda the following is being recommended.

- Develop dedicated infrastructure like Aprons and Terminals to deal with Business Aviation
- States to have their own regional shuttle services.
- Upgrade non-operational airstrips in towns of economic significance like ports, mining, tourists and industrial clusters and create BA Hubs.
- Create Aerotropolis in various regions around the BA Hubs as a model for economic development along with societal integration by enhancing commercial activities such as creating a high street at these BA Hubs to generate non-aeronautical revenue.
- Develop the Sea plane infrastructure to take advantage of long coastline and water bodies
- Develop Helicopter infrastructure and appropriate corridor in India as point to point capability
- Develop night landing facilities at existing airports in tier 2 and tier 3 cities.
- Increase the number of Civil Enclaves with sufficient easing of procedural aspects both for domestic and foreign registered aircraft.

F5- Potential Cost of Liability

Aircraft are capital intensive objects and are subject to losses due to various circumstances, therefore aircraft insurance becomes critical. Due to the varied ownership, type and maintenance of aircraft, the aircraft insurance in India is done only on an individual basis

As an active agenda the following is being specifically recommended.

- Government of India should give precedence to Cape Town Convention due to global nature of trade.
- Business Aircraft Operators Association should develop a product for fleet insurance in order to reduce the cost of insurance and give an option to its members in reducing total operating costs and enhancing profitability

- Business Aircraft Operators Association along with DGCA should implement IS-BAO as a global Safety Management Program (SMS).

F6- Air Traffic Services

- Create a System Wide Information Management (SWIM) network. The ability to get information from and to all stakeholders regarding cloud heights, visibility, and turbulence is important for Business and GA and should be disseminated through an open access system.

F7- Aircraft Financing

Brokers play a major role both in the acquisition of an aircraft and in chartering an aircraft and the initial growth and the reputation of fledgling industry is dependent upon them. It is necessary that they have requisite education and knowledge.

The following is specifically recommended.

- Liberalize import policies for the growth of Business aviation along with opening up the private sector manufacturing of business aircraft in India by international players.
- Government of India should sign WTO's Agreement on Trade in Civil Aircraft (ACTA) eliminating import duties for Civil Aircraft, components and sub-assemblies.
- Reserve Bank of India should notify a standard policy for advance payment in foreign currency for a capital asset like an aircraft.
- Different customs duty structure for import of aircraft based on licensing category should be done away with.
- Brokers in the BA Industry should undergo a regular certification process which should be coupled with refresher training every three years through Business Aircraft Operators Association
- They should be registered with Ministry of Civil Aviation on recommendation of BAOA.

F8- Usage and Type

For growth of the BA Industry it is necessary that the industry be tracked on a regular basis.

The following is specifically recommended.

- Data about the usage, cost and type of the aircraft should be maintained centrally by BAOA and a status report on opportunities and challenges should be released annually during the AGM.

F9- Public Services

An aircraft is an asset which can be used in times of public emergency. It could play a vital role in reducing response time.

The following is specifically recommended.

- Suitable outsourcing policies for Utility aviation like agriculture, patrol, media, heavy lift, firefighting etc. should be developed.
- Create a policy for Air Ambulance Services by large medical Institutes in nature of Helicopter based Emergency Medical Services (HEMS)
- On declaration of national emergency or state emergency the asset should be made available to the public authorities.
- Use of business aircraft for public purpose should be considered a public Service.

Others

Regulatory

Travel on demand, with very short notice, is one of the essential value propositions of Business Aviation It is essential to have an integrated system of airports and airspace with one unifying, over-arching, and professional regulatory agency. Open skies, open access to domestic airports with reduced regulatory interference is a must for business aviation to grow.

The FAA provides a more suitable System that enables the industry to grow safely, without high cost-low value bureaucracy being allowed to grow like a cancer. The regulatory framework in general needs to become friendlier to business aviation and encourage this as a mode of transport for the people that require the services. At present it is fairly difficult to operate any type of flight which defeats the purposes and conveniences of owning and operating a business aircraft. The concerned ministries and departments should be well versed with the developments happening around the world and should be ready to change the prevailing rules and regulations.

Policies must be instituted that support and promote business aviation, and which eliminate regulatory impediments and delays. Regulatory policies should take into account all aircraft roles and all markets of aviation, along with the ancillary regulations that affect these roles and markets, such as registry, lender/lessor security, SMS, airports, reporting on weather, traffic, accident reporting and statistics, and access to the court system for accidents, bankruptcies, repossessions, and contractual breaches.

- Create categories called AOC (small), AOC (medium) and AOC (large) from a licensing perspective and separate monitoring and facilitation department within DGCA or proposed CAA.
- From a customs perspective, ease the differential customs duty and procedural aspects of importing the aircraft.
- Easier access procedure to the asset both from domestic and international perspective.

Business Aircraft Operators Association

A strong representative association is very important for the development of Business Aviation. It needs to do the following for its members.

- Create a register for topical interests
- Co-Branding through a fuel card resulting in generation of data on fuel consumption.
- Integrate with Aerospace industry and create a larger advocacy group.
- Create a bi annual air show for Asian Countries.

7.2. Scope for further study

1) Regulatory comparison with reference to BA across US, Europe and India
2) What percentage of Rupee spent by BA transportation services by service users eventually goes towards paying for the capital costs, operational costs and security costs?
3) Creation of an Airport Economic Impact model for India
4) Survey of Safety Issues in GA for India
5) Measuring Economic Impact of GA in India
6) Role of Sea Plane Operations in India
7) Comparative analysis of rail road system with BA

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Appendix "A"- Interview Guide

Establish Credibility

1. How long you have been in the BA? How has your experience been?
2. What is the status of BA in India? Which are the best places in India for BA?
3. Are there any advantages of rotary over fixed wing in India?
4. What are the advantages you see of pre-owned owned aircraft over new one or vise versa
5. Why do people buy business aircraft? Are there any trigger points when people buy business aircraft? What are your goals in BA

Process of Acquisition of BA Aircraft

6. Which are the companies or other players acquiring business aircraft?
7. What is the process of acquiring business aircraft in India? Please describe
    a. Please describe the events that led up to the acquisition
    b. Who exerts control in the process of buying business aircraft and in what conditions? Was anyone else involved in the process of acquisition? How were they involved?
    c. What are the constraints you faced in acquiring a business aircraft in India?
        i. What are the infrastructural constraints?
        ii. What are the financial constraints
        iii. What are the Regulatory constraints
        iv. What are the skill related constraints
        v. Any Other
    d. What helps you to manage the problems you encounter? Tell me the sources of these problems .What can be done to improve the situation?
    e. How was your experience of importing the first business aircraft? What did you think while importing the business aircraft?

8. Could you describe a typical day while using your business aircraft? How is business aircraft used in India generally?

9. How would you describe the changes in your life after the acquisition of the aircraft? What are the feeling and thought after the successful acquisition

10. Tell me how you learned to handle the process of acquisition Tell me how you would go about acquiring a business aircraft now
11. What do you think are the most important ways to acquire a business aircraft in India? How did you discover them? How has your experience before discovering the new ways affected how you handle the business now

Industry

12. How is the industry organized? What organizations effects, oversee, regulate or promote this activity?
    a. What are the positive and negative things with respect to the regulation?
    b. In your opinion is there any change required in regulation?
    c. Has any organization or individual been helpful? What did they help you with?
    d. How has it been helpful?

13. As you look back on your journey in BA, are there any other events that stand out in your mind? How did this event affect what happened? How did you respond to it?
14. Could you describe the most important lessons you learnt through the process? What are the changes you visualize should happen going forward?
15. What do you think of BA industry, its potential and its future over the next fifteen years? What kinds of business models are used in India?
16. How is success defined in BA? What is required for success in BA?
    a. Practices
    b. Skills
    c. Strategies
    d. Any Other
17. After having these experiences, what advice you would give to someone who is just embarking on a journey in the area of BA in India?
18. Have I missed out something which in your opinion is important? Any thoughts you would like to share?

Appendix "B"- BA Survey

Survey

Growth of BA

(Note: This information is purely for the purpose of research and will never be disclosed to anyone anywhere.)

Name_____

Organisation_____

E-Mail_____ **Contact No.**_____ **City**_____

Experience in Aviation Business_____

Please consider the following while filling the questionnaire:

Level of Satisfaction	*Very Unimportant*	*Unimportant*	*Neither Unimportant nor Important*	*Important*	*Very Important*
Points	*1*	*2*	*3*	*4*	*5*

➢ In your opinion, to what extent are the following categories important for the growth of BA in India

Note: Give points as per your level of importance with respect to the following categories for BA putting a tick (√) mark in appropriate box.

	Particulars	**1**	**2**	**3**	**4**	**5**
1	*In your opinion, to what extent access to major airports is important for the growth of BA in India?*					
2	*In your opinion, to what extent is aerial work important for the growth of BA in India?*					

3	*From your perspective, to what extent are air traffic services important for the growth of BA in India?*					
4	*Kindly indicate the importance of usage of business aircraft in agriculture.*					
5	*How important is the role of type of aircraft?*					
6	*How important is the "Ease of Acquisition" for any business aircraft?*					
7	*How important is the use of aircraft for business purposes?*					
8	*From your perspective, how important is to build regional airports in India?*					
9	*Are aircraft Consultants important?*					
10	*Is GA important for the growth of BA?*					
11	*How do you rate the importance of an aircraft as a business enabler?*					
12	*In your opinion how important is the transportation of cargo for the growth of BA?*					
13	*Is connectivity to tier 2 and tier 3 cities important?*					
14	*How important is the economic development of India for growth of BA?*					
15	*How important is the role of business environment?*					
16	*Are explorations and surveys important for BA?* *(Exploration and Surveys indicates exploration for oil in the high seas and similar activities)*					
17	*How important is ground handling at airports?*					
18	*Is "Potential" an important factor for growth of BA?*					
19	*How important are input costs for BA?*					
20	*Do potential liability costs play an important role?*					
21	*Is gathering news for media critical?*					

22	*How do you rate the importance of tourism to BA?*					
23	*Is scientific research important to BA?*					
24	*Providing medical services is important for BA.* *Please rate the statement.*					
25	*How important is the growth of MRO segment for BA?*					
26	*How important do you rate the importance of transportation of passengers for BA?*					
27	*Please indicate the role of policies and procedures*					
28	*How do you rate business aircraft as a tool of productivity?*					
29	*How important is the role of BA in public services?* *(Public Services would mean policing, crowd control, disaster management etc.)*					
30	*Is the establishment of a new regulatory authority like Civil Aviation Authority important for the growth of BA?*					
31	*How important is the role of a Safety Management System (SMS)?*					
32	*How do you rate the current aviation security scenario from a BA perspective?*					
33	*How important is the role of supporting institutions like Business Aircraft Operators Association?*					
34	*How critical is training for the growth of BA?*					
35	*How relevant is the experience of other countries for the growth of BA in India?*					

1) From your perspective which of the following would play a greater role in the growth of BA?

Fixed Wing ☐ Rotary Wing ☐ Both ☐ Neither ☐

2) Anything else, if you want to mention or suggest_____

_____

Appendix "C"- - Aircraft Acquisition Process

- Research the worldwide aircraft market
- Gather data on available aircraft
- Analyze data provided by the seller including specifications, history, condition, cosmetics, and maintenance status.
- Determine the fair market value of aircraft
- Complete a spreadsheet comparison of aircraft of interest
- Secure a chain of title and title search on aircraft of interest
- Secure a maintenance status report on aircraft of interest
- Analyze maintenance status report and estimate immediate and anticipated near and long-term expenses
- Make recommendations to the Buyer for acquisition, offer price and terms. Negotiate with seller on behalf of Buyer
- Recommend pre-purchase inspection facility
- Arrange and attend demonstration flight including pre-demo physical on-site cursory inspection of the aircraft if necessary to verify specifications and condition.
- Prepare all necessary contracts including offer, sales and purchase agreement, acceptance certificate, etc.
- Prepare all necessary documents and accurate filing Recommend aviation title escrow agent
- Attend and handle oversight of pre-purchase inspection
- Negotiate resolution of pre-purchase discrepancies
- Handle all interfaces with involved professionals including seller, maintenance facility, escrow agent, banker or financial institution, insurance agent and underwriter, attorney, CPA/tax professional, pilots, etc.
- Assist in the transference of applicable warranty items.
- Arrange and attend acceptance flight.
- Attend physical delivery of the aircraft subsequent to closing as required.
- Witness execution of acceptance and delivery receipt as may be required for tax purposes.
- Follow through on post-closing details

Appendix "D"- Business Aircraft Manufacturers

S No.	Company	Make of the aircraft
1	Bombardier	Challenger 300
		Challenger 601-1A
		Challenger 601-3A
		Challenger 601-3R
		Challenger 604
		Challenger 605
		Challenger 805
		Global 5000
		Global Express
		Global Express- SRS
2	Boeing	BBJ
		BBJ 2
		BBJ 3
3	Air bus	ACJ 318
		ACJ 319
4	Cessna	Citation Excel
		Citation Sovereign
		Citation X
5	Dassault	Falcon 2000
		Falcon 2000 DX
		Falcon 2000 EX/EASy
		Falcon 2000 LX
		Falcon 50
		Falcon 50 EX
		Falcon 7X
6	Embraer	Legacy 600
		Linage 1000
7	Gulfstream	G 150
		G 200
		G 280
		G 450
		G 550
		G 650
		G III
		G IISP
		G IV
		G IVSP
		4000
	Hawker beach craft	400 XP
		700 A

		800 XP
		850 XP
		900 XP
9	Learjet	55
		60
		60 XR

Source: (http://www.l-lint.com/manufacturers/)