



PROJECT MANAGEMENT
CENTER FOR EXCELLENCE

A.J. CLARK SCHOOL OF ENGINEERING
Civil & Environmental Engineering Department



ACCREDITED PROGRAM

AGILE ARCHITECTURE CONSTRUCT OVERVIEW

Dr. Pamela Misuraca, PMP, SA, POPM
2019 Project Management Symposium

Introduction

Agile Architecture Construct Overview

Date: April 26, 2019

MITRE

Center for Acquisition and Management Sciences
Enterprise Program Agile & Risk Management



Dr. Pamela Misuraca has over 25 years' experience as a Program Management Professional. She currently works for The MITRE Corporation as a Principal Program Manager with the Center for Acquisition Management Services in the Enterprise Agile Program & Risk Management Operations. She has consistently worked in leadership roles where she has provided solutions to complex problems and provided guidance and support to federal agencies and team members.

She is a Certified Project Management Professional and Scaled Agile Framework (SAFe) 4 Certified Agilist and Product Management and Product Owner. Her experience includes guiding SAFe initiatives through coaching and mentoring, establishing program governance, supporting financial, budgeting, acquisition, information technology, systems engineering, cyber security, and infrastructure projects, with emphasis on financial applications and government systems.

The following data rights legend and copyright notice shall be applied to the material: In the case that MITRE issues a waiver of its Intellectual Property (IP) rights to employee, MITRE may remove the data rights legend or copyright notice after such waiver is executed. Refer IP waiver requests to the Legal Office for approval. In the case such an IP waiver is issued, the following statement shall be applied to the material: 'The author's affiliation with The MITRE Corporation is provided for identification purposes only, and is not intended to convey or imply MITRE's concurrence with, or support for, the positions, opinions, or viewpoints expressed by the author.' ©2019 The MITRE Corporation. ALL RIGHTS RESERVED. In the case that MITRE issues a waiver of its IP rights to an employee, MITRE may remove the data rights legend or copyright notice after such waiver is executed. Please refer to P&P 4.2.3.1 for IP waiver requests.

Approved for public release. Distribution unlimited. Case number: 19-0882.

MITRE

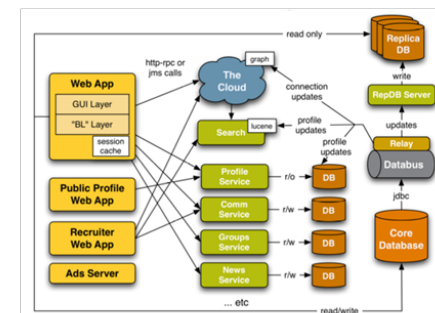
Today's Environment

Current State



- **Many civilian federal agencies are implementing IT solutions in record numbers**
 - Competing system priorities
 - Many systems, Highly complexed
 - Legacy owned networks
 - Slow implementation pace

Desired State



- **Processes driven by business needs**
- **Rationalized networks based on consist network models**
- **Fewer systems, limited integration**
- **Strategy and road maps**

What is Agile “Quick”

- **Agile is an approach used to deliver IT products and services that offers the greatest value to its clients**

- **Benefits of embracing Agile:**
 - Agile can deliver iterative value to the user quicker - for fast feedback and adjustments
 - Changes are inherent (no separate change management process)
 - Agile is value-focused and risk-focused
 - Lean-Agile practices can improve the quality of products

Purpose

- **Provides an overview of an Agile Architecture Construct that can help define a strategic agile capability.**
- **This construct offers a connection to organizational disciplines, such as administration, operations and management.**
- **It also has reusable parts that can be used in building a customized Agile Management Framework.**

“We will only be able to develop strategic agility capabilities when we truly understand and define what agility means for [your] organization” –Dr. Edivandro Conforto

Agile Architecture Components Diagram

Value & Principles



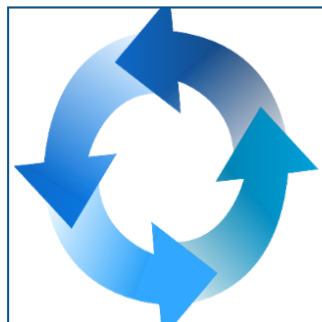
Concepts & Definitions



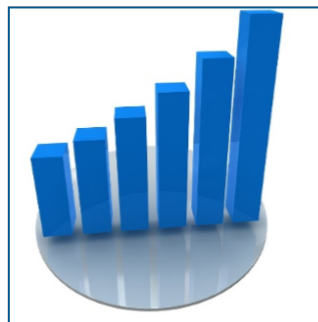
Agile Model



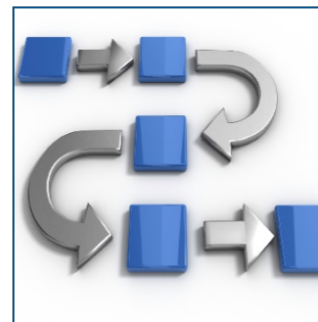
Practices



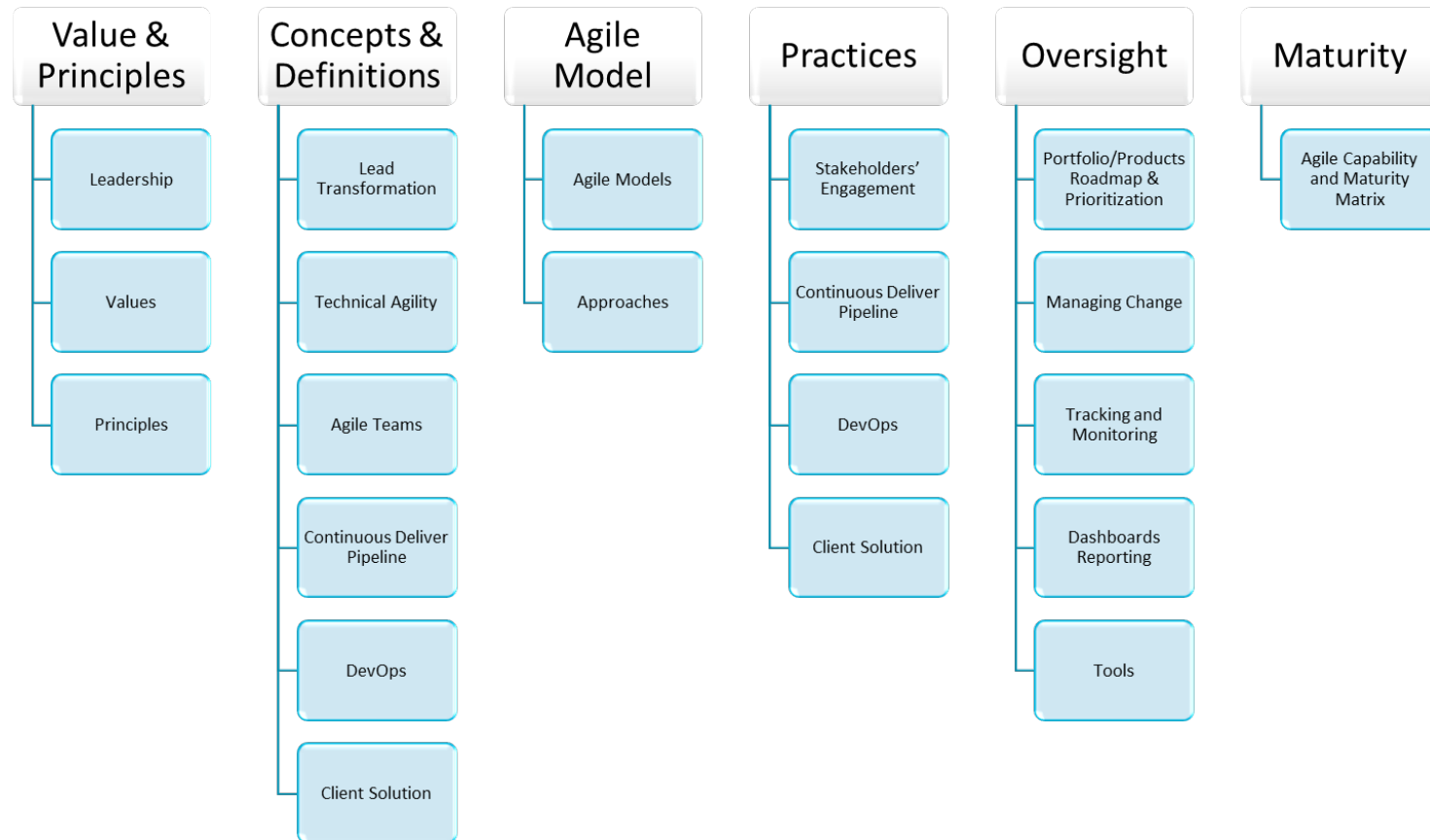
Oversight



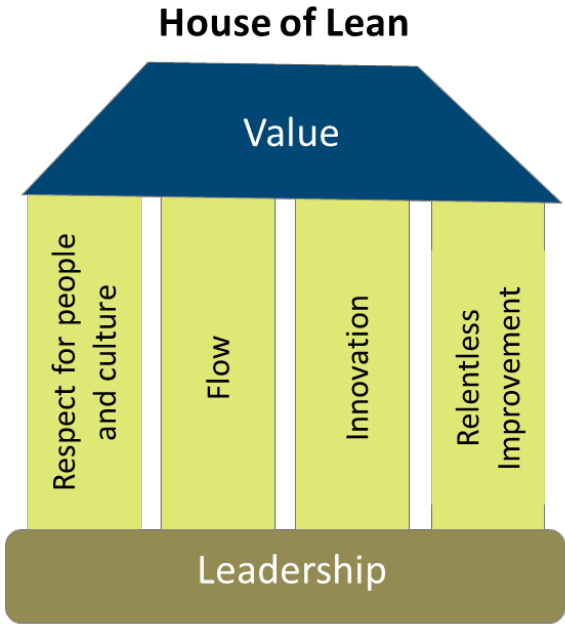
Maturity



Agile Architecture Construct



Embrace Core Values and Principles



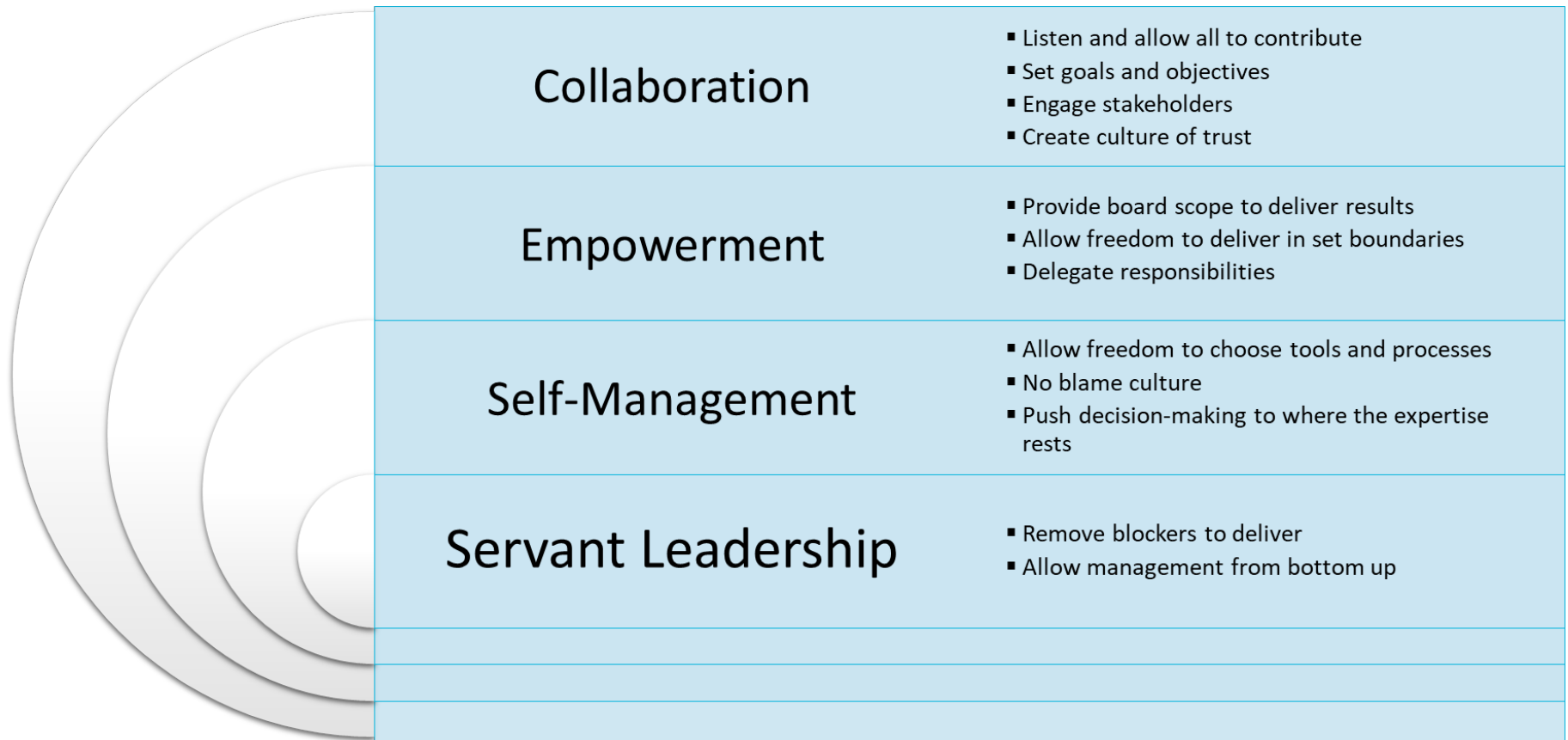
Agile Manifesto

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

*While there is value in the items on the right,
there is more value in the items on the left*

Referenced: **SCALED AGILE** © Scaled Agile, Inc.

Leadership



Values & Principles

Concepts & Definitions

Agile Model

Practices

Oversight

Maturity

Concepts and Definitions

Lead the Transformation

Leaders guide the organization through transformation making it clear at each step, where they are, and where they need to go next and why it is important to keep going.

Technical Agility

Agile principles and practices teams used to deliver value quickly and reliably. This include agile proven models, approaches, practices and built-in quality.

Agile Teams

Cross functional, accountable, and committed to common goals. Agile team have the skills necessary to build, test, and deploy value in short iterations. They succeed and fail together.

Continuous Pipeline

Embodies a continuous feed of workflows, outcomes, and automation for program releases on demand to the end user. These programs deliver quality and value through continuous exploration, continuous integration, continuous deployment and release.

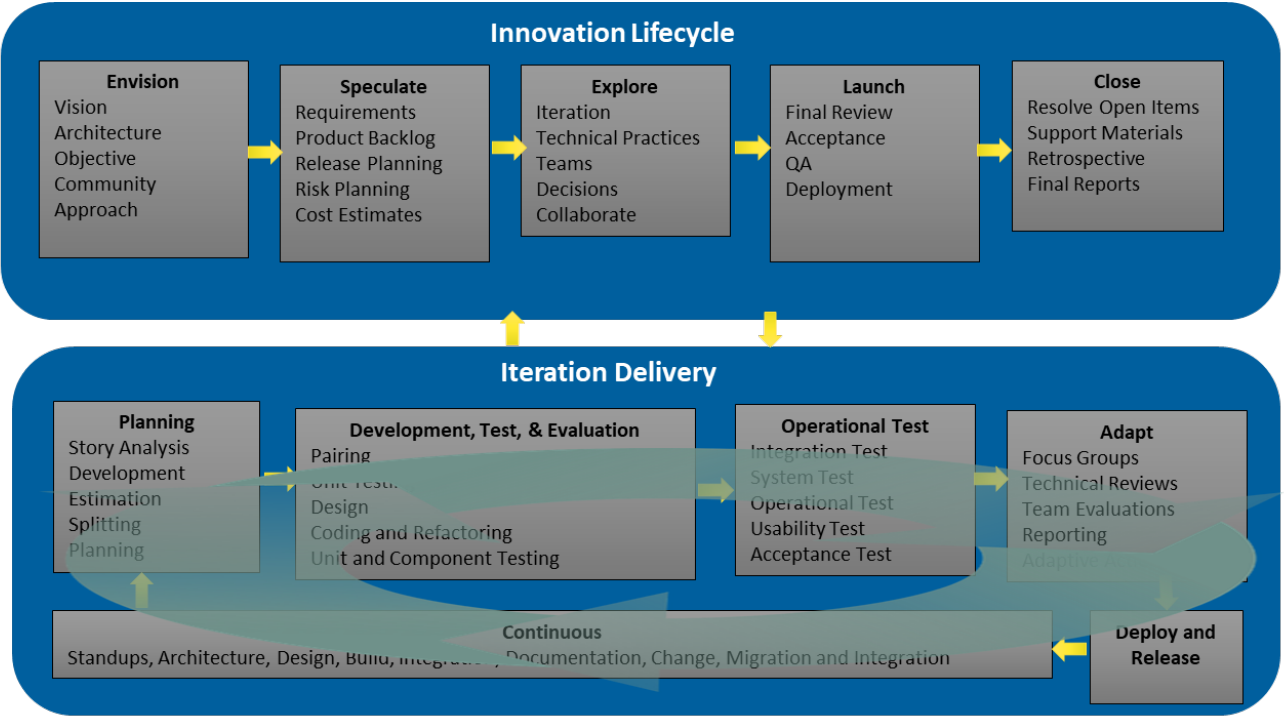
DevOps

Breakdown silos and empower the program to continuously deliver new capabilities to the end user. Overtime, the separation between development and operations is significantly reduced and programs operate with full automated, continuous delivery pipeline.

Client Solution

Define the solution with the support of the client and the program manager. With the client is leading the effort, it is important to establish a collaborative approach to scope and prioritization. This fosters incremental learning and a willingness to change.

Ex. Agile Model



Referenced: Highsmith, J. A. (2004). *Agile project management: Creating innovative products*. Boston, MA: Pearson Education.

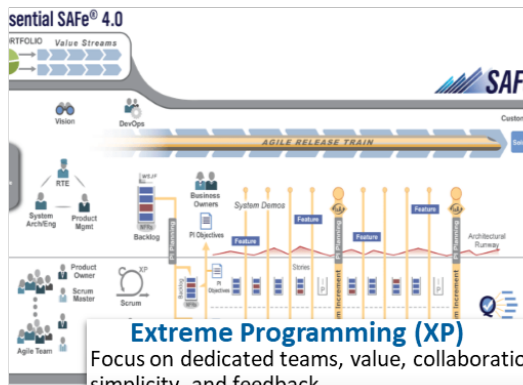
Typical Agile Practices



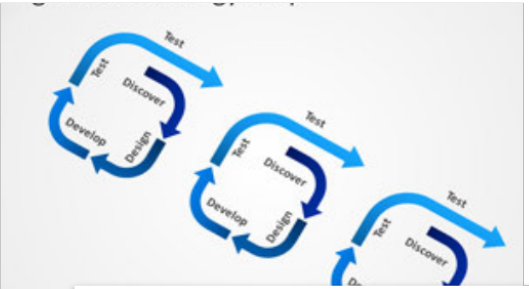
Scrum
Self-organizing, cross-functional teams working in organized into sprints

Feature Preparation	Feature Selected	User Story Identified	User Story Preparation	User Story Development	Feature Acceptance	Deployment
3-10	2-5	30	15	15	8	5
Epic 444	Epic 662				Epic 401	Epic 609
Epic 509	Epic 302				Epic 468	Epic 577
Epic 651	Epic 335				Epic 362	
Discarded	Epic 532					
Epic 211	Epic 223					
Epic 221						

Kanban
Makes the flow of work visible for transparency and addressing bottlenecks.



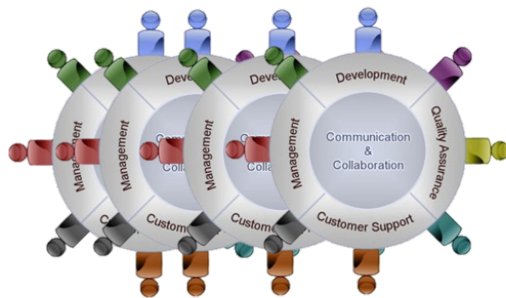
Extreme Programming (XP)
Focus on dedicated teams, value, collaboration, simplicity, and feedback



DevOps
Focus on continuous delivery, a holistic view of product development and release on demand

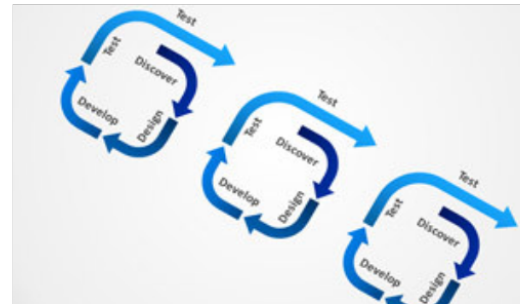
Highly Competent Teams

Agile Teams



- Cross-functional teams represent different functional expertise working toward a common goal to deliver value. Its members are from different parts of the organizations and from contractors

Ex. DevOps

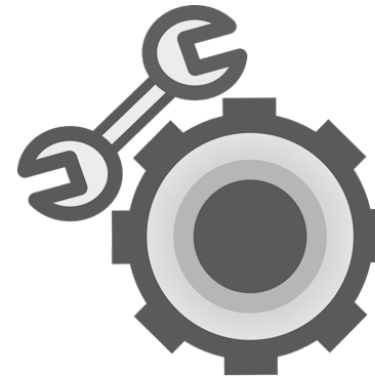


- Plan together
- Integrate and demo together
- Deploy and release together
- Learn together

Continuous Pipeline

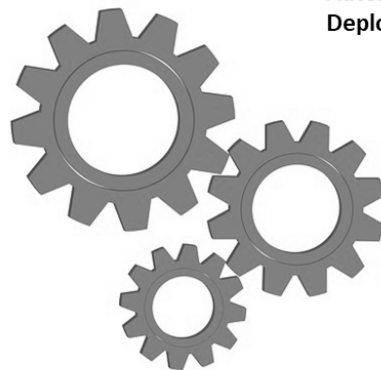
A Team Has No Name PI Objective	Business Value	CMS Value Achieved
Update the reporting periods XYZ in ABC and LMO Dashboard so that they are deployed to production before January 1, 2019.	9	5 Business Owner provide a value
Implement MMO Initial (submission) PQ functionality into LMO in preparation for the remaining LMO functionality development which will be deployed for LMO PY2020 (ABC Playbook)	7	0
ICD 10 codes in System will be updated and deployed to Production before October 1, 2018 (IS G Playbook: Data quality)	10	10
Stretch Objectives		
Research content management tool and document scan tool in preparation for dashboard messaging development	5	0

Deploy features to staging environment every iteration



Maintain version control, configuration, and data modifications

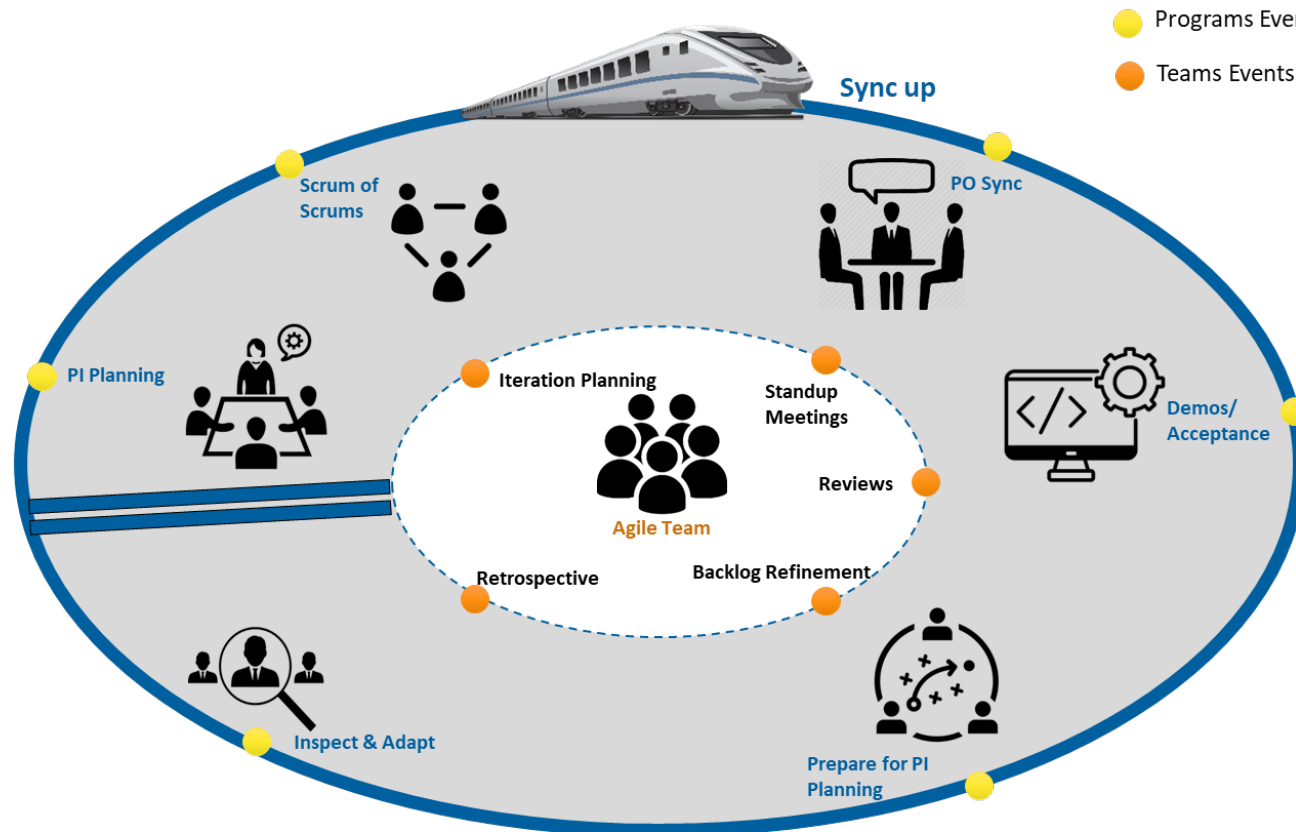
Automate Testing and Deployment



Release on Demand



Ex. DevOps Practice



Referenced: **SCALED AGILE** © Scaled Agile, Inc.

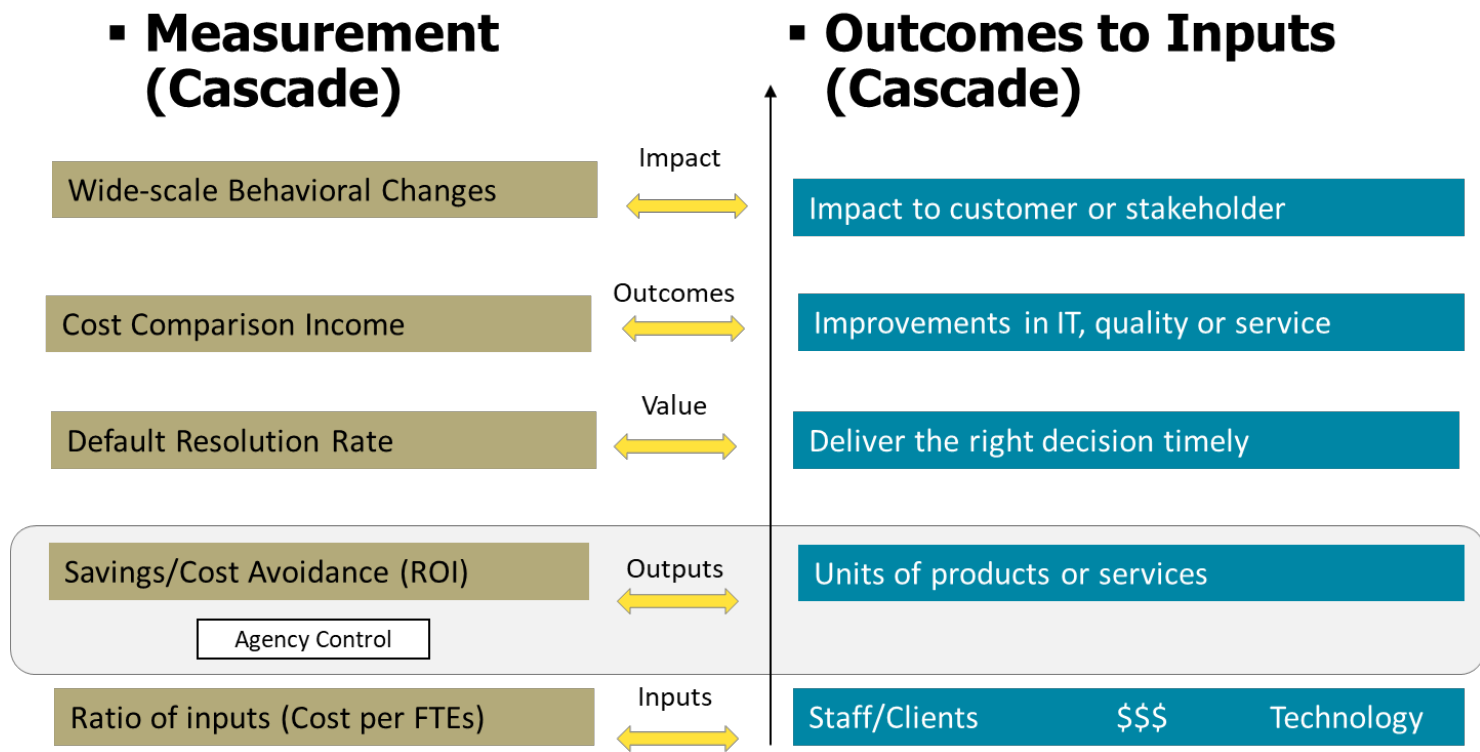
Oversight

- **Products/Portfolios Roadmaps**
- **Prioritized Features**
- **Reviews/Demos, Acceptance and Done**
- **Change Management**
- **Measures, Monitor and Iterations, Performance, Risks, Quality and Value**
- **Dashboards and Reporting**
- **Tools**
 - Request JIRA, Confluence Space, Kanban Access
 - Pre-sandbox request
 - Post-sandbox request

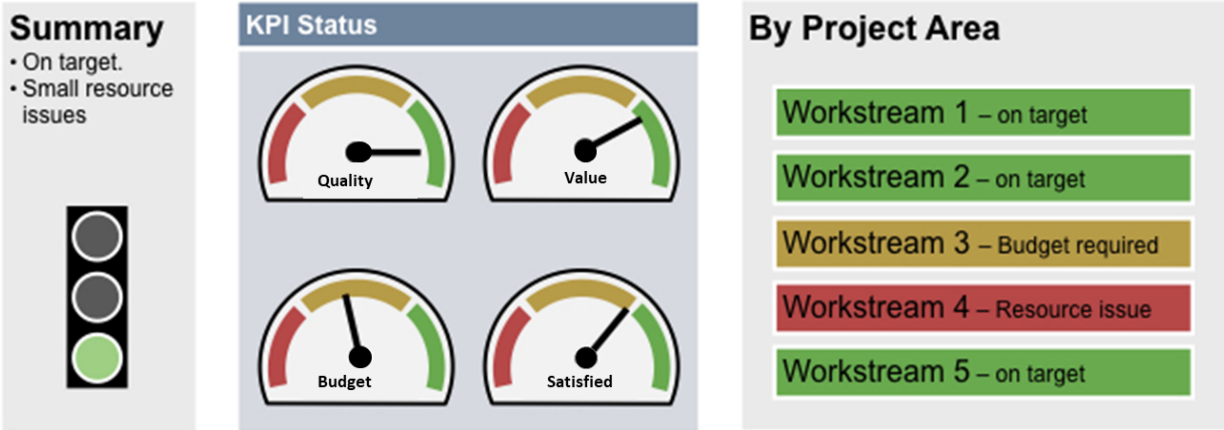
Risk Factors

- **Client not available for the entire project**
- **High probability of an incomplete user acceptance test**
- **Unreliable estimate of schedule and cost**
- **Support and opportunities for developing reusable objects are limited**
- **Insufficient focus on architecture has the potential to produce less than desirable design decisions**
- **High turnover for developers and consultants**
- **Planning poker and other estimation techniques are not embraced**
- **Lack of experience and relaxed approach to agile methods**
- **Subcontracting for developing reusable objects is limited**

Ex. Performance Logical Model

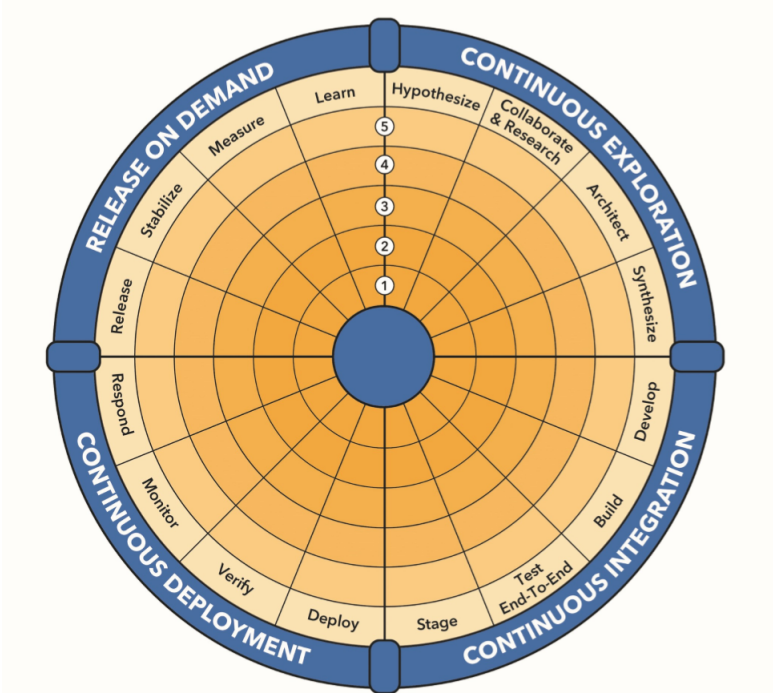


Ex. Dashboards and Reporting




RISKS	ASSUMPTIONS	ISSUES	DEPENDENCIES
<ul style="list-style-type: none"> • New Competitors [owner: Howard] • Supply chain [owner: Jane] 	<ul style="list-style-type: none"> • Finance will continue to 2017 	<ul style="list-style-type: none"> • Resource in Workstream 4 • Signoff needed for Widget plan 	<ul style="list-style-type: none"> • Widget supplier is going out of business - must source new supplier

Ex. Agile Maturity Model



Ex. Agile Release Train and the Solution Train
 16-dimension maturity model of the Continuous Delivery Pipeline

Referenced: **SCALED AGILE** © Scated Agile, Inc.



“We will only be able to develop strategic agility capabilities when we truly understand and define what agility means for [your] organization”
–Dr. Edivandro Conforto

Questions and Discussions





MITRE

MITRE's mission-driven teams are dedicated to solving problems for a safer world. Through our federally funded R&D centers and public-private partnerships, we work across government to tackle challenges to the safety, stability, and well-being of our nation.

Learn more at www.mitre.org



MITRE