The Initiatives of the International Aerospace Quality Group (IAQG)

Steve Shepherd ~ European Sector Leader

Items in yellow will be expanded on during the rest of the meeting
Items in red – updates post the IAQG Council 15/16 October
Aimed at meeting our focus and objectives:

• “...continuously improve the processes used by the supply chain to deliver consistently high quality products...”

• “... common aerospace quality standards and requirements...”

• “... process of continuous improvement at suppliers...”
Take note of known areas for improvement:

- Audits - “Supplier Control” is a significant issue
- Variability in the process often lies with the primes
- Global Safety - needs a step change in performance
Evaluation Criteria for initiatives

- See the aerospace industry as a global one
- Use common quality standards world-wide
- Extend and share best practices usage
- Standardise documents, materials, processes
- Common implementation methodologies
- Consistency with Airworthiness requirements
- Harmonised positions between Authorities
- Evaluation of impact & value - prioritisation

+ Fit with our emerging Strategy!

Cincinnati General Assembly
Chartered Initiatives

• Global Quality System Standards/Checklists
• Consistent Global Implementation Schemes
• Variation Management of Key Characteristics
• First Article Inspection Document
• Harmonisation of NDT Training Standards
• Non-conformance Documentation
• Qualification of Standard Parts
• Internal Audit
• Software Quality Standards
• 2D Permanent Part Marking Standard
Chartered Initiatives

- Risk and Safety Management
- Harmonisation of process specifications and material standards
- Direct shipment / Direct Delivery
- Sampling Plans
- Supplier Control in a Global Environment
  - Risk Management - through EAQG
  - In-process Metrics - through AAQG
- Operator Self Verification
- Archiving of Digital Data

+ other items being pursued by Sectors

Cincinnati General Assembly
Quality System Development - 9100

- International Aerospace Quality Standard incorporating airworthiness and special industry requirements.
- International implementation process developed using a common questionnaire (9101).
- Quality System Standards developed and published for repair stations (9110/11) and stockist/distributors (9120/21)
Quality Improvement Initiatives

- First Article Inspection (FAI); 9102 ~ improves on current individual company requirements and uses common documentation. Update in ballot, guidance material being considered, 3D considerations to be included.

- Variation Management of Key Characteristics; 9103 ~ a rigorous approach to ensure repeatable, capable manufacturing processes.

- Non-conformance documentation; 9131 ~ common documentation for concessions/ waivers and escapes/disclosures.

- Qualification of Standard Parts; 9133 ~ international methodology
Further Progress

- **Internal Audit - Use new ISO19011**

- **Software Quality Standards**
  - European guideline document published EN9109
  - New standards in production by AAQG;
    - AS9006 for deliverable s/w
    - AS90xx for non-deliverable s/w
  - IAQG initiative launched to assess if these can be combined

- **2D permanent part making standard - marking, reading & validation; 9132 published** – to be updated to reflect the latest technologies

- **Harmonisation of Global NDT requirements for Personnel training; EN4179/NAS410 - published**

Cincinnati General Assembly
Further Progress – IAQG and Sector work

- Risk & Safety Management; being worked with Space representatives (cf ISO 17666)
- Direct Shipment/Delivery; base on ARP9004
- Sampling Plans; base on AS9008 in production
- 3D Data Storage and Retrieval; ARP9034 in production
- Operator Self Verification; base on ARP9162
- Contract Clauses; AAQG only – ARP drafted
- Supplier Control in a Global Environment;
  - Supplier Risk Assessment – Guideline agreed - 9134
  - Metrics – in work at AAQG
Supplier Risk Assessment Model

Supplier Quality Risk

Product Quality Risk

Combination Diagram

Product Risk

decisions, actions, improvements

Supplier Quality Risk

KPI's

decisions, actions and improvements

Cincinnati General Assembly
Initiatives metrics:

- Significant increase in member’s implementations – **updated 9th October**;
  
  - 9100 Quality System:
    - current deployment to suppliers - 82%
    - current deployment internally - 82%
  
  - 9102 First Article:
    - current deployment to suppliers - 57%
    - current deployment internally - 61%
  
  - 9103 Key Characteristics:
    - current deployment to suppliers - 35%
    - current deployment internally - 35%
Initiatives metrics:

- Significant increase in member’s implementations – updated 9th October;
  - 9131 Non-Conformance Documentation:
    - current deployment to suppliers - 10%
    - current deployment internally - 8%
  - 9132 2D Part Marking:
    - current deployment to suppliers - 8%
    - current deployment internally - 8%

+ now starting to track sector scheme adoption
6 Elements of IAQG Strategy

Aerospace Industry in 10 years

- **Relationship growth strategy**
  - Maintain relationships and expand to all aerospace/aviation stakeholders
  - Examples: Authority & Space Leadership Forums, involvement of airlines, repair stations, completion centers, NATO, GAMA, CASE, etc

- **Intelligence & Innovation**
  - Research and develop truly innovative approaches to improve quality
  - Moved away from “inspection-based model” to “process-control model”
  - Examples: university projects, other industry benchmarking, IT

- **Globally harmonized standards**
  - Globally harmonized quality requirements & Influencing regulatory reqts
  - Examples: 9100 series, NDT qualification, common technical specifications

- **Enablers**
  - Standardized tools and techniques that enable quality products
  - Examples: seminars, guidelines, training, best practices, FAQs

- **Auditing / Monitoring**
  - Establish self-monitoring processes
  - Examples: QMS audits, industry managed oversight, shared audits

- **Performance metrics**
  - Implementation & Effectiveness
  - Examples: number and scope of standards and guides implemented by members, supplier performance, measures of quality performance

---

**Plan**

- **Do**
- **Check**

Cincinnati General Assembly
Initiatives to Fulfill the Strategy
Maintain – Improve - Innovate

**Strategic Trend**
- Longer-term view
- Greater emphasis on innovation
- Greater total system payoffs

**Publishing**
- **Done**
- **< 6 months**
- **> 6 months or study**

**Size implies scale of payoff**
- **Ad hoc**
- **Aligned**
Good Progress....

- A tremendous opportunity for us all:
  - Operators/Airframers .... and the whole supply chain ....benefit from ....
    - Safety and quality improvements
    - Waste and cost reductions
    - Consistency and clarity of approach, requirements and documentation
    - Multiple oversight reduction
    - Relationship building across all the players
  
- Very strong international co-operation with determination to drive forward at speed with ‘meaty’ deliverables

....but we have a lot more to do!