

## SCRUM STICKY ISSUES

By Neil Potter

### Introduction

Scrum and Agile project management practices are still very popular in parts of the software development world. However, they don't come without challenges.

In this article I will discuss some positive attributes of Scrum and challenges to look out for.

### Scrum

Scrum is a straightforward management process for software development. Scrum consists of predefined milestones and events that scope, estimate, plan and status a project<sup>1</sup>.

### Scrum positives

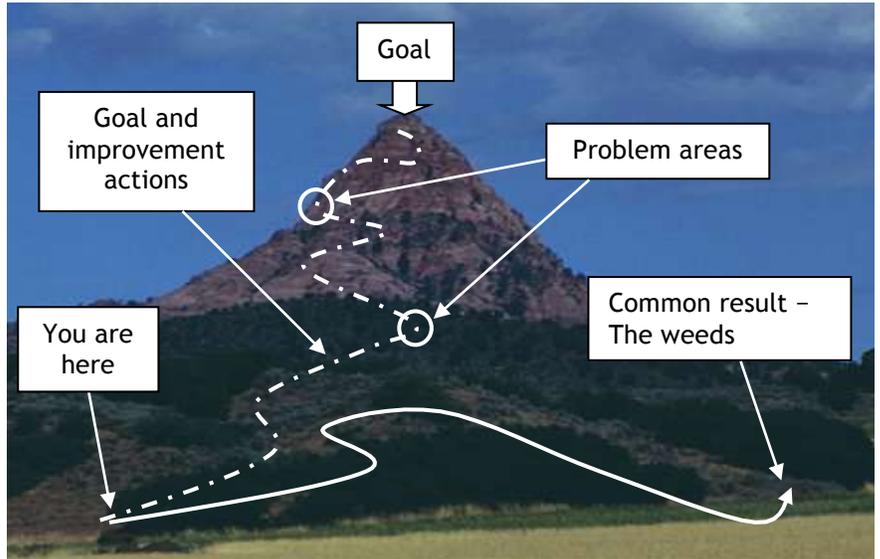
There are many positive aspects of Scrum. These include:

- Scope changes are managed.
- Small (1- to 4-week) iterations create team momentum and early feedback on progress and technical solutions.
- The Scrum process can be learned and used in less than 2 days.
- Daily standup meetings and burndown charts provide quick and easy project status.

### Sticky issue #1

Not all Agile/Scrum teams actually do Agile/Scrum.

There is a term in Scrum called "ScrumBut," which means, "I do Scrum, but I don't do \_\_\_\_\_," where the blank is some essential practice in Scrum. So if a team tells you that they are using Scrum (or



## GOAL-PROBLEM IMPROVEMENT

By Neil Potter and Mary Sakry

[Updated from 1999 article]

### Introduction

The most common approach for process improvement we have seen since 1988 is to document all processes and hope they get used. The premise is that progress is quicker if all-encompassing process documents are written and emailed to the organization for use.

This approach is amplified when an organization rushes to adopt a sweeping solution such as ISO9001 or the SEI CMMI<sup>2</sup>. In the light of a goal stating, "Be SEI CMMI Level 3 by December," the approach of documenting all processes is reinforced, and might even appear natural. In the picture above, the solid white line describes this approach. It starts, wanders around and ends, without reaching any specific goal.

### Goal-problem approach for scoping an improvement program

In the picture, one of the business goals the organization is trying to achieve has been highlighted. Examples might include the delivery of a product or service, the completion of a system installation, or the upgrade of a database. The goal could also be the desired outcome when a critical problem has been solved. For example, a critical problem might be the

<sup>1</sup> Scrum summary: <http://www.processgroup.com/pgpostmar09.pdf>

<sup>2</sup> <http://www.sei.cmu.edu/cmmi/tools>

| <b>Problems</b>  |
|--|
| 1. Requirements tracking not in place - changes to requirements are not tracked; implementation does not match requirements at test time.<br>[Level 2: REQM <sup>3</sup> – specific practices 1.3, 1.4, 1.5]               |
| 2. Loss of resources; difficult to replace people with specialized skills who leave the project.<br>[PMC - specific practices 1.5, 1.6 and 2.1, Level 3: OT specific practices 1.1, 1.2, and 2.1; TS generic practice 2.5] |
| 3. Too many features for the six- to nine- month development cycle.<br>[Level 2: PP – specific practices 1.1, 1.4, 2.1, 2.2, 3.1, 3.2, and 3.3, Level 3: RD specific practice 3.4]   |
| 4. Poor quality of in-coming code from other group.<br>[Level 3: IPM specific practices 2.2 and 2.3; VER specific practice 2.2; PI specific practice 3.1]  |
| 5. Inadequate availability of test equipment.<br>[Level 2: PP specific practices 2.2 and 2.4 Level 3: VAL specific practice 1.2]   |
| 6. Difficult to find defects early.<br>[Level 3: VER specific practices 2.2 and 3.1; generic practice 2.3]   |
| 7. Improve performance of core system.<br>[No mapping to CMMI]   |

Figure 1

inability to hit delivery deadlines, or the fact that 75% of the organization's resources is spent on rework. Related goals might be to meet deadlines 90% of the time, or reduce rework to 25%.

The goal-problem approach starts with a business goal (e.g., product delivery or improvement goal) and works backward to determine what improvement actions are necessary to achieve that goal. Here is an example.

During a client visit to help plan a process improvement program, we learned that the group was about to establish seven teams to work on the seven Process Areas of CMMI Level 2. We suggested that the practitioners and managers temporarily forget about Level 2 and state all the major problems they had. They were then asked to state the goals they were trying to achieve over the next six to 18 months. After one hour of discussion, they created a list of 23 items. A sample list of problems is shown in Figure 1.

The next step was to have the group compare the list of goals and problems with the topics of the framework they were using (in this case CMMI). In Figure 1 we have listed example practices from the model that specifically relate to each problem. The intent is to list a few actions to get started, not list every applicable practice in the model.

### **What was the scope of the improvement program?**

The scope of the improvement program was to address the problems and goals of the organization. 21 out of the complete list of 23 items (91%) map to CMMI Level 2. When all the goals and problems had been addressed, 46% of the Level 2 activities were implemented.

The key difference between this approach and addressing the seven Level 2 PAs in parallel is that the goals and problems tell you which pieces of each PA to address first. Regardless of the improvement model or standard being used, the goal-problem approach tells you how to scope and sequence your improvement program.

### **Dealing with items that don't match the improvement model or standard**

In Figure 1, not all of the problems in the list closely match the areas of CMMI. For example, there is not much in the CMMI to address problem #7 specifically. In this situation, one has to determine which areas are the most important for the organization to fix now. Serious problems should be worked on first.

### **What can be learned using this approach?**

There are three significant lessons to be learned from adopting the goal-problem approach:

1. The goals and problems help the organization identify which pieces of a process improvement model or standard to work on first. A model or standard should no longer be seen as providing an all-or-nothing approach, which often leads people to do everything at once, regardless of whether it is appropriate.
2. Any process document that is developed to solve a problem will be meaningful and useful. The process improvement team will be less tempted to gold plate the process, since its scope will be defined by a problem.
3. The motivation of the group to work on improvement issues will be increased. The improvements will be directed toward improving the group's ability to perform. Barriers to success will be solved systematically.

## Addressing all of the items in the model or standard

One of the primary concerns with this approach is that an organization will not address all of the items in the model or standard being used, since there might not be goals or problems related to all of the items.

When the first set of goals and problems have been worked, the next step is to repeat the cycle and determine the next set of goals and problems. This new set can then be compared to the remaining items in the improvement model or standard.

There will, of course, be situations where a few of the items of the model or standard are not used when solving a problem or achieving a goal. These items should be left until the end of the improvement cycle. At that time, one of two scenarios occurs. First, the outstanding items will be put to good use. It will become clear how to use them. Second, the items will be declared 'Not performed.' If this occurs, verify with your appraiser or auditor that this is an appropriate choice. You might or might not have missed a critical practice.

## Summary

Process improvement should not be an academic endeavor. It can be focused solely on solving problems and achieving business goals<sup>4</sup>. Use your goals and problems to guide your improvement activities.

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### <sup>3</sup>Definition of terms

IPM = Integrated Project Management  
OT = Organizational Training  
PI = Product Integration  
PMC = Project Monitoring and Control  
PP = Project Planning  
RD = Requirements Development  
REQM = Requirements Management  
TS = Technical Solution (design and implementation)  
VAL = Validation  
VER = Verification

<sup>4</sup>For a full description of this approach, see the book reference on page 4.

## Scrum Sticky Issues (continued from page 1)

Agile), then ask questions to determine if your team is really Agile or Agile-declared? They might be doing only one small aspect of the method.

### Sticky issue #2

#### Using Scrum in safety critical systems

Safety critical systems, such as medical devices, aviation and defense systems, expect specific practices to be performed that lower the risk of poor quality. If your Scrum team is only breaking its work into four-week increments, conducting daily meetings to track project status and doing nightly builds, then it won't meet typical safety-critical expectations such as requirements analysis, quality assurance, design for reliability, qualification testing, configuration management and traceability. These practices can be added to Scrum, but one cannot assume they are being done, even if the team members say they are following a defined process.

### Sticky issue #3

#### Scaling Scrum takes work

Scrum was initially designed as a lightweight development process for small co-located teams. It does not automatically contain everything you need to run a large team across multiple locations and time zones. To scale Scrum you will need to determine:

- How multiple Scrum teams will work together to manage scope changes, communicate interfaces, identify dependencies and coordinate status. The solution to this is often referred to as having a "Scrum of Scrums," where Scrum leaders meet as a Scrum team. However, this takes a lot of work when requirements and scope are in flux across numerous teams in different time zones.
- What level of documentation is needed and where it will be stored and updated for team use. A core Agile value is that documentation is less valuable than a working product. This is true, but in a large-scale team split across time zones, verbal communication is limited and error-prone.

## Summary

- 1) Scrum can co-exist with other development methodologies. Additional practices can be added to the Scrum method while maintaining the concept of developing small increments.
- 2) Beware that current Scrum/Agile teams might not be using the method correctly now.
- 3) Agile does not automatically scale up; work is needed to manage teams that are dependent upon each other.

# Practical Solutions for Your Current Challenges

Webinar-style sessions to save on travel, or onsite coaching to save on time.

- ❑ **Run your software development projects faster and incrementally.**  
Two-day workshop, AGILE SOFTWARE DEVELOPMENT (SCRUM).
- ❑ **Achieve more with your time. Make your staff more productive.**  
One-day workshop, TIME MANAGEMENT.
- ❑ **Understand how to save money, produce more and work faster.**  
Two-day workshop, DOING MORE FOR LESS.
- ❑ **Understand customer needs. Clarify product requirements early.**  
Two-day workshop, IN SEARCH OF EXCELLENT REQUIREMENTS.
- ❑ **Manage projects effectively. Meet project deadlines and reduce risks.**  
Three-day workshop, PROJECT PLANNING AND MANAGEMENT.
- ❑ **Meet project deadlines. Scope and estimate the project work.**  
One-day workshop, PROJECT ESTIMATION.
- ❑ **Avoid schedule delays caused by needless product rework. Find defects rapidly.**  
Two-day workshop, INSPECTION (PEER REVIEWS).
- ❑ **Hands-on SEI CMMI. Perform a CMMI gap-analysis.**  
The following workshops are available:
  - CMMI-DEV: Overview (1/2 day), LEVEL 2 (1 day), LEVEL 3 (2 days), Intro to CMMI-DEV (3 days).
  - Intro to CMMI-SVC (3 days), Supplement class (1 day), LEVEL 2 (1 day).
- ❑ **Identify critical changes to improve organizational results. Benchmark against the CMMI.**  
A PROCESS APPRAISAL examines your organization's current practices and generates a focused list of strengths and critical areas for improvement. Our SEI-authorized Lead Appraisers conduct customized CMMI-based appraisals.
- ❑ **Clarify and refine business/project measures and analysis.**  
One-day workshop, MEASUREMENT AND ANALYSIS.
- ❑ **Systematically evaluate decision alternatives.**  
Half-day workshop, DECISION ANALYSIS AND RESOLUTION.
- ❑ **Goal/problem-based improvement.**  
Two-day workshop, MAKING PROCESS IMPROVEMENT WORK.
- ❑ **Manage your suppliers.**  
One and one-half-day workshop, SUPPLIER MANAGEMENT.
- ❑ **Tailored assistance. Dedicated phone-based assistance.**  
This service consists of customized education and coaching on your specific problems (e.g., meeting deadlines, quality and cultural change).

Detailed information is available at [www.processgroup.com/services.html](http://www.processgroup.com/services.html).  
Contact us at **972-418-9541** or [help@processgroup.com](mailto:help@processgroup.com) to discuss your needs.

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Here is the book's Table of Contents:

Foreword by  
Karl Wiegerts

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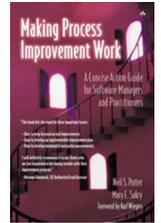
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Appendices

References



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