Headquarters U.S. Air Force

Integrity - Service - Excellence

Risk Assessment Framework

An Comprehensive Approach to Risk

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Introduction

- **Purpose: An enterprise-wide risk assessment framework to inform decisions regarding multiple sources of unavoidable risk**
- **Strategic Goals: Assess current military capabilities to execute current operational war plans and support appropriately balancing Air Force capabilities to accomplish future defense strategy**
  - **We need a structured way to make defensible decisions regarding allocation of resources for both current and future budgets**
  - **The Air Force needs to express risk in a language that both DOD leaders and Congress understand**
  - **Risk Assessment Framework should facilitate communication**
    - **Help think about risk and build assessments**
    - **Assist presenting risk to decision makers**
    - **Guide risk discussions within and across disparate functions and scenarios**

Defendable – Measurable – Repeatable – Traceable – Linkable - Incorporates Military Judgment - Implementable - Scalable

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Four Parts of Risk Assessment Framework

- **Clarify comprehensive information in a risk assessment**
  - What activity or collection of activities are being assessed?
  - What are the content, setting, conditions, and assessment ?
  - What is the assumed risk mitigation actions?
- **Standardize presentation of individual risk assessments**
  - What is the severity and its likelihood to that activity?
  - What metrics underlie that assessment?
- **Aggregate individual risks to assess strategic risk**
  - How do risk for various activities combine?
  - How does this combination affect risk mitigation?
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Information in Risk Assessment

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- **When someone says “this is high risk” what information is implicitly communicated? We identify 11 aspects in 4 groups:**
- **1) The activity or a collection of activities being assessed**
- **2) The context of the assessment**
  - Who accomplished or approved the assessment
  - When they completed it
  - The type of risks considered—specifies the assessment scope
  - The analytic rigor of their assessment process
- **3) Setting of the assessment**
  - Scenario and timeframe
  - Assumed environmental conditions (economic, political, war, …)
  - Assumed major choices (acquisitions, divestments, policies, …)
  - Mitigation measures taken to reduce risk
- **4) Resulting assessment** (metric or categorical value)

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Standardized Risk Statement

For (Activity), (Organization) on (Date) assesses (Type of Risk) with (Analytic Rigor) for (Scenario) assuming (Conditions) at (Timeframe) with (Major Choices), and (Mitigation) is (Assessment).

Activity	Assessment Context			Assessment Setting					Assessment
ACTIVITY or OBJECTIVE	ORG and DATE	TYPE OF RISK	ANALYTIC RIGOR	SCENARIO	CONDI-TIONS	TIME-FRAME	MAJOR CHOICES	MITIGATION (Specified or AUTHORITY)	ASSESS-MENT (metric or categorical value)
Force Generation Rapid Global Mobility Homeland Defense Air Superiority Etc…	Air Combat Cmnd Army Joint Staff Etc…	Oper-ational Force Manag ement Etc…	SME based Metrics/ Mitigation Metrics/ Traceable Metrics/ Organi-zational Enterprise	Vignette Y Conflict w/ Country X Operational Plan XVI Scenario Z Etc…	None War in Scenario A has been initiated A nuclear weapon detonation has occurred	Near Mid Far FYDP Etc…	Programme d Force TOA Force Budgeted Force Etc…	Mitigating weapon effectiveness with capacity Mitigating force structure shortfall with building partner capacity effort Etc…	Low/ Green Moderate/ Yellow Significant/ Orange High/ Red

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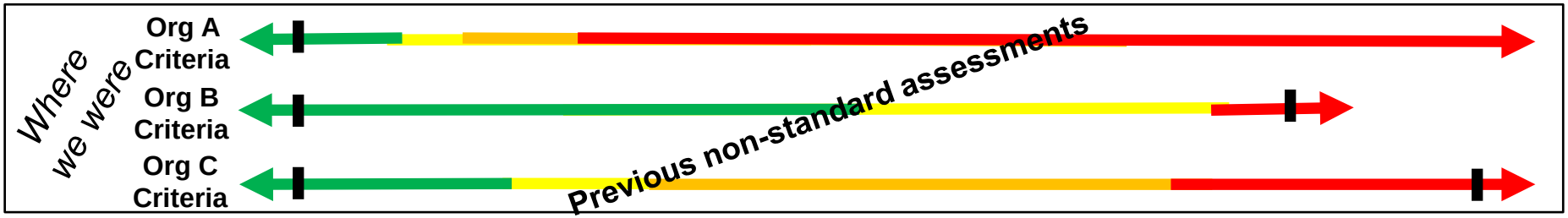
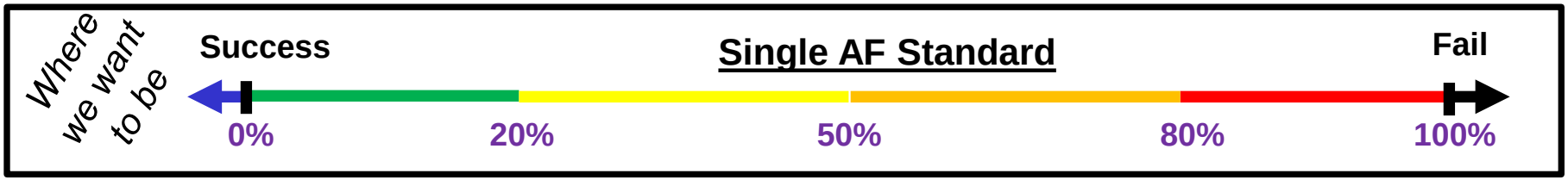
Metric Based Approach

for Performance, Resource, and Schedule Goals/Metrics



- Metrics based assessment measure consequences (or at least planned actions)
  - Performance: effectiveness, mission accomplishment, deploy-to-dwell ratios
  - Resource/Cost: capacity or quantities, manpower, dollars, …
  - Schedule: time or duration until mission accomplishment, days, …
- Simplicity: presented expected metric value, rather than probability/severity matrix
- Scalability: defined success and failure points appropriate for assessed activity
- Consistency: categorized the risk assessment according to severity to assessed activity



Improved risk communication and understanding throughout the Air Force

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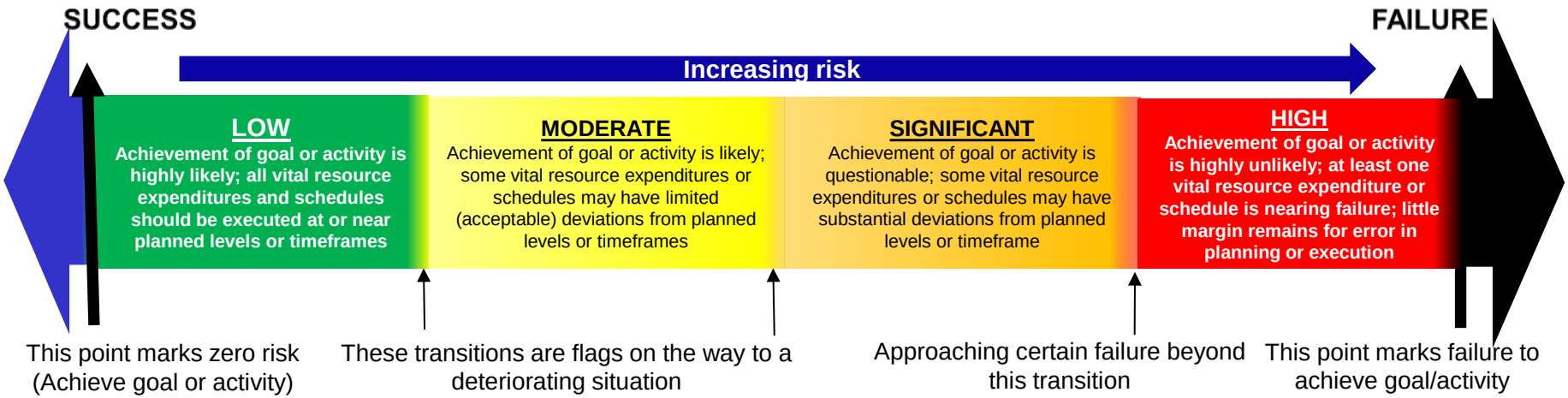
Consistent Criteria Scaled to Assessed Activity

- Provides a structured approach where performance, resource, and schedule metrics for the activities underlie the risk assessment
  - Focused on information leaders need (well defined/defensible assessment)
  - Anchored endpoints (Success/Failure) and defined thresholds provide concise, consistent interpretation of results (and aligns with Joint Staff definitions)
  - Defensibility enhanced by metric endpoints and assessments developed via modeling & simulation, data analysis, wargaming, exercises and SME evaluations



Assessment results are defined by these levels supported by analytics

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A Basic Example

Scenario: Next Thursday Bob has a 0800 briefing with his boss at the Pentagon. Bob must drop his daughter off at daycare not earlier than 0630 in Stafford.

High

Objective: Arrive at Pentagon by 0745

Bob's briefing is at High Risk unless he can mitigate it by convincing his wife increase his gas budget by $4. If gas is mitigated then it would be Moderate Risk.

High

Activity: Operate car Thurs without mechanical delay

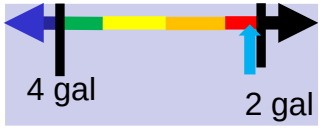
Moderate

Activity: Depart daycare in time to arrive at Pentagon

Low

Activity: Avoid Traffic

Resource: Amount of gas in fuel tank

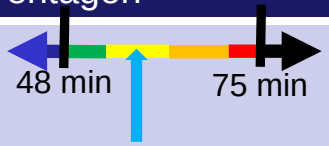


Assessed at 2.1 gallons (High Risk) based upon the amount of money Bob's wife has budgeted for gas, the amount currently in his tank and the expected amount of gas to be used prior to Thursday

Resource: Amount of oil in engine

Assessed at 4 quarts (Low Risk) based upon the amount of oil mount currently in his tank and the expected usage prior to Thursday

Schedule: Transit time from Stafford to Pentagon



Assessed at 58 minutes (Moderate Risk) based upon data analysis showing this to be the median transit time from Stafford to the pentagon on a Thursday

Performance: Situational Awareness

Able to identify traffic and calculate/ display an optimal diversion route not later than 6 miles prior to encountering any backups

Able to calculate and display optimal diversion routes after encountering backups

Able to receive some warning of potential traffic backups

See and avoid without guidance

Assessed at Low Risk because Bob owns a GPS with traffic alert

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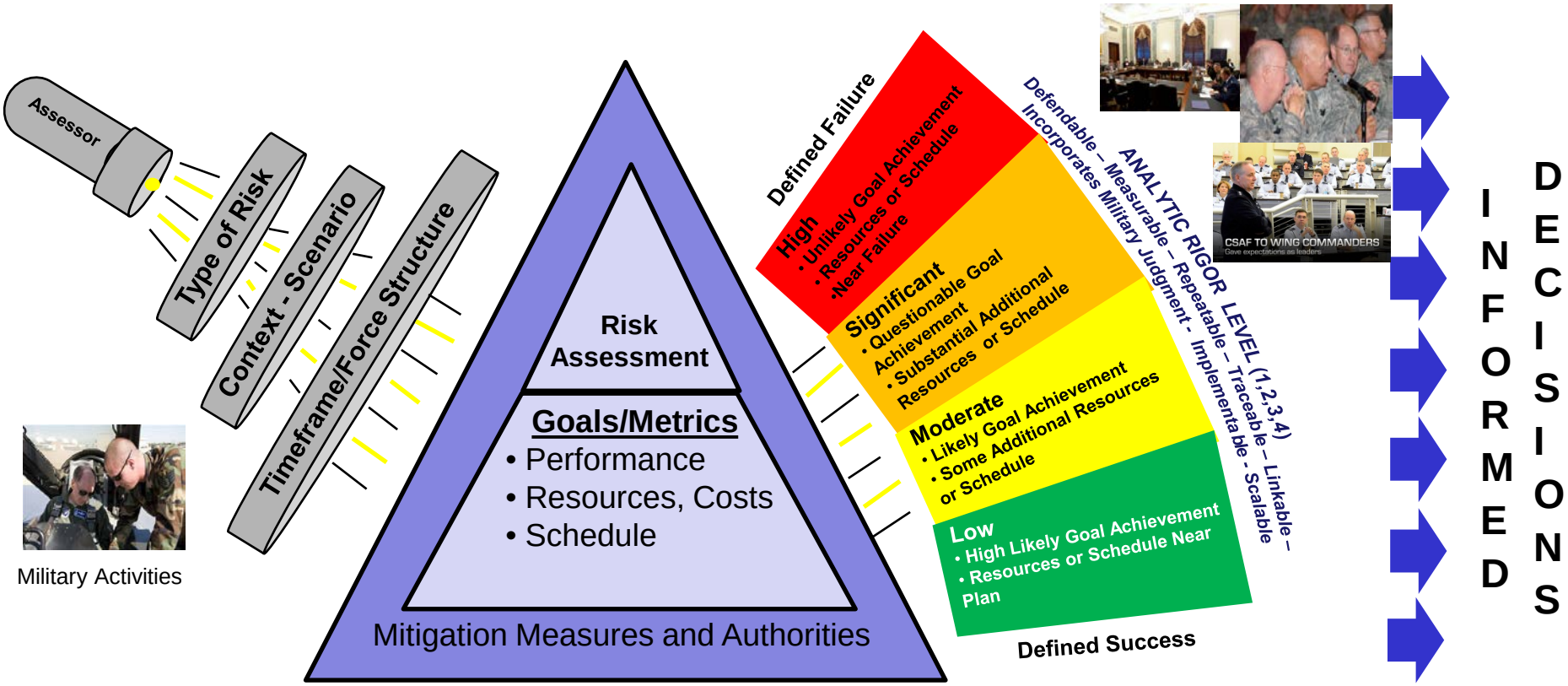
Risk Assessment



Commander Messaging

- Our roles/objectives are …
- With given resources/timeline our risk is …
- We may mitigate risk by …
- To reduce risk further we would need ___ (DOTMLPF) changes or resources

Decision Maker Interpretation

- Defined success/failure points make sense
- If the risk is realized, we will not be able to …
- Accepting additional risk would free ___ resources
- We should take action on ___ to reduce the risk of …

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Evaluating an Assessment

Questions Senior Leaders/Decision Makers Should Ask!

- What type of Risk are you describing? (Operational, Force Management, or Institutional)
- What metrics form the basis for this assessment?
  - Are these consequences or performance measures?
  - Which scenarios, timeframes and force structure assumptions did you use?
- What defines success and failure for the assessed activity in the scenario and timeframe?
  - How and why did you determine those success and failure points?
- What is the assessed risk with mitigation in place?
  - How did you determine the values? What is their analytic rigor?
  - What are you doing today or recommend for the future to mitigate this risk?

Shifted in the conversation from the assessor's qualifications to the expected outcomes of the activity in the assessed scenario!

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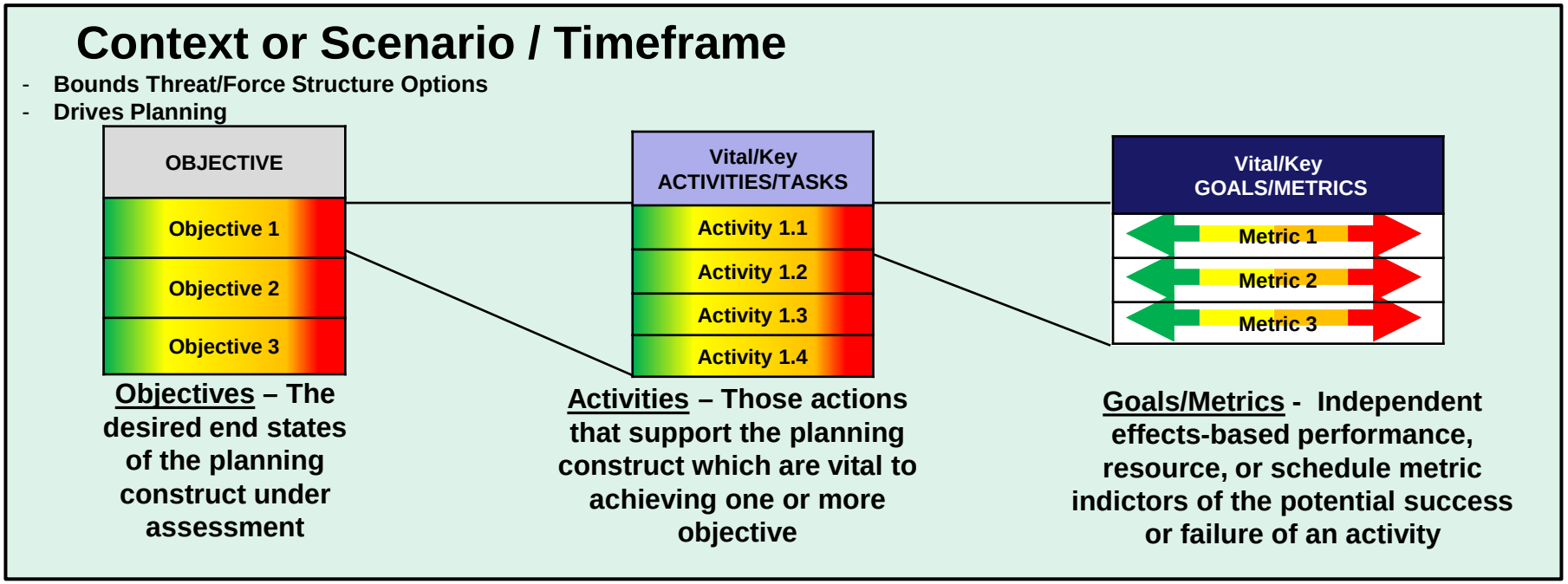
The Baseline Framework

(Objectives, Activities, & Goals)



- Framework uses a strategy-to-task approach where goals support activities and objectives
- Goals are assessed based on performance, resource, and schedule metrics
- Roll-up to higher levels may change the assessment level
  - Potential reduced if multiple activities rely on common goals/metrics
  - Potential improvement if additional mitigation means are available
- Approach may be applied at various levels of assessment (tactical, operational, strategic)

The Objective/Activity/Goal linkages relate the risk for assessments

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Combining Risk Assessments (Same Activity)

- Different aspects of the same activity
  - The combined consequences form each aspect may be deemed sufficient to justify a worse risk assessment than any of the individual assessments
  - Related, positive correlation (which may be likely) increases the probability of a combination of worse consequences
  - Hence, the combined risk assessment may be worse than the individual risk assessments
- Example: program cost and schedule are positively correlated
  - If the program is behind schedule, usually the program will also be over cost
  - Therefore, combining risks assessments for cost and schedule should indicated increased risk

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Combining Risk Assessments (More Aggregate Activity)

- Combining several risk assessments to a more aggregate activity risk assessment
  - Does the scope encompass the entire aggregate activity? If not collectively exhaustive, the additional scope may increase risk
  - If not mutually exclusive (individual assessments account for the same consequences), the combined risk may be less
  - Are the individual activities' outcomes positively correlated?
    - If so, the combined consequences or increased probability may make the combined risk assessment to be worse
  - Do the underlying activities rely on common mitigation resources?
    - If so, then the combined risk assessment should be worse because the probability of not being able to mitigate more than one bad outcome
  - Does the aggregate activity have alternative approach to achieve the objective?
    - Alternative mitigation or approach would reduce the risk

CJCS Integrated Risk Matrix

The Military Risk Application

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RISK	CRITERIA	LOW	MODERATE	SIGNIFICANT	HIGH
Combatant Command "Risk to Mission" *Ability to execute assigned missions at acceptable human, material, financial and strategic cost*	Achieve Objectives (Current Ops)	Very Likely (ex: 80-100%)	Likely (ex: 50-80%)	Questionable (ex: 20-50%)	Unlikely (ex: 0-20%)
	Achieve Objectives (Contingencies)	Very Likely (ex: Can Win Decisive)	Likely (ex: Can Swift Defeat)	Questionable (ex: Must Hold-Win)	Unlikely (ex: Cannot Hold)
	Authorities	Full Authority Provided for all OBJs	Authority Provided to achieve most OBJs	Insufficient Authority to achieve key OBJs	Lack of Authority jeopardizes mission
	Planning	Level III or IV Plans	Level I or II Plans	CCDR CONOPs (Anticipated Event)	Initiate Planning (Complex Crisis)
	Resources Meet Required Timelines	As Planned	Limited Delays (Acceptable Costs)	Extended Delays (Substantial Costs)	Extreme Delays (Unacceptable Costs)
Service / Joint Force Provider "Risk to Force" *Ability to recruit, man, train, equip and sustain the force to meet strategic objectives*	Meet CCDR Req's (Current Ops)	Full capacity to source all req's	World-wide solutions for most req's	Shortfalls in critical requirements	No solutions for critical requirements
	Meet CCDR Req's (Contingencies)	Full capacity to source all req's	Shortfalls cause minor plan deviations	Shortfalls cause major plan deviations	Shortfalls make plan execution impossible
	DOTMLPF Capability vs. Threat	Dominance	Superiority	Parity	Inferiority
	Readiness	Strategic Depth for Full-Spectrum Missions	Strategic Depth for Current Operations	Next-to-Deploy Forces Ready "Just in Time"	Deployed Forces Not Ready for Mission
	Stress on the Force	Limited Stress (ex: AC DT > 1:2)	Increased Stress (ex: 1:2 > DT > 1:1.5)	Prolonged Stress (ex: 1:1.5 > DT > 1:1)	Extreme Stress (ex: DT < 1:1)
	Mobilization	Presidential Recall (ex: RC DT > 1:5)	Limited Partial Mob (ex: 1:5 > DT > 1:4)	Partial Mob (ex: 1:4 > DT > 1:3)	Full Mobilization (ex: DT < 1:3)
	Institutional	Force Development & Industrial Base meet all mission requirements	Force Development & Industrial Base meet priority requirements	Force Development & Industrial Base meet some priority requirements	Force Development & Industrial Base fail to meet essential reqs.

Risk to Mission - The ability of the current force to execute strategy successfully within acceptable human, materiel, financial, and strategic costs.* [AF Extended to mid and far term for planning assessments to cover Future Challenges.] *

Risk to Force - The ability to recruit, train, educate, equip, and retain the All-Volunteer Force, and to sustain its readiness and morale. This includes Institutional challenges of addressing management and business practices to plan for, enable, and support the execution of DoD missions in the near, mid, and far terms. *

Note: * The definitions for how risk should be categorized come from the Risk Assessment Process and Methodology for the 2014 Chairman's Risk Assessment (CRA) – 4 June 2013.

Air Force risk assessments align with this Joint Staff matrix

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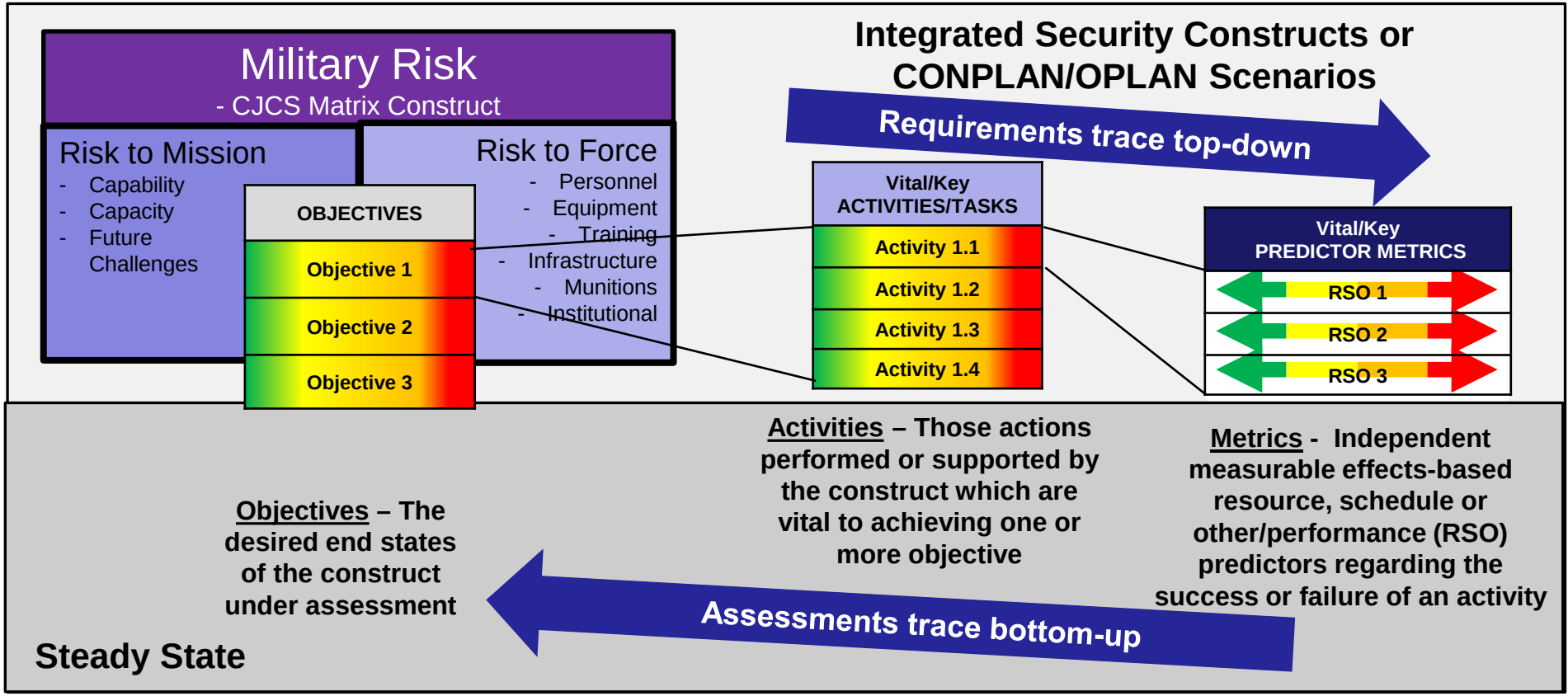
Identifying Linkages

For Military Risk Applications



- In the Military Risk Application (Risk to Mission and Risk to Force), Air Force elements must assess their ability to meet the timelines and force structure requests inherent to Combatant Command planning or force planning constructs for the future.
- Goals/Metrics should match and inform at the level of assessment. Strategic level assessment should be supported by strategic level metrics (i.e. million ton miles per day is informative at the strategic level while the readiness level of an individual unit is not).

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The Relationship Between Military Risk Types

Risk to Mission and Risk to Force Example

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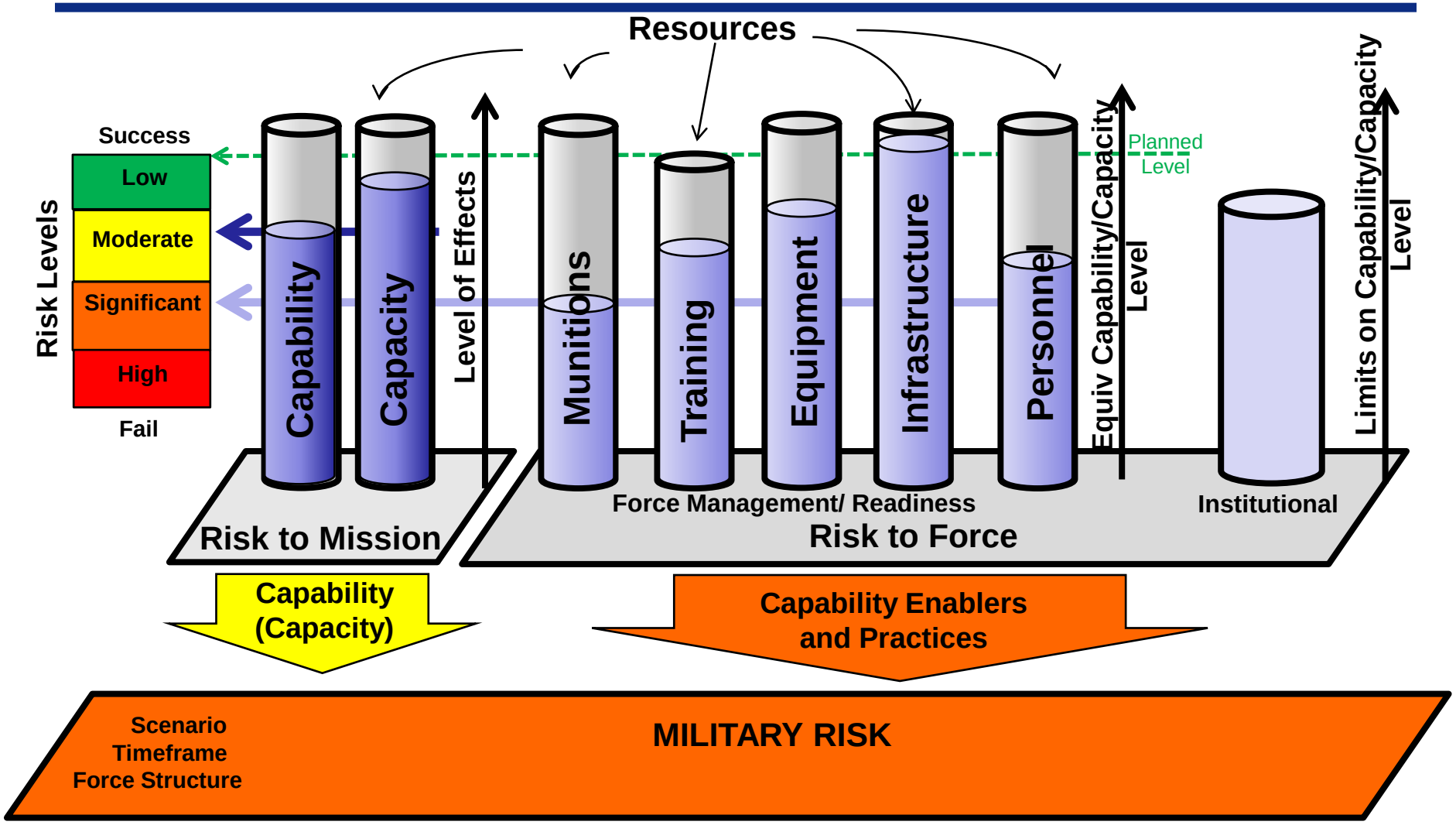

Unless mitigated, lowest risk assessment drives enterprise risk assessment

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Air Force Risk Applications

Core Function Support Plan Risk Assessments

- Air Force Major Commands express how they meet Combatant Command Requirements in 2012 and updated in 2013 and 2014
- Laid foundation for strategic integration of long-term priorities

Strategic Master Plan Capability Gap Assessment

- The Air Force is aggregating the core function support plans into cor capability risk assessments in 2014

Air Force Requirements Oversight Council (AFROC) Application

- All new requirement validations require two assessments of with and without new requirement
- Improving link between requirement risk assessments and core function risk assessment

Weapons Systems Sustainment Application

- Best application to date; supports informed trades decision making

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Summary

BENEFITS

- Compares unlike items in simple and flexible framework
- Translates presentation of existing processes rather than changing them
- Allows for quantitative/objective & qualitative/subjective data
- Facilitates communication and discussion to senior leaders
- Supports assessments at multiple organizational levels
- Creates basis for solid analytic support to decision making
- Enables aggregation of risk assessments
- Provides:
  - Common taxonomy/definitions
  - Scaled risk level for each activity based on success/failure
  - Standardized Format Risk Statements (similar and complete information)
  - Aggregation of risk metrics to the enterprise level
  - Critical information to senior leaders necessary for decision making

More analytically rigorous support for defensible decision making

Defendable – Measurable – Repeatable – Traceable – Linkable - Incorporates Military Judgment - Implementable - Scalable