

*Aerospace Quality: What is Happening
Globally that will Impact You?*

Presented at Sixth Annual PNAA Conference

By

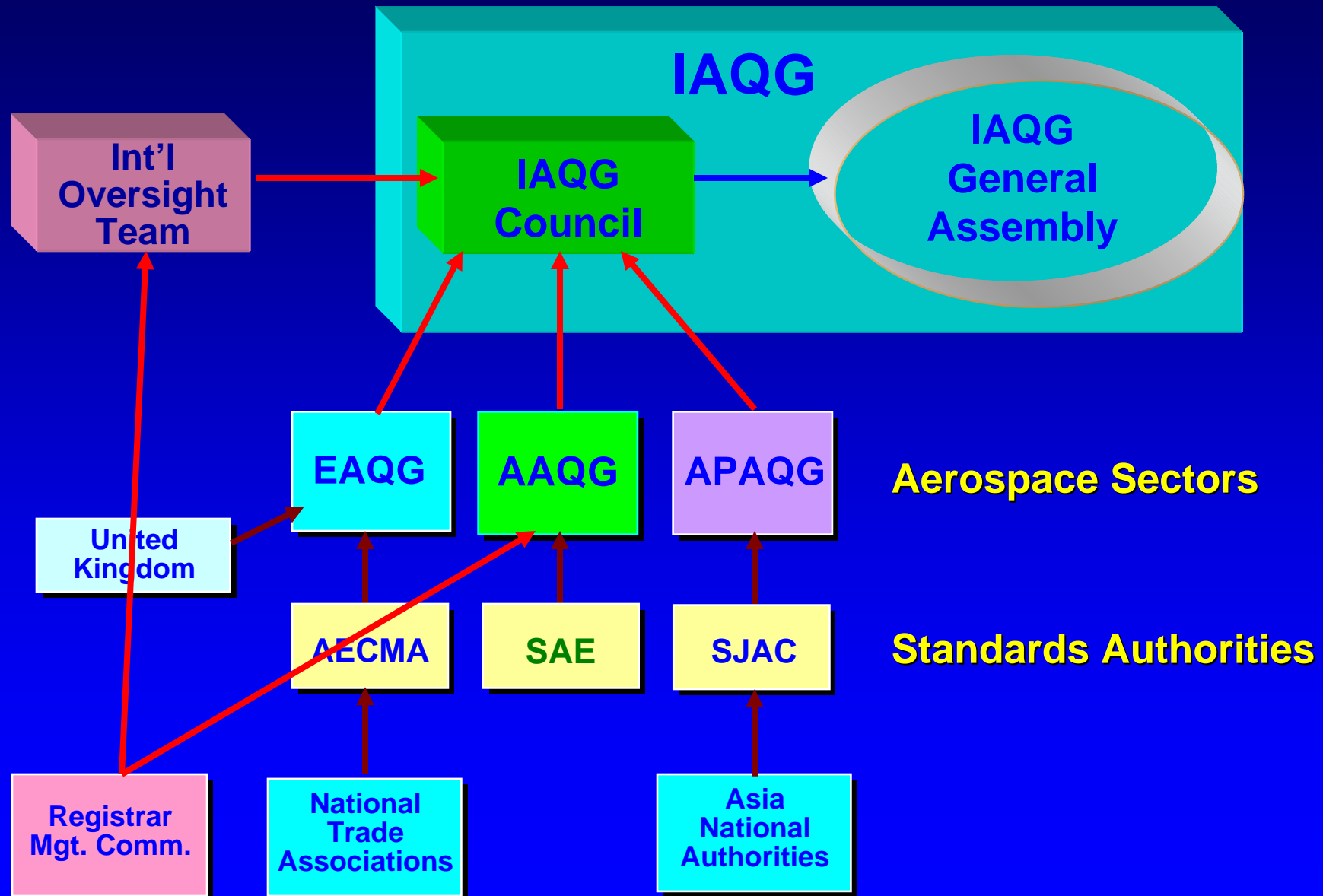
John Graham

February 13, 2007

Presentation material provided courtesy Mike Roberts - AAQG

An overview of the IAQG and AAQG

IAQG Organization Structure



IAQG International Membership

Americas

Boeing*
Bombardier*
Embraer*
General Electric*
Honeywell *
Lockheed Martin*
Northrop Grumman *
Rockwell Collins *
Textron (Bell & Cessna)*
UTC (Pratt & Whitney) *
Goodrich
Gulfstream
Parker Aerospace
Rolls-Royce
PRI (NADCAP)
SAE Aerospace**

Asia

China Aviation (AVIC1)*
Ishikawajima Harima*
Korean Aerospace Ind.*
Mitsubishi Heavy Ind.*
Fuji Heavy Industries *
Kawasaki Heavy Ind. *
ShinMaywa Ind.
Korean Air
Aerospace Ind. Dev. Corp
Harbin Embraer
SJAC**

* Voting Council Member

Non-Voting Council Member

** Sponsoring Organization

(Data valid via OASIS database
6/6/2005)

Europe

Airbus SAS*
Airbus GmbH*
ALENIA *
BAE SYSTEMS*
EADS *
EADS CASA*
Intertechnique*
Rolls-Royce *
Smiths Aerospace*
SNECMA Moteurs *
Airbus UK (BMUQ)
Dassault
Eurocopter (France)
Fiat Avio
Fokker – Stork Aero
Hispano-Suiza
Israel Aircraft Industries
Messier-Bugatti
Messier-Dowty
MTU Engines, GmbH
PFW-Pfalz
Saab Aerospace
Sonaca
Sukhoi ASD** -
Thales Cert, Ease,
Volvo Stan.

IAQG Strategic Focus

Improvement Strategy

- Requirements
- Process Capability
- People Capability
- Execution
- Subtier Supplier Control
- Evaluation

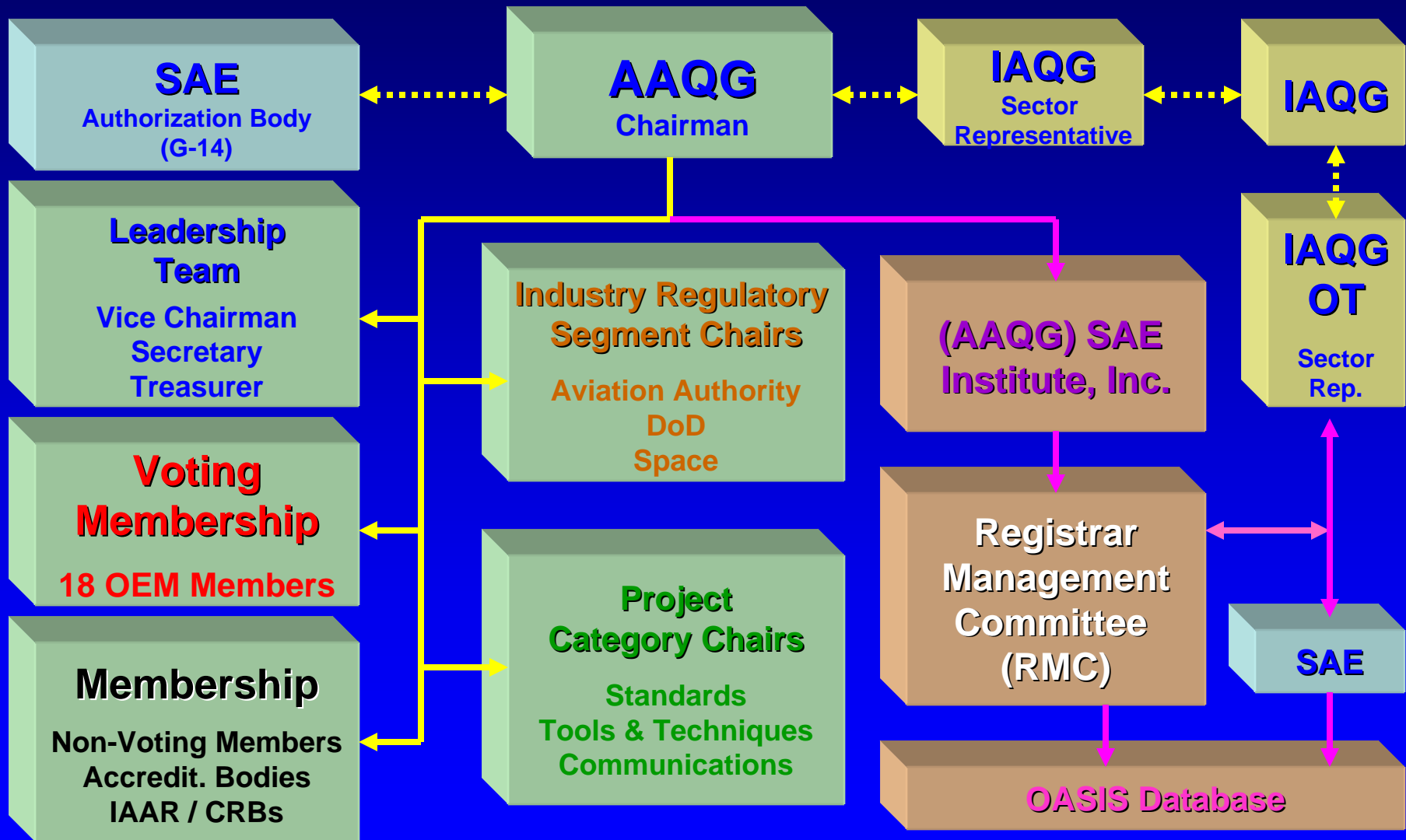
Relationship Growth Strategy

- Space
- Defense
- Authorities
- Suppliers
- Engineering, Sourcing

IAQG Operating Management System

- Member Collaboration
- Top Leader Involvement
- IAQG Operational Efficiency

Americas Aerospace Quality Group (AAQG)



AAQG Purpose

- **Establish and maintain a dynamic cooperation based on trust between Americas aerospace companies on initiatives to make significant improvements in quality performance and reductions in cost throughout the value stream.**
- **Initial focus is to continuously improve the processes used by the supply chain to deliver consistently high quality products, thereby reducing non - value added activities and costs**

Objectives

- **Establish commonality of quality standards, requirements, tools and techniques.**
- **Establish process of continuous improvement at suppliers**
- **Establish methods to share results**
- **Establish implementation plans which bring the initiative to life (e.g. obtain regulatory concurrence).**

AAQG Membership

Voting Members

Boeing

Bombardier - Canada

Eaton

Embraer – Brazil

GE Aircraft Engines

Goodrich

Gulfstream

Honeywell

Lockheed Martin

Northrop Grumman

Parker Aerospace

Orbital Sciences

Rockwell Collins

Rolls-Royce

Ratheon

Textron (Bell & Cessna)

United Technologies

(Pratt & Whitney, Sikorsky, Ham. Std)

Vought

Spirit AeroSystems

Non-Voting Members

Accredit. Bodies (RAB, SCC, INMETRO)

IAAR / Registrars (CRBs)

Regulatory Agencies (FAA, DOD, NASA)

Professional Societies (SAE, AIA, etc)

Suppliers

IAQG Other Party Management Team (IAQG - OPMT)

International RMC

IAQG 9104

Americas

Tim Lee *
Boeing

Colin Clarke
Bombardier

Rick Downs
Cessna / Textron

Dale Gordon
MPC Products

Asia Pacific

Shuji Komori *
Fuji H.I.

Hiroyuki Jikkei
Mitsubishi H.I.

Tamaki Nakagawa
Kawasaki H.I.

Europe

Julio Perez-Caballero *#
Airbus

Gualtiera Arsentio
Alenia

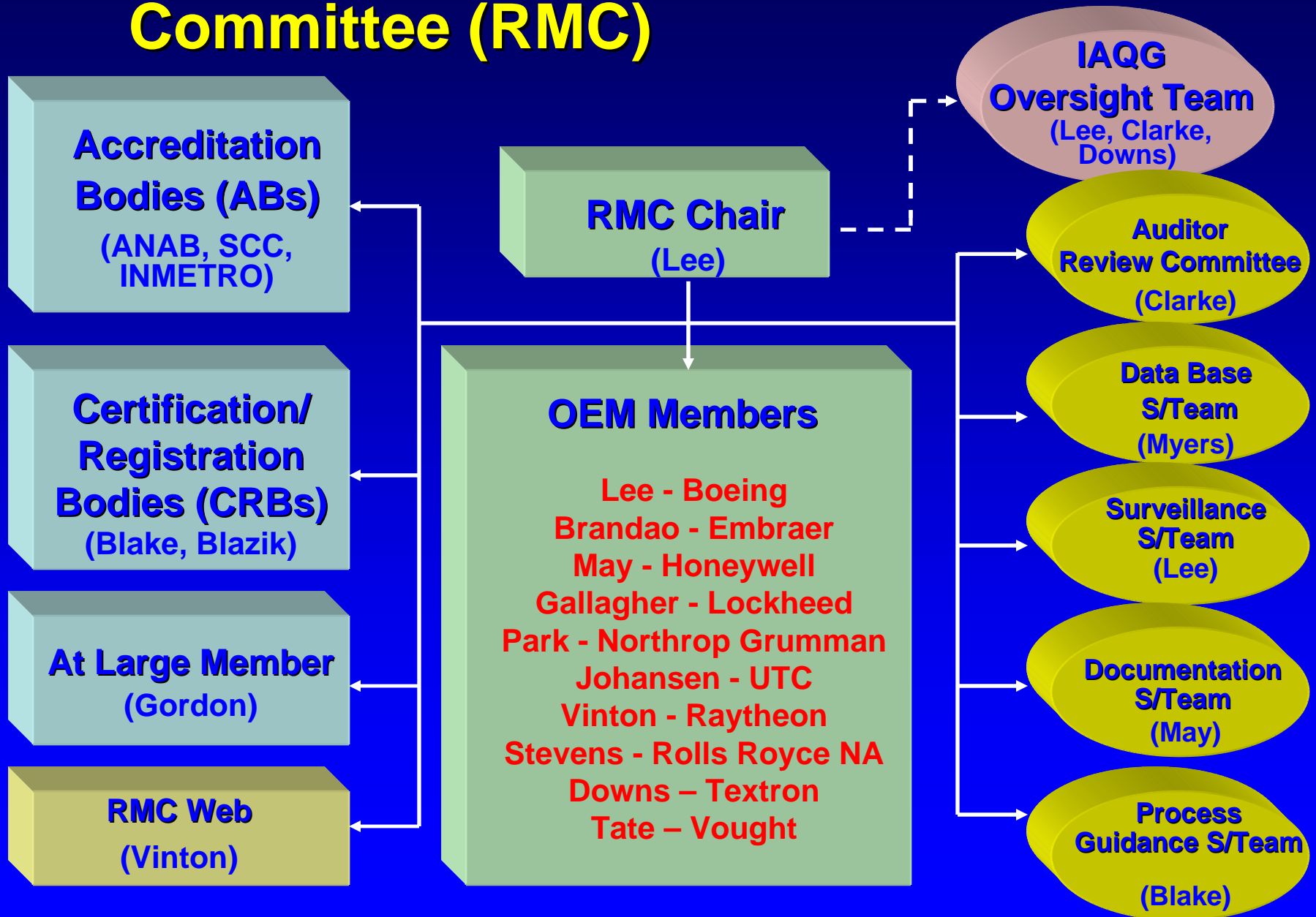
Hans Ziemer
EADS

Hans Liujt
AECMA

International Accreditation Forum

Norbert Borzek (TGA) & Randy Dougherty (ANAB)

Registrar Management Committee (RMC)



AAQG RMC (Registrar Management Committee)

The RMC is responsible for :

- + Documents AS9104 & AIR 5359 [Authority, maintenance, control, enforcement, interpretation, and surveillance]**
- + Reviewing and recommending approval for :**
 - + Accreditation Bodies (ABs) operating in the Americas sector**
 - + Certification/Registration Bodies (CRBs) operating in the Americas**
 - + Auditors for AS9100 and related AS documents**
 - + Auditor training programs and CRB management programs**
- + Overseeing the activities of approved ABs and CRBs**
- + Performing an annual review of the effectiveness of the system**
- + Related documents (eg. AIR 5493, IAQG Doc. 104, RMC Proc's.)**
- + Americas operation and oversight of the OASIS database.**

AAQG RMC (Registrar Management Committee)

- + The RMC general meetings are held the two days prior to each AAQG meeting.**
- + The RMC has co-hosted two “Registrar Workshops” held in conjunction with previous AAQG meetings. Now, RMC meetings are “open” for Registrar participation.**
- + The RMC holds annual system reviews. These meetings include AB surveillance and oversight planning.**
- + The RMC participates in witness and surveillance audits of the system, through the Surveillance Sub-Team.**
- + The RMC is part of the ‘incorporated’ leg of the AAQG.**

**AAQG
Accreditation
Bodies (ABs)**



**Standards Council
of Canada (SCC)**

**ANSI-ASQ National
Accreditation Board
(ANAB)**

INMETRO

AAQG Approved AS9100 Certification/Registration Bodies (CRBs) a.k.a. Registrars

Valid per OASIS Database

6/6/2005

- DNV
- Intertek
- NQA
- BSI
- PJR
- PRI
- BVQI
- UL
- NSF
- QMI
- LRQA
- EAGLE
- AQA
- KEMA
- TUV MS
- ABS
- RW TUV
- AQSR
- SQA
- SGS
- DQS
- CRS
- QSR
- SRI
- Moody
- HSB
- D & T
- SAI
- ISA
- ORION
- GWR
- STR
- AIB-Vincott
- Alliance Intl
- DLS-QTA
- CTA/IFI

Documentation

Aerospace Quality Standards Numbering System

- + **“AS” Standards** -- **Americas Sector** (*published by SAE*)
- + **“EN” Standards** -- **Europe Sector** (*published by AECMA*)
- + **“JIS Q” Standards** -- **Asian Sector** (*published by SJAC*)

- + **International Standard** -- **91xx** (*harmonized all 3 aerospace sectors*)
- + **Americas Standard** -- **90xx** (*used within the AAQG sector*)

- + **“AIR” Documents** -- **Aerospace Information Report**
- + **“ARP” Documents** -- **Aerospace Recommended Practice**

Aerospace Standards

Key Released Standards (as of 9/24/04)

- AS 9100B** Quality Systems – Aerospace – Model for Quality ...
- AS 9101B** Quality System Assessment (*checklist for AS 9100*)
- AS 9102A** Aerospace First Article Inspection
- AS 9103** Variation Management of Key Characteristics
- AS 9104** Aerospace Quality Mgt. System Certification/Registration Pgms.
- AS 9110** Quality Management System (*for Maintenance Organizations*)
- AS 9120** Quality Management System (*for Stockist Distributors*)
- AS 9131** Quality Systems – Non-Conformance Records Documentation
- AS 9132** Data Matrix (2D) Coding Quality Requirements for Part Marking
- AS 9133** Qualification Procedure for Aerospace Standard Parts
- AS 9003** Inspection & Test Quality System “*Less than AS9100*”
- AS 9006** Deliverable Aerospace Software Supplement for AS 9100A

Aerospace Standards/Reports

Key Released Documents (continued)

- | | |
|-----------|--|
| ARP 9107 | Direct Delivery – Recommended Practices for Aerospace |
| ARP 9134 | Supply Chain Risk Management Guideline |
| ARP 9004 | Direct Shipments – Recommended Practices for Aerospace |
| ARP 9034 | Storage, Retrieval, and Use of 3-Dimensional Design Data |
| ARP 9062 | Operator Self Verification |
| ARP 9090 | E-Business |
| AIR 5359B | Requirements for Certification / Registration of Aerospace ... |
| AIR 5493A | Requirements for ... Aerospace Auditor Training |

Aerospace Standards/Reports

New Projects / Unreleased Documents

| | | |
|-----------------------------------|----------|--------------------------------|
| Global NDT Standard | NAS 410 | <i>harmonizing @ IAQG</i> |
| Non-Deliverable Software | ARP 9005 | <i>resolving ballot issues</i> |
| Product Acceptance Sampling Plans | AS 9108 | <i>AAQG re-re-ballot</i> |
| Contract Clauses | AS 9009 | <i>resolving ballot issues</i> |

Surveillance of ICOP QMS Systems:

rewrite of RMC 102 *international review*

Auditor Qualification and Training:

rewrite of AIR5493A *international review*

Certification/Registration for AQMS:

rewrite of AIR5359B *RMC writing team*

Aerospace Quality Mgt. System Certification/Registration Pgms:

revision to AS9104A *IAQG-OPMT*

OASIS

OASIS Database – Main Screen

IAQG OASIS - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Copy Paste Refresh Stop

Address <https://shop.sae.org/servlets/login> Go Links

Google Search Web 114 blocked AutoFill Options

International Aerospace Quality Group
IAQG Online Aerospace Supplier Information System

Log-Out Home About Us Help Contact Us
Edit Login Edit Profile Edit Address

Organizations
Boeing

Applications
Assessment - Download
Auditor - Data Download
Member - Manage Users
Help - IAQG Member


Data Search
IAQG Member Companies
National Aerospace Industry Associations (NAIA)
National Accreditation Bodies (NAB)
Certification/Registration Bodies (CRB)
Aerospace Experience Auditors
Certified Suppliers

Hello Michael Roberts

Welcome to International Aerospace Quality Group - Online Aerospace Supplier Information System (IAQG-OASIS).

If you are working in the aerospace industry, involved in aerospace supplier selection and surveillance, this is your reliable source for aerospace supplier certification and registration data.

This online resource contains a list of suppliers who are certified / registered under the IAQG rules to be in compliance with the aerospace quality management system requirements (9100 series). This resource also contains all bodies involved in the process (i.e. National Accreditation Bodies, Certification/Registration bodies and Authenticated Aerospace Experienced Auditors).



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Use the navigation menu on the left. Personal information can be seen or modified using the menu on top.

Note: The IAQG OASIS database was launched on July 1, 2003. This database will continue to grow daily.

Start | Calendar - Microsoft ... | IAQG OASIS - Micr... | Aerospace Quality St... | 3:14 PM

OASIS Demographics

| | National Schemes | NAB's | CRB's | AAB's | Auditors | OASIS entries |
|---------------|------------------|----------|----------------|-----------|------------------|-----------------------------|
| Americas | 1 | 3 | 36 (35/1/0) | 2 | 320 (310/9/1) | 2048 (2043/0/5) |
| Asia Pacific | 1 | 1 | 3 | 1 | 16 | 83 (83/0/0) |
| Europe | 5 | 5 | 33 | 8 | 199 | 1204 (1136/14/54) |
| TOTALS | 7 | 9 | 72 | 11 | 509 | 3335 (3262/14/59) |

NAB – National Accreditation Body

CRB – Certification Registration Body

AAB – Auditor Authentication Body

* 6/6/2005 *

WEB Access / Info

IAQG

www.iaqg.org

www.sae.org/iaqg

AAQG

www.iaqg.org/aaqg

www.sae.org/aaqg

RMC

www.sae.org/aaqg then click
“Audit Information” then “RMC”

OASIS

www.sae.org/oasis

SAE

www.sae.org

ANAB

www.anab.org

INMETRO

www.inmetro.gov.br

SCC

www.scc.ca

IAAR

www.iaar.org

Key Acronyms

| | |
|-------------|---|
| IAQG | International Aerospace Quality Group |
| AA | Aerospace Auditor |
| AAQG | Americas Aerospace Quality Group |
| AB | Accreditation Body (e.g. Inmetro, RAB, SCC) |
| AEA | Aerospace Experience Auditor |
| AIA | Aerospace Industries Association |
| AIR | Aerospace Information Report |
| AQMS | Aerospace Quality Management System |
| ARP | Aerospace Recommended Practice |
| AS | Aerospace Standard |
| CRB | Certification/Registration Body (e.g. BSI, NQA, DNV) |
| ICOP | Industry Controlled 'Other Party' |
| OEM | Original Equipment Manufacturer (e.g. Boeing) |
| ANAB | ANSI-ASQ National Accreditation Board |
| RMC | Registrar Management Committee |
| SAE | Society of Automotive Engineers |
| SCC | Standards Council of Canada |

QUESTIONS?



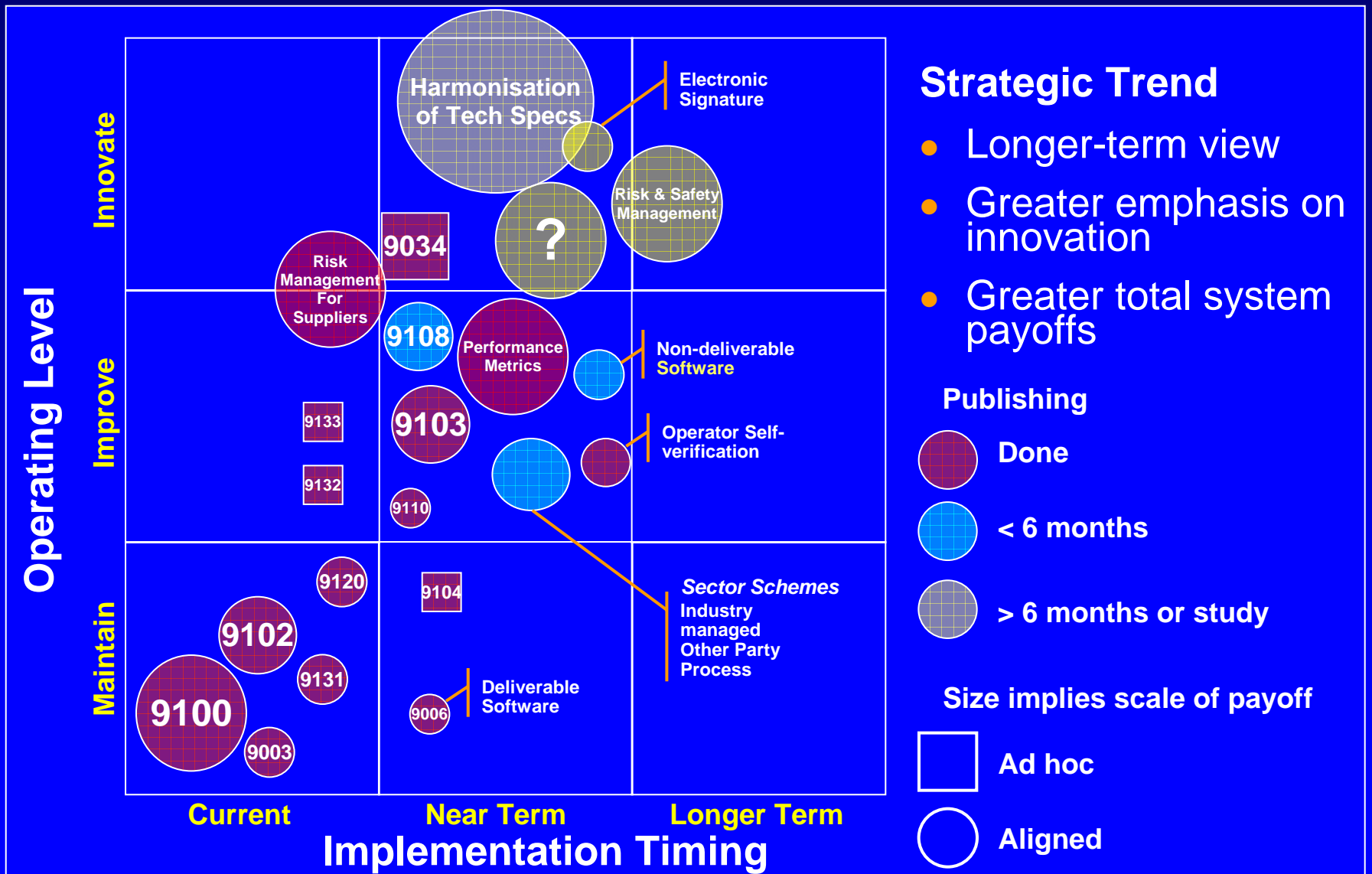
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Quality System Requirements For International Recognition

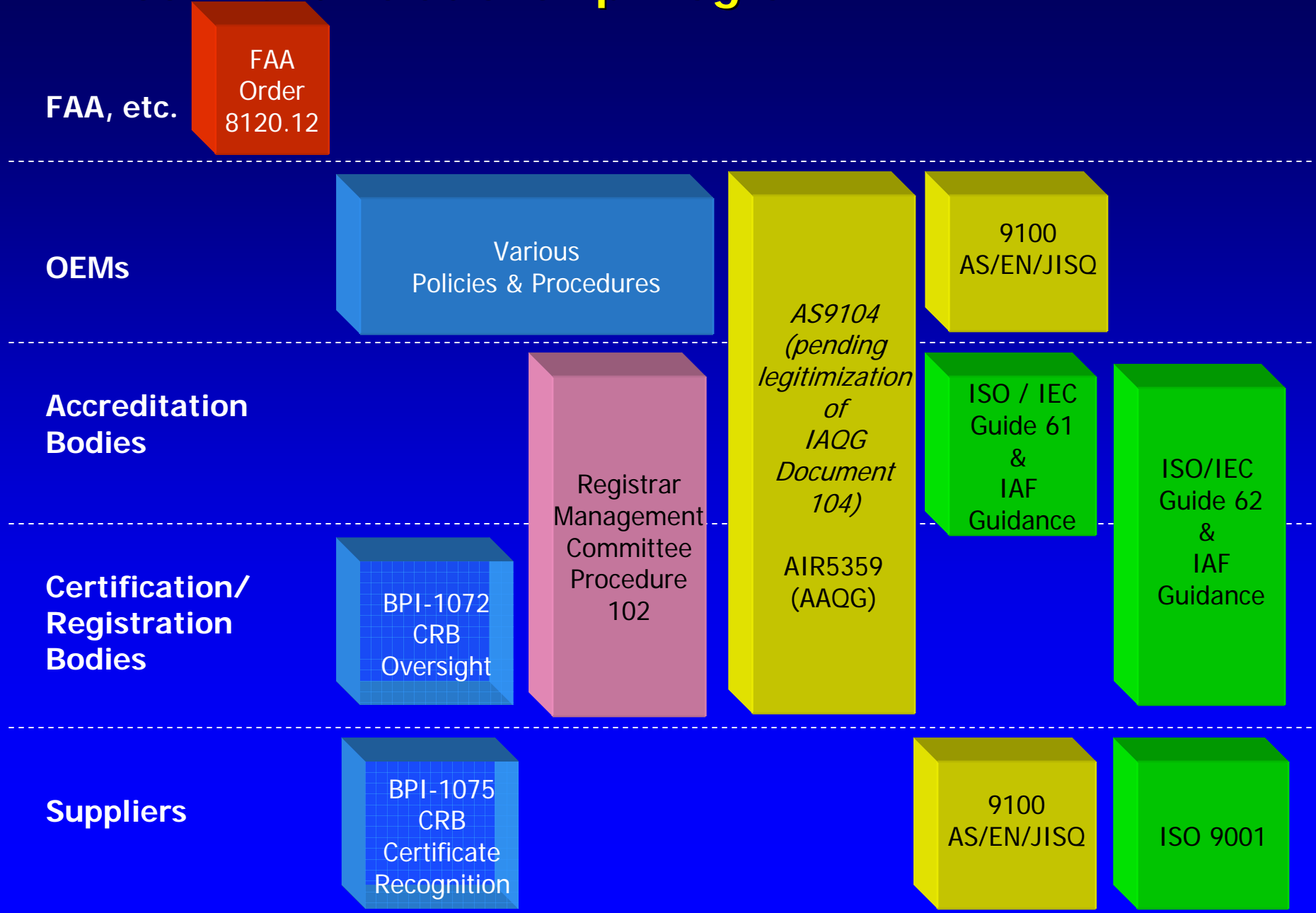


Initiatives to Fulfill the Strategy

- Maintain – Improve - Innovate



9100 Aerospace Industry Registration Document Relationship Diagram



Industry Relationships

Society of Automotive Engineers (SAE)



AIA View of Aerospace Leadership

FAA, DoD, NASA, & OEM Executives

AIA Civil Aviation Council

AIA Quality Steering Group

AIA Technical & Operations Council

Civil Aviation Manufacturing & Maintenance Committee

AAQG

Defense & Space Quality Committee

EIA NDIA

AIA QAC Military | Space

AECMA
GAMA

FAA

IAQGG

DoD

NASA

Meetings & Conferences

IAQG

Dec 98 Derby England
Mar 99 Palm Beach Florida
Jun 99 Madrid Spain
Sep 99 Dallas Texas
Mar 00 Tokyo Japan
Jun 00 Seattle Washington
Nov 00 Toulouse France
Mar 01 New Orleans LA
Jun 01 Berlin Germany
Oct 01 Sao Paulo Brazil
Mar 02 Kyoto Japan
Sep 02 Dallas Texas
Oct 02 Torino Italy
Apr 03 Edinburgh Scotland
Oct 03 Cincinnati Ohio
Apr 04 Paris France
Oct 04 Beijing China
Apr 05 Amsterdam

Oct 05 Montreal, Canada
Apr 06 San Diego California

AAQG

...
Mar 00 Phoenix Arizona
May 00 Indianapolis Indiana
Sep 00 Washington DC
Feb 01 Fort Worth Texas
May 01 Montreal Canada
Sep 01 Seattle Washington
Feb 02 San Diego California
Jun 02 Boston Massachusetts
Sep 02 Washington DC
Mar 03 Washington DC
Jun 03 Wichita Kansas
Sept 03 Montreal Canada
Mar 04 Washington DC
Jun 04 Los Angeles CA
Sept 04 Washington DC
Mar 05 Fort Worth Texas
Jun 05 Savannah Georgia

Sept 05 Rio de Janeiro, Brazil

(Planned Meetings)



