

Agile Scrum Methodology

Volume 5, Issue 12

Office of Information and Technology (OIT)

Introduction

The agile movement in software development is characterized by a division of tasks into short phases of work and frequent reassessment and adaptation of plans. “Over eighty percent of major Federal Government information technology (IT) projects are now describing themselves as agile, or iterative in approach,” says [Gartner](#), an IT global research and advisory firm, emphasizing that every successful team needs effective project management to deliver projects efficiently. While agile development is regarded as an umbrella term for several iterative and incremental software development methodologies, the scrum has become an accepted best practice approach to creating new software and technology products – that is, as Gartner explains, “a way of organizing work to promote agility.” In this Tech Insight, we’ll discuss the history and overview of the scrum methodology as the most widely used methodology in agile development, and how it has been applied at the Department of Veterans Affairs (VA).

History of Scrum

The person credited as a co-creator of scrum, [Jeff Sutherland](#), developed the methodology in 1993 at Easel Corporation, a popular software development firm that was acquired by [VMARK](#) in the mid-1990s. Scrum was then formalized in 1995 by [Ken Schwaber](#) and emerged as a recognized process at [OOPSLA '95](#) to help organizations who were struggling with complex development projects. Together, they extended and enhanced scrum at many software organizations and helped to write the [Agile Manifesto](#).

Business management recognizes that scrum traces its very lineage to [Henry Gantt](#), an American mechanical engineer and management consultant who is best known for his work in the development of scientific management. His “[Gantt Charts](#)” arrived in 1910, and were first used in World War I by General William Crozier, who was the Chief of Ordnance for the U.S. Army. The modern equivalent, [Program Evaluation and Review Technique \(PERT\) charts](#), arrived in the 1950s, using graphic management tools to provide visual methods of scheduling both time and resources for projects. A Gantt chart is a bar chart showing the progression of time through the phases of a project. The charts can be simple or complex, depending on the needs of the project manager and the team. Gantt’s management theory incorporates a record of the work that is completed, and is balanced with the work that still needs to be completed.

The scrum methodology is also rooted in the [Toyota Production System \(TPS\)](#) and the [OODA Loop](#) — the decision cycle of Observe, Orient, Decide, Act – which was developed by the

military strategist, U.S. Air Force Colonel John Boyd, and applied to the combat operations process for fighter pilots.

Overview of Scrum Methodology

Simply put, the scrum is an approach that is used to implement agile project management methodology. It is a departure from the [Waterfall](#) Development Method, a detailed, long-term project plan with a single timeline and definitive and rigid project management team roles. Rather, the scrum is an iterative approach within [agile](#) development that uses shorter planning and is based on iterations and multiple deliveries, along with flexible, cross-functional team composition.

Scrum (short for scrummage) embodies the [principles](#) found in the sport of [rugby](#). During a rugby scrum, eight players from each team tightly huddle with heads-down in three rows. The primary goal is to gain possession of the ball, which is placed into the opening between the two-opposing front-line team members. And borrowing the concept of scrum from the game of rugby, a product development team operates as a cohesive unit working towards a common goal. Team members function to support and empower one another. This involves frequent communication, realistic goal setting, and an overall commitment to the team. Similar to the Agile Scrum Methodology used in product development, a rugby scrum relies heavily on strong communication among team players, with each player fulfilling a specific role to the best of the player's abilities. When a player is unable to execute, for whatever reason, teammates are expected to step in to fill the gap.

In the scrum methodology for software development, it is the team that makes the agile approach so successful. Individual software developers do not work in isolation. A scrum team works together in an organized way to accomplish clear tasks towards a common goal. Team members must be able to pass work along from one team member to another with as much ease as possible. Specific actions encompass the following:

- **Each Player has Specific Roles within a Cross-functional Team:** With an agile scrum, the cross-functional team requires a variety of roles, including scrum master, product owner, and software engineer. Each member of the team has important skills that are needed to complete specific project tasks.
- **Sprints are Important:** One development cycle in a scrum is called a sprint. In rugby, a sprint describes short bursts from players when running the ball down the field. In agile, sprints are the iterations, or development cycles, that typically last between seven and 30 days. In a sense, they are also the short bursts of focused activity.
- **Flexibility is a Must:** Working as a cohesive unit, a rugby team must use effective judgment during the fast pace of the rugby game. Similarly, in agile scrum, a product backlog is used to identify the work required to complete a project. This list is typically refined throughout a project, and team members must adapt to the changes as they arise, keeping the end goal in mind.

- **Core Values are Embraced:** In the game of rugby, there is an important code of conduct that players are expected to maintain, whether on or off the playing field. Players treat one another with respect, and this creates a powerful group bond. As with the sport of rugby, the Scrum Methodology adheres to an important set of values for members to create a high functioning team environment. Commitment, focus, positivity, courtesy, and tolerance are all important traits that enable the team to implement an agile scrum to work together as effectively as possible.

Benefits of Scrum Methodology

Nicola Dourambeis, former executive in charge of agile practices at Salesforce.com, one of [Fortune’s 100 Best Companies to Work For](#) and [Forbe’s Most Innovative Companies in the World](#), was responsible for some 200 scrum teams. Ms. Dourambeis viewed scrum as the firm’s “secret sauce.”

“When we were a start-up,” Ms. Dourambeis said, “we did a major release three or four times a year. As we grew and scaled up, managing projects in a typical Waterfall way, that fell to once a year in 2005-2006.” Ms. Dourambeis recognized that the process had to change, and the remedy was her introduction of the scrum methodology. Since that time, her team has been releases updates three times a year. “There aren’t many major enterprise companies that can do that,” Ms. Dourambeis explained.

The [SCRUM ALLIANCE®](#), is the largest professional membership organization in the Agile Community, with more than 400,000 members worldwide. Recently, it released its [2017-2018 State of Scrum Report](#), having surveyed respondents representing 108 countries and more than 14 industries, and yielding several key takeaways. Among them include:

- 95 percent plan to continue to use Scrum moving forward.
- Respondents believe Scrum works with a 62 percent overall success rate of projects being delivered.
- Nearly half the respondents cite fulfilling customer needs as the highest business priority for Scrum Projects.
- 87 percent agree that the scrum is improving the quality of work life for their teams.
- 60 percent follow two-week sprints.
- 81 percent hold a team scrum each day.
- 83 percent conduct sprint planning prior to each sprint, adhering to core scrum and standard recommendations, with the average team size at seven people.

Scrum Use at VA

Gartner advocates that “collaboration is the key to success for leadership in the digital age.” Scrum represents that collaboration by setting sequential goals for sprints that must be completed in a fixed length of time and are often done in cycles. VA has embraced the Agile Scrum Methodology into development processes.

VA's [Veterans Benefits Management System \(VBMS\)](#), for example, was established to replace a manual and paper-based process with one that could scale to handle modern methods, volumes, and expectations of a new generation of deserving Veterans. Ratings is one of several critical components under VBMS that specifically serves as a Veteran's entry point into the system, and ultimately determines their benefit level.

VBMS had about 25 "Scrum Teams," each working on a specific feature, totaling about 200 people and completing a key milestone, electronically processing its five-millionth claim. The Veterans Benefits Administration (VBA) processes nearly 100 percent of disability compensation claims electronically through VBMS. The system allows claims processors and power of attorney designees nationwide to instantly review close to three billion images related to Veterans claims. Specifications, business requirements analysis, and design analysis were all managed via an Agile Scrum Methodology. VBMS was a [2017 FedHealth IT Innovation Award](#) recipient.

Starting with the redesign of its electronic health records system, VA hopes to adopt agile practices and "emphasize the value to the Veteran over documentation." In a July 2, 2018 [request for information \(RFI\)](#), VA said it is looking for an [artificial intelligence \(AI\)](#)-based solution to give Veterans, caregivers, and survivors better access to healthcare and benefits information. VA wants the [software-as-a-service solution \(SaaS\)](#) to be developed with agile methods, in which design, configuration, testing, and deployment builds are conducted on a continuous basis, throughout the life of the contract.

The [Veteran-Focused Integration Process \(VIP\)](#) unifies and streamlines IT delivery oversight and will deliver IT products more efficiently, securely, and predictably. The VIP Framework creates an environment that delivers more frequent releases through a deeper application of agile practices. In parallel with a single integrated release process, VIP will increase cross-organizational and business stakeholder engagement, providing greater visibility into projects, increasing agile adoption, and instituting a predictive delivery cadence.

The Office of Architecture and Engineering Service's (AES) [Enterprise Design Patterns \(EDP\)](#) Team takes this premise to action in a deliberate shift in the EDP development process. Through a segments/sprint process that harnesses [design thinking](#), greater emphasis is placed on obtaining qualitative insights within an agile delivery cycle to improve the value of the EDP product to VA stakeholders.

The key strength of a design sprint is to share expert insights within one timeboxed iteration of a continuous development cycle. Team members ideate, prototype, and test a concept, all within a shortened regular, repeatable work cycle or sprint —such as 10-day intervals— as opposed to making their work available for review after four months of development. Given the relatively short timeframe, EDP design sprints only focus on part of the guidance criteria that is offered to customers. This process provides an excellent way for EDP teams to maintain focus on the rapid delivery of business value, within a constantly evolving technological landscape. The product and templates act as living artifacts that will be refined over time. For example, the EDP may be focused on specific [Enterprise Shared Services \(ESS\)](#), such as cloud computing

service models ([Infrastructure as a service-iaaS](#), [Software as a Service-SaaS](#), and [Platform as a Service-PaaS](#)) and security controls. Each ESS available can include a high-level capability description and linkages to additional actionable EDP project team information.

Conclusion

As the Scrum Alliance posits, “Scrum is not difficult to implement. The discipline, commitment, and capabilities required to be good at delivering real value, frequently and often, are hard to master.” The Alliance explains that “it takes a lot of work” as “teams and organizations suffer from technical and cultural debt.” But a further explanation reflects that the true challenge is not the scrum, but rather “the technical and cultural debt. In these cases, Scrum is doing one of the things it’s great at—making a team’s problems transparent.”

In the book titled *Scrum: The Art of Doing Twice the Work in Half the Time*, author Jeff Sutherland points out that while the scrum had its origins in the world of software development, it is sweeping through myriad other disciplines. Organizations use the scrum methodology for “Everything from building rocket ships to managing payroll to expanding human resources... from finance to investment, from entertainment to journalism. The bottom line is – Scrum accelerates human effort.”

Tech Insight Series

The monthly Tech Insight series aims to help readers make better decisions and be more informed customers of OIT products and services by providing them with high-level overviews of technologies that impact or will impact VA’s IT environment. Tech Insights introduce topics in an easily digestible fashion by presenting background information on the topic, clearly explaining its importance within VA, and providing recommendations for success from OIT. All Tech Insights are available [here](#).

Disclaimer: *This document includes links to websites outside VA control and jurisdiction. VA is not responsible for the privacy practices or the content of non-VA websites. We encourage you to review the privacy policy or terms and conditions of those sites to fully understand what information is collected and how it is used.*