



Panel: Transitioning Systems Engineering Research into Programs and Practice

D. Scott Lucero

**Office of the Deputy Assistant Secretary of Defense
for Systems Engineering**

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DASD, Systems Engineering Mission



Systems Engineering focuses on engineering excellence – the creative application of scientific principles:

- To design, develop, construct and operate complex systems
- To forecast their behavior under specific operating conditions
- To deliver their intended function while addressing economic efficiency, environmental stewardship and safety of life and property

DASD(SE) Mission: Develop and grow the Systems Engineering capability of the Department of Defense – through engineering policy, continuous engagement with component Systems Engineering organizations and through substantive technical engagement throughout the acquisition life cycle with major and selected acquisition programs.

A Robust Systems Engineering Capability Across the Department Requires Attention to Policy, People and Practice

- ***US Department of Defense is the World's Largest Engineering Organization***
- ***Over 108,000 Uniformed and Civilian Engineers***
- ***Over 39,000 in the Engineering (ENG) Acquisition Workforce***



DASD, Systems Engineering



DASD, Systems Engineering
Stephen Welby
Principal Deputy Kristen Baldwin



Systems Analysis
Kristen Baldwin (Acting)

Addressing Emerging Challenges on the Frontiers of Systems Engineering

Analysis of Complex Systems/Systems of Systems

Program Protection/Acquisition
Cyber Security

University, FFRDC and Industry Engineering and Research

Modeling and Simulation



Major Program Support
James Thompson

Supporting USD(AT&L) Decisions with Independent Engineering Expertise

Engineering Assessment /
Mentoring of Major Defense Programs

Program Support Reviews

OIPT / DAB / ITAB Support

Systems Engineering Plans

Systemic Root Cause Analysis



Mission Assurance
Robert Gold

Leading Systems Engineering Practice in DoD and Industry

Systems Engineering Policy & Guidance

Development Planning/Early SE

Specialty Engineering (System Safety, Reliability and Maintainability Engineering, Quality, Manufacturing, Producibility, Human Systems Integration)

Counterfeit Prevention

Technical Workforce Development

Standardization

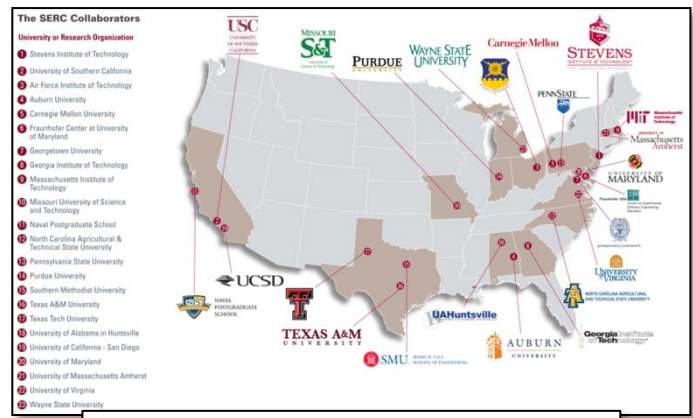
Providing technical support and systems engineering leadership and oversight to USD(AT&L) in support of planned and ongoing acquisition programs



Systems Engineering Research Center (SERC) Overview



- **DoD and the Intelligence Community established the SERC, an University Affiliated Research Center (UARC) in September 2008**
 - Long term, strategic relationship for systems engineering research
 - Five year contract with Stevens Institute recently renewed, with 22 collaborating universities
- **ASD(R&E) and the Intelligence Community are the original sponsors**
 - Defense Acquisition University, Army, Navy, Marine Corps are now also sponsors
- **SERC awarded more than \$31M for systems engineering research**
 - Core funding in President’s budget in FY14



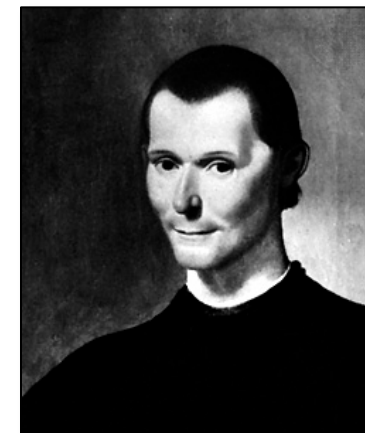
SERC Collaborating Universities



Difficulties in Innovation

Niccolò Machiavelli - *The Prince* (1513), Chapter 6

“ And let it be noted that there is no more delicate matter to take in hand, nor more dangerous to conduct, nor more doubtful in its success, than to set up as the leader in the introduction of changes. For he who innovates will have for his enemies all those who are well off under the existing order of things, and only lukewarm supporters in those who might be better off under the new. ”

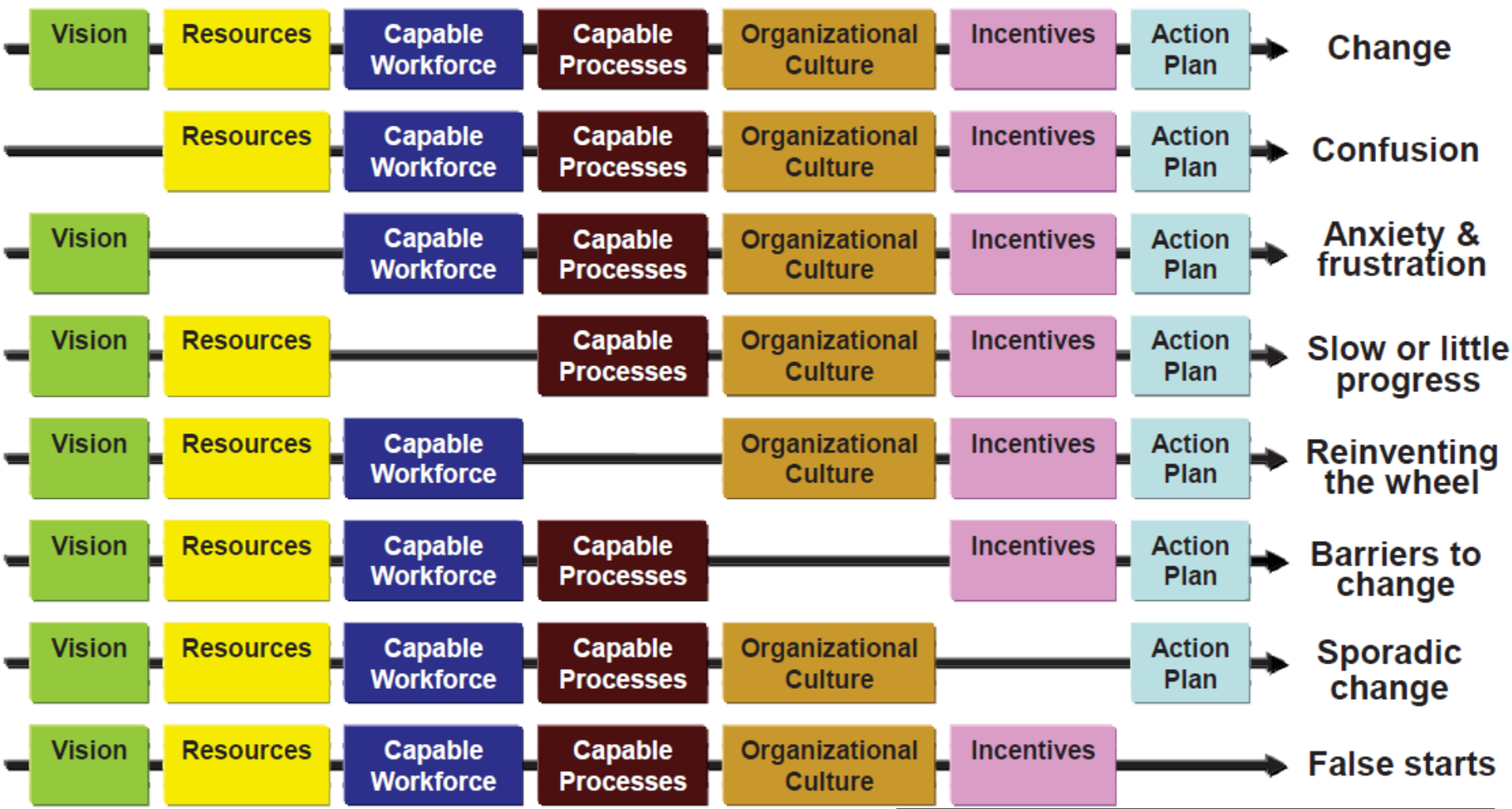


Niccolò Machiavelli (1469-1527)
Detail of an oil painting by Santi di Tito;
in the Palazzo Vecchio, Florence, Italy

N. H. Thomson, translator,
Dover Publications, Inc., New York, 1992, page 13.
Originally published by P. F. Collier & Son, New York, 1910.



Ingredients Needed for Change



Adapted from 1987 conversation with Delorise Ambrose
Software Engineering Institute Webinar, 2008



Panelists

- **Steven Bankes, PhD**
Chief Engineer
BAE Systems
- **Dr. Barry Horowitz**
Munster Professor of Systems and
Information Engineering
University of Virginia
- **Marc Halpern, PhD**
Vice President for Design, Engineering
and Product Lifecycle Research
Gartner
- **Ms. Lisa J. Graf**
Program Manager, Integrated SE Framework
U.S. Army Research, Development and
Engineering Command





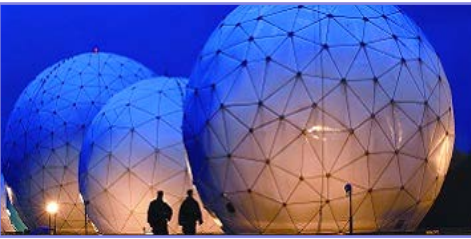
For Additional Information



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Systems Engineering: Critical to Defense Acquisition



Defense Innovation Marketplace
<http://www.defenseinnovationmarketplace.mil>

DASD, Systems Engineering
<http://www.acq.osd.mil/se>