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Between Imprudent and Impossible, Survivability Implications of Threat Analysis or What Threats Should We Design Against?

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US Army Tank-automotive and Armaments Command

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Introduction

- The first survivability Question:
 - What is the Threat?
 - No straight forward answer
- The paper will:
 - Offer insights in developing the threat
 - Insights from:
 - Modeler - Threat Analyst interaction
 - Recent program work

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Outline

- It's imprudent to design against a single threat
- Why we can't design against all threats
- Current threat analysis
- Pitfalls of threat analysis
- Tips and enhancements for good threat analysis
- Implications for survivability resulting from a proper threat analysis
- Conclusion

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It's Imprudent to Design Against a Single Threat

- The obvious single threat
- Always multiple threats
- Lesser but deadly threats
- Survivability of the force v. the platform
- Therefore its imprudent to design against a single threat

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Why We Can't Design Against All Threats

- Impossible to design against all threats
 - Overmatching threats
 - Lack of intelligence
 - Burdens: weight, cost, mobility, etc.
- Need for Worldwide deployability of US Forces
 - Many possible scenarios
 - Many diverse enemies
 - Spectra of War

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Current Threat Analysis

- System Threat Assessment Report
 - Information dump
 - Inventory quantities vice regional quantities
 - Fails to provide
 - Probabilities of Encounter
 - Little analysis of enemy training, doctrine and force structure

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Pitfalls of Threat Analysis

- Single Threat Fixation
- The “Threat de Jour”
- Conventional Wisdom Threat
- Pie-in-the-Sky Future Threat
- Reflexive Threat

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7

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Tips and Enhancements for Good Threat Analysis

- Answer the “Threat Trinity”
 - What is the most dangerous threat?
 - What is the most proliferated threat?
 - What threat is most likely to be encountered?
- Understand Platform threats v. threats to the force
 - Force structure, both friendly and enemy
 - Threat doctrine and ability to use it
 - Enemy training
 - “Elevator safety factor” v. “the ten feet tall threat”
- Read the Defense Planning Guidance

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Tips and Enhancements for Good Threat Analysis

- Tools:
 - Probability of Encounter Threat Trees
 - Wargaming
 - Models
 - Simulations
- The Intelligence Community
 - AMC Foreign Intelligence Offices
 - TRADOC Threat Managers
 - National Production Center, e.g. NGIC
 - National Agencies, e.g. DIA, CIA

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Implications for Survivability Resulting from a Proper Threat Analysis

- Force oriented survivability solutions
- Inclusion of lesser but deadly threats
 - 12.7mm SLAP and 14.5mm AP
- Role of the platform within the Spectra of War
 - Operations Other Than War
 - Small Scale Contingencies
 - Major Theater of War

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Conclusion

A proper and thoughtful threat analysis will aid in developing a combat vehicle that will be able to perform its mission and be adequately survivable during the conduct of its mission

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