

Affordability Considerations: Cost Effective Capability

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The Obvious?... Consider A Tale of Two Hummers



Standard Issue Army Hummer – M1152 without Armor

- \$92,200 Unit Cost
- 18000 Miles Between Maintenance Actions
- No Warranty
- No Diagnostics



Joe Bo's Hummer - COTS

- \$35,000 Unit Cost (fully loaded)
- 50000 Maintenance Free Period
- 70000 Mile Warranty
- Embedded Vehicle Diagnostics
- Remote Diagnostics and Reports

Which is most Affordable?

Some Industry thoughts on the Problem

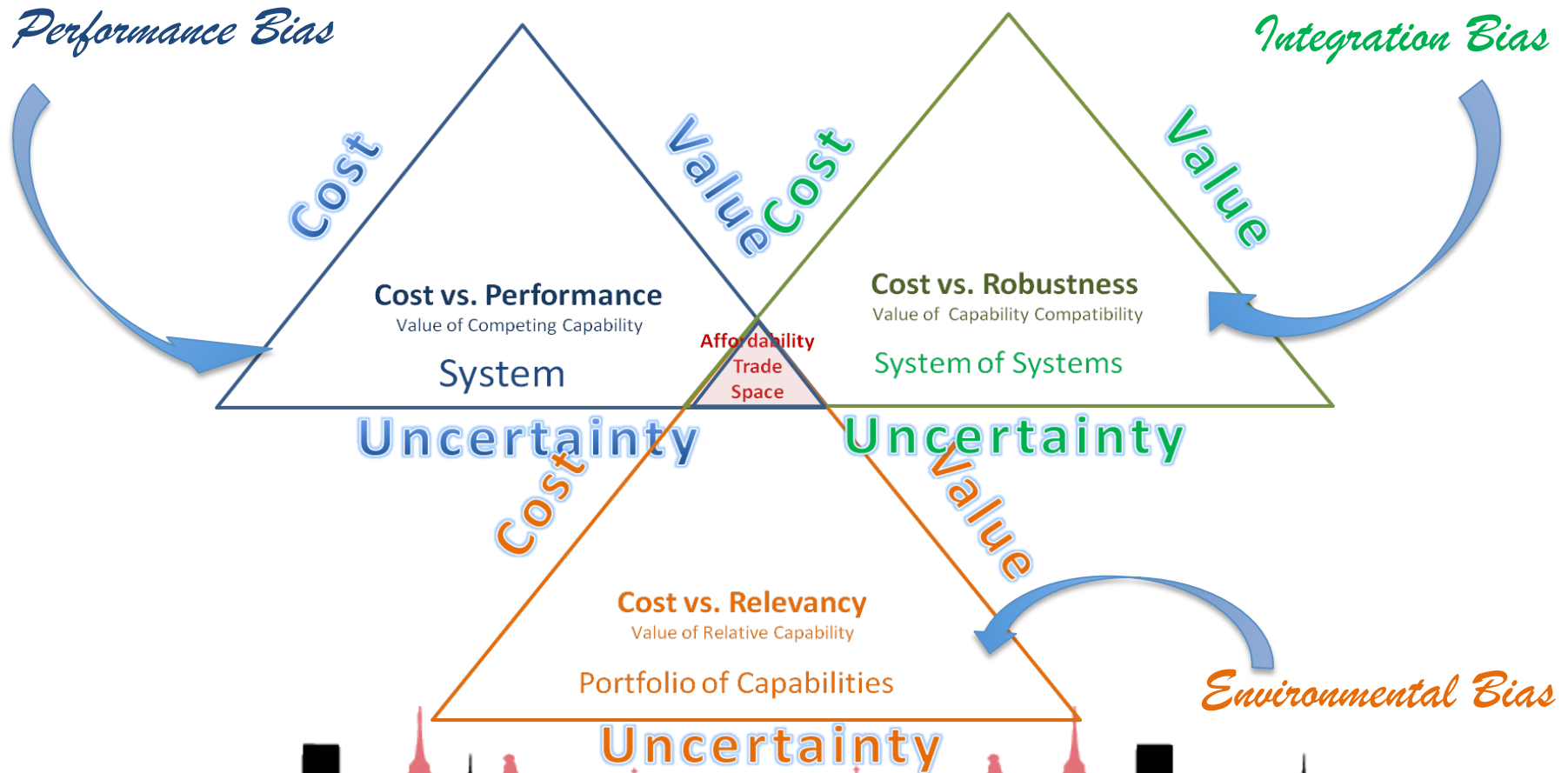
- Affordability has been defined by NDIA, INCOSE and MORS, in discussions at the recent MORS Special Meeting on *Affordability Analysis: How Do We Do It?* (Oct.2012), all industry groups have discovered that affordability analysis is a contextually-sensitive Problem. (Life Cycle, Procurer, Developer, Environment).
 - Affordability is the result of a disciplined decision making process – requiring systematic methodologies that support selection of the most affordable technologies and systems.
 - Methods for affordability analysis can be improved, measured and predicted – any methods that enable analysts to forecast expected affordability of alternative technologies and systems and to measure improvement in affordability of a given system; should be implemented as a core trade element for Analysis of Alternatives.
 - Affordability trade space and methods must provide structures and frameworks for analytical path from determining requirements to fielding affordable systems.
 - Affordability and Design for Affordability concepts are not same as “cost analysis” which is a subset of the Affordability Trade Space...

Problem: If Affordability is the determination of “VALUE”...

**Is it a subjective judgment,
more like Aesthetics than Science?**

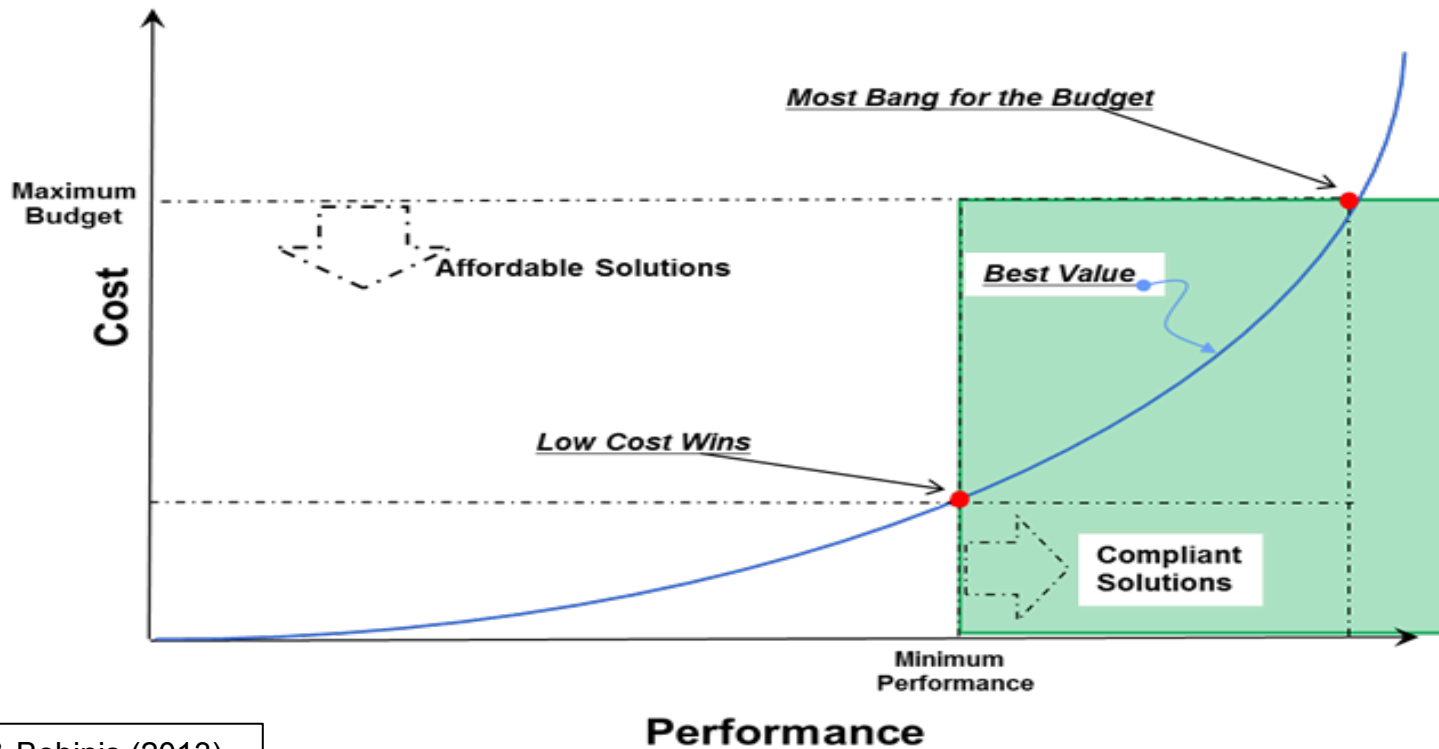
Hierarchical Nature of Affordability Problem

DESIGN FOR AFFORDABILITY - Hierarchy



Performance

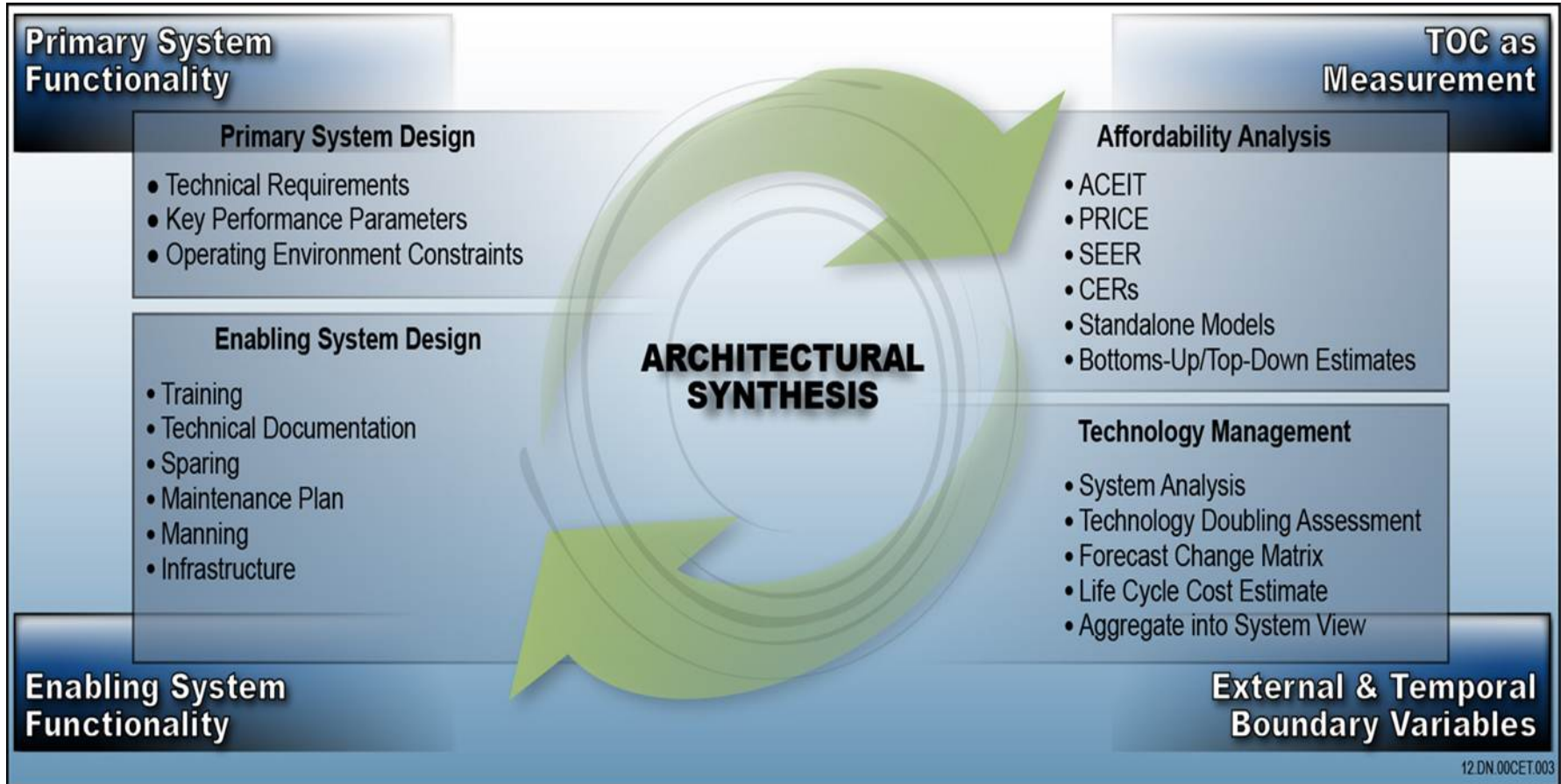
Cost versus Performance



Tuttle & Bobinis (2013)
"Specifying Affordability"



Integration (SOS)



Environment

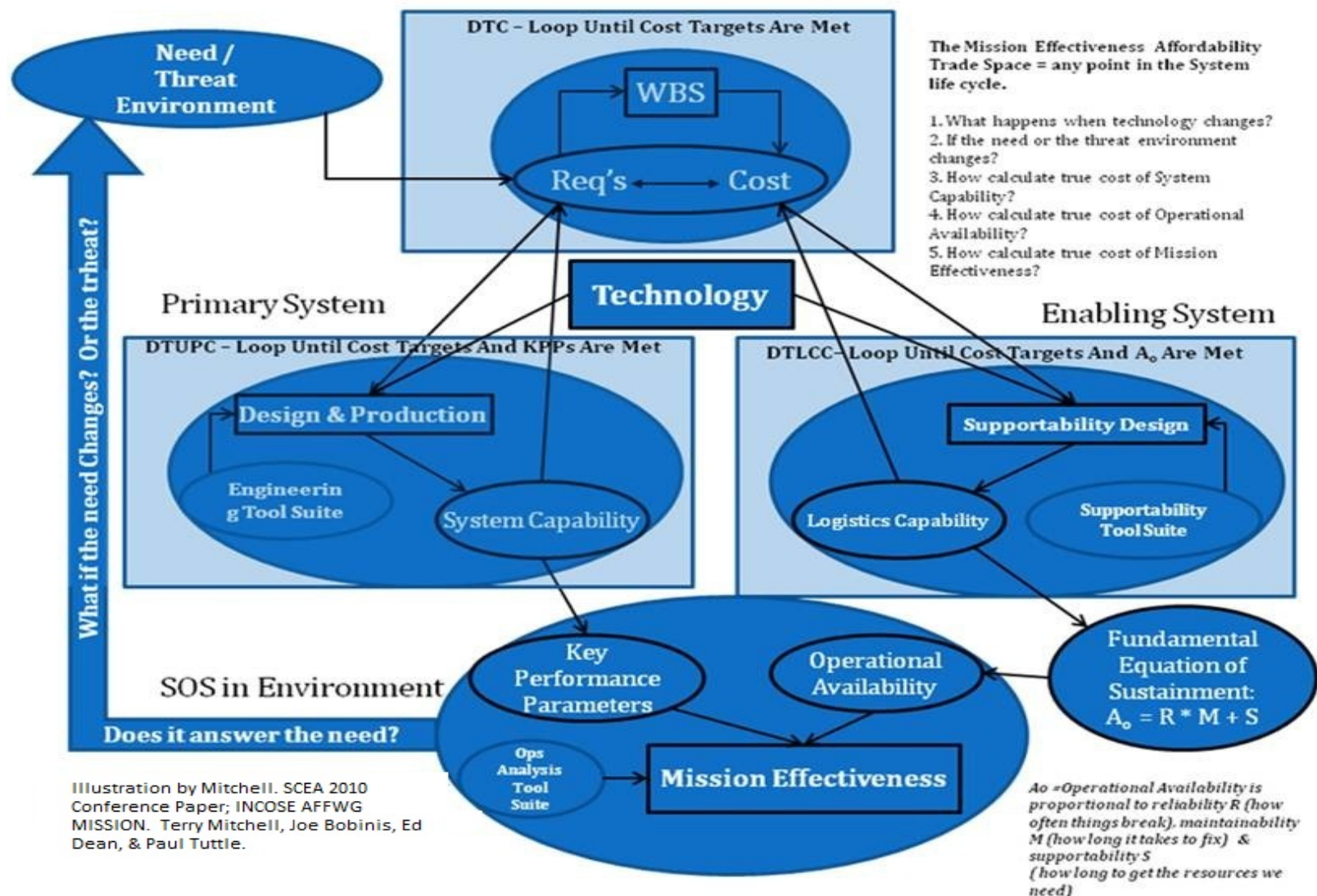


Illustration by Mitchell. SCEA 2010 Conference Paper; INCOSE AFFWG MISSION. Terry Mitchell, Joe Bobinis, Ed Dean, & Paul Tuttle.



Synthesis – Considerations of an Affordability Trade Space



Survey

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