BOMBARDIER INC.

Background

A world-leading manufacturer of innovative transportation solutions, from regional aircraft and business jets to rail transportation equipment, Bombardier Inc. is a global corporation headquartered in Canada. Its revenues for the fiscal year ended Jan 31, 2004 were US$ 15.5 billion and its shares are traded on the Toronto, Brussels and Frankfurt stock exchanges.

Bombardier has two businesses in India: Bombardier Transportation and Bombardier Aerospace

Bombardier Transportation

Bombardier Transportation (BT) is the global leader in the rail equipment manufacturing and servicing industry. Its wide range of products include passenger rail vehicles and total transit systems. It also manufactures locomotives, freight cars, bogies, propulsion and controls and provides rail control solutions.

BT is associated with the Indian Railways as a component supplier for propulsion and signalling systems. A state-of-the-art factory for manufacturing propulsion equipment has been set up (since 1996) at Vadodara. This site has achieved ISO 9001, ISO 14001 and OHSAS 18001 certifications. Its signalling office and software development centre is also located at Vadodara. Its marketing offices are located at New Delhi, Mumbai, Calcutta and Chennai and the company has a total workforce of about 175 employees.

BT India’s competencies currently cover the following products/services:

- Propulsion & control:
  - Power Converter – 2250 kW for converting single phase to 3 phase AC to feed the traction motors of 3 phase electric locomotives
  - Auxiliary Converter – 3 x 100 KVA used to feed the auxiliary load of the 3 phase locomotives
SUCCESS STORIES

- Control Electronics – Interface control signals with all other equipment of the 3 phase locomotives
- Locomotive Circuit Breaker (VCB type) for isolating locomotive from supply for both 3 phase and conventional electric locomotives
- 180 KVA Converter for supply of the auxiliary load of the conventional locomotives
- 25 kW Static Converter for supply of ACs in Railway Coaches
- Tap changers for controlling speed of conventional locomotives

Rail control solutions:
- Audio Frequency Track Circuits Type TI 21 - Automatic Signalling for Jointless Track circuits enabling higher train frequency
- Relays and Relay Groups (Metal to Metal contact type) for Signal Control
- Panel Interlocking, Route Relay Interlocking
- Traffic Management System with centralised online control
- Software for signalling and traction applications with Bombardier Group

Services:
- Spare part management for equipment supplied by Bombardier Transportation
- Mid-life revamping of Tap Changer supplied to Indian Railways
- Repair of complex Printed Circuit Boards (PCB) for converter electronics

Bombardier Aerospace

Bombardier Aerospace is a world leader in the design and manufacture of innovative aviation products and provides services for the regional, business and amphibious markets. It also offers the Bombardier Flexjet® fractional ownership program, technical services, aircraft maintenance and pilot training for business, regional airline and military customers.

The Government of India has been flying Bombardier Aerospace products since 1981, with two Learjet 29 aircraft currently in service. Bombardier is now in discussions with key players in the Indian aviation industry to help initiate regional services in different parts of the country.

Regional connectivity will need smaller planes, and in developing countries the passenger load is often not sufficient to put up wide-bodied aircraft on various routes. Bombardier offers 50 and 100-seater planes that are the right size for the market. In addition, fewer passengers are needed to make a profit in the smaller aeroplanes because breakeven point on the 70-seater Bombardier is around 48 per cent, i.e. it needs to get less than 35 passengers to fly into profit. In comparison, the Boeing or the Airbus aircraft have a breakeven point of around 60 per cent. In addition, the Indian Government is offering sops for smaller planes: under 80-seater aircrafts do not have to pay landing charges under the new policy and route navigational charges are much lower than those for wide-bodied aircrafts.
Achievements in India

Bombardier Transportation

• BT supplied 6 phase angle controlled locomotives (1987 onwards) to Indian Railways from Sweden. Local services including commissioning warranty and after-sales services provided by its local Indian company.

• BT supplied 30 electric locomotives (1993 onwards) to Indian Railways from Switzerland with value addition from India. Transfer of Technology was given to Chittaranjan Locomotive Works of the Indian Railways. Indian Railways became the first railway organisation in this region to operate locomotives pioneering Gate-Turn-Off traction converters and three-phase control.

• BT introduced the Traffic Management System (TMS) project for the Western Railway in Mumbai covering a stretch of 60 kilometres and 28 stations from Churchgate to Virar. Commissioned in Jan 2004, this system has approximately 1000 trains running on it every day. The project introduced and incorporated latest information technology in rail signalling systems and traffic operations for improving suburban rail services. This system enables Indian Railways to keep commuters informed on a real time basis on the status of trains by ensuring information access at a control centre at Mumbai Central station.

Bombardier Aerospace

• Bombardier has already sold seven 50-seater CRJ-200s to Air Sahara and negotiations are underway for more. Airline companies like Air Sahara prefer to procure/upgrade aircraft within the same family so that spare parts and training costs are common and therefore lower.

• Reliance Industries has acquired the top of the line corporate jet – Bombardier Global Express with its customised interiors and streamlined looks. It can fly Mumbai-New York non-stop. To develop the business aviation market in India, Bombardier is planning to expand its Bombardier Flexjet® fractional ownership program into this country.

Factors for success

Localisation

BT India has realised the benefits of localisation in the highly price-sensitive Indian market. BT India pursued the localisation strategy for high-value imported items in all products. Its high level of localisation enabled BT India to compete with much bigger & lower cost competitors.

State-of-the-art global technology and processes

Bombardier Transportation is bringing global and contemporary technology to India. For example, the company has been instrumental in the introduction of 3 phase high speed electric locomotives (passenger and freight) to CLW works of Indian Railways and traffic management system for effective train management for Western Railway in Mumbai region. BT has adapted to BT’s global processes to ensure recognition for BT India as a process driven organisation.

Outsourcing engineering services

Infotech has signed a long-term agreement with Bombardier Transportation to set up an Engineering Services Unit at Hyderabad. Under the terms of this agreement, Infotech will provide Bombardier Transportation a range of services in Design Engineering Projects for the Railway Industry. The new Engineering Services Unit will also execute projects in the area of Software Development Services and Embedded Services.

Leveraging the India Advantage

Engineering services

To leverage the low-cost high-quality advantage of India in global cost efficiencies, BT has set up Engineering Services India (ESI) centre. BT Headquarters has identified India as the destination for its engineering centre to support its global transportation divisions including Mainline and Metros, Propulsion and Controls, Rail Control Solutions, Services and others.
Sourcing

Bombardier is looking at developing a vendor base in India for its aviation and transportation businesses around the world. For this, the process of strategic alignments with key industries is under evaluation.

Future plans

Bombardier Transportation

Bombardier Transportation has offered to introduce IGBT (Integrated Gate Bipolar Transistor) based propulsion system for the Electric Multiple Units to be manufactured by Integral Coach Factory, Chennai, for the Mumbai region.

It is keen to get involved with the development of mass rapid transit systems in various cities in India. Bombardier is also examining the possibility of making India an important centre for developing technologies for the global projects that it undertakes. For example, localisation of electronics cards to gain cost leadership in the local market.

After successfully implementing the Traffic Management System for Mumbai suburban, BT India is considering similar projects for high-density areas like Central Railway Mumbai, Chennai and Kolkata. Apart from this BT India is also planning to execute projects in control systems and signalling products.

Bombardier Aerospace

India has been identified as one of the three strategic international markets for Bombardier, the others being China and Russia

Bombardier believes India will need over 500 aircraft in the 20 to 90-seater category in the next 10 years. Bombardier also believes that 40 per cent of these orders will be placed in the next two to three years. India’s domestic carriers are expected to move to connect short-haul routes around the country (like Coimbatore to Chennai or Ludhiana to Chandigarh), and will need smaller 50 to 100-seater aircraft to meet this objective.

To develop the Indian aviation market, Bombardier is planning to expand its Bombardier Flexjet fractional ownership programme.

Bombardier hopes to sell more than 100 aircraft in the 20 to 90-seater category during the next five years in India.