Jet Aviation - Corporate Profile

Zurich I February 2011
Jet Aviation Group

Founded: 1967 in Basel, Switzerland

Headcount: 5,000 employees

Worldwide headquarter: Zurich, Switzerland
Worldwide Facilities: 24

Lines of Business:
- Completions & Refurbishment
- Maintenance
- FBO services
- Aircraft Management
- Aircraft Charter
- Personnel Services

Subsidiaries:
- Midcoast Aviation
- Jet Professionals

Alliances/Partnership:
- Jetcraft Trading (Aircraft Sales)
Historic Milestones

1967  Jet Aviation was founded by Carl W. Hirschmann in Basel, Switzerland as the first maintenance facility for business aircraft in Europe
1969  Acquisition of handling and maintenance facilities in Zurich and Geneva
1977  Start of customized interior outfitting and refurbishment services
2005  Jet Aviation Group is acquired by Permira, a leading European based private equity firm
2008  Jet Aviation Group is acquired by General Dynamics (NYSE:GD)

Regional Expansion

1975  Dusseldorf, Germany
1979  Jeddah, Saudi Arabia
1980s  Boston/Bedford, Palm Beach and Teterboro, USA
1995  Singapore
2001  London Biggin Hill, United Kingdom and Hong Kong, China
2005  Dubai, United Arab Emirates
2006  St. Louis, USA (Midcoast Aviation)
2007  Moscow Vnukovo, Russian Federation
2009  Sorocaba, Brazil
2010  Paris Le Bourget, France
Global leader in high-end business aviation services

Provides clients with all benefits of one company
- Seamless services integration

Offers consistent premium services
- Safety
- Quality
- Reliability
- Consistency
- Confidentiality

Global leader in high-end business aviation services

Capitalizes on a global footprint
- Strategic locations

Ensures flexibility
- Operations
- Logistics
Prestigious clientele

- Jet Aviation's client base is comprised of:
  - Large multinational corporations
  - Governmental agencies and Heads of State
  - High net worth individuals
  - Nearly all Fortune 500 Companies
  - Large number of Wall Street firms

- In depth contacts to VIPs around the world

- Many client relationships are 20+ years old

- Depth of client relationships has established high barriers to entry for competitors
Lines of business
Maintenance & Repair
### Lines of business
#### Maintenance & Repair

<table>
<thead>
<tr>
<th>Services provided</th>
<th>Business description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worldwide maintenance support network</td>
<td>Jet Aviation focuses on aircraft types that require high margin services and show higher fleet growth rates than the overall jet market</td>
</tr>
<tr>
<td>Authorized services stations by all leading aircraft manufacturers</td>
<td>17 locations, main hubs: Basel, Zurich, Geneva, Dubai, St Louis, Dusseldorf, Singapore and London (Biggin Hill)</td>
</tr>
<tr>
<td>Approved repair stations by FAA, EASA, and many countries</td>
<td>State of the art, well-invested facilities</td>
</tr>
<tr>
<td>Heavy and scheduled maintenance</td>
<td>FAA and EASA - certified on nearly every model of jet-powered executive aircraft. Excellent certification reputation</td>
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<tr>
<td>Line maintenance</td>
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<tr>
<td>Light repairs and 24-hour AOG services</td>
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<tr>
<td>Airframe/structural modifications</td>
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<tr>
<td>Experienced factory-approved trained technicians</td>
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<tr>
<td>RVSM installations</td>
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<tr>
<td>Cockpit avionics (GPS, FMS, AFIS, EGWPS, TCAS, IHAS)</td>
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<tr>
<td>Communications equipment (SATCOM)</td>
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<tr>
<td>Cabin management / entertainment systems</td>
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</table>

Jet Aviation is the world market leader for independent MRO services, focusing on fast growing and higher value larger and long range aircraft
Lines of business
Completions & Refurbishment
# Lines of business

## Completions & Refurbishment

<table>
<thead>
<tr>
<th>Services provided</th>
<th>Business description</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Major completions and refurbishment facilities in Basel and St. Louis</td>
<td>▪ 2 completions sites – Basel and St. Louis</td>
</tr>
<tr>
<td>▪ Exterior painting for large and small aircraft</td>
<td>▪ 8 refurbishment sites</td>
</tr>
<tr>
<td>▪ World class in-house design and engineering services.</td>
<td>▪ Jet Aviation has unique long-term strategic partnerships with OEMs and key customers</td>
</tr>
<tr>
<td>First company in the US to receive ODA level (self certifying authorization)</td>
<td>▪ De-bottlenecking measures will significantly increase capacity and enable Jet Aviation to respond to strong customer demand</td>
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<tr>
<td>expected in 2009</td>
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<tr>
<td>▪ In-house sheet metal, wood and upholstery shops</td>
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<tr>
<td>▪ Authorized completions center for BBJ &amp; Airbus ACJ/A319</td>
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<tr>
<td>▪ Official completions center Dassault Falcon (Basel)</td>
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<tr>
<td>▪ Official completions center Bombardier (St. Louis)</td>
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<tr>
<td>▪ Shell kit installations for Gulfstream and Falcon aircraft</td>
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</table>

Jet Aviation is the world market leader for complex wide and narrow body VVIP completions and has long term arrangements with Bombardier and Dassault for green aircraft.
Unique business model

- Only business aviation services provider able to satisfy a client’s need throughout the aircraft lifecycle
- Diverse, synergistic, timely and high quality services
- Variety of services, offering multiple points of entry to a complementary circle of benefits and services
- One-stop-shop solution
- Excellent cross-selling realization across lines of business

1) Provided through Jetcraft Trading, a Jet Aviation alliance

Jet Aviation provides all services related to the post production lifecycle of an aircraft
Jet Aviation facilities worldwide

- Geneva
  - Maintenance
  - Avionics
  - Engineering
  - Refurbishment
  - FBO
  - Charter
  - Airline Line Maintenance

- Paris La Bouquet
  - Line Maintenance

- Basle
  - Maintenance
  - Avionics
  - Engineering
  - Refurbishment
  - FBO
  - Charter
  - Airline Line Maintenance

- Lugano
  - Charter
  - Aircraft Management

- Basel
  - Maintenance
  - Avionics
  - Engineering
  - Refurbishment
  - FBO
  - Charter
  - Airline Line Maintenance

- Zurich
  - Maintenance
  - Avionics
  - Engineering
  - Refurbishment
  - Painting
  - FBO
  - Charter
  - Aircraft Management

- Johannesburg
  - Avionics
  - Engineering
  - Refurbishment
  - FBO
  - Charter
  - Aircraft Management

- Hong Kong
  - Maintenance
  - Avionics
  - Engineering
  - Refurbishment
  - Painting
  - FBO

- Dubai
  - Maintenance
  - Avionics
  - Engineering
  - Refurbishment
  - FBO
  - Charter
  - Aircraft Management

- Jeddah
  - FBO
  - Maintenance

- Moscow/Vnukovo
  - Line Maintenance

- Riyadh
  - FBO
  - Line Maintenance

- Kuala Lumpur
  - Line Maintenance

- Sao Paulo/Sorocaba
  - Hangarage
  - Maintenance
  - Charter
  - Aircraft Management
  - Aircraft Sales

- San Antonio
  - Engineering

- Dallas
  - FBO
  - Charter Support Services*
  - Aircraft Management
  - Personnel Services

- Chicago
  - Charter Support Services*
  - Aircraft Management

- Teteboro
  - FBO
  - Maintenance
  - Avionics
  - Charter Support Services*
  - Aircraft Management
  - Aircraft Sales
  - Personnel Services

- Boston/Bedford
  - FBO
  - Maintenance
  - Avionics
  - Engineering
  - Refurbishment
  - Painting
  - FBO
Hangar Capacity Jet Aviation Basel

Jet Aviation is now prepared for the upcoming demand through capacity expansion and training of our employees. The new wide-body completion center is adding **20’000 m²** of covered area and can house up to two wide-body aircraft (A340-600, A330…) with related shops.

The opening ceremony of our new Hangar took place on May 16th, 2008.

![Hangar Capacity Jet Aviation Basel](image)

### Hangar Space

<table>
<thead>
<tr>
<th>Hangar</th>
<th>Sept 97</th>
<th>Oct 05</th>
<th>March 07</th>
<th>May 08</th>
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<tbody>
<tr>
<td>H1</td>
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<td>Paint</td>
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<tr>
<td>H8</td>
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<td></td>
<td>Extension</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Wide Body Hangar</td>
</tr>
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</table>
Completion - New Wide-Body Hangar:
Various combinations of wide narrow body aircraft will be possible such as the following arrangements:

- A380 & A340
- A340-600 & A340-500
- A340 x A330
- ...

Maintenance - Extension of Hangar 1:
Active since February 2007 as a temporary structure, the extension of hangar 1 has been upgraded into a permanent structure in September 2008. This extension provides Jet Aviation with an additional 3’000 m² of permanent Hangar Space.
CAD/PDM Competence Center (CCC)

Industrial processes powered by state of the art technology

- ISODRAW (IPC)
- CATIA V5
- FEMAP (stress)
- CATIAV4
- SMARTEAM (PDM)
- AUTOCAD
- CATIA V5 (3D mock-up)
Where we come from…..

- No central data management (multiple project drives)
- No formal work planning in early project phase and engineering,
- manual interfaces
New Engineering Data Review and Release Process

Old process:

1. **Handover**
2. **ADT Definition**
3. **Establish 3D model**
4. **2D Creation**
5. **Signature loop**
6. **Stress**
7. **Approval**
8. **Planning**
9. **Production**
10. **Installation**
11. **DOA Approval**
12. **Problem report**

New process:

1. **ADT Definition**
2. **Handover**
3. **Establish 3D model**
4. **DMU Review**
5. **3D WF Signature loop**
6. **2D Creation Released**
7. **DOA Approval**

Interior Design Review loop of digital prototype!

2D release work flow

3D release work flow

DMU Report

Review Folder
## Project History
– Implementation of a virtual prototype process for VVIP aircraft interiors

<table>
<thead>
<tr>
<th>Date</th>
<th>Achievement</th>
</tr>
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<tbody>
<tr>
<td>April 2008</td>
<td>Foundation of CAD / PDM Competence Center</td>
</tr>
<tr>
<td>December 2008</td>
<td>Approval of investments by GD to implement CATIA V5 / SmarTeam</td>
</tr>
<tr>
<td>January 2009</td>
<td>First training and application of CATIA V5 / SmarTeam of an engineering team to design cabinetry for an A319</td>
</tr>
<tr>
<td>March 2009</td>
<td>CATIA V5 / SmarTeam to design cabinets for 2 zones of an A340</td>
</tr>
<tr>
<td>January 2010</td>
<td>First AC with entire mechanical engineering (cabinet, systems, structure) in CATIA V5 / SmarTeam</td>
</tr>
<tr>
<td>October 2010</td>
<td>First full 3D laser scan of an aircraft fuselage to achieve accurate environment data</td>
</tr>
<tr>
<td>January 2011</td>
<td>Implementation of full 3D based development process, leveraging 3D data with production and installation specialist (digital Mock-up process)</td>
</tr>
<tr>
<td>January 2011</td>
<td>Integration of Jet Aviation St. Louis to process and applications (Multi-Vault Operation)</td>
</tr>
</tbody>
</table>
OPERATIONAL STEP CHANGE / 3D CAD
Jet Aviation Basle and St. Louis

- Significant reduction of design-built shortcomings
- Reduction or elimination of pre-fit
- Step change in efficiency and schedule compliance
Business Case and Implementation Tactics

Financials

- Software investment 2.4 Mio €
- Business effort (additional hours for training, productivity loss, additional resources etc.) = approx. 10 Mio CHF

Based on issues in business a business case was build mainly addressing costs resulting from

- Poor engineering data quality
- Late changes and their side impacts (rework, material unavailable e.g. Long lead items, limited availability)
- Rework
- Delays
- Elimination of non productive processes (e.g. prefit)

Important implementation factors

- Go life asap with minimum functionality
- Management support and buy in. especially in go life phase and after (manage resistance)
- Set operational management objectives in correlation with projects, e.g. anticipated savings
- Train, support and document in detail application usage and new processes, 1st level support
CATIA / SMT Training Status

CATIA V5 Training

SmarTeam Training
Jet Aviation Basel first to sign B747-8 completions contract

Jet Aviation Basel is the first completions center to be contracted for the outfitting of a VVIP cabin interior of one of the eight VIP B747-8 aircraft sold to date. An agreement was recently signed with an undisclosed client from the Middle East, and the aircraft is expected to arrive in Basel in early 2012 with a completion cycle time of 24 months. ……

This B747-8 will be the first wide-body aircraft where CATIA and Smarteam, a 3-D design software for mechanical engineering, will be used for the engineering, production and data management requirements for the entire completion process. ……