



U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND – ARMAMENTS CENTER

SE Workforce Development Needs

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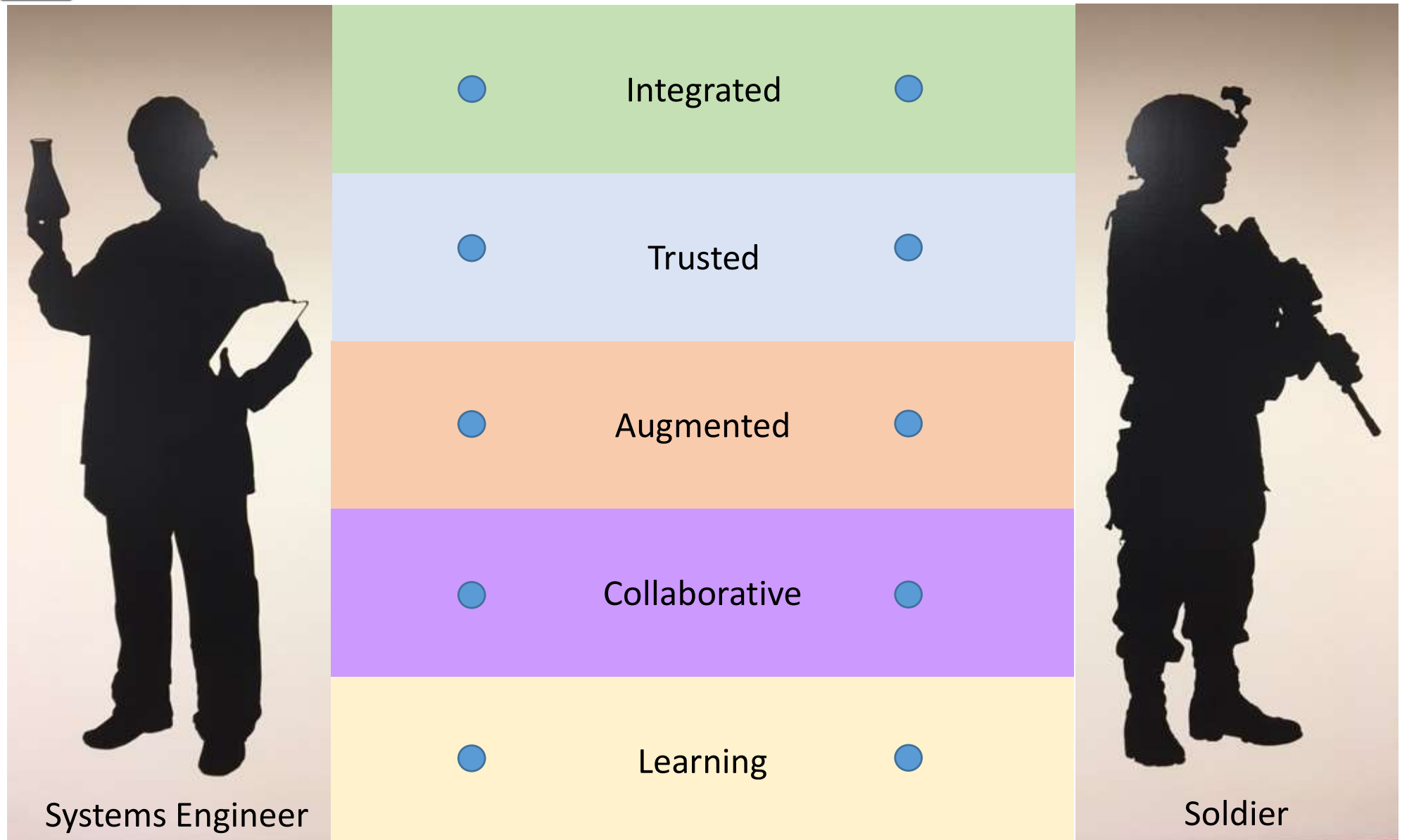
SSTM for SE Research

US Army Futures Command, DEVCOM Armaments Center

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The Motivation



The Engineer and Warfighter must arrive in this future together, before our adversaries



The Problems

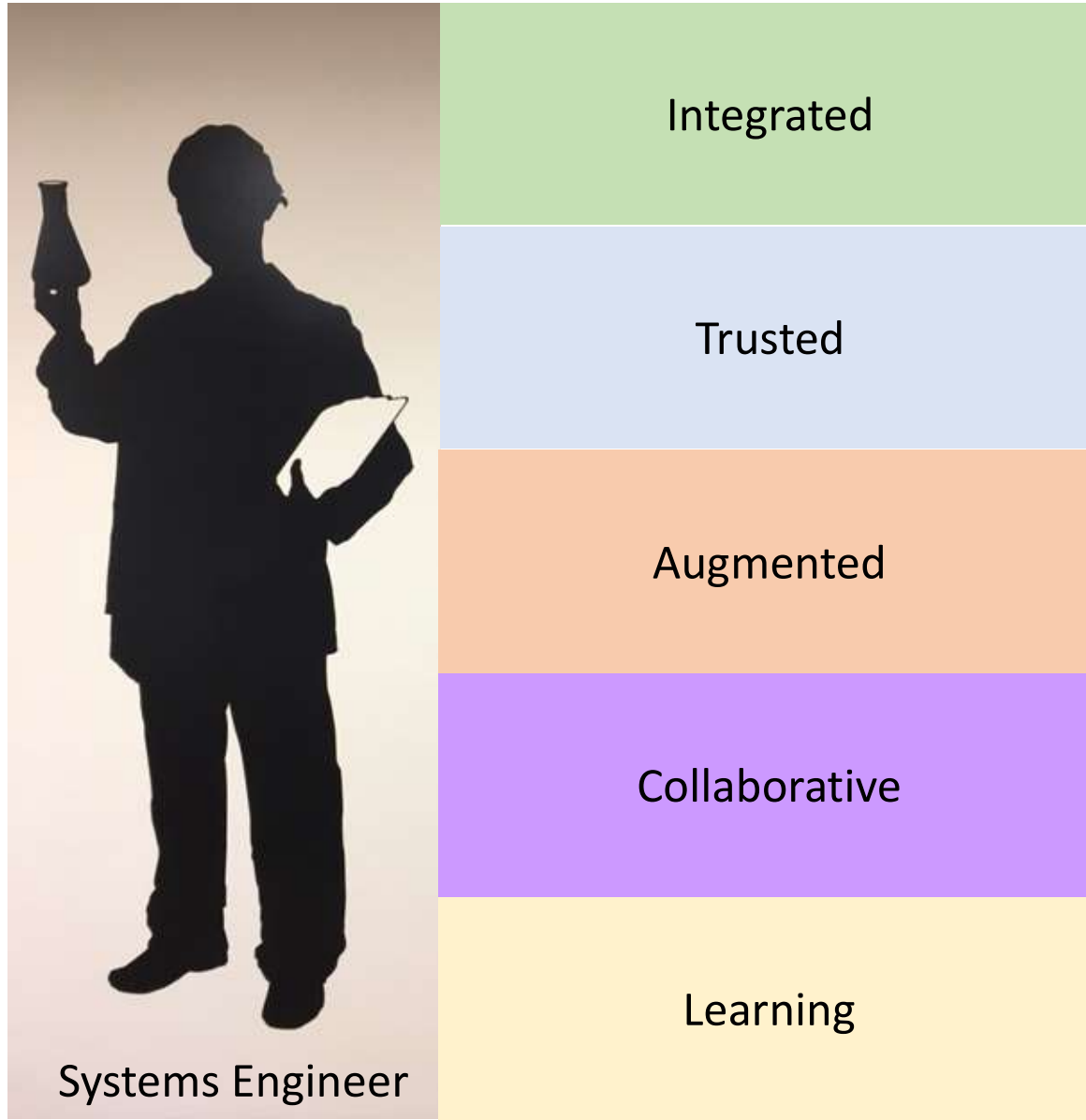


- How are systems verified and trusted when they have emergent properties?
- What is Configuration Management for an AI enabled system and fleet?
- How do we capture operational usage data to best inform system learning?
- How do we verify and validate the accuracy of a digital twin over time?
- How is the operational benefit of intelligent agents and autonomous systems quantified?
- What is the ideal strategy for implementation of learning that balances needs and constraints?





Some of the Problems



- How are requirements still SMART if they are intended to encourage emergent vs. deterministic requirements?
- How is a AI enabled system modeled and depicted without replicating the full AI logic?
- How is AI enabled design trusted and verified?
- What is the balance between niche tool sets and standardization?
- How is access and curation of big data sources accomplished with cyber security still enabled?
- What are the skills required of the future SE's?



Learning Objectives

- Fundamentals of AI/ML
 - Understand the mathematical underpinnings of the methods sufficient to evaluate their affect on the system's performance
- Systems Architecture
 - Understand system architecture and functional/physical allocations to understand which functions may be impacted by AI
 - Develop architectures to control critical functions
- Configuration Management
 - Understand disruption of AI to traditional CM
 - Adapt processes to evaluate configuration changes in light of AI/ML within system
- V&V/T&E
 - Develop test plans to verify system performance AND learning
 - Develop relevant training data sets or scenarios