



Technology Maturity and Technology Transition Relationships and Best Practices

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Technology Maturity Conference

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Overview

- **Defining Technology Transition (high level)**
- **Identifying and Defining the Source of the Problem**
- **Defining Technology Transition (working level)**
- **Transition Challenges**
- **Approaches / Models**
- **Best Practices**
- **Resources**
- **Team Ships T2WG**

Consider the question: how do technology transition and technology maturity relate?



Defining Technology Transition (High Level)

- “Technology transition is the use of technology in military systems to create effective weapons and support systems—in the quantity and quality needed by the warfighter to carry out assigned missions at the “best value” as measured by the warfighter.” - Mgr’s Guide
- Some functional definitions
 - the active use of a new technology by the warfighter or support personnel
 - the successful incorporation of technology into a product used by the warfighter or support personnel
- At the highest level, from a DoD perspective, technology transition means getting technology to the warfighter and support organizations and personnel.
- Seems pretty straightforward and technology is moved to the warfighter all the time. So what’s the problem?



Identifying and Defining the Source of the Problem

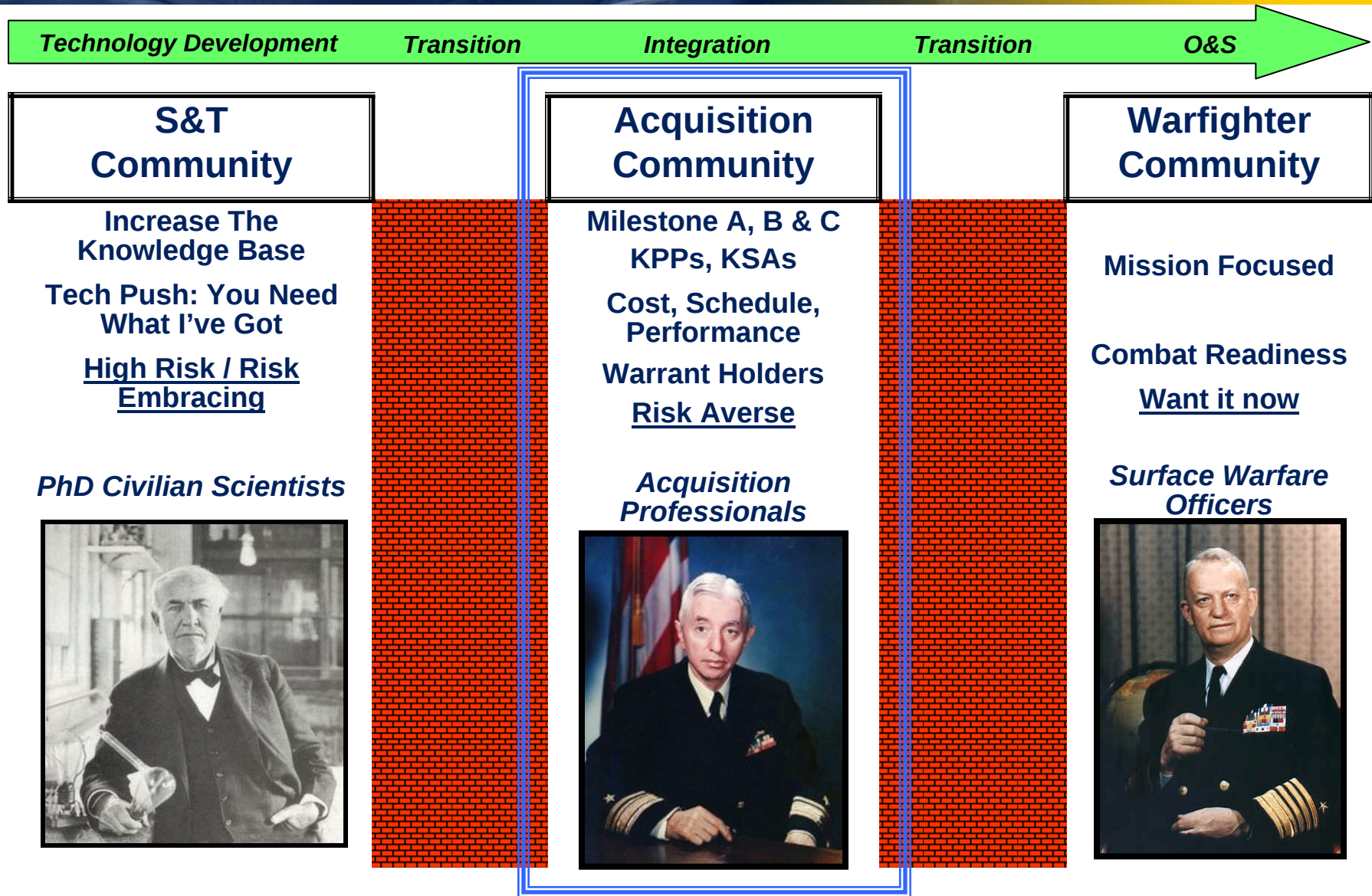
- **The best transition is no transition**
 - One process, organization and funding stream to conceptualize, develop, build, test, acquire, field and support technologies
 - No “transition”; a smooth, continuous process. (At least in theory.)
- **Problem exists due to discontinuities in the processes, organizations and funding involved in developing, integrating, testing, fielding and supporting technology**
 - Multiple organizations for R&D, integration, acquisition, testing and operations & support.
 - Multiple funding streams, requirements and reporting chains.
 - Each community operating in its own “cylinder of excellence” according to its own processes and requirements creates the discontinuity that must then be bridged to effectively move technology to the warfighter.



Defining Technology Transition (Working Level)

- Accounting for the differences described previously, Technology Transition takes on some additional definitions
- Programmatic definitions
 - the successful transfer of responsibility for development, testing and integration of a technology from the S&T community to the Acquisition community
 - the incorporation of a technology (from govt, industry or academia) into the design for or production of an acquisition product
 - the successful transfer of responsibility for a technology from the Acquisition community to the Operational community
- Definitions based on the primary technology related “cylinders” within DoD: S&T, Acquisition, Operation
 - Note: Resources & Requirements (i.e. OPNAV) in some senses is another cylinder but relates to the three above

Barriers to Technology Transition – Conflicting Paradigms



Acquisition in the Transition Sandwich!



Transition Challenges/Concerns

- **Identifying the Transition Point / Criteria**
- **Delineating Responsibilities**
- **Funding**
- **Schedule Synchronization**
- **Intellectual Property**
- **Contracting**
- **Interoperability / Integration**
- **Supportability**
- **Affordability**
- **Understanding the *Risk* of transitioning a technology**

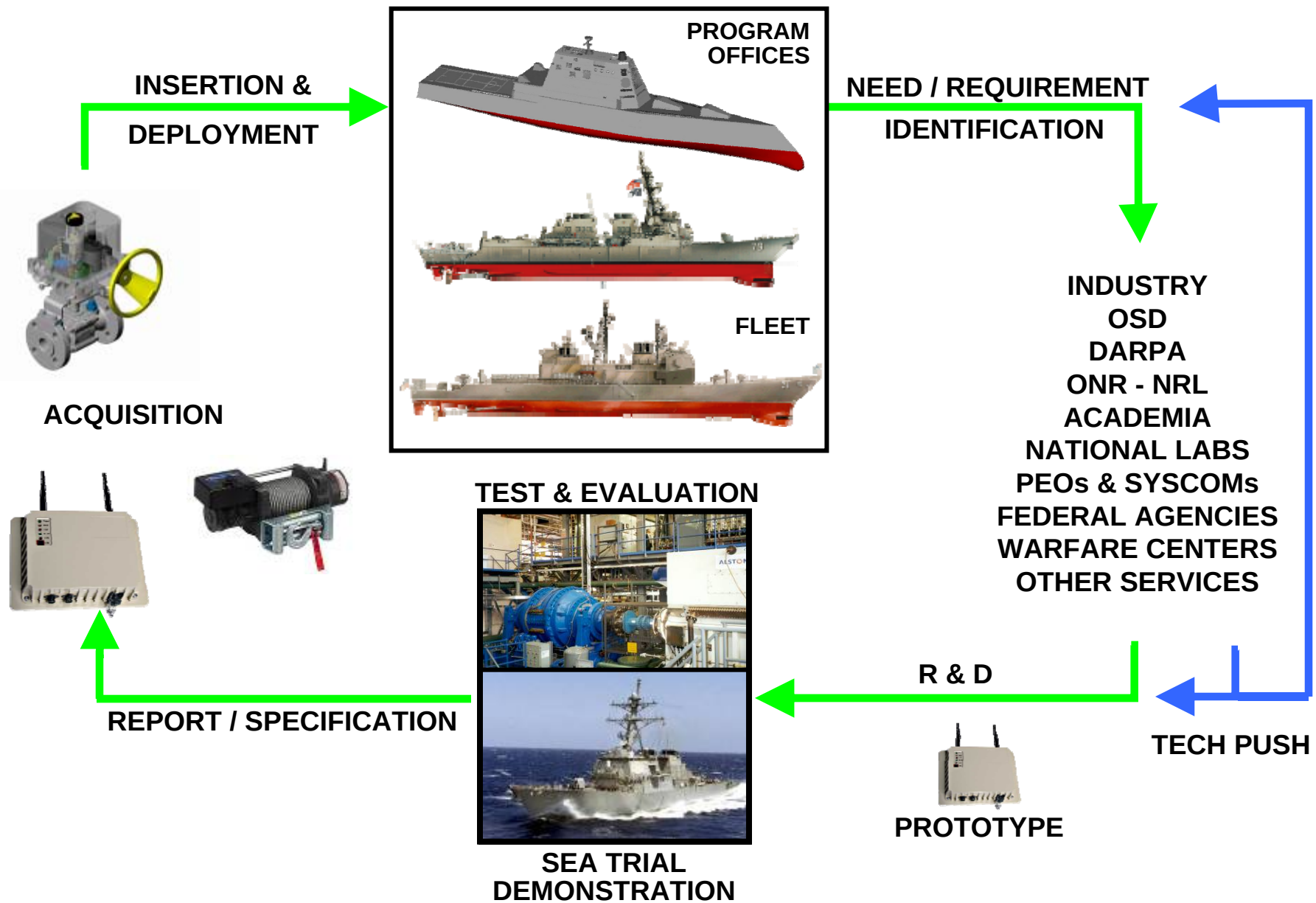


Technology Transition Management

- **Mission / Purpose:** To support utilization of new technology by warfighters and support activities to allow them to better meet operational needs. This is accomplished by maximizing the likelihood of successful technology insertion into acquisition programs and products and to the operational forces through:
 - the use of systematic processes of analysis, management, documentation and communication of technical and programmatic requirements within and between the Acquisition, Resource, Operational and S&T communities;
 - liaison between technology sources and technology consumers;
 - identification and acquisition of resources to bridge the gap between current technology maturity levels and required levels and oversight of the transition activities.

NSWC, Carderock – Technology Transition Management Knowledge Area

Technology Transition Cycle (Acquisition Perspective)



GAO Observations on Best Practices

What GAO Found

- Leading commercial companies use three key techniques for successfully developing and transitioning technologies, with the basic premise being that technologies must be mature before transitioning to the product line side.
 - **Strategic planning** at the corporate level: Strategic planning precedes technology development so managers can gauge market needs, identify the most desirable technologies, and prioritize resources.
 - **Gated management reviews**: A rigorous process is used to ensure a technology's relevancy and feasibility and enlist product line commitment to use the technologies once the labs are finished maturing them.
 - Corroborating tools: To secure commitment, **technology transition agreements** solidify and document specific cost, schedule, and performance metrics labs need to meet for transition to occur. **Relationship managers** address transition issues within the labs and product line teams and across both communities.
- **Meaningful metrics** gauge project progress and process effectiveness.

GAO

United States Government Accountability Office
Report to Congressional Committees

September 2006

BEST PRACTICES

Stronger Practices
Needed to Improve
DOD Technology
Transition Processes



GAO-06-883



GAO Recommendations

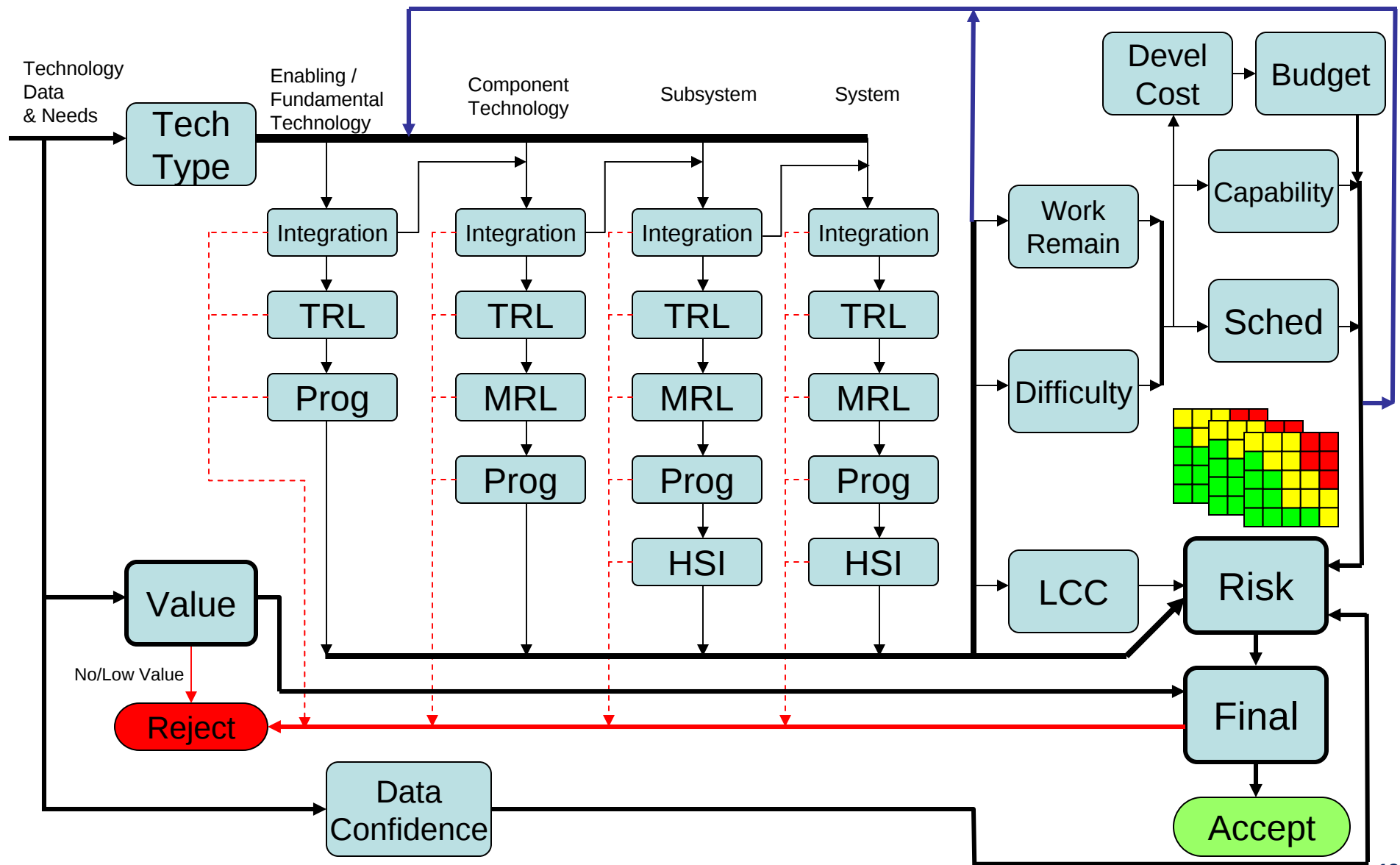
- GAO recommends that DOD strengthen its technology transition processes by developing a gated process with **criteria** to support funding decisions; expanding the use of transition agreements, relationship managers, and **metrics**; and setting aside funding for transition activities.
- DOD generally agreed with GAO's recommendations with the exception of adopting process oriented metrics and setting aside funding for [for S&T community for] transition. It cited ongoing initiatives it believes address several of the recommendations.



Planning

- **First step – have/make a plan!**
- **Have a process for technology transition – agreed upon by program management**
 - Includes metrics; many good metrics out there if you know where to look. Need to identify what's relevant to your program.
 - Metrics should tie into and support program decision making processes
- **Understand capability needs / gaps**
- **Big picture / total life cycle approach**
- **Technology Transition plan should tie into overall program plans**
- **Build plan with transition challenges in mind**

Technology Maturity and Decision Making





Tools / Approaches

- **Technology Transition Agreements**
 - Good metrics, clear transition criteria and explicit responsibilities are key
- **Transition Managers**
 - Someone whose responsibility it is to work transition issues
 - Biggest mantra about successful transition – it involves strong relationships and communications – “it’s a contact sport”
- **IPPD/IPTs**
 - Get the right stakeholders together; early and often
- **Plan for funding of transition in advance as much as possible but, be a master scavenger**
 - Learn to utilize transition programs, leverage other activities and alternate sources of funding

Some Resources

- DAU publication
- Discusses
 - DoD environment
 - Tech Transition
 - Planning
 - Tools
 - Programs
 - Challenges
- Also
 - GAO report
 - TRA Deskbook
 - Assorted papers and publications on Technology Transition
 - Technology Transition Programs / Venues

DEPARTMENT OF DEFENSE
DEFENSE ACQUISITION UNIVERSITY



Manager's Guide to Technology Transition in an Evolutionary Acquisition Environment



DEFENSE ACQUISITION UNIVERSITY PRESS
FORT BELVOIR, VIRGINIA 22060-5565



Summary

- **Successful Technology Transition**

- Is a process, not an event
- Is a total life cycle activity
- Requires active management
- Depends on strong relationships and communications
- Is planned for in advance
- Utilizes agreed upon plans and metrics
- Requires flexibility
- Is based on understanding of requirements