



# Effective Use of Kanban and Agile Tools on MBSE Programs

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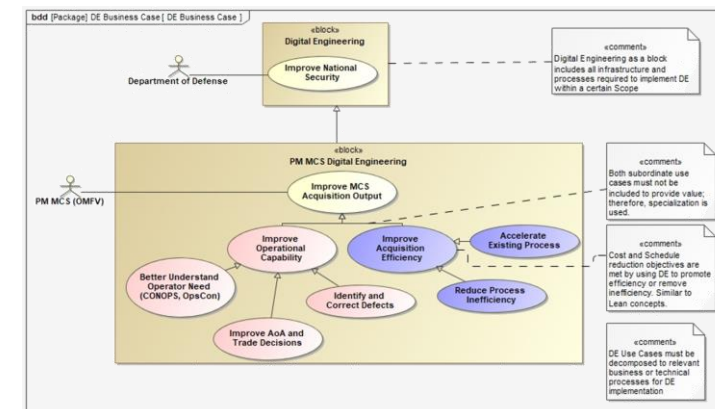
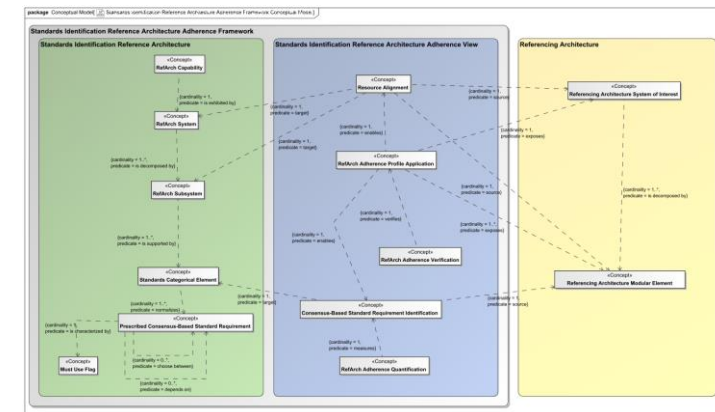
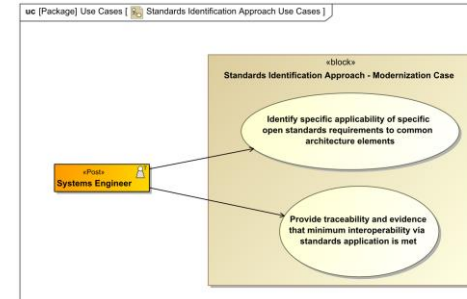
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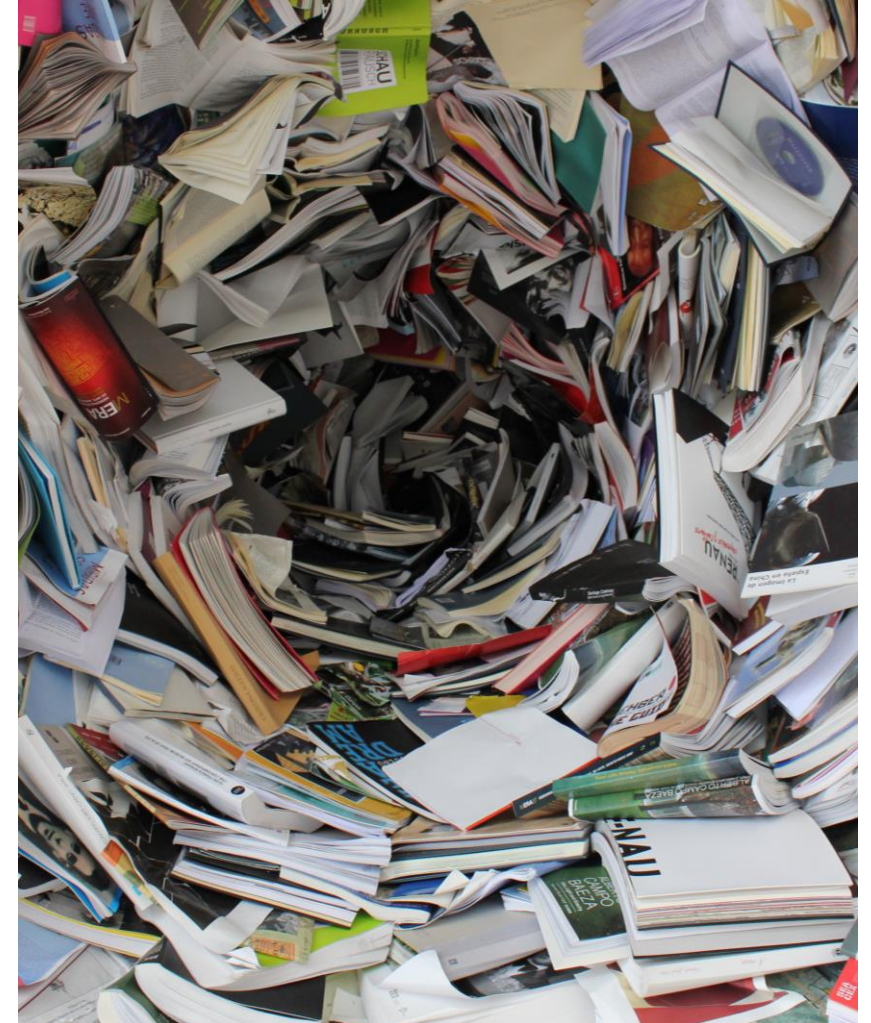
# Context...

- Our team often fills the role of the Model-based Systems Engineering (MBSE) arm of DoD Program Offices
  - Projects of all types: Large, small, straightforward, complex, stable, volatile
  - SEs of all types: Novice-to-Expert, Strategic-to-Tactical, etc.
  - Many of our stakeholders don't fully understand the intricacies of MBSE or the artifacts that are produced in this domain
  - As a PM, I've seen and utilized several different management styles depending on the project stakeholders that I'm interacting with
    - I do not believe there is a one-size-fits-all solution to any problem
    - Every stakeholder has different needs/requirements



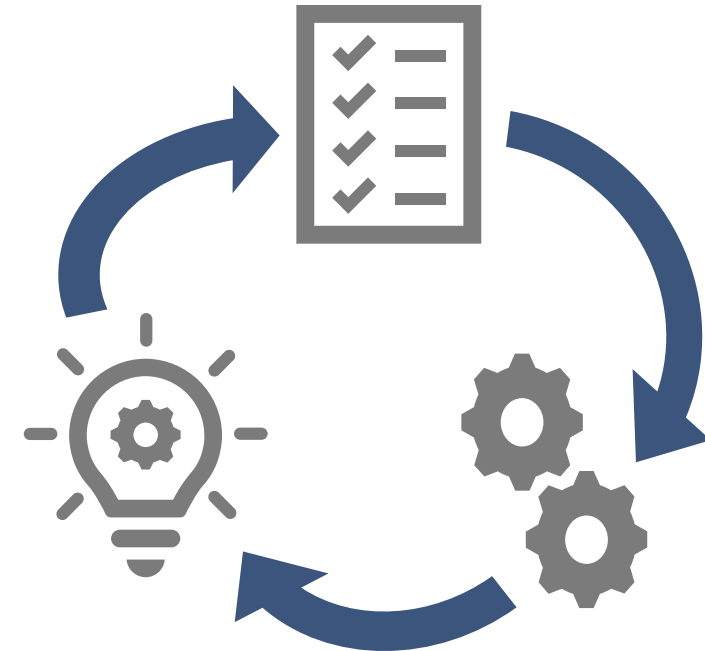
# The Problem...

- Recently, GTRI started a new partnership with a DOD Program Office to provide MBSE support for a Family of Systems within their portfolio
  - Stakeholders with varying degrees of proficiency with the MBSE discipline
  - Multiple concurrent projects
  - Unique requirements but with substantial overlap
  - Different staffing requirements
  - Independent timelines
- Coordinating all these projects can be very time consuming (i.e., expensive), laborious, frustrating and error prone
- Managing stakeholder needs and reporting is a significant challenge



# The Need...

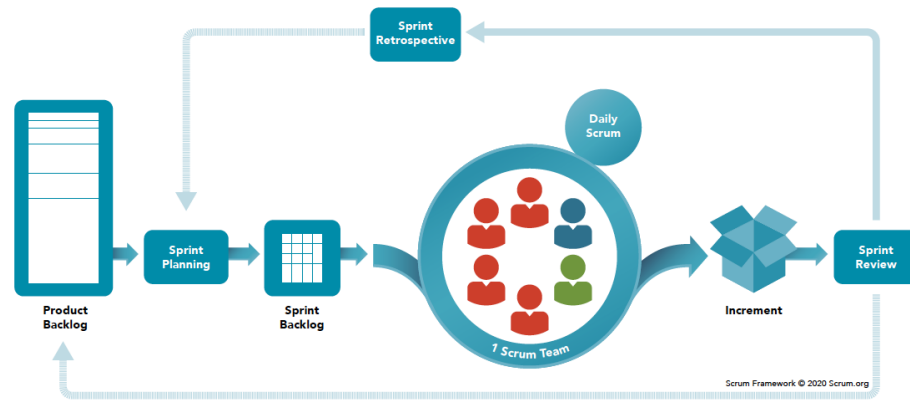
- In order to successfully manage all of these unique efforts we decided early on that we must:
  - Tailor processes to meet the unique needs for each project
  - Standardize deliverables, when feasible
  - Track and communicate progress of efforts
  - Provide visibility to all parties with relevant information
  - Optimize resource commitments
  - Foster collaboration with stakeholders
  - Deconflict overlapping requirements
  - Minimize duplication of efforts
  - Route work products for review and approval
  - Maintain a standing “to-do” list of activities
- Previous attempts to solve these issues had some success, but never really met the overall objectives



*“Necessity is the mother of invention...”*

# The Solution...

- Scrum & Agile have become ubiquitous in the Software Development space as techniques for developing products quickly and effectively



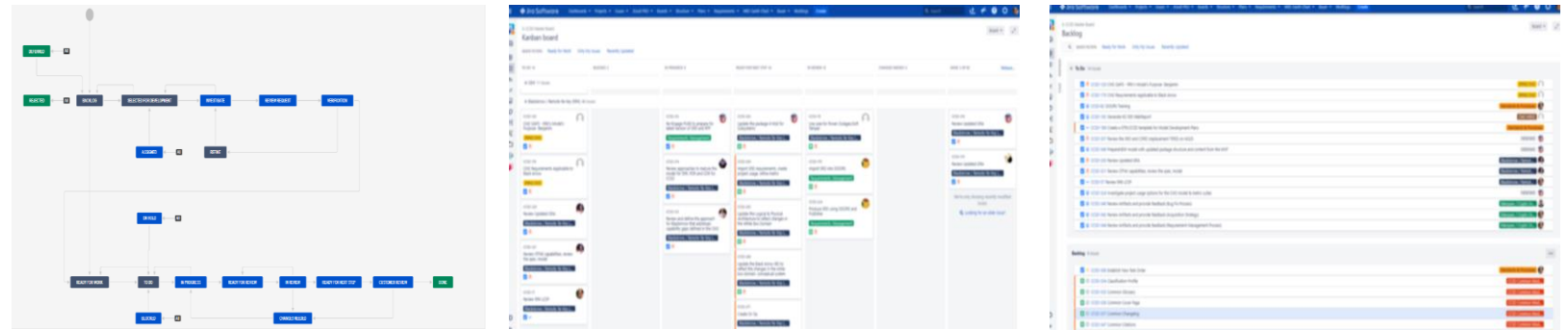
- Kanban has long been a visual aid to improve the efficiency of creating work products
- Tools such as Atlassian's Jira™ suite have become synonymous with managing complex tasks and offer mechanisms to implement these concepts

*Please note, we are not suggesting or advocating for the strict adherence to any particular method or tool, rather we are demonstrating how we have adapted these concepts to meet our needs and the needs of our stakeholders.*

# The Solution...(cont'd)

Using customization capabilities in Jira to create a hierarchy of issue types

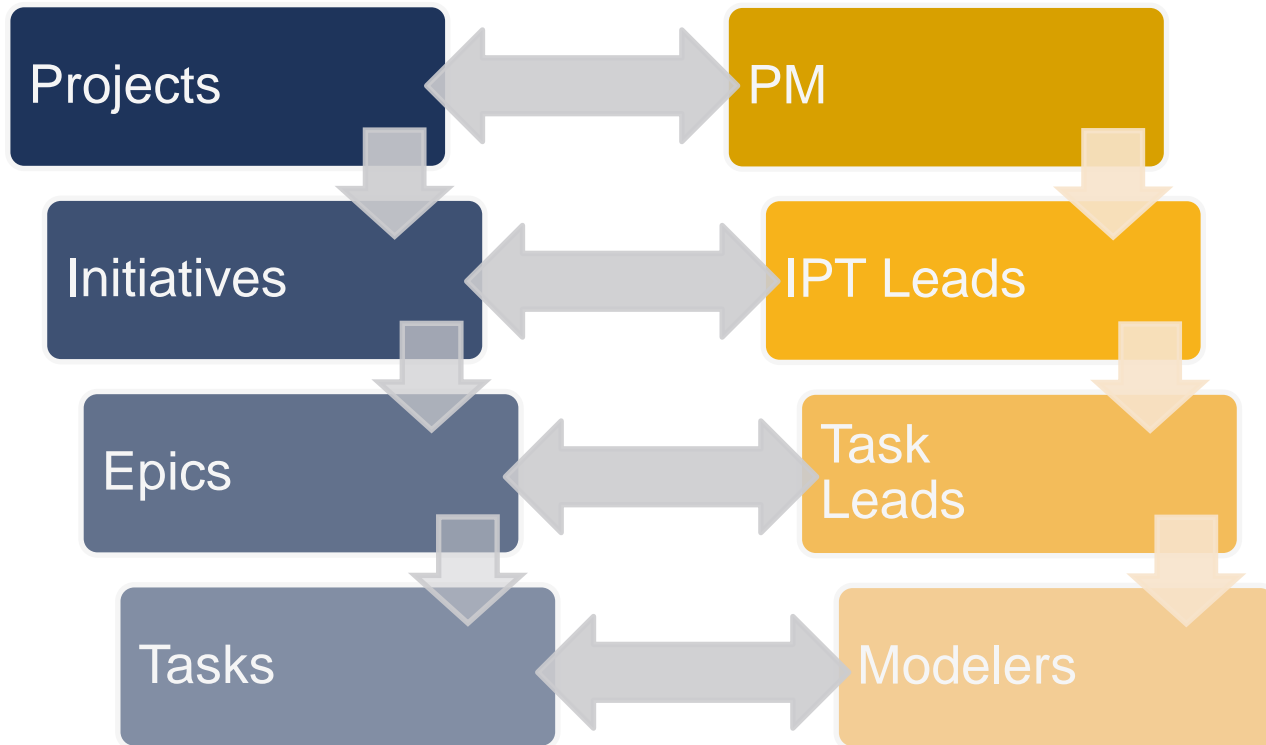
Customized Workflows, Kanban boards, and Backlogs were created for each issue type with the goal of creating views tailored for specific levels of stakeholders within the program



Each Workflow includes touchpoints for stakeholders to provide inputs for Grooming, establishing Acceptance Criteria, and providing Final Approvals

# The Solution...(cont'd)

Each Issue Type is intended to speak to a different stakeholder. In addition, each has a custom Kanban Board, Backlog, and Workflow to optimize each user's experience and filter out superfluous information.



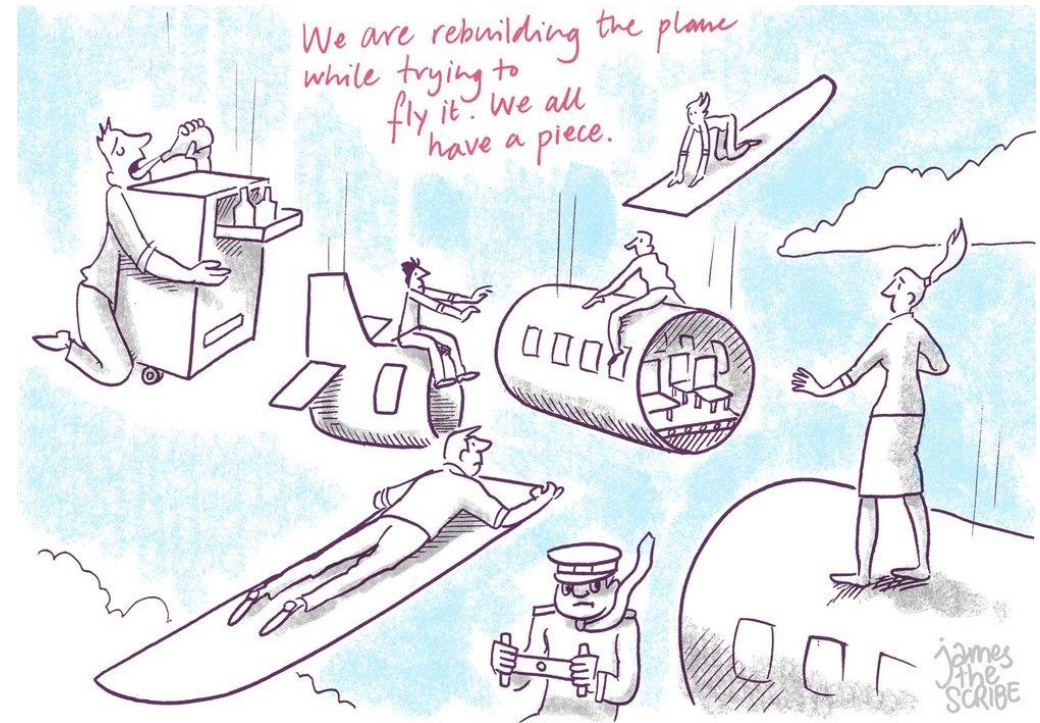
- Requires Jira's Advanced Roadmap capability to expand on the typical hierarchies and enable some of the viewpoints
- External stakeholders are given direct access to the system which allows for collaboration
- All Boards and Backlogs are groomed on a weekly basis

# The Challenges...

As stated before, there were some previous attempts at creating this process. It was determined early on that strict adherence to a process was not going to work. Similarly, if the process is too loose it will not provide the desired results.

There were also some specific issues to overcome:

- Change is difficult for everyone
- The “Agile” mindset in MBSE
- New skills, terms, processes & tools
- Focus on outcome, not process
- IT Access for external users
- Stakeholder engagement

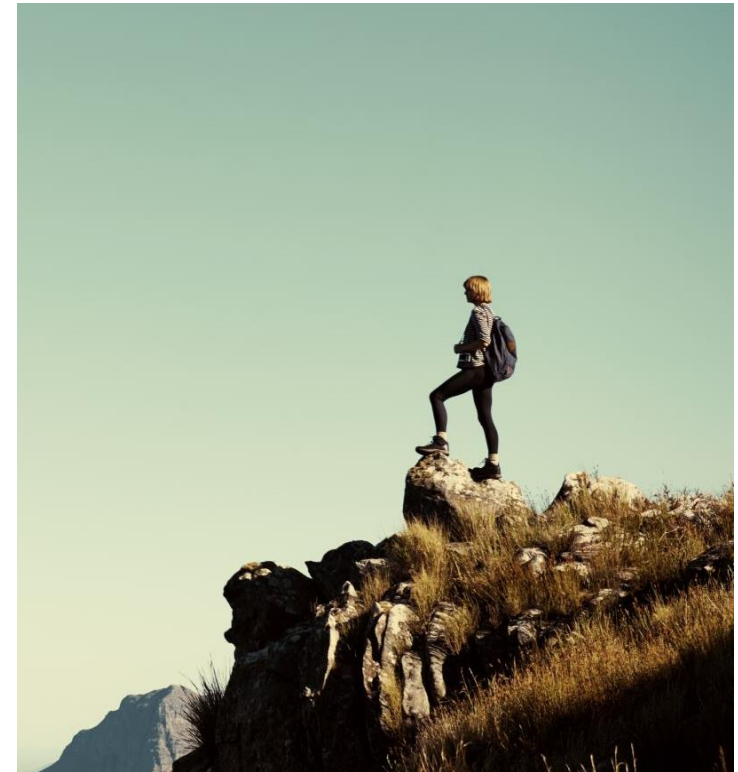




# The Results...

Our MBSE team has already realized substantial benefit from adopting these concepts and our customers are excited to have the opportunity to collaborate on future projects.

- Enables distribution of relevant data
- Provides direct access to project information
- Increases understanding of the portfolio
- Improves visibility of ongoing efforts
- Elevates project risks for resolution
- Fosters standardization and commonality
- Reduces rework and increases reuse
- Maintains the Backlog to inform planning efforts



*There are plenty of hills yet to climb...*

# The Next Steps...

We will continue to iterate on these concepts to refine a solution that works best for our team and stakeholders.

For example, in the coming months we expect to:

- Improve stakeholder engagement
- Begin capturing labor estimates for new tasks
- Capture and aggregate risk at each level of the hierarchy
- Integrate additional programmatic views and metrics
- Develop Portfolio and Enterprise-level perspectives



# Questions?

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