

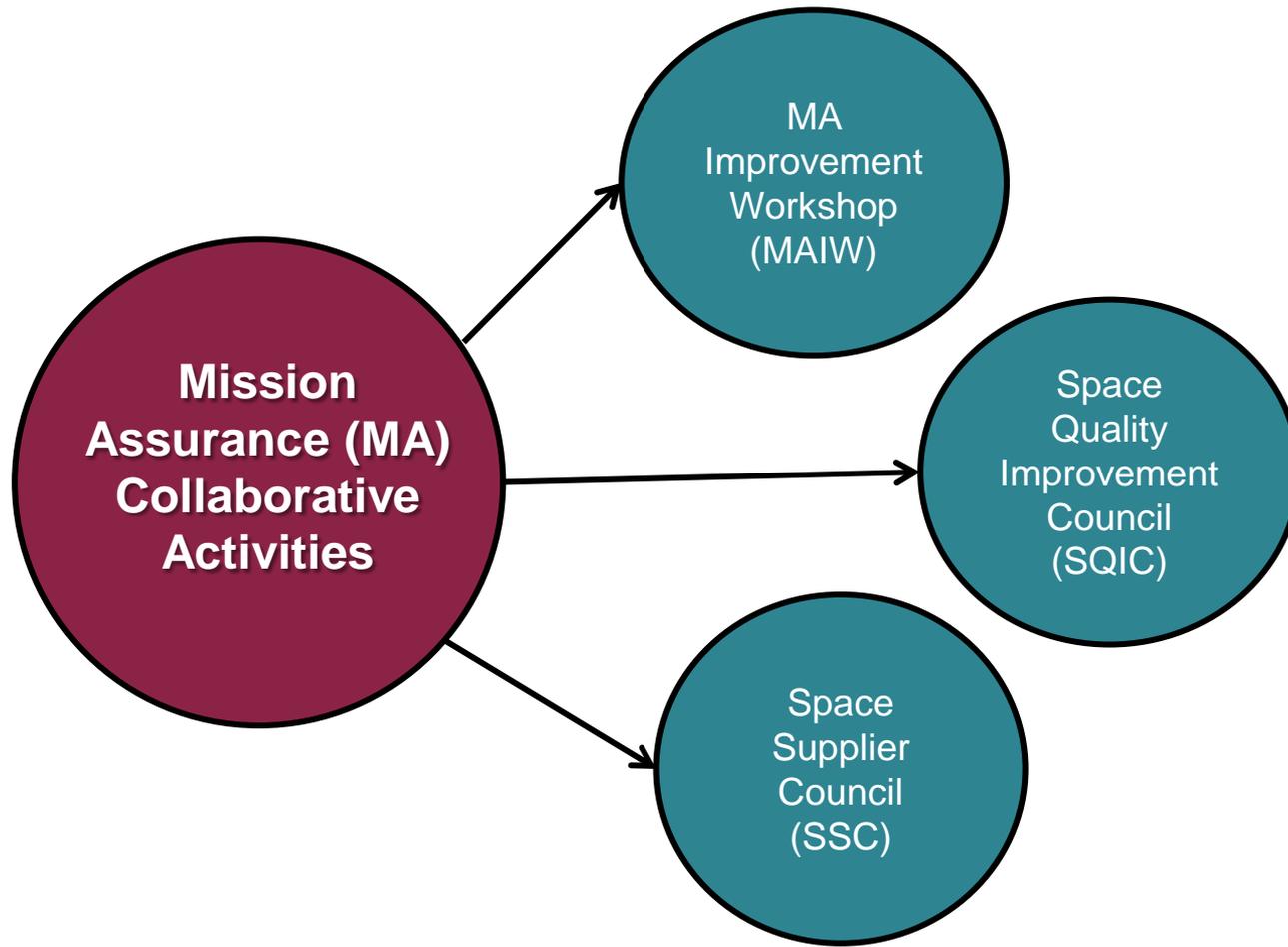
# Quality Innovation Breakout Session

Bill Tosney  
Corporate Chief Engineer  
The Aerospace Corporation

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# Breakout Session Flow

*Innovation forums that impact “Quality”*



## Topics for discussion

*Supplier QMS audits*

*Quality and design*

*Hardware acceptance reviews*



# Space Quality Improvement Council (SQIC)

- Stakeholders:
  - *Senior government representatives from AT&L/SIO, DCMA, DUSD/A&T Industrial Policy, EA for Space, NASA, SMC, NRO, MDA, ODNI*
- Members:
  - *US Space program prime contractors and major subcontractors*
- Format:
  - *Non-attribution 1-day forum that meets in June and December*
- Charter:
  - *Examine pervasive “Quality” challenges and recommend courses of action for the community*
- Issues addressed:
  - *Developed a National Security Space early problem notification process*
  - *Defined the commercial satellite acquisition approach from prime contractor and commercial buyer perspective*
  - *Developed MA roadmap for NSS-wide Industrial Base and other issues*
  - *Produced first NSS-wide orbital anomaly report*



# MA Improvement Workshop

- Stakeholders:
  - *NASA, NRO, US Air Force Space and Missile Systems Center, MDA, SQIC members*
- Members:
  - *US Space program prime contractors and major subcontractors nominated by government space acquirers*
- Format:
  - *Year-long space enterprise collaboration*
- Charter:
  - *Facilitate MA collaboration across the US Space Program community. Identify and generate products that address multi-agency MA challenges in a cohesive and consistent manner focusing on near earth, unmanned space and launch programs.*
- Products (examples):
  - *Mission Assurance Program Framework*
  - *Supplier Risk Evaluation and Control*
  - *Effective Fault Management Guide*
  - *Objective Criteria for Heritage Hardware Reuse*
  - *Critical Gated Event Exit & Entrance Criteria*
  - > *Flight Unit Qualification Guidelines*
  - > *Design Assurance Guide*
  - > *Failure Review Board Guidance*



# Space Supplier Council

- Stakeholders:
  - *Senior government representatives from AT&L/SIO, DCMA, DUSD/A&T Industrial Policy, EA for Space, NASA, SMC, NRO, MDA, ODNI*
- Members:
  - *2<sup>nd</sup> and 3<sup>rd</sup> tier suppliers nominated by government space acquirers*
- Format:
  - *Non-attribution forum that meets twice annually*
- Charter: Examine systematic problems facing industry throughout the entire supply chain, with a focus on the supplier community interaction with prime contractors and the government
- Issues addressed:
  - *Subcontract management plans and RFP Section H clause*
  - *Technology insertion (strategic planning for advance developments)*
  - *Workforce expertise (developing methods to keep engineers engaged in programs and providing career growth)*
  - *Obsolescence awareness/avoidance*



# Scenario #1

Ardmore Metal Specialties (AMS) makes a critical part for the prime contractor, **Big Space**. **Big Space** plans to conduct a Quality Management System (QMS) audit in a month on their receiving and inspection operation. **AMS** comments to **Big Space** that another **Big Space** program already audited receiving and inspection this year. **AMS** averages about 40 QMS audits a year from all their customers and prime contractors.

*What should **Big Space** do to resolve the issue?*

*Is there anything **Big Space** should have done years earlier?*

*What should the customer do in this instance?*



## Scenario #2

**Big Space** is an AS9100 shop. In a recent audit by their registrar, a finding was written that Quality is not involved in the creation or approval of manufacturing planning (operation instructions).

**THE PROBLEM:** Upper management does not believe that Quality personnel are qualified to participate in design or production of manufacturing instructions.

*What should **Big Space** do to address the registrar's finding?*

*What can the Quality organization do to convince upper management that they can add value to the manufacturing planning?*



# Scenario #3

**Big Space** conducts hardware acceptance reviews (HAR) in cooperation with the customer.

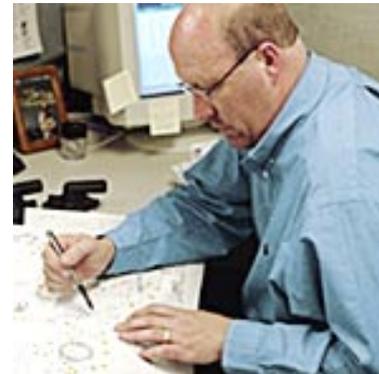
THE PROBLEM: Most records are kept on **Big Space** databases and customer reps have limited or no access. **Big Space** feels the HAR is wasteful since only minor issues have been found recently.

PROPOSAL: Cancel all HARs.

*What should be the customer's response?*

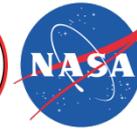
*Are there changes that the customer can make to streamline the HAR process? Is there an innovative alternative?*

*Is the **Big Space** proposal appropriate?*



# Mission Assurance Strategic Intent

“Create an Environment that will Deliver 100% Mission Success”



GOVERNMENT/INDUSTRY

TEAMWORK

DISCIPLINE

COLLABORATION

Document	Educate	Plan	Execute	Assess
<p><i>Develop the core practices and tools to build knowledge</i></p> <ul style="list-style-type: none"> <li>Develop a robust MA infrastructure to include guidelines for tailoring specs and standards; parts, materials and processes; process control; and metrics</li> <li>Establish a set of MA processes supported by a well-defined set of MA disciplines</li> <li>Ensure processes support the industrial base</li> <li>Adhere to center/program/corporate command media</li> <li>Establish standard contractual language to ensure consistent specification of core standards and deliverables</li> <li>Establish a life cycle escape assessment process to identify critical lessons and feed back to the enterprise</li> <li>Establish an effective lessons learned program</li> <li>Provide continuous feedback and learning</li> </ul>	<p><i>Establish a Mission Assurance culture</i></p> <ul style="list-style-type: none"> <li>Establish culture of MA as Job #1 and commitment to 100% mission success</li> <li>Support development of a “space cadre” – recruit, develop, and retain world-class workforce</li> <li>Enhance the government workforce quality</li> <li>Build a collaborative landscape that includes workshops, forums, conferences, training and communities of practice</li> <li>Establish cultural accountabilities and monitoring criteria to ensure MA is “done right”</li> <li>Apply critical lessons learned to new and ongoing programs</li> </ul>	<p><i>Develop a comprehensive MA plan that spans program life cycle</i></p> <ul style="list-style-type: none"> <li>Develop clear and concise contract requirements and requirements flowdown</li> <li>Develop realistic cost and schedule estimates</li> <li>Establish an executable CONOPs</li> <li>Establish clear lines of accountability, authority, and span of control</li> <li>Establish a consistent, credible acquisition strategy and risk management plan</li> <li>Mandate and tailor specs, standards, and processes</li> <li>Include program assurance as part of Mission Assurance plan</li> <li>Establish Mission Assurance verification management plan</li> <li>Ensure all requirements are addressed in test and evaluation master plan</li> </ul>	<p><i>Manage effective program execution</i></p> <ul style="list-style-type: none"> <li>Formulate the program right, with an acceptable risk posture established, before acquisition is approved</li> <li>Implement early systems engineering</li> <li>Demonstrate sufficient technology maturity and manufacturability</li> <li>Establish early requirements baselines and maintain requirements baseline stability</li> <li>Establish and maintain program acquisition and technical baselines</li> <li>Verify program execution follows proven scientific, engineering, quality, safety, and program management practices</li> <li>Execute verification management processes</li> <li>Establish well-defined gated processes and proceed only when criteria have been met</li> <li>Verify system performance using end-to-end testing, “Test Like You Fly”</li> </ul>	<p><i>Assure program health through independent, objective assessments</i></p> <ul style="list-style-type: none"> <li>Build a strong commitment to use independent reviews and honest self-assessments as part of overall MA program</li> <li>Define and apply metrics for prevention and detection</li> <li>Assess use of heritage</li> <li>Assess technology and manufacturing readiness</li> <li>Employ a FMECA process</li> <li>Establish an effective lessons learned program</li> <li>Strive for continuous refinement of mission success approach</li> <li>Incorporate a centralized Mission Assurance clearing house</li> <li>Utilize “boots on the ground” on factory floor</li> <li>Assess adherence to and maintenance of acquisition strategy and risk management plan</li> <li>Ensure assessments span the entire community from prime contractors to subcontractors to suppliers</li> </ul>

## Focus on Mission Success throughout the Program Life cycle

Mission Assurance is the disciplined application of proven scientific, engineering, quality, and program-management principles toward the goal of achieving mission success.

