

The Impacts and Solutions Associated with Agile Software Development Approach



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Agile Concept

- **Agile definition**

Flexible and responsive, able to cope with changes

- **Agile characteristics - from Agile Manifesto 2001**

- **Individuals and Interactions** over processes and tools
- **Working Software** over comprehensive documentation
- **Customer Collaboration** over contract negotiation
- **Responding to Change** over following a plan

- **Key observations**

- Focus on the core of software system engineering -software development (as intellectual activities)
- Change is a constant
- 80/20 rule
- Are we going back to CMMI level 1 (chaotic, ad hoc, individual heroic)?

Motivation for Agile Approach Adoption

- **What is the best way for software system engineering?**
 - With the historical failures, and the agile new hope
 - Key challenges are in practice and management, not in technology
- **Comparison of agile and traditional approach**
 - **Agile:** Time and cost are constant, functions and features are variables
 - **Traditional:** Functions and features are constant, time and cost are variables
- **Conclusion**
 - Fixed cost and timeline with incremental prioritized deliverables sounds better than the risk of getting nothing when budget over-run

Current Efforts

Current efforts in industry, government, and professional community:

- IBM AUP (Agile Unified Process) as the agile version of RUP
- Rally Software and other companies have also created COTS products and tools to support agile approach practice and management
- Many Federal government organizations are adopting agile for application development and evolution, e.g. in VA, HHS, Census, IRS, etc.
- IEEE and CMMI worked on or working on agile insertion

The Impacts of Agile Approach

The impacts of agile approach can be considered from the following categories:

- The impacts to software system engineering lifecycle process and disciplines
- The impact to project, program and portfolio management
- The impact to acquisition and contractual practice
- The impact to organizational structure and organizational dynamics

Our Service Based on Current State

■ Goal to pursue

- Being agile with discipline to achieve effectiveness with maintained focus

■ Means

- Take advantages from the wisdoms in both of the established software engineering discipline and the agile approach → CMM Agile

■ Capability development objectives

- Focus on the impacts, relationships, integration, and cohesive discipline
- Identify scope, context, connection, and a comprehensive picture on agile applicability
- Provide practice reference (with checklist and to-do list)

Our Solutions

■ **Current state**

- Current efforts are primarily on the monolithic agile approaches or localized applications, lack of integration with other functional components across software system engineering discipline.

■ **Perspective efforts**

- For Agile to be successful, associated organizational and engineering disciplines need to be established to avoid chaos and disjoint effort

■ **Service to Federal Gov. sector**

- Be able to help client on agile approach adoption regarding to when, where, and how
- Be able to integrate agile practice with existing discipline and mandates to clarify the confusion during execution, such as with CMMI, SWEBOK, PMBOK, OMB 300, Federal budgeting and investment lifecycle, acquisition and contractual process.