



# ACQUISITION & TECHNOLOGY

THE WILL TO CHANGE

## NDIA 11<sup>th</sup> Systems Engineering Conference *Executive Panel*

***Kristen Baldwin***

***Deputy Director, Software Engineering and System Assurance (SSA)  
Office of the Deputy Under Secretary of Defense  
(Acquisition and Technology)***

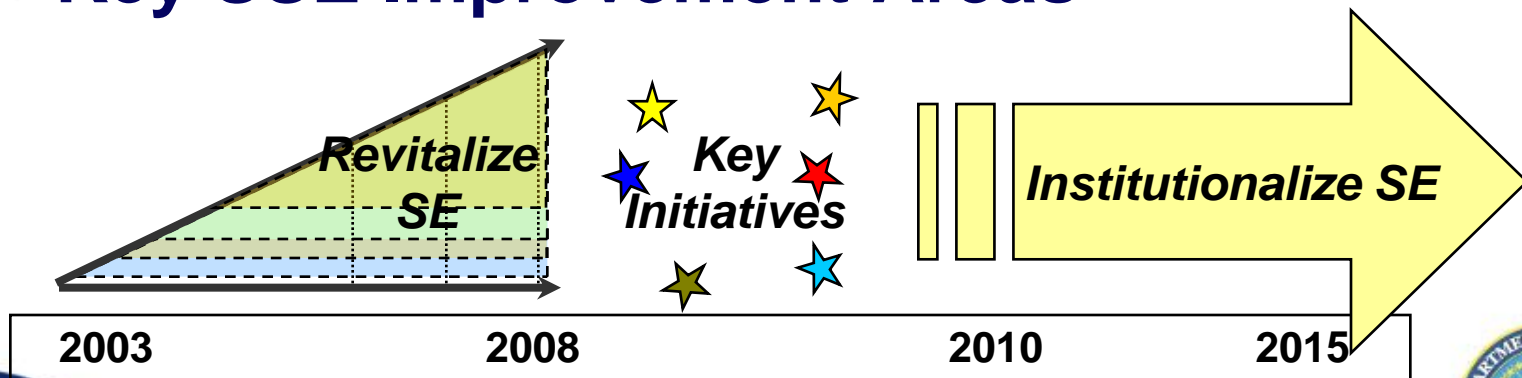
***October 21, 2008***





# SSE Way Forward

- ★ Reality, and opportunity
- ★ OSD SSE Strategy
  - ☆ Enhanced SE Pre-MS A/B
  - ☆ Human capital strategy for SE
  - ☆ SE research
- ★ Key SSE Improvement Areas





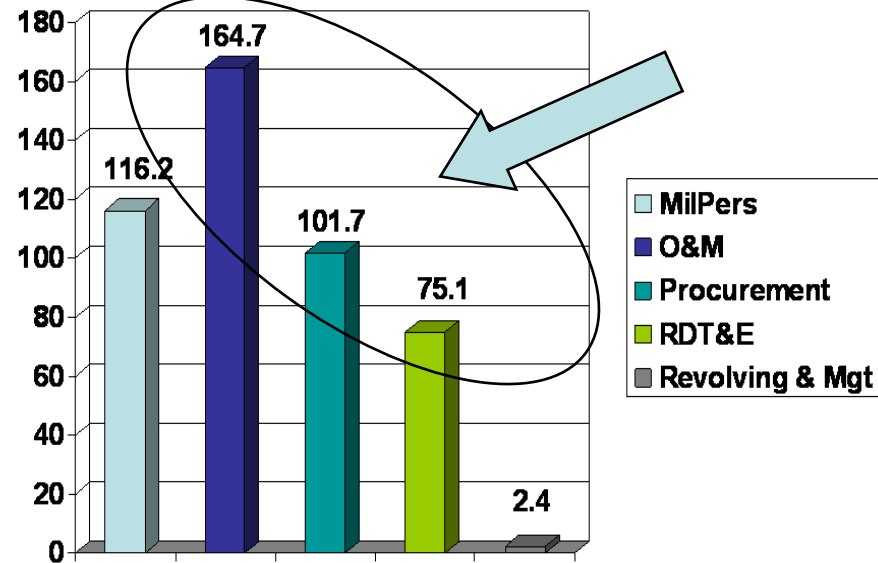
# Reality and the Opportunity

★ Acquisition cost growth over 11 years\*:

- ★ Estimation changes: \$201B
- ★ Engineering changes: \$147B
- ★ Schedule changes: \$70B

\*SAR data FY 1995–2005

FY 2008 Defense Budget  
Total Obligational Authority (\$ in billions)\*



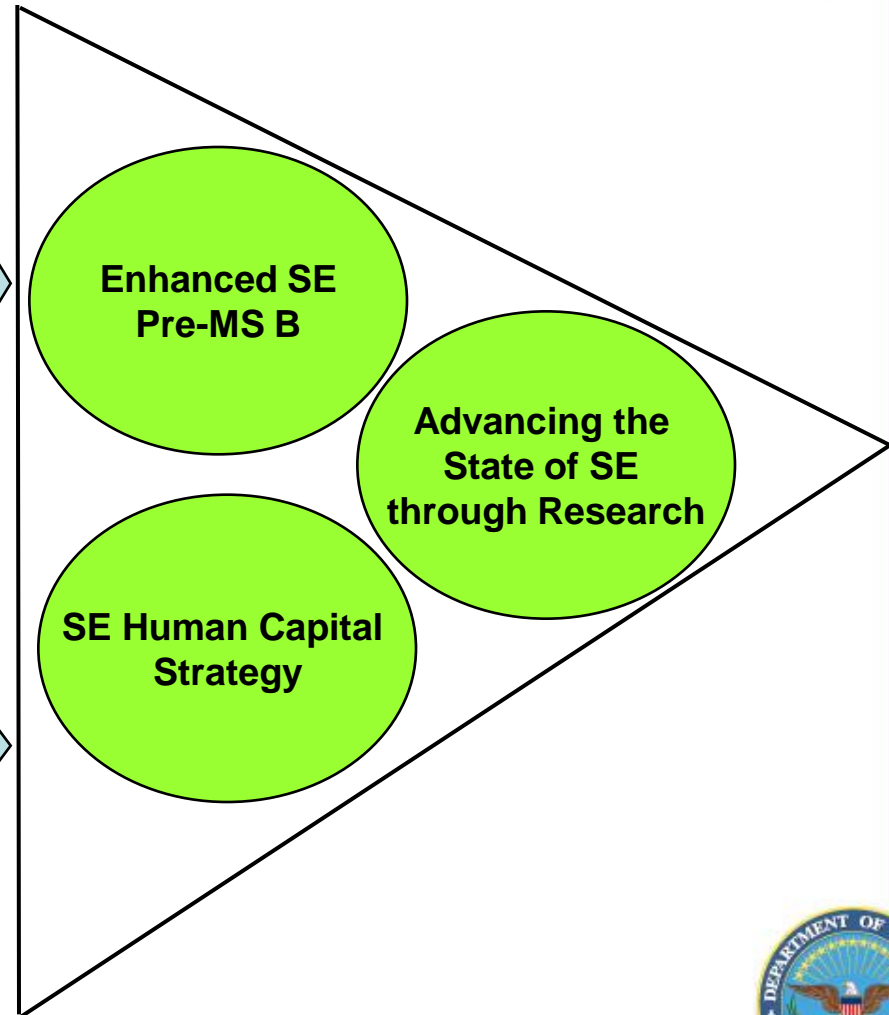
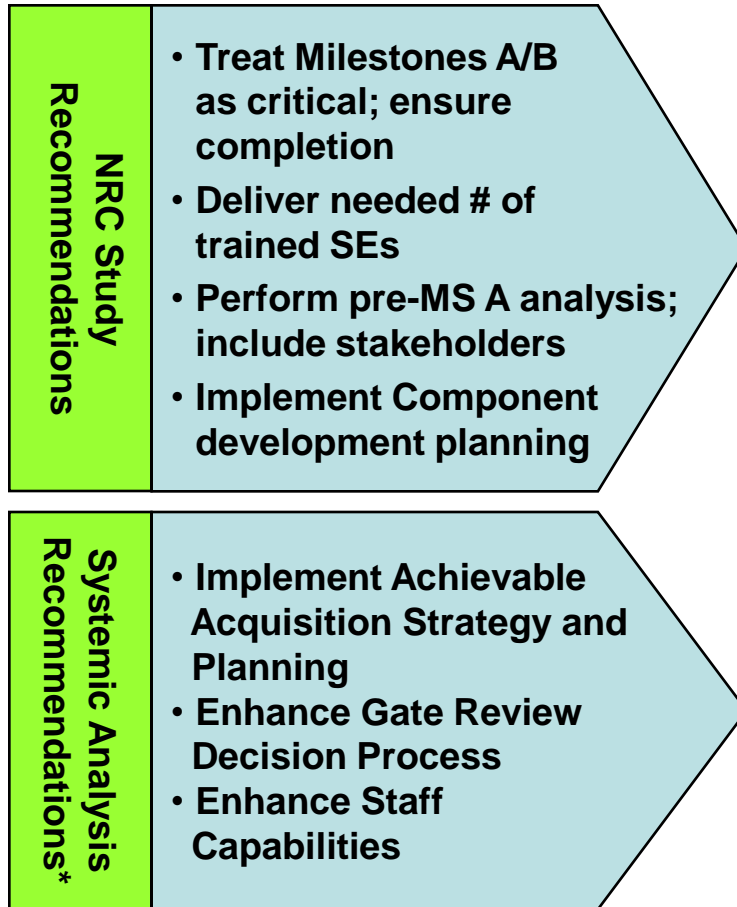
\*National Defense Budget for FY 2008 (aka Green Book), March 2007, page 29.

**With 72% of O&S costs established pre-Milestone A, Systems Engineering plays a critical role ensuring capabilities are translated into executable requirements and feasible programs**





# OSD SE Strategy



*\*Based on 3700 Program Assessment findings from 40 Programs Support Reviews*







# Enhanced Systems Engineering

## ★ Policy and Guidance Updates

- ★ DoD 5000 update
- ★ Acquisition Guidance Model
- ★ Early SE engagement with programs
- ★ Program Support Reviews (PSRs) Pre-MS A/B
- ★ Risk Reduction activities (e.g. Technical Risk assessment in AoAs, Competitive Prototyping)
- ★ SE Technical Reviews - Informed Trades for Feasible Solutions

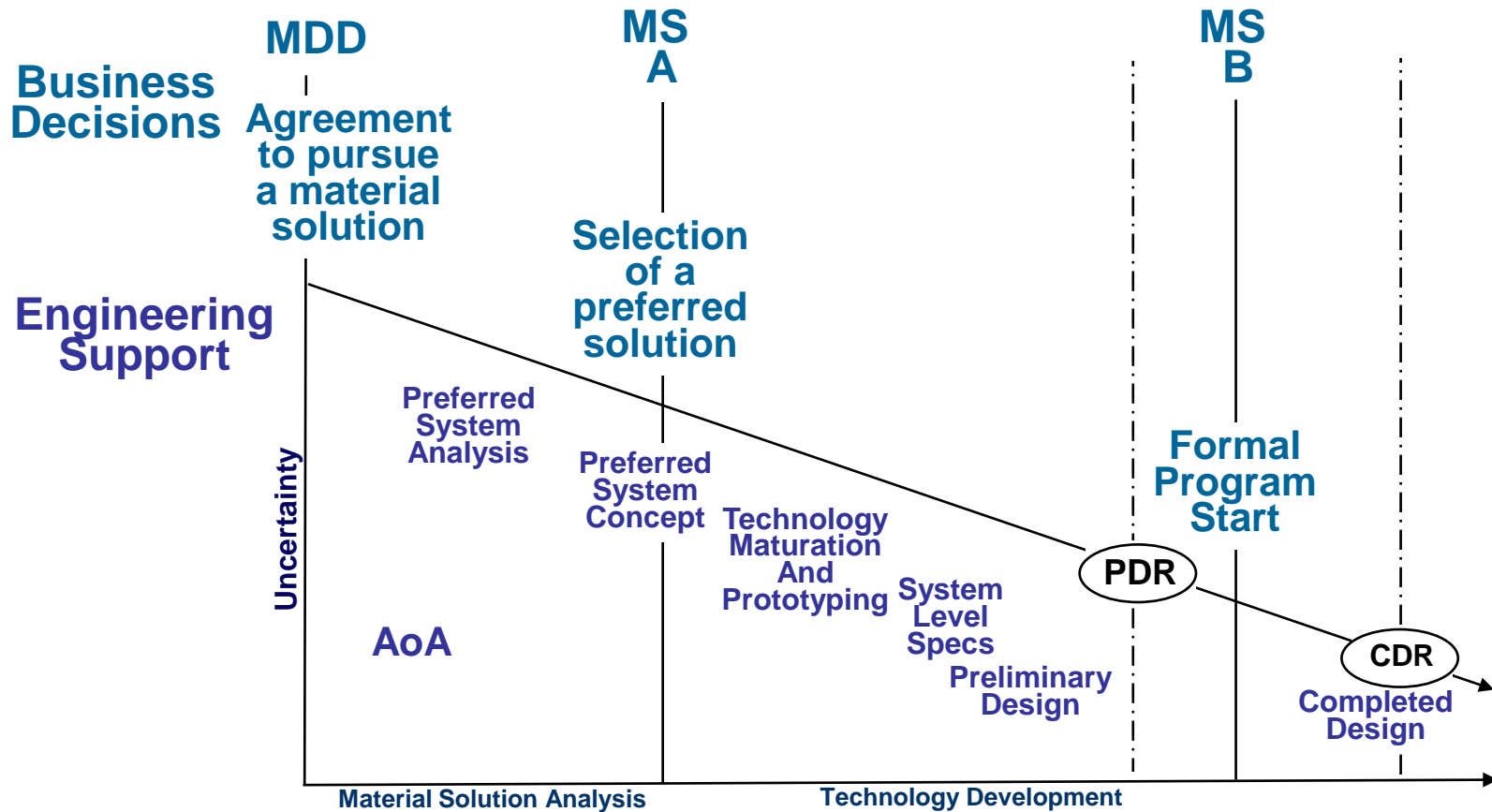
## ★ Developmental Test & Evaluation

- ★ Integrated DT/OT
- ★ Updated T&E Strategy at MS A





# Improve Knowledge through Technical Foundation



**Systems Engineering is effective when it informs, and is informed by, other Acquisition process owners.**





# SE Human Capital Strategy

- ★ SE core competency assessment effort; completion - Spring 2009
- ★ Program Systems Engineer career path
- ★ FY08 NDAA Section 852: DoD Acquisition Workforce Development Fund - \$300M per year across DoD
  - ★ SE and T&E initiatives to recruit, retain and train the workforce
- ★ DoD Human Capital Initiative - Published Annex for SPRDE, PQM and T&E
- ★ Partnership with INCOSE SE Certification Program
  - ★ Aligned with Defense Acquisition Guidance
- ★ Software Engineering (SwE) Human Capital Initiatives
  - ★ DoD Acquisition Workforce SwE Competencies
  - ★ Graduate SwE reference curriculum





# Systems Engineering Research

- ★ **Awarded SE Research UARC**
  - ☆ **University Affiliated Research Center (UARC)**
  - ☆ **Led by Stevens Institute of Technology and its principal partner, University of Southern California**
- ★ **SSE and NSA UARC Funds**
  - ☆ **Lead, coordinate, and harmonize SE research**
  - ☆ **Improve SE methods, processes, and tools (MPTs) in support of DoD challenges**
- ★ **Opportunity for DoD and Industry investment**
  - ☆ **Advance the state of Systems Engineering**
  - ☆ **Nurture and grow graduate-level systems engineering academic and research programs**







# Key OSD SE Improvement Areas

## *Transcending DoD Acquisition*

- ★ **System/Software Engineering Integration**
  - ★ Framework to highlight key process, workforce, and tools to recognize key role software plays in our systems
- ★ **Systems of Systems Engineering**
  - ★ *DoD SoS SE Guide* defines core elements of SoS SE, application of SE processes, and emerging principals
- ★ **Manufacturing and Reliability**
  - ★ OSD and Component implementation of reliability best practices, throughout the lifecycle – July 08 Policy Memo
  - ★ Assessing Manufacturing Risk & Readiness at key decision points
- ★ **System Assurance and Program Protection**
  - ★ *NDIA Engineering for Assurance Guidebook* integrates security into Systems Engineering to focus on protecting our programs from malicious tampering and network threats





# Always Our Focus



**The Mission:**  
**Delivering Timely and Affordable Capabilities to the Warfighter**



**The Defense Acquisition Community**  
**126,033 Government and Military Certified Professionals**  
**500,000+ Defense Industry Personnel**





# For More Information: Tues Afternoon 1



**Tuesday, October 21, 2008**

**Session C - 1:30-3:15pm**

**Track 1 SE Effectiveness – Bayview III**

7099 DoD's Systems and Software Engineering Revitalization Efforts—An Update, Nicholas (Nic) Torelli

7153 Systems Engineering Plan (SEP) and Systems Engineering Management Plan (SEMP) Unification, Chet Bracuto

**Track 2 T&E in SE – Bayview II**

7100 Implementation of the 2007 Developmental Test & Evaluation Defense Science Board Results, Chris DiPetto

7101 Test and Evaluation Value Metrics at Acquisition Decision Points, Darlene Mosser-Kerner

**Track 3 Program Management – Bayview I**

7096 New Acquisition Policy and Its Impact on Defense Systems Engineering, Sharon Vannucci

**Track 5 M&S – Mission II**

7172 Execution of the Acquisition M&S Master Plan - A Progress Report, James Hollenbach & Michael Truelove

**Track 8 Software – Palm II**

7137 DoD Software Engineering and System Assurance, Kristen Baldwin







# For More Information: Tues Afternoon 2



**Tuesday, October 21, 2008**

**Session D - 3:30-5:15pm**

**Track 1 SE Effectiveness – Bayview III**

7089 Systems of Systems: Update on the DoD Systems of Systems SE Guide and Future Direction, Dr. Judith Dahmann

6986 Technology Readiness Assessments for Systems of Systems, Dr. Jay Mandelbaum

**Track 2 T&E in SE – Bayview II**

7103 New Test and Evaluation Master Plan Guidance, Darlene Mosser-Kerner

6996 Modeling & Simulation in the Test & Evaluation Master Plan, Michael Truelove

**Track 5 M&S – Mission II**

7175 LVC Architecture Roadmap - A Path Forward for Distributed Simulation, James Hollenbach







# For More Information: Wed Morning

**Wednesday, October 22, 2008**

**Session A - 8-9:45am**

**Track 3 Program Management – Bayview I**

7438 The Incremental Commitment Model and Competitive Prototyping, Dr. Barry Boehm

**Track 4 Program Management – Mission I**

7721 Systemic Analysis and Developing System Issues, Peter Nolte

7720 Systemic Root Cause Task Group Results, Dave Castellano

Systemic Root Cause Task Group Recommendations Implementation, Nicholas Torelli

**Track 8 Software – Palm II**

7114 Building the Next Generation of Software Engineers – Benchmarking Graduate Education, Dr. Art Pyster

7135 Improving Work Breakdown Structure (WBS) Guidance for Weapons Systems with Substantial Software Content, Christopher Miller

**Session B – 10:15am-Noon**

**Track 1 SE Effectiveness – Bayview III**

7436 A Process Decision Table for Integrated Systems and Software Engineering, Dr. Barry Boehm





# For More Information: Wed Afternoon



## Session C - 1:30-3:15pm

### Track 1 SE Effectiveness – Bayview III

6878 Reduction of Total Ownership Costs (R-TOC) and Value Engineering in the Defense System's Life Cycle, Chet Bracuto & Dr. Danny Reed

### Track 2 Best Practices & Standardization – Bayview II

6888 Value Engineering: Enhance DMSMS Solutions, Dr. Jay Mandelbaum

7761 Applying Business Process Modeling to Develop Systems Engineering Guidance for New DoD Acquisition Regulations, Dr. Judith Dahmann

### Track 3 Program Management – Bayview I

7344 Complex System Development Program Assessments and Support: A Forensics Perspective, Dr. Dinesh Verma

## Session D - 3:30-5:15pm

### Track 1 SE Effectiveness – Bayview III

7204 Advancing Systems Engineering Practice within the Department of Defense: Overview of DoD's Newest University Affiliated Research Center (UARC), Sharon Vannucci & Dennis Barnabe

### Track 5 M&S – Mission II

7174 Virtual Battlespace Center for Systems Engineering, James Hollenbach





# For More Information: Thurs Morning



**Thursday, October 23, 2008**

**Session A - 8-9:45 am**

**Track 1 SE Effectiveness – Bayview III**

7697 Enhancing Systems Engineering in the Department of Defense, Ceasar Sharper

**Track 2 Best Practices & Standardization – Bayview II**

7179 Integration of Systems and Software Engineering: Implications from Standards and Models Applied to DoDs' Acquisition Programs, Donald Gantzer

**Session B - 10:15am-Noon**

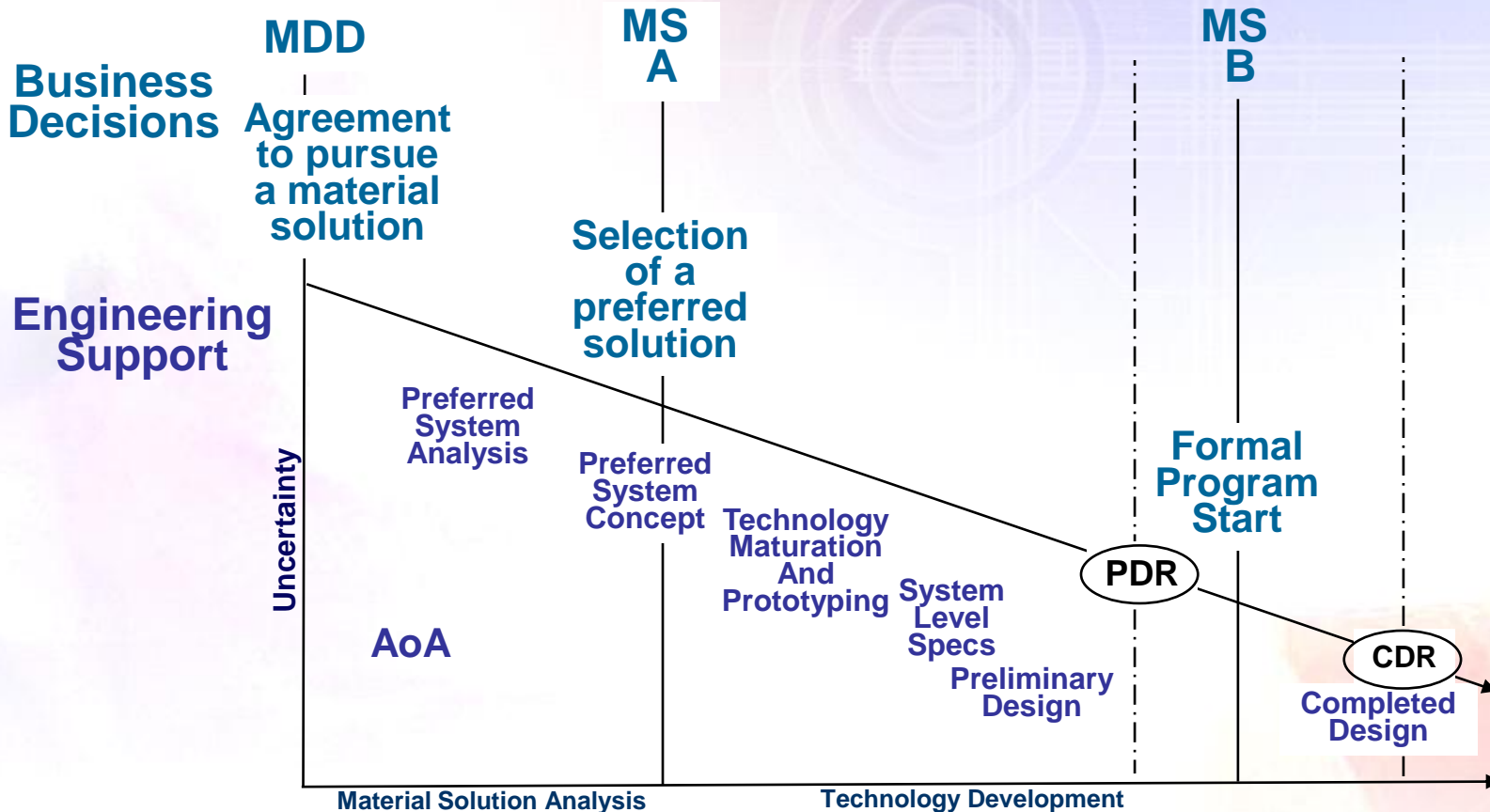
**Track 5 Education & Training – Mission II**

7094 Development and Validation of a Systems Engineering Competency Model, Dr. Don Gelosh





# Improve Knowledge through Technical Foundation



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