



Prototyping: A Path to Agility, Innovation and Affordability

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Mr. Earl Wyatt

**Deputy Assistant Secretary of Defense,
Emerging Capability & Prototyping**

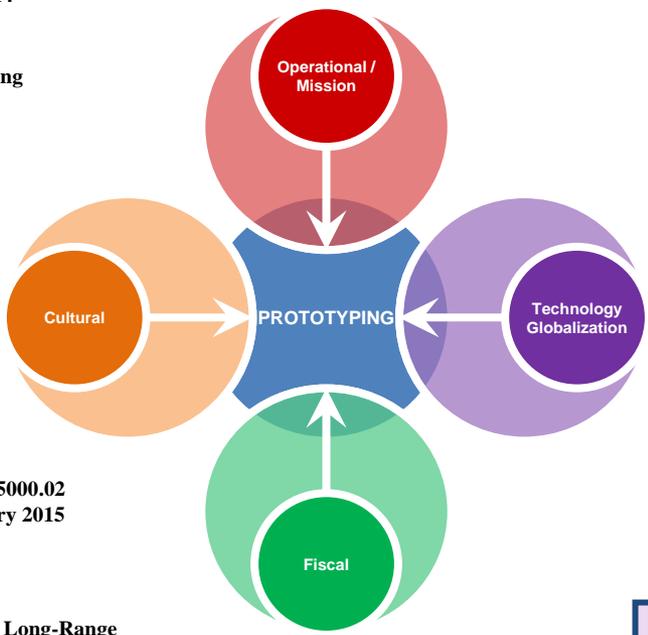


Strategic Environment

Strategic Guidance



Challenges



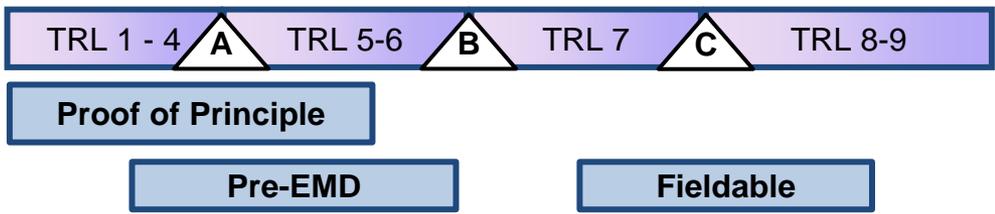
Prototyping and Experimentation



Methodology

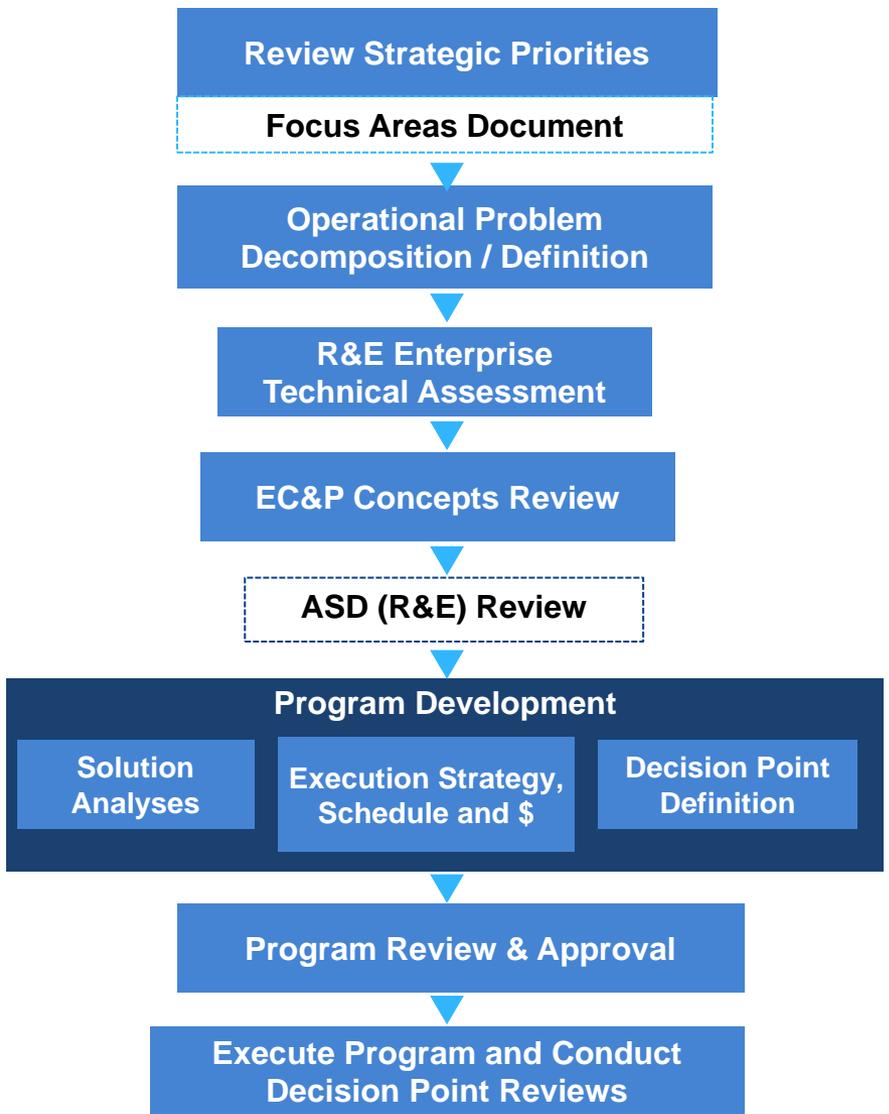


Categories of Prototypes





EC&P Prototyping Selection Process



Designed to identify, develop, and demonstrate multi-domain technologies / concepts to satisfy Department / Multi-Service / COCOM highest priorities

Focus areas for FY 15-17

- ***Electromagnetic spectrum agility***
- ***Autonomous systems***
- ***Space capability resilience***
- ***Asymmetric force application***



EC&P Prototyping

Focus Areas: FY 2015 – 2017



Electromagnetic Spectrum Agility: Capabilities that allow Department of Defense (DoD) forces to operate with freedom of maneuver in the electro-magnetic spectrum (EMS). Operations include:

- Gaining and attaining access to spectrum for friendly forces, denying and/or degrading spectrum to our adversaries
- Conducting EM deception operations to degrade an adversary's understanding of our intent and capability
- Otherwise preventing the adversary from leveraging the EM domain to conduct operations in other domains (i.e., air, space, maritime, land and cyber)
- New effects in the EMS domain to include directed energy and radio frequency disruption



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Focus Areas: FY 2015 – 2017



Autonomous Systems:

- **Capability that enables a particular action of a system to be automatic or, within programmed boundaries, or ‘self-governing’**
- **Important for mobile unmanned systems that must maneuver in an environment with little or no human assistance, or systems that aid human cognitive tasks, including:**
 - **Target recognition and systems that aid the human in the coordination of multiple sensors and multiple weapons to support the completion of blue, and the defeat of red, detect-to-engage sequences**
 - **Improving capability without increasing capacity by better coordinating and synchronizing current sensors and weapon systems, while maximizing the combat efficiency of both**
 - **Combing through large volumes of Intelligence, Surveillance and Reconnaissance (ISR) data, and notify the analyst of pattern of life anomalies or other data that meets user-specified criteria**



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Focus Areas: FY 2015 – 2017



Space Capability Resilience:

- Responds to a sophisticated adversary's attempts to deny us access to our space-based capabilities and adverse space conditions that degrade our space-based capabilities
- Resilient response includes:
 - Taking proactive and reactive defensive measures (Avoidance)
 - Designing systems with enhanced survivability features (Robustness)
 - Conducting operations to replenish lost or diminished capacity (Reconstitution)
 - Help re-establish space capability and capacity (Recovery)
 - Subsystems and activities that support any systems architecture able to achieve effects normally associated with current space systems



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Focus Areas: FY 2015 – 2017

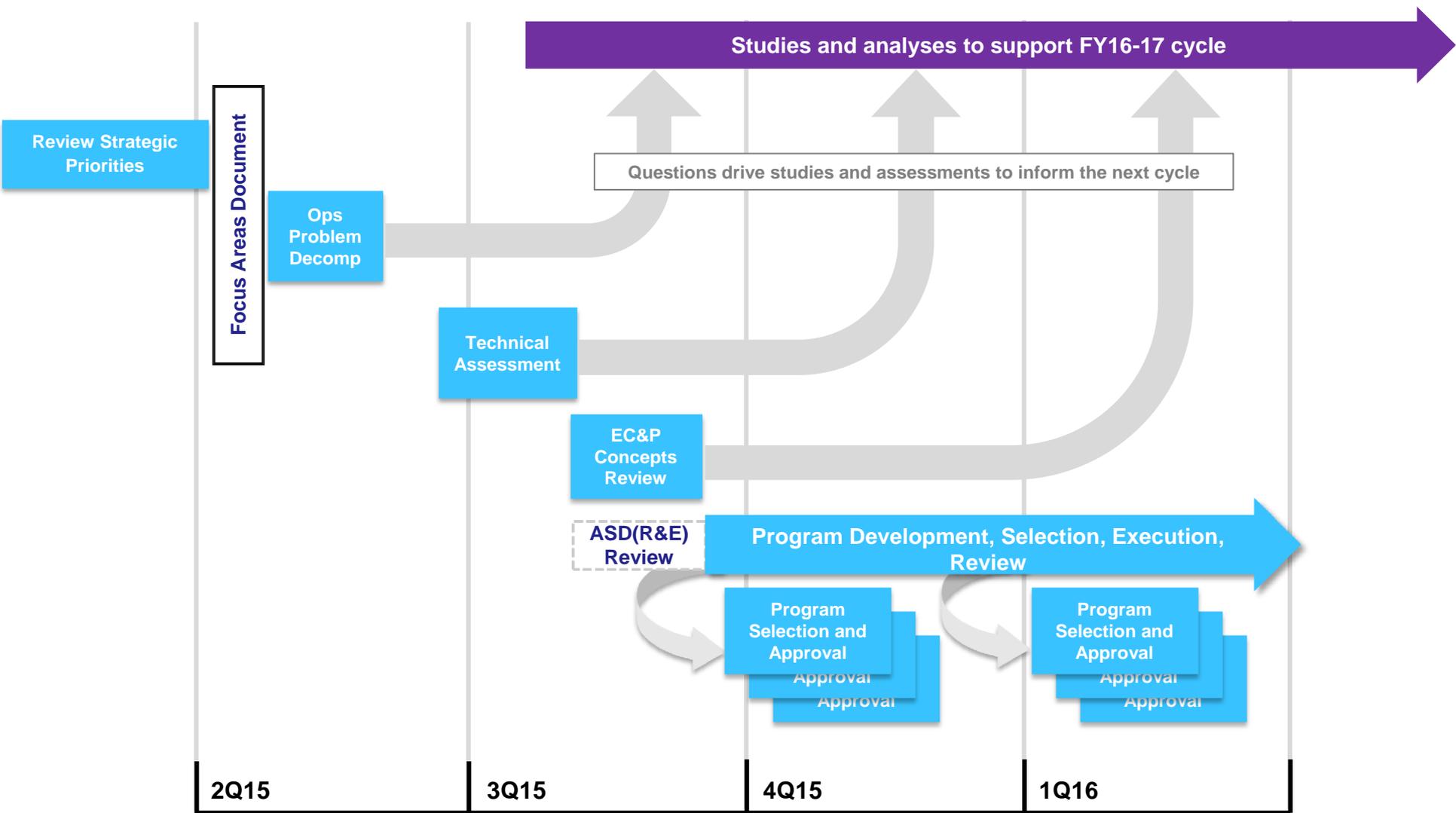


Asymmetric Force Application:

- **Use of non-traditional technologies, tactics, and weapons to provide a clear military advantage to our forces during maneuver and engagement operations**
- **Solutions will reduce U.S. reliance on overleveraged blue capabilities and creatively exploit increasingly capable adversary systems while adjusting the cost curve in our favor**
- **Of particular interest are applications that provide an innovative technology offset and / or cost calculus advantage**
- **Includes technologies needed for - -**
 - **Countering threats associated with integrated air defense systems**
 - **Long range penetrating strike**
 - **Offensive and defensive air superiority operations**



EC&P Timeline FY15-16





Resources for DoD R&E Enterprise Defense Innovation Marketplace



Resources for Industry

- DoD Technology Roadmaps and Investment Strategies
 - DoD R&E Strategic Guidance documents are all posted to the Marketplace
- DoD/Service Solicitations
- Virtual Technology Interchanges & Events
- Opportunity to grow and expand DoD relationships / partnerships
- Secure Portal for IR&D Project Summaries

Resources for DOD

- Market Research for approved DoD S&T, R&D and Acquisition professionals:
 - Secure portal with more than 15,000 IR&D Project Summaries
 - Technical Maturity and Surveillance
 - Guide DoD R&E investments
 - Potential for risk / cost reduction
- Opportunity to grow and expand new relationships and partnerships

www.DefenseInnovationMarketplace.mil