Perspectives on Testing for Operational Suitability and Life Cycle Sustainability

for the

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RDML Bill McCarthy
COMOPTEVFOR
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The Challenge

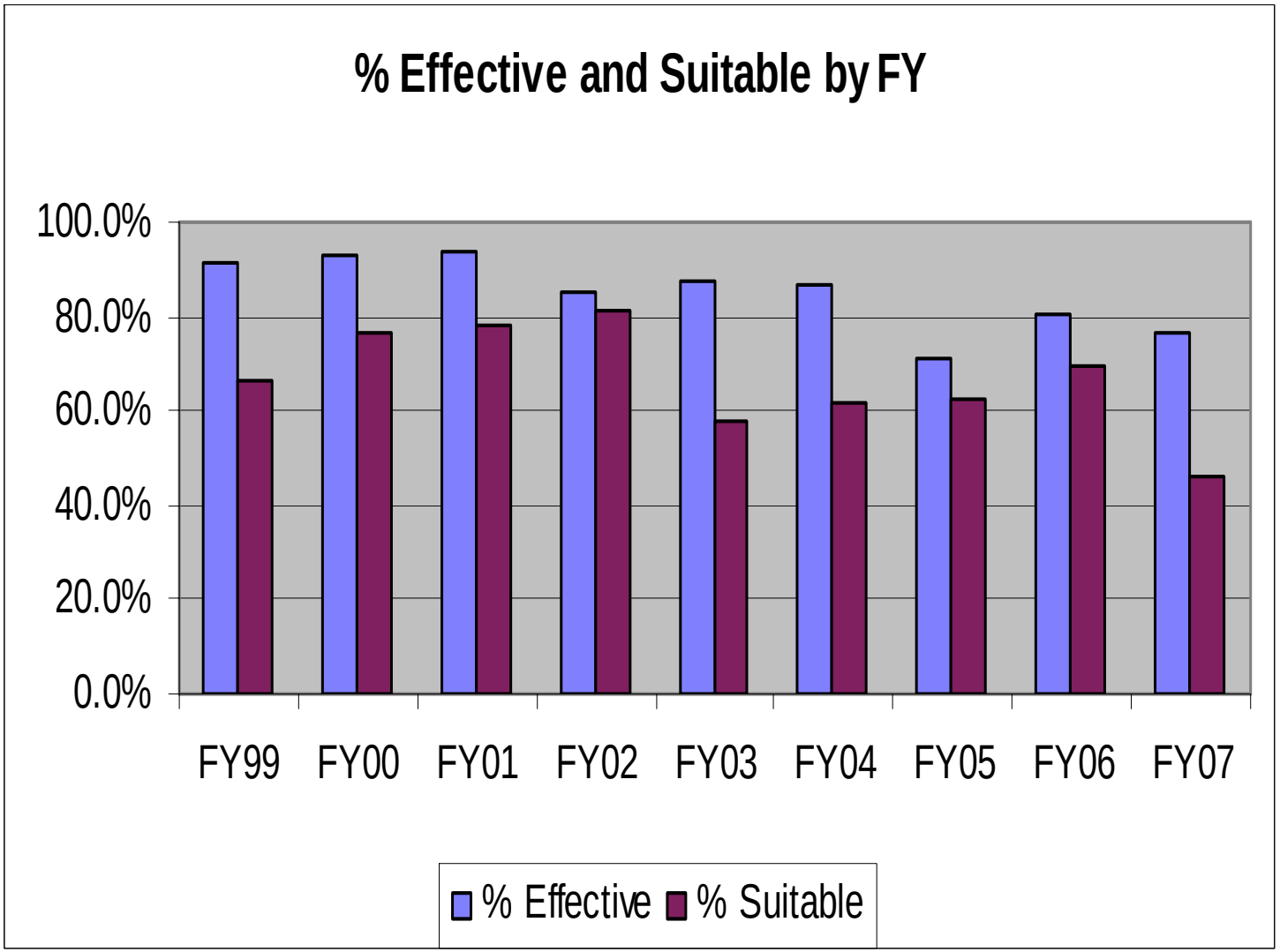
- To provide the warfighter with the tools needed to win the current “Long War” while building a force to meet future threats –
  - Do more
  - Do it faster
  - Do it with fewer resources
  - ***Do it with an understanding of the true cost***

History

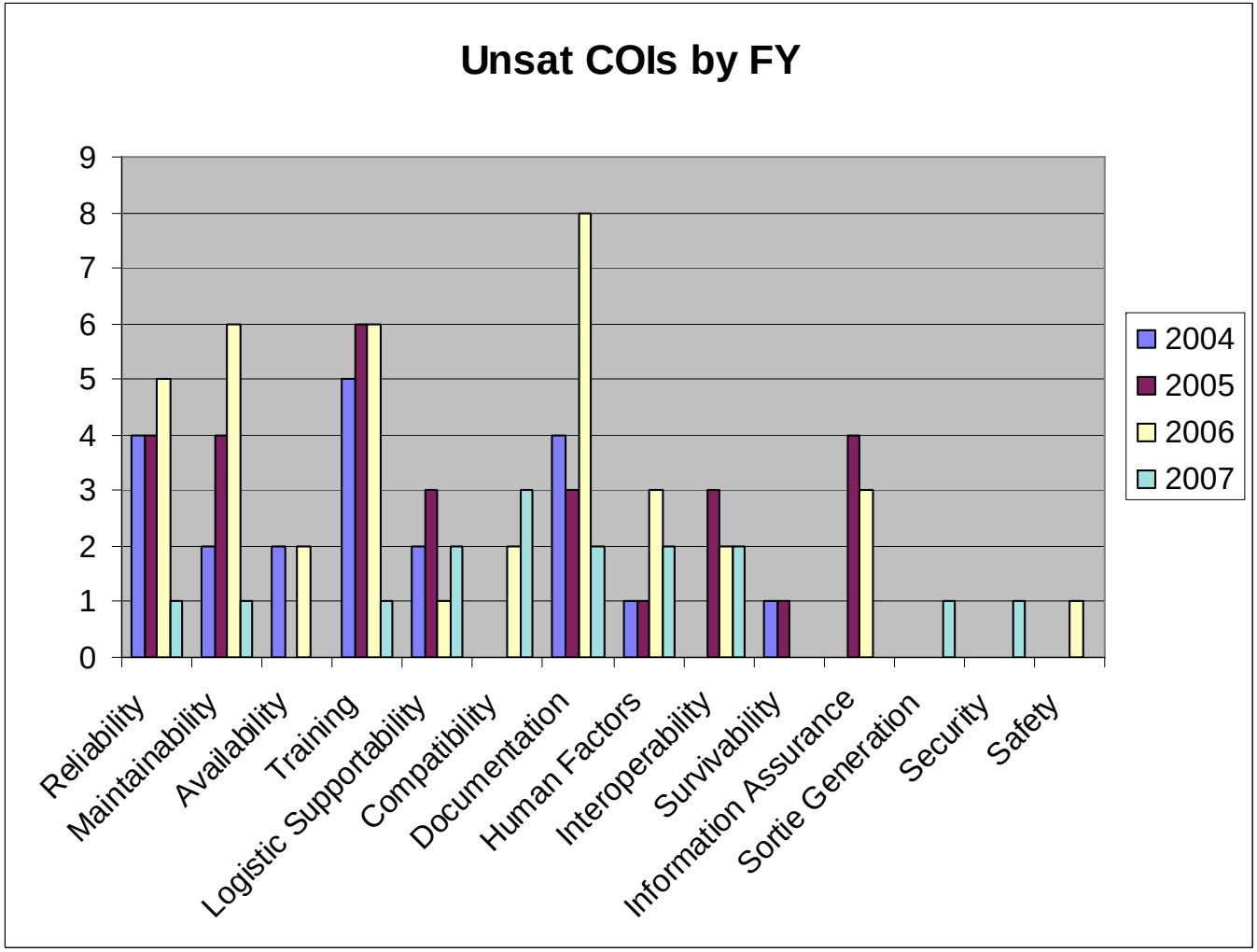
- Suitability is a long standing challenge – often the poor cousin of effectiveness
  - There have never been any “good old days”

- Aggregation of distinct but related disciplines
  - Reliability, Maintainability, Availability, Logistic Supportability
  - Compatibility, Interoperability
  - Documentation, Training,
  - Security, Information Assurance
  - Safety, Human Factors

How Are We Doing?



Trends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Documentation
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Interoperability
Survivability
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Security
Safety

Technology

- Technological advances provide opportunities and challenges
  - Electronic technical manuals
  - Improved human-machine interfaces
  - Higher Order Languages & re-usable software
  - COTS/GOTS components
  - Open Architecture
  - Speed to market
  - Increasing complexity

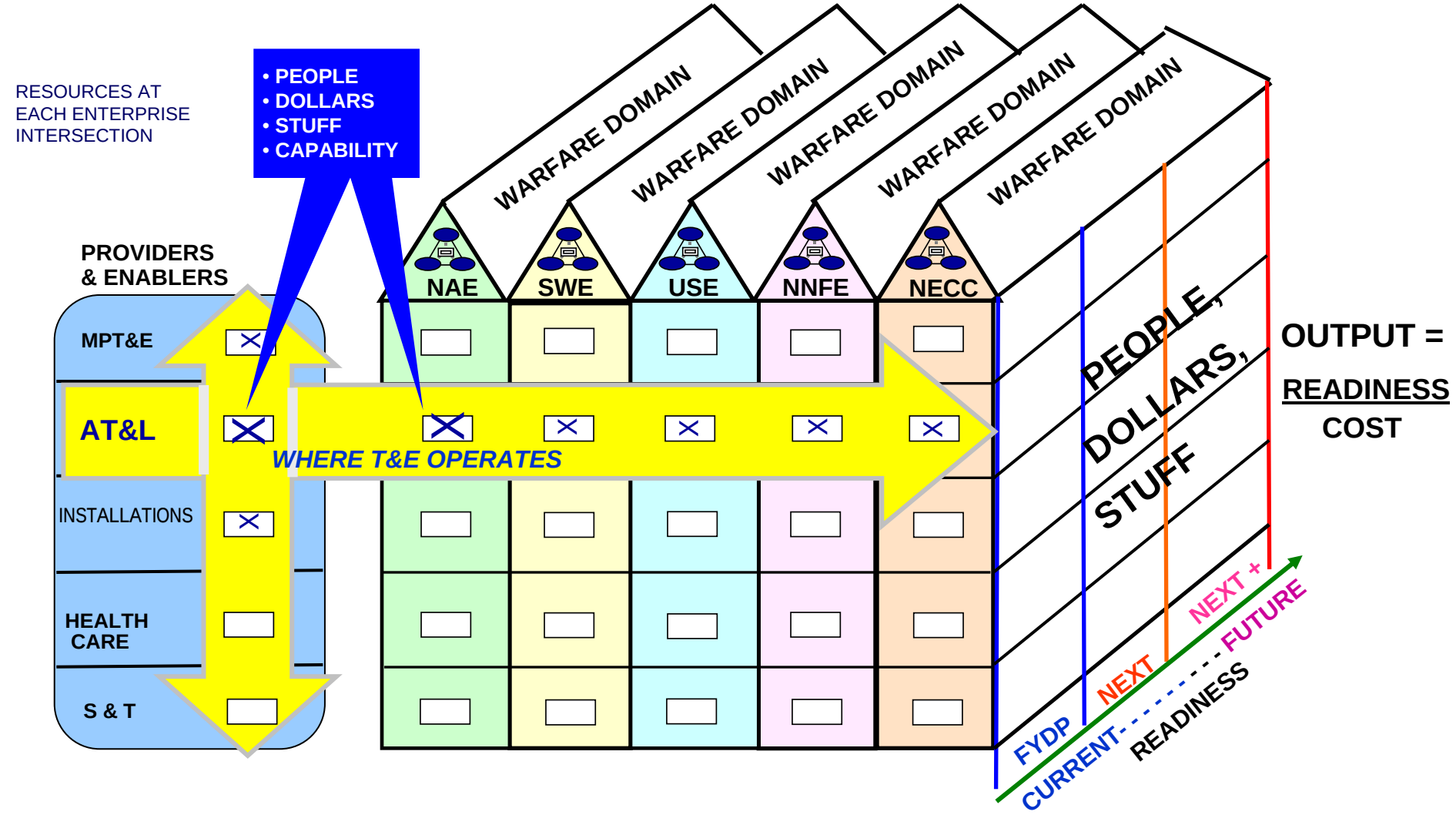
Cultural Issues

- Acquisition system favors successful demonstrations of technology vice a rigorous assessment of potential manufacturing challenges
- Early discovery is as likely to be penalized as rewarded
- Focus on delivering new capability without understanding that ownership costs may result in less overall warfighting capability

What can we do?

- Develop an enterprise approach that eliminates traditional distinctions between acquisition and life cycle costs.

OPERATING CONCEPT



DESIRED NAVY ENTERPRISE OUTPUT

- ✓ **READINESS OVER COST TODAY**
- ✓ **READINESS OVER COST TOMORROW**
- ✓ **READINESS OVER COST IN THE FUTURE**

Achieved Through Behavioral Model (Interdependent Concept of Operations):

- ***Navy Enterprise (Governance Board):***
  - *Senior Navy strategic decision forum focused on improving productivity for current and future readiness through integration of supported Warfighter Enterprises.*
- ***Warfighter Enterprises (Five Supported Teams; Led by Super TYCOMs):***
  - *Collaborative teams focused on delivering warfighting capability to Navy Components and Combatant Commanders; and increasing productivity across their Domain at reduced cost.*
- ***Providers/ Enablers (Supporting Elements; with Designated Leads):***
  - *Operate as providers/ enablers to manage value streams (people, dollars, and stuff), supporting TYCOM-led Warfighter Enterprises, with linked and common processes/ metrics.*
- ***Domain:*** **Dollars, people, & stuff associated with each Warfighter Enterprise.**
- ***Demand Signal:*** **Derived from the Warfighter Enterprises (I.e., Readiness required and no more).**
- ***Entitlements:*** **What's needed, when, how much, and no more.**
- ***Output:*** **Readiness over Cost.**

What can we do?

- Develop an enterprise approach that eliminates traditional distinctions between acquisition and life cycle costs.
- Increase early involvement of the OT community
  - Early involvement efforts have tended to focus on mission effectiveness
  - There have been notable successes in identifying risks to maintainability, compatibility and safety
- Make T&E a true element of systems engineering
  - Evaluators must provide timely feedback in a manner that does not place the program at risk
  - Developers must value inputs

Leverage Modeling & Simulation

- Exploit technological advances to develop high fidelity physics based models
  - Gain insights earlier in development
  - Assess performance in operationally realistic environments that cannot be replicated in actual test due to numbers of assets/security concerns (Self-defense test ship, Weapons Analysis Facility)
- Leverage industrial techniques to understand risk areas in the manufacturing processes
- Understand the limitations of the simulations employed particularly in areas such as compatibility and interoperability

Suitability translates directly into combat power

COMOPTEVFOR

- Focus on Suitability
  - Increase technical expertise to more rigorously assess RM&A
  - Leverage SYSCOM warrant holders for technical disciplines
- Expand early involvement to include designs for reliability as well as maintainability
- Seek feedback from Fleet to understand accuracy of Suitability predictions

Acquisition Community

- Focus on optimizing the Enterprise investment
  - Understand total ownership costs
  - Promote transparency
- Promote a systems engineering approach
  - Value early discovery
  - Identify areas of greatest risk to cost as well as greatest technical risks
- Resist temptation to allow below market buy-ins
- Metrics - move from consumption to output