



# Scaled Professional Scrum – Nexus™

## *Rationale of the framework*

**Gunther Verheyen**

Scrum is a framework for developing complex systems.

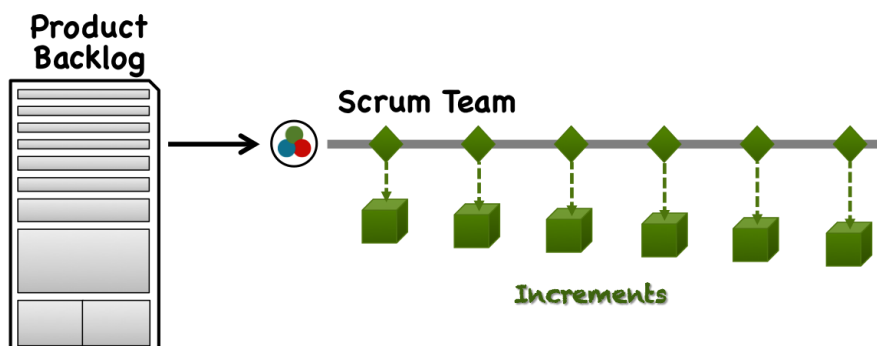
Numerous organizations worldwide have adopted Scrum to become more agile. Many of them have engaged in endeavors to scale their product development done through Scrum. None of these efforts are easy, and each effort faces specific challenges. Each organization has its own structure, culture, business goals and strategies, IT practices and infrastructure, domains of competence, software, tools, and people.

Every initiative to scale is unique. Nobody knows upfront exactly what an organization needs to scale Scrum. Nobody knows especially what an organization will look like as it scales.

The ‘Scaled Professional Scrum’ framework builds on the corner stones of Scrum, i.e. bottom-up knowledge creation, self-organization, empiricism. It is a foundational framework upon which a systematic, emergent, managed initiative to scale can grow.

### Scaling Scrum

A single instance of Scrum has one Scrum Team that works from one Product Backlog. The team sprints against selected Product Backlog items and creates an Increment of releasable product by the end of each Sprint. A Sprint takes no more than 30 days, often less.



Creating releasable software every 30 days, or less, is a challenge, even with one team. It requires discipline and rigor, an extreme focus on development practices, people, communication and collaboration, and removal of impediments that limit progress and creativity.

Creating integrated, releasable software with multiple Scrum Teams easily turns into a managerial and technical drama, given the need for additional sophistication; in techniques, tools, integration, and collaboration.

Reasons to scale to the level of multiple teams jointly building a system include:

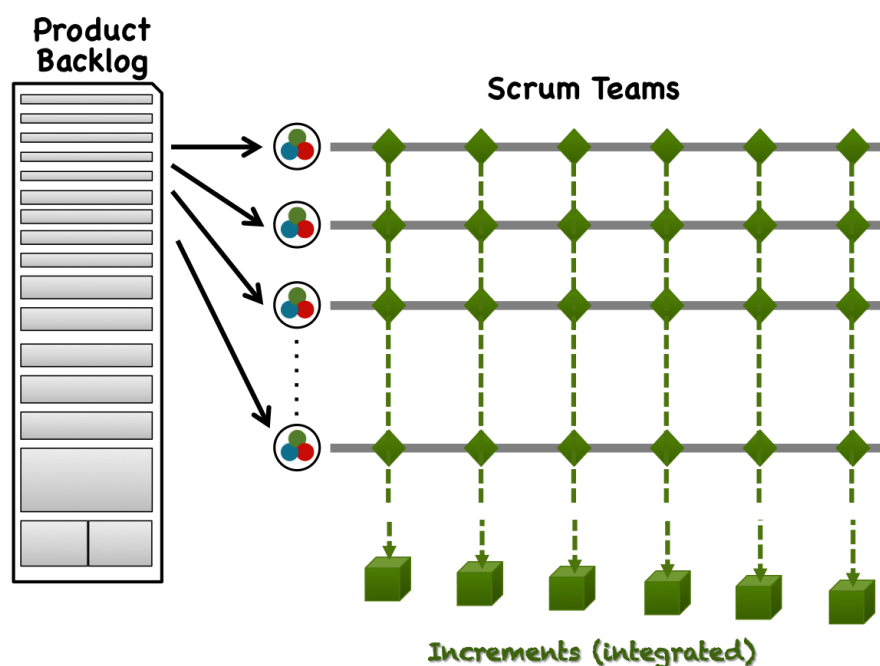
- The desire to complete more functionality within a given timeframe.
- The desire to complete forecasted functionality more rapidly.
- Resolving a temporary shortage of specialized skills and people by accommodating people, for one or more Sprints, in specific Scrum Teams.
- Every combination of above reasons.

Leaders of a scaling effort need to be able to answer essential questions:

- How often does the work have to be released?
- What techniques are going to be used to integrate work to that frequency?
- What will be done to measure and manage the work and such integration?
- What overhead is being incurred to achieve this integration and delivery?
- Can the cost and benefits of delivery justified by an increase in value?
- How is the cost systematically reduced?

## Scaled Professional Scrum

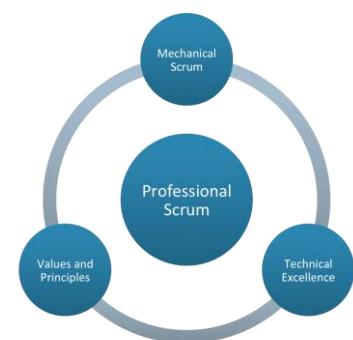
From the outside, a scaled implementation of Scrum looks exactly like (singular) Scrum. One Product Backlog provides input to a Sprint. At the end of the Sprint, an Increment of releasable product is available. A scaled Scrum implementation is different in that, for one or more Sprints, the Product Owner employs more than one Scrum Team. The number of Scrum Teams can be constant and their composition can remain the same, or not.



Scaled Scrum is not 'Scrum' if not all of the attributes of the smallest element, i.e. a singular Scrum Team employing Scrum in a professional manner, are found in the sum of all of the elements. All of the basic values, principles, artifacts, roles, and meetings of Scrum apply, whether Scrum is singular or scaled. These essentials remain inviolate for the purpose of controlling risk, generating creativity, and creating transparency. The core purpose remains that working software can be released without unresolved dependencies.

However, when more Scrum Teams work together on a single Product Backlog, the number of interactions, complexities, and non-linear events is much higher. This has a cost. The relationship between the number of Scrum Teams, the increased cost and the increase in productivity is not linear. Product Owners employing multiple Scrum Teams should carefully weigh the benefits versus the additional costs incurred.

When more than one Scrum Team uses Scrum to develop the same software, that is referred to as "Scaled Scrum". When empiricism and bottom-up knowledge creation are employed at scale, transparency and technical excellence are embraced, and Scrum's underlying values and principles are enacted, it is "Scaled Professional Scrum". Only professional Scrum scales the benefits of Scrum. Mechanical or amateur Scrum (some say 'zombie Scrum'), characterized by a lack of proper engineering standards and missing integration, does not scale, as excessive dependencies remain unresolved, permanently.



Creating a scaled implementation of professional Scrum requires multi-level, concerted efforts to benefit from Scrum's empiricism and increase the agility of the organization, the ability to not only respond to change, but to opportunistically take advantage of uncertainty and turbulence.

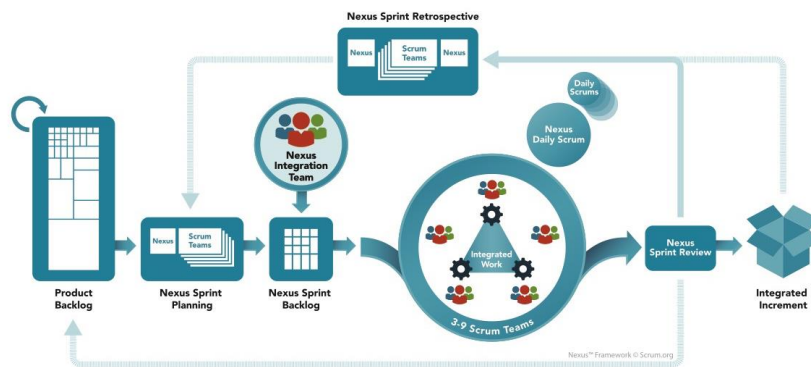
The Scaled Professional Scrum framework provides a sinew from which scaling can grow, in a way that the unique challenges of unique organizations and situations can be addressed. Techniques for organizing and selecting Product Backlog items, resolving dependencies and integrating work, and creating "Done" increments are included. The enterprise re-uses and augments the investments made in training staff, management and teams in Scrum.

Just as Conway's law states that software interaction is a reflection of the communication of the programmers that wrote the code, the structure of scaled product development will be reflected in the structure, the quality and the value of the software developed.

## Nexus

A 'nexus' in general is a causal link between things, such as biological nervous systems. In the case of Scaled Professional Scrum, the Nexus is an exo-skeleton for 3-9 Scrum Teams working on a single Product Backlog to build an integrated increment that meets a goal.

## NEXUS™ FRAMEWORK



A Nexus scales the Scrum artifacts, events and roles, against the goal of augmenting the capabilities of regular integration of product, communication, competence, team formation and structure, release management. At the heart of a Nexus is integrated work. The state of integration of the work is inspected on a daily base. This drives the daily re-planning activities of the Scrum Teams. The Nexus Integration Team is accountable for the integration by providing means, tools, insights and practices for the other Scrum Teams to actually integrate their work.

A Nexus has no more than 9 Scrum Teams. We have found that in a construct of more than nine Scrum Teams the ability to create usable product frays. The complexity and the dependencies that require resolution become overwhelming. The ability to create a “Done” increment and not leave behind a pile of technical debt is daunting without shortcuts that undermine product viability.

If the basis to scale upon consists of sloppy code and design, poorly formed ideas, and people that aren’t skilled or don’t work together well, then even a much smaller number of teams (than 9) is the highest achievable.

40 practices were reformulated and added to the Scaled Professional Scrum framework. Each of these practices, if chosen and used against the right context, augments the operation of the Nexus.

The Scaled Professional Scrum framework creates a next unit of scaling, a Nexus. A Nexus+ is more than one Nexus inter-operating to build a large product. At the level of needing a Nexus+ there are absolutely no guaranteed recipes. Every project is unique.

## Summary

The Scaled Professional Scrum framework cohesively integrates practices, experience and insights gained from efforts to scale Scrum worldwide, including the substantial efforts that involved Ken Schwaber and Jeff Sutherland.

Scaled Professional Scrum and the Nexus employ the principles and values of Scrum, and enable an organization to scale while maintaining its unique identity. People figure out one instance and nuances of other instances of scaled Scrum that might work for their projects, releases, initiatives, or organizations. Scaled Professional Scrum takes into account such context.

Scaled Professional Scrum is recognizably Scrum.

## Author



Gunther Verheyen ([gunther.verheyen@scrum.org](mailto:gunther.verheyen@scrum.org)) is a seasoned Scrum professional. He shepherds Professional Scrum through Scrum.org.

He is a Professional Scrum trainer and directs the series of ‘Professional Scrum’ products of Scrum.org. He is the European partner of Scrum co-creator Ken Schwaber.

Gunther is the author of “Scrum – A Pocket Guide (A Smart Travel Companion)” (2013), by Ken Schwaber consistently praised as *‘the best possible description of Scrum currently available.’*

When not travelling to promote professionalism through Scrum, Gunther lives and works at his home base in Antwerp, Belgium. Find Gunther on Twitter as @ullizee or read more of his musings on Scrum on his personal blog, <http://guntherverheyen.com>.



## About Scrum.org

Scrum.org is committed to improving the profession of software development, which it considers its core mission.

Scrum.org leads the evolution and maturity of Scrum by providing tools and resources for Scrum practitioners worldwide to maximize value using Scrum.

Scrum.org was founded in 2009 by Ken Schwaber, co-creator of Scrum and is based in Boston, Massachusetts (USA).