Risk Control for Rapid Acquisition

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Challenges of Risk Management for Rapid Acquisition
As viewed from a rapid USSF system acquisition program

- Rapid acquisition programs are characterized by
  - *Shorter acquisition schedules*
  - *Smaller program management office teams*
  - *Higher risk tolerance*

- Implementing traditional Risk Management poses challenges
  - *Limited staff and schedule to execute the rigorous RM process*
  - *Unclear how to translate "risk tolerance" into the 5x5 risk matrix*
  - *Tempo of risk handling must outpace the traditional RMB cycle*

- The *de facto* risk management process addresses the big rocks as they emerge
  - *Risks posing potential for a major setbacks get mitigated*
  - *Urgency tends to establish priority*
  - *PM makes the decisions – no RMB formality*

Need: fast, efficient method to prioritize risks to support PM decision

Adopt a Different Perspective

RISK MANAGEMENT	ATTRIBUTE	RISK CONTROL
Risks to program success (P, C, S)	**Focus**	Threats to the mission success (D5)
Identify, analyze, treat & monitor the risks continually – INCOSE-TP-2003-002-04	**Purpose**	Inform the decision to allocate resources to counter threats
Completeness, Rigor	**Goals**	Necessity, Speed
Identify, Analyze, Handle, Monitor	**Process**	Observe, Orient, Decide, Act (OODA Loop)
Risk matrix Risk burn-down plans	**Products**	Threat priority list Threat countermeasures

Prerequisite to Risk Control approach is a concise set of Mission – not Program – Objectives that define success

Risk Control OODA Loop

OBSERVE emergent threats; generate a threat statement of the form:
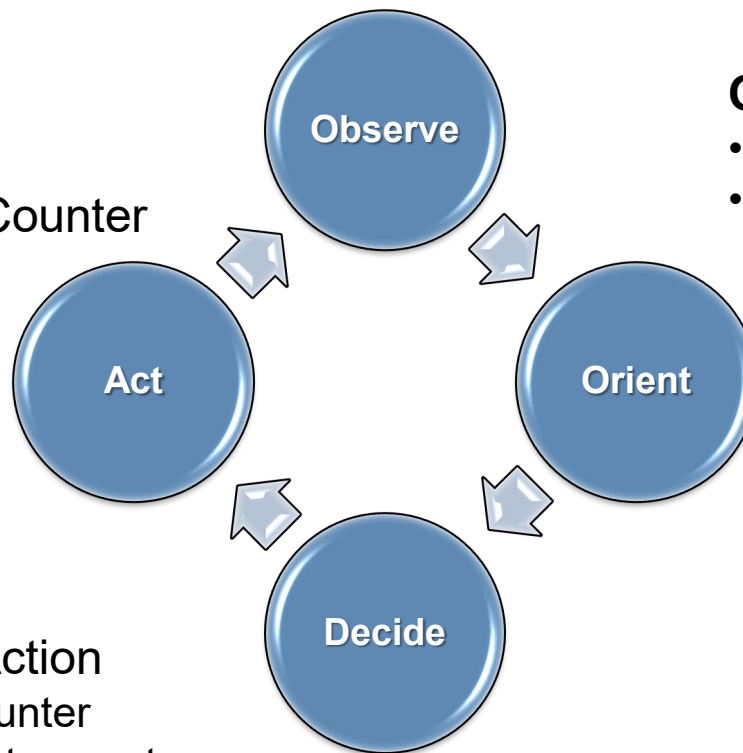- "Given <evidence> then <mission effect hypothesis>"
- Evidence is the set of facts **observed**
- Mission Effect is a **hypothesis** of possible impact to mission success

ACT implements the decision to Counter
1. Choose a countermeasure (Avoid, Transfer, Mitigate)
2. Plan
3. Execute
4. Report

ORIENT the threat priority, based on
- Mission Effect
- Analyst's Confidence in the assessment

DECIDE on Course of Action
- COAs are Accept or Counter
- PM allocates resources to counter threat effects in priority order

Threat Priority Matrix

Confidence Level	None	Disrupt	Degrade	Destroy
High	10	7	4	1
Moderate	10	8	5	2
Low	10	9	6	3
None		10	10	10

Mission Effect Level

The OODA Loop repeats as new evidence is created or observed

Threat Priority Matrix and Countermeasure Guidance

Threat Priority Matrix

Confidence	Definition (modeled on CIA criteria)
High	All evidence is consistent in support of the hypothesis
Moderate	The preponderance of evidence supports the hypothesis
Low	The evidence is inconsistent in support of the hypothesis
None	The preponderance of evidence supports the antithesis

Threat Priority Matrix

Confidence (vertical axis): High, Moderate, Low, None

	None	Disrupt	Degrade	Destroy
High	10	7	4	1
Moderate	10	8	5	2
Low	10	9	6	3
None		10	10	10

Mission Effect
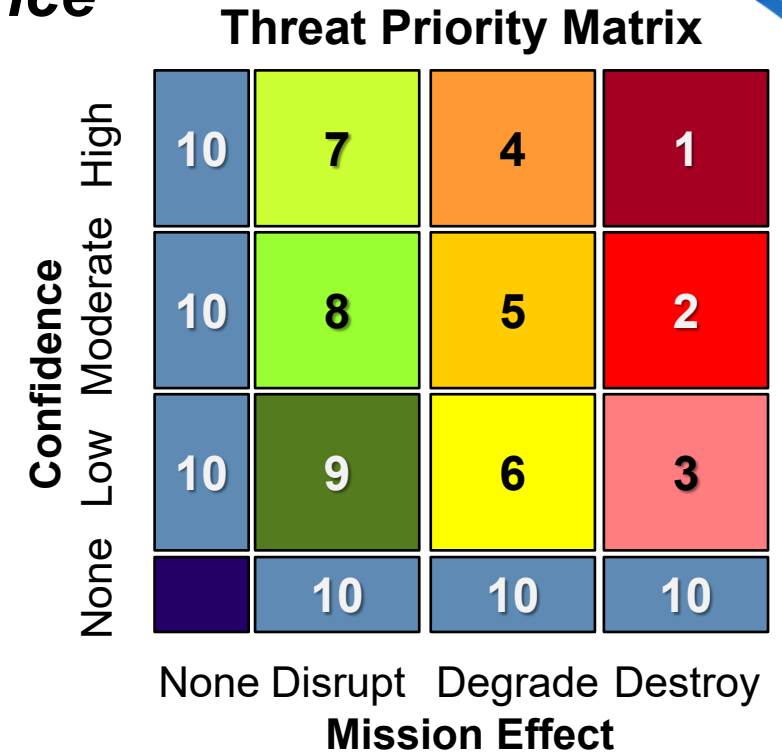
Countermeasures Guidance

- Must Have
- More is Better
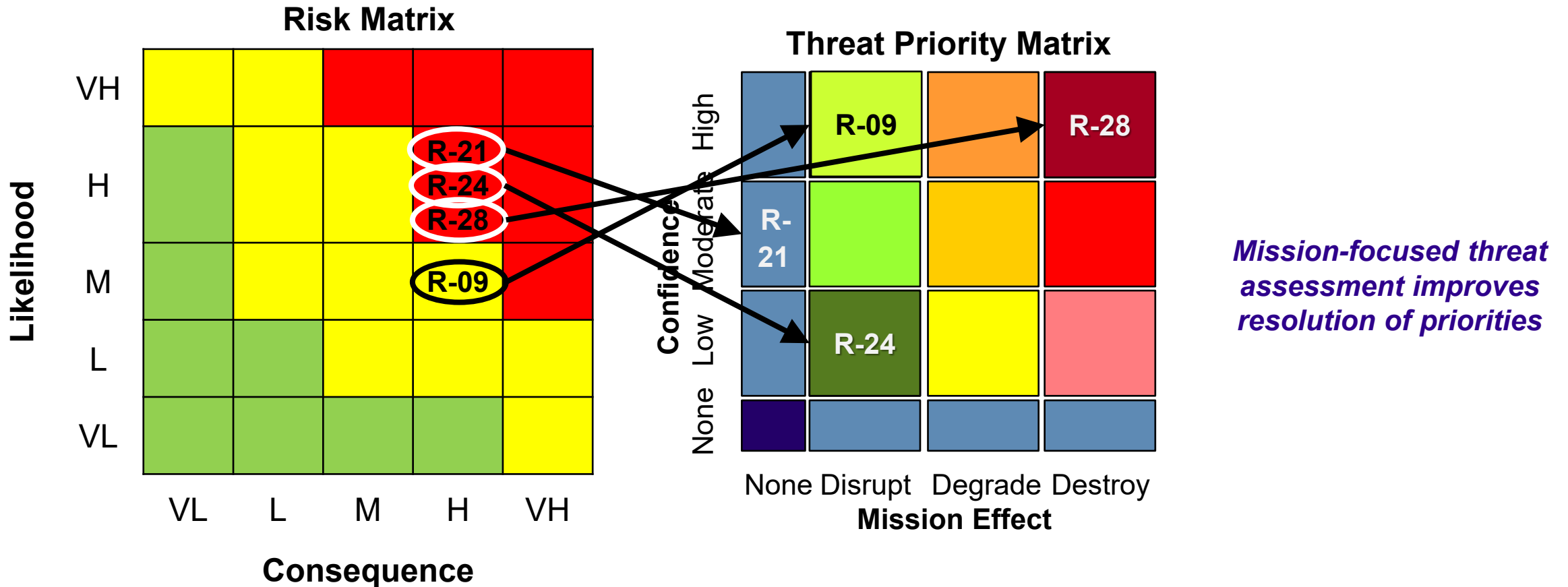- Nice to Have
- Accept

Effects	Definition (analog to operational effect)
Destroy	Fail to deliver the capability
Degrade	Deliver less capability than planned (in quality or quantity)
Disrupt	Deliver conditional capability or deliver late
None	Programmatic impact only with no mission effect

Threat priorities constitute actionable information for decisions

Assessment of Actual Program Risks

Risk	Program Concern	Mission Concern
R-09	Miss an important component delivery deadline	Capability delayed until component delivered
R-21	Delay start of developmental test	No mission impact
R-24	Interoperability challenges due to architectural complexity	Capability delayed for post-launch SW updates
R-28	Inability of Customer to ingest and process data	Inability of Customer to ingest and process data

Risk Matrix

Threat Priority Matrix

Mission-focused threat assessment improves resolution of priorities

Next Steps

- Demonstrate Observe and Orient steps
  - *Recast existing risks in accordance with Risk Control scheme*
  - *Compare Risk Matrix and Threat Priority List*
  - *Assess impact of priority changes*
- Survey PMs regarding Decision step
  - *Collect perceived relative utility of the Risk Matrix and Threat Priority List*
  - *Obtain recommended departures from Countermeasure Guidance*
- Evaluate Act step
  - *Assess effectiveness of current risk handling plans as Countermeasures*

Questions?