



NORTHROP GRUMMAN

Timely Insight:

Assessing Risk and Assuring
Quality throughout Design
Synthesis

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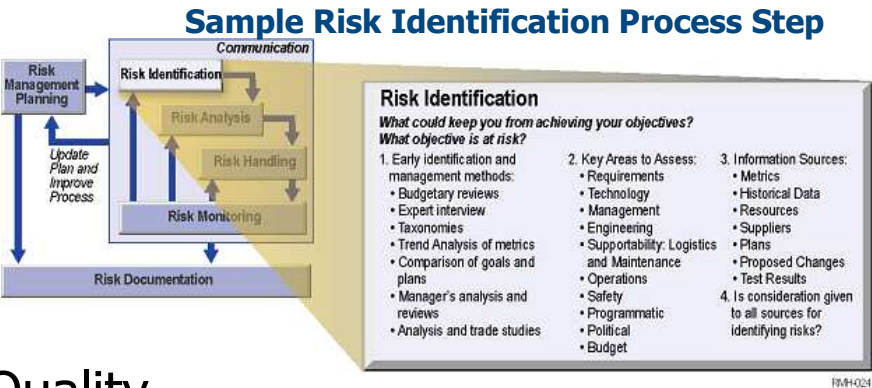
Director, Safety and Mission Assurance

Topics

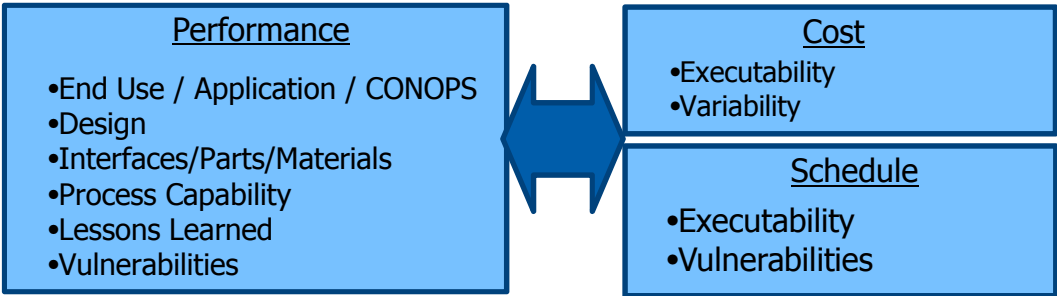
- Risk and the Quality Function
- The Role of Quality in Development Phases
- Engaging with Design Synthesis
 - Engagement Approach
 - Tools and Techniques
- Summary

The Risk & Quality Relationship

- Past quality performance is a key element in identifying risks
- As with defects, risks are opportunities for future prevention
- Identifying Risks requires insight to Quality



Key Knowledge Points Required to Understand Risk



- Risk-based decisions require Quality's understanding and *should* impact program-specific quality approaches

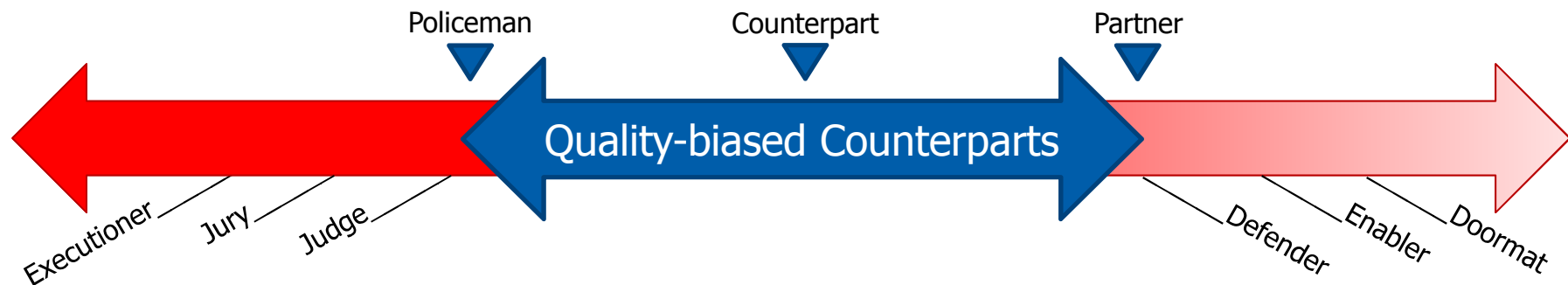
Northrop Grumman is increasing Quality's focus in Risk Management to exploit synergies

The Role of Quality

Interface Aspect of Quality/Mission Assurance Roles

<u>Traditional Quality Roles</u>	<u>Responsibilities</u>
Inspector	ID / document defects (produce & process)
Auditor	ID noncompliance to QMS
Engineer	Drive corrective actions / closure of defects
Analyst	Provide insight to trends / themes
Continuous Improvement Consultant	Drive Improvement
Integrator	Drive CA / PA across programs and value stream

Role Continuum



We Partner with Programs and Provide Internal Controls

Engaging with Design Synthesis

- Know the Role of Quality
 - Stay consistent with that role and with the bounds of desired continuum
- Know Design Quality Characteristics
- Execute and Deliver
- Stay Agile
 - Tailor efforts to match risks
 - Be prepared priority shifts
- Address the Soft Side
 - It's harder to change perceptions of our role in design than to actually perform design assurance

Summary

- Increasing the Quality organization's awareness and engagement of risks is critical to engaging successfully in design synthesis
- Quality's role in design synthesis can significantly reduce risks in product realization
- Engagement methods must match program risk profile
- The "who's and how's" of engagement is crucial to successful assurance
- Quality work products will vary, but can benefit from pre-existing assurance products and processes
- Agility and scalability is key to "right-sizing" Quality engagement in synthesis phases