IRIS -
International Railway Industry Standard
A success story
IRIS

a gift for our passengers
Operating Passenger Traffic

Our vision: We are moving the railway!

As the “factory” of SBB passenger traffic, Operating is responsible for the railway production in Switzerland. With its market and customer-focused services, Operating is the no. 1 for resource management, train preparation, train driving, and maintenance, refurbishment and procurement of railway vehicles.
Operating “strategy building”
Four strategic business fields

Vision
SEP
Strategic objectives
Strategic fields of action (5K)

Resource management

Train preparation
Cleaning, shunting

Train driving
Drivers

Vehicle maintenance
and modernization

Strategic procurement
Vehicle procurement/ strategic purchasing

Support functions: Materials management, security, training etc.

Organisational structure and processes

MFP and MIP

Vehicle procurement
Introduction of new rolling stock for regional services

DTZ EMU’s (SIEMENS)
Ordered: 60
In operation: 29
Availability: 86%

FLIRT EMU’s (STADLER)
Ordered: 82
In operation: 61
Availability: 93%
Overhaul and refit
rolling stock for regional services

Domino
Bombardier and SBB
Ordered: 13
Company: Regio Alpes

⇒ Please come and see us:
Hall 4.1
Operating
The path from the launch to excellence
On our way to Business-Excellence...
The way to Excellence (objective)

➔ to be the best in class

➔ to be focused on our customers

➔ to build up and maintain partnerships with our suppliers to

➔ to be highly performant

➔ to be concerned about environmental matters

➔ ...
The way to Excellence (customer focus)

What does the customer want?

- reliability
- availability
- maintainability
- safety
IRIS – a business management systems leads to a better quality

- Enlargement of ISO9001

- e.g. clause 7
  - 7.7 project management
    - 7.7.3 time management
    - 7.7.7 communication management
    - 7.7.8 risk and opportunity management
  - 7.9 FAI
  - 7.11 RAMS
IRIS – an audit tool supports the way to Business Excellence

→ RADAR logic in EFQM-model

<table>
<thead>
<tr>
<th>RADAR</th>
<th>0-10 %</th>
<th>15-35 %</th>
<th>40-60 %</th>
<th>65-85 %</th>
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<td>enabler</td>
<td>anecdotic</td>
<td>few proofs</td>
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<td>important p.</td>
<td>excellent p.</td>
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<td>positive in about 50 %</td>
<td>positive in 75 %</td>
<td>excellent r. all over</td>
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</table>

→ maturity levels in IRIS
IRIS = a gift for our passengers...

- IRIS = project management in a professional way
- IRIS = improvement in product quality for components and rolling stock
- IRIS = time management: on-time-delivery
- IRIS = a systematic approach to Business Excellence
On our way to Business-Excellence ...
Schweizerische Bundesbahnen SBB
Personenverkehr Operating
Wylerstr. 123/125
CH-3000 Bern 65

Susanne Schaub
Tel. +41 512 20 42 31
susanne.schaub@sbb.ch
IRIS -
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IAQG 9100: 2008
Aerospace Standard Evolution

Colin Clarke
Bombardier Aerospace
Chairman Americas Aerospace Quality Group

IRIS Seminar – InnoTrans 2008
September 26, 2008
Agenda

- Introduction to the International Aerospace Quality Group (IAQG)
- Membership of the IAQG
- 9100 Revision Objectives
- 9100 Revision Process
- 9100 Key Change
- Summary
Implement initiatives that make significant improvements in Quality and reductions in cost throughout the value stream by establishing and maintaining dynamic cooperation, based on trust, between International Aerospace companies.
### IAQG Membership

#### Americas
- ATK
- The Boeing Company
- Bombardier Aerospace
- Embraer
- GE Aviation
- Goodrich Corporation
- Gulfstream
- Honeywell Aerospace
- Lockheed Martin
- L3 Communications
- Northrop Grumman
- Parker Aerospace
- Raytheon
- Rockwell Collins
- Rolls-Royce North America
- Spirit Aerosystems
- Textron
- United Technologies Corp.
- Vought
- PRI *
- SAE *

#### Europe
- Airbus
- ALENIA
- Avio
- BAE Systems
- Dassault Aviation
- EADS
- EADS – CASA
- EADS Military
- Eurocopter
- Hegan
- Hispano-Suiza
- Israel Aircraft Industries
- Liebherr
- Messier-Bugatti
- Messier-Dowty
- MTU Aero engine
- PFW
- Rafael
- Rolls-Royce
- SAAB Aerospace
- SAFRAN
- Smiths Aerospace

#### Europe (Cont’d)
- Stork Fokker Aerostructures
- Sonaca
- Sukhoi
- Thales
- Turbomeca
- Volvo – Aero
- Westland
- Zodiac
- ASD * / ASD-EASE *

#### Asia
- AIDC
- AVIC 1
- AVIC 2
- Fuji Heavy Industries
- Harbin Embraer
- Hawker de Havilland
- Indonesian Aerospace
- IHI
- Kawasaki Heavy Ind
- Korea Aerospace Ind
- Korean Air Aerospace
- Mitsubishi Heavy Ind
- Samsung Techwin
- SMIC
- SJAC *

*: Sponsor
9100 Revision Objectives

- Incorporate ISO 9001: 2008 changes
- Expand scope to include land and sea-based systems for defense applications
- Ensure alignment with IAQG strategy (on-time, on-quality performance)
- Adopt new requirements based on stakeholder needs
- Improve existing requirements where stakeholders identified need for clarification
9100 Revision Process

**Project Mgmt.**
Design Specification & IAQG Strategy > 9100 objectives

**Data mining and Consolidation**
- 366 items

**Review process**
- Design Specification & IAQG Strategy > 9100 objectives

Stakeholder Input + Web survey

**MCRT**
(Master Comments Review Template)

**MCRT**
Accept/Reject Proposals/Comments

Started in April 2005

40% accepted
9100 Revision Process

Write the first draft

Review of the first draft

Review of coordination draft

9100 draft
18 June 2007

9100 draft
7 August 2007

9100 coord draft
Nov 2007
9100 Revision Process

9100 Formal Ballot
May 2008

Release Date: December 2008
**Clause 1 - 9100 Scope and Application**

- **Revision:**
  - Scope extended to include Defense, as well as Aviation and Space
  - Application guidance provided when 9100, 9110 and 9120 are appropriate for use

- **Rationale:**
  - The 9100 based QMS is applicable to other complex systems and would receive benefit from implementation including land and sea-based applications
  - Possible additional recognition and synergies with NATO Allied Quality Assurance Publications (AQAPs)

**Implementation/Audit Considerations:**

- Increased use and improved understanding of when the various aviation, space and defense standards are applicable
Documents Relationships

Oversight of Certification Scheme
- 9104-1 (organization)
- 9104-2 (surveillance)
- 9104-3 (auditors)

9120 (Distributors)
9110 (Maintenance)
9100 (General)

QMS Requirements
9100 Guidance Material

Audit Process

Supply Chain Management Handbook
- Sales, Master Scheduling & Sequencing
- Contract Requirt. & Flow down
- Design and Developt.
- Supplier sourcing selection & approval
- Capacity planning & scheduling
- Order Managt & logistic
- Manufact. and inspection
- Operational managt and product validation
- Non conf, corrective preventive actions
- Customer Support

9102 FAI
9103 Key Charact.
9107 DDA
9114 Direct ship.
9131 Non conf.
91XX

People Capability documents: dictionary...

ICOP : Certification Scheme
Maintenance of standards issued by IAQG (IAQG 103)
Best practices

People Capability Strategy Stream

Other Party Managt System

REQUIREMENTS Strategy Stream

SUPPY CHAIN Strategy Stream

Guides
# OASIS Demographics

<table>
<thead>
<tr>
<th>Region</th>
<th>National Schemes</th>
<th>NAB’s</th>
<th>CRB’s</th>
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NAB – National Accreditation Body  
CRB – Certification Registration Body  
AAB – Auditor Authentication Body  

* 9-18-08
Summary

The 9100 Revision:

- Expanded the 9100 scope to include Aviation, Space and Defense
- Provided additional focus on the IAQG objective of on-time and on-quality deliveries
- Ensured that the 9100 standard is compatible for use by all stakeholder segments and by organizations of all types and sizes
- Ensured that 9100 remained recognized by Authorities
- Ensured that stakeholder needs were addressed
IRIS - International Railway Industry Standard
A success story
Agenda:

- Company profile
- Products and applications
- Reasons why we introduced IRIS
- Experiences since introduction
- Improvements achieved
- Steps still to go
- Next actions

Your data and security is our top priority
Swiss company, Member of Sécheron Hasler Group

- Located in Berne, Switzerland, since 1887
- System supplier for onboard recording and control devices, indicators and wheel sensors
- HaslerRail has a worldwide customer base in the railway industry
- 90 employees in Berne
- 40 engineers for R&D as well as for project management
- 1 Quality manager (Mr. André Hasler)
… Sophisticated Applications …

**TELOC® electronic onboard event recorders OTMR:**
- Modular
- Special functions:
  - GPS positioning
  - Voice recording
  - Wireless transmission
- ETCS integration (JRU)
- SIL 2 to SIL 4 safety applications
  - Dead man control, roll back protection, zero speed detection
HaslerRail reasons we introduced IRIS management standard:

- HaslerRail entirely depends on the railway industry.
- HaslerRail priority is safety and security in the railway industry. With the IRIS certification we emphasize this commitment.
- Management according IRIS supports the continuous improvement of our processes and services, which are key points in our strategy.
- As ISO standards do not cover certain aspects of our business, such as RAMS / LCC / project management / commissioning / etc., we envisage future standardisation with our customers.
- We expect to simplify supply chain processes together with our customers.
The IRIS experience

Improvements since introduction of IRIS

- A complete and applicable management system
- The introduction of systematic project control in all customer project has brought us to better all over performance in the company
- Reduction of customer audits
- The systematic risk management in all major projects does simplify the risk handling
- We observe in our project management team a continuous trend to improve the “How to do” and “How to handle” daily work
- A systematic risk assessment process has been introduced to improve the transparency in projects.
- Continuous improvement process leaded to more than 1’000 improvements / changes during last 3 years
Status of implementation in HaslerRail:

- The management system is fully integrated into a EDP solution (Process descriptions and documents)
- All data are available world wide by on-line access
- IRIS Qualification level achieved on assessments:
  - 2006: 65%
  - 2007: 78%
  - 2008: 81%
- Not every action performed are due to the IRIS introduction
- The IRIS certification is not sensed anymore by the employees as a additional burden
- Employees start to feel comfortable with the management system
Economic success:

- HaslerRail is growing with an average of 10% annually
- Thanks to well-defined processes, we are capable of digesting such increases
- On-time deliveries to our customers are improved
- Systematic failure analyses have reduced failure rates
- Project planning and control, as well as systematic risk management introduced during IRIS implementation, is very helpful today
- Increased demands for technical support by our customers have strongly influenced our business model. To follow these demands, needed company reorganisation is simplified by using well controlled processes
Experiences since introduction:

- In our first approach we aimed to far forward.
- The organisation needed more time as expected to digest all new approaches.
- As the introduction of ISO standards, IRIS as well depends strongly on human factors to overcome (Not another complication more; Live is complicated enough...)

IRIS Certification
Steps still to go, next actions:

- Improvement on systematic non-conformity cost reporting
- Improve control on continuous improvement process and the PDCA-cycle
- Extend our experiences to our main suppliers
- Adjust financial controlling according IKS process, a new legal condition in Switzerland, will be introduced into the management system
- Most attention to the correct application of the defined processes
- To bring forward the “best practice”-idea
Some final recommendations:

- Pay attention to KO factors!
- Plan training sessions for employees, so that they can understand the differences between IRIS and ISO 9001!
- Project management is a key function, therefore test it carefully!
- Keep it simple!

Good luck!
IRIS -
International Railway Industry Standard
A success story
IRIS Certification:

An Improved Customer relation for FAIVELEY TRANSPORT ITALIA

(Piossasco - TO)

Ing Luigi Buonocore – Quality Mngr
luigi.buonocore@faiveleytransport.com
off. +39-0119044225
mob. +39-3356972251
Faiveley Transport Italia is one of the Faiveley Group’s company. Located in Piossasco (close to Turin), FTI belong to the Faiveley Brake & Couplers Division.

Some examples of the product designed and produced in FTI:

- Brake panel
- Loco SNCB
- Brake panel Metro Budapest
FAIVELEY TRANSPORT ITALIA

Some pneumatronic products:

- EPAC
- MINITROL
- I²TROL

New oil free compressor:

- Buran 30 oil free
- Buran 1 oil free
<table>
<thead>
<tr>
<th>1 Car body</th>
<th>11 Communication systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Car body fittings</td>
<td>12 Cabling and Cabinets</td>
</tr>
<tr>
<td>3 Guidance (Bogies and running gear)</td>
<td>13 Door System</td>
</tr>
<tr>
<td>4 Power System</td>
<td>14 HVAC</td>
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<tr>
<td>5 Propulsion</td>
<td>15 Tilt System</td>
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<tr>
<td>6 Auxiliary systems</td>
<td>16 Lighting</td>
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<tr>
<td>7 Braking System</td>
<td>17 Coupler</td>
</tr>
<tr>
<td>8 Interiors</td>
<td>18 Rolling Stock</td>
</tr>
<tr>
<td>9 On board vehicle control</td>
<td>19 Control command and signalling systems</td>
</tr>
<tr>
<td></td>
<td>20 Single railway component</td>
</tr>
</tbody>
</table>
Activities in Faiveley Italy developed to reach the IRIS certification =>
total 140 working/day
Audited for Certification
6th - 7th March 2008
Certification issued the 28th March 2008
Next follow up foresee within the end of March 2009
FAIVELEY TRANSPORT ITALIA

Transparency in customer relations with intranet web FTI Portal:

> IRIS norm

> Clear definition of requirements for the single company functions
Clear Customer relations

- **Railway requirements**: IRIS norm, focused on them, is a guarantee for the System Integrators & End Users
- **Auditing time & cost**: strong reduction thanks to the common requirements and acknowledgement
- **Customer requirements**: more evidence to respect project specifications with progressive matrix
- **Communication**: easier following common standard fully dedicated to railway market
Factories certified IRIS have certainly implemented those processes, so this is an important added value for Customers.

* Reliability, Availability, Maintenance and Safety levels of products/Life Cycle Cost
Basic cockpit vs. Customers

Customer NC throughout the product life cycle

Internal and supplier NC throughout the product life cycle

Supplier on time delivery performance

Customer NCR response time

Quality deficiency cost

IRIS requests to measure KPI. A minimum level of reduction of the gap with rigorous KPI implementation

Customers useful to compare different performance from common area
One way to measure

- A scoring system for the continuous improvement process Audit results is recorded using the specific IRIS Audit Tool and evaluated according to IRIS questionnaire.
- This evaluation model allows for the audited organization’s continuous improvement process to be reflected. Due to that the results are entered in the UNIFE supplier database, where they are made available to the buyers at all rail vehicle manufacturers.
- The improvement of the maturity level of each area can promote the synergy between parts.
Main benefits

- Evidence of the improvement of the quality for the factory each year;
- Better evaluation of the sub suppliers (efficacy and efficiency);
- Transparent and reliable information via the UNIFE supplier database;
- Risk reduction in the contract, due to the recognised IRIS database;
- Improvement relationship and communication between stockholder.
Next steps to enlarge the vision:

1. Sub suppliers with IRIS certification, improving supply chain
2. End Users recognizes IRIS, spreading one reference
3. Sharing processes with all Customers involvement (i.e.: Tender, Design, PM, FAI), standardizing common process flows
4. Competitive pressure increase with one audit tool that pools higher quality level
5. Common basic KPI between System Integrator vs. all Suppliers
CONTINUOUS IMPROVEMENT means a measurable quality management system
THANK YOU
AND
Good Luck
IRIS -
International Railway Industry Standard
A success story
Sigma Coachair Group

Presents

Ready For Market Expectations

September 2008
Why IRIS?

Operators require of the supply chain; low cost solutions with no compromise on quality.

Railway equipment manufactures have requested rationalization of the quantity of different requirements and audits from rolling stock manufactures.

IRIS offers a quality system that is specifically for the rolling stock industry which covers many more aspects than ISO 9000.
Customer Expectations From the Supply Chain

The rolling stock industry is project driven based on several key stages as follows:

- Tender
- Design and Validation
- Commissioning and On Train Testing
- Production and Delivery
- Warranty Period
- Long Term In Field Support
Customer Expectations From the Supply Chain

As an example the rolling stock industry demands:

At Tender Stage….

**Solution Providers**

Customers are seeking suppliers that are experts in their field.

**Cost Effective**

Low cost facilities such as those owned and operated by SCG in China.
Design and Validation.....

Company with Design Experience

Mistakes in the rolling stock industry cost both the supplier and the customer a lot of money, therefore experience in this difficult field is important.

Testing to Ensure Compliance
Customer Expectations From the Supply Chain

....Long Term Field Support

Qualified Technicians to Support Product in the Field

The rolling stock industry is global and therefore support is required at all locations where trains are delivered.

Obsolescence Control

Trains are in service for >35 years, so control of component obsolescence is critical to ensuring equipment remains operational.
Sigma Coachair Group aims to be a growing, profitable designer and supplier of quality heavy duty and transit air conditioning systems, which has customer satisfaction as the foundation of its success.
Our experience in the Implementation

SCG’s Vision Statement is clear “Customer Satisfaction” is one of our key values. We believe that IRIS certification assists us to deliver a cost effective high quality product that will meet or exceed our customers expectations for the duration of its life.

Audit & Certification by AFAQ AFNOR
November 15~16 2007, SCG (China) completed the First IRIS certification Audit in Asia by AFAQ AFNOR
SCG One of The First Companies in China to Secure Certification

CERTIFICATE

awarded to
AIR INTERNATIONAL TRANSIT (CHINA) Co., Ltd
No.258 West Hefei Road, Xinbei District
CHANGZHOI CITY, JIANGSU PROVINCE
CHINA

AFAQ AFNOR Certification
confirms, as an IRIS approved certification body, that the Management System of the
above organization has been assessed and found to be in accordance with the
International Railway Industry Standard (IRIS)
Revision 01, November 2007
for the product category
HVAC
Scope of supply
DESIGN, DEVELOPMENT AND MANUFACTURING OF AIR CONDITIONERS
FOR MASS TRANSIT.

Date of the audit: 15.11.2007
Date of issue of the certificate: 14.01.2008 Certificate valid until: 13.01.2011
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