Using Agile Software Development to Create an Operational Testing Tool

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Motivation

- **Rapid product development** – User needs definition to concept development to capability delivery within two years

- **Classic Systems Engineering method** did not seem appropriate for rapid product development
  - Not enough time to complete the SE cycle
  - Not enough money to fund the work required

- Blended classic Systems Engineering with an agile design and development approach
  - Meet rapid design and development needs but
  - still deal with expectations of sponsor for traditional acquisition deliverables
The Blended Approach

- Determined customer needs through multiple knowledge elicitation sessions

- Created total system requirements and top-level design upfront for sponsor approval

- Used agile methodology know as Scrum during system development

- Each sprint had a defined focus and product
The System’s Work Packages
Contents of a Work Package
Successes

- Satisfied sponsor need for requirement and configuration item documentation in early stages
- Established a collaborative development lab to maintain contact with customer/sponsor/remote team members during project execution
  - Telecon lines, web-based collaboration tools
- Self-synchronization of the team – shift roles and activities to meet current needs
  - Example: Hardware architect also tests code
- Product owner, developers and tester in same lab during same hours to facilitate communication beyond daily update meetings
  - All but one of the team members are part-time – work afternoon together in lab.
- Adaptable to new customer needs and suggestions during development