



# Roundtable Debrief

Tools/Technologies for Rapid SE  
Room 107

# Team Members

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- Baras, John (UMD)
- Betser, Joe (USAF)
- Componation, Paul (UAH)
- Deaver, Benjamin (SMU)
- Deshmukh, Abhi (TAMU)
- Edson, Robert (ANSER)
- Farroha, Deborah (NSA)
- Jacques, Dave (AFIT)
- Kyoung-Yun Kim (Wayne State)
- Madachy, Ray (NPS)
- Madni, Azad (USC)
- Osterweil, Leon (UMass)
- Regenie, Vicki (NASA)
- Sauser, Brian (SIT)
- Scoggin, Nathan (DCMA)
- Tierney, Thomas (Mitre)
- Valerdi, Ricardo (MIT)
- Wade, Jon (SIT)
- zur Muehlen, Michael (SIT)

Facilitators: Kristen Baldwin; Rob Cloutier; Colin Neill

# Problem Definition

- *Define the problem being addressed by the research topic (short prose or bullet items)*
  - Capability delivery is not agile enough
  - SE workforce/systems/tools are not agile/interoperable enough
  - Tools may not exist or existing tools may not scale to the problem
  - When is good enough, good enough.
  - Cant just focus on agility ->instead, must look at total tradespace of the problem
  - Limited adoption of tools from outside SE
  - Tools don't bridge across SEs, operators, acquirers, etc

# Purpose/Objectives of a Research Effort

- *Define what you would plan to accomplish as a result of the research e.g. analyze, prototype, create a framework, create a roadmap*

1. Definition of tool types
  - V&V, prototyping, composition, domain-specific tools etc
2. Develop a consistent/complete taxonomy of tools

Make better decisions  
Make SE job easier  
Eliminate work

Planning aids  
Decision aids  
Automation

Requirements  
Architecture,  
Test,...

3. Investigate interoperable tools with full lifecycle integration
  - Interoperable in the sense of tools talking to each other
  - And in the sense of maintain useful lifecycle knowledge
4. Define rapid SE
5. Identify key metrics to allow us to measure agility
6. Related deep drive research topics:
  - How to embed compositional aspects in SE tools
  - Demonstrate value of human-in-the-loop models in to the system models. (cognitive & physical)
  - Research into cognitive issues as they relate to individuals and teams using tools.
7. Development of Education and Training based on above.

# Benefits of a Research Effort

- *Describe potential benefits resulting from the research effort or from application of the research effort. Use metrics if possible e.g. lower costs, faster time to mission*
  - Agility
  - Ability to deal with uncertainty
  - Speed
  - Cost
  - Ability to assess risk
  - Improve system effectiveness/ satisfaction

# Approach of a Research Effort

- *Describe the approach you would use in a research effort. e.g. market survey, user workshops, database mining, pilot projects ...*
  - market survey,
  - user workshops,
  - database mining,
  - pilot projects
  - Virtual prototyping
  - Integration harnesses

# Potential Sponsors

- *List potential sponsors and specific focus areas they may have, if any*
  - DoD,
  - Primes,
  - Systems Integrators,
  - Tool vendors/developers,
  - Individual SE practitioners (in engineering centers/labs)

# Potential Collaborators

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- *List potential collaborators and specific areas of expertise they would bring to the research effort*
  - Everyone on the sign-in sheet!