

Chapter 9. **Lean**

How are Lean best practices applied to the process?

In this chapter, I map Lean best practices for maximizing value and minimizing waste to the Quality with Agile process.

Lean identifies 7 types of waste and 5 types of improvement. This section briefly describes how the Quality with Agile process can be used to minimize waste and improve performance of development by using the following recommendations for eliminating unnecessary work and speeding up tasks used in the process.

The 7 types of waste are named inventory, motion, over-production, over-processing, transportation, unused talent and waiting. The 5 types of improvement are named sort, set in order, shine, standardize and sustain. Each waste type and improvement is described in terms of how they apply to a software development life cycle and in particular, the Quality with Agile process

9.1 Inventory

Inventory waste is concerned with creating components that may never be used. An example would be writing documentation without identifying who needs it.

The Quality with Agile process discourages waste by recommending that work be performed only on user stories that are derived from prioritized epics or required by the development team. User documentation is written for a specific audience.

9.2 Motion

Motion waste is concerned with the movement of a person between one system and another. An example would be someone using a search engine to find a user story that is a child of an epic when instead the story could be directly opened from a link within the epic.

The Quality with Agile process encourages a well-organized and groomed backlog that saves time locating user stories. Related and dependent backlog items are connected with hyperlinks. Analysis work is located in a single model that is structured such that everything is organized and easy to find. A document repository should be organized to minimize use of a search engine to find the appropriate documentation. Use an item naming scheme that helps to find an item by its name.

9.3 Over-Production

Over-production waste is concerned with work that is done but not needed at this time. An example might be detailing low priority user stories more than 2 sprints ahead of time. Instead of working on user stories that may never be realized, the time might be better used to update the model, clean up the document repository or fix traceability.

The Quality with Agile process discourages over-production by detailing user stories just in time for a sprint. User documentation is produced just in time for a release.

9.4 Over-processing

Over-processing waste is concerned with adding steps to the process that may not be necessary. An example might be adding acceptance criteria to user stories when the developers do not use them. If the project team is comfortable with reading the model, there may be no reason to detail user stories. If possible, do not duplicate information.

The Quality with Agile process adds activities to the Scrum process. Over-processing is eliminated by removing any of these activities where they do not provide benefit to delivery of the final product.

9.5 Transportation

Transportation waste is concerned with movement of information between 1 system and another. An example might be converting acceptance criteria into test cases. An improvement would be a tool that automatically generates test case skeletons from acceptance criteria.

The Quality with Agile process minimizes transportation by encouraging an integrated toolset. In this manner, information is not copied from one tool to another. (Ideally, acceptance criteria could be automatically generated from activity diagrams.) Consider user stories formats that might easily be converted to instructions for user manuals, such as documenting user stories from use case steps. The use case sequence steps are easily converted to instructions for a user of the system.

9.6 Unused talent

Unused talent waste is concerned with the failure to make the best use of people skills in an organization. An example might be that of a designer being assigned to management tasks, while there are management resources that are not being fully utilized.

The Quality with Agile process encourages using experts in roles that are responsible for the deliverables from activities. A UI designer is an expert at

designing user interfaces. A solution architect is an expert at building system architectures. A deployment manager is an expert at deploying systems. The business analyst is an expert at eliciting and documenting requirements. A product owner is an expert in the industry of the business. A writer is an expert with technical documentation. Quality assurance teams are experts at finding defects. Scrum development teams are experts at writing software. That does not mean that people cannot change roles as demand for a role increases. Everyone plays a role that makes use of their expertise by default, and everyone assists with other roles where extra work is needed.

9.7 Waiting

Waiting waste is concerned with time that a component spends in a state with no progress occurring. An example might be that of a user story waiting for approval before it can be set to a ready-for-dev status.

There is a lot of waiting in the Quality with Agile process. A user story cannot be pulled into a sprint until it has been prioritized. A developer cannot work on a user story until it is pulled into a sprint. Testing cannot occur until an incremental build is available to test. The deployment manager cannot release a product until an incremental build has been tested. However, resources are never idle because there are several builds occurring simultaneously, all in different states. While a build is in development, a previous build is being tested and the subsequent build is being specified. In this manner, resources are always occupied.

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- ♦ **In my experience, many user stories spend too much time in the product backlog in a draft state. Very old user stories could be archived in a separate backlog, so that they do not interfere with items being considered for upcoming sprints.**
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9.8 Sort

The sort process improvement is related to organizing and removing unnecessary items so that it is easier to find stuff.

The Quality with Agile process includes a Groom Backlog activity that makes it easier to find and manage items in the product backlog. A similar principal applies to all repositories used in the process. During Maintain Requirements, the model is groomed to remove unnecessary use cases and data. Repository grooming includes:

- Removing unneeded epics and user stories from the product backlog.
- Cleaning up the model to remove use cases, activity diagrams and data that is related to unneeded user stories.
- Remove test cases from the test case repository that are derived from user stories that are not used.

- Archiving documentation that is no longer relevant to the product.

The less information you have to work with, the faster it is to find what you are looking for and the cheaper it is to store and organize it.

9.9 Set in Order

The set in order process improvement is related to putting items in their optimal place so that it is easier to locate stuff.

The Quality with Agile process encourages the use of tools to assist with organizing information. Make sure that a workable structure is built into the tool before you start populating it.

The product backlog allows you organize work items into epics and user stories. It should also allow you to label items by type, such as 'defect' or 'research'. User stories may be organized by sprint, by priority or by unprioritized states.

A modeling tool allows you create views and populate those views with model elements of the appropriate type.

A test management tool should allow test cases to be organized by categories that benefit by Quality Assurance.

A documentation repository allows documents to be organized by folders and should provide versioning capabilities.

All tools should support traceability between items of different types in different tools, so that items of all types may be linked to each other.

9.10 Shine

The shine process improvement is related to keeping your workspace clean, so that you are not distracted by unnecessary or out of place stuff.

Using the Quality with Agile process, keep your toolsets organized by ensuring that the labels and views that are assigned to items are up to date and relevant.

As sprints are complete, the sprint view is removed from the Backlog. The current sprint is always viewable. User stories in a completed sprint are archived (but available for viewing). Labels and categories that no longer apply to backlog items are removed so that they can no longer be selected.

Model views are structured to reflect the current organization of the model. Retired packages have their components relocated to the appropriate package in the model. Old and temporary packages and components that are no longer relevant can be archived. Unnecessary labels (stereotypes) and data types are removed so that they can no longer be selected.

The documentation repository could be organized to match the structure of the solution. When documentation is organized by products and subsystems, the structure should be kept up to date as the product architecture changes.

Similarly, the structure and configuration of testing tools is maintained to be consistent with the current project organization and system architecture.

9.11 Standardize

The standardize process improvement is related to defining processes for sorting, ordering and shining, so that work becomes repeatable and tasks are not being re-invented.

The Quality with Agile process provides tasks for working with the backlogs, models and document repositories. As part of the Learn Lessons From Sprint activity, the team should discuss how the process is working, and how it could be improved. Consider improvements to the toolsets and to the way they are organized.

9.12 Sustain

The sustain process improvement is related to continuous education and training, so that best work practices remain up to date and they are continuously improving.

Make a plan to incrementally adopt and implement Quality with Agile process improvements. Create user stories that capture the adoption of process activities and their Improvements. Assign people to be responsible for implementation of process improvement user stories. Discuss process improvement during the sprint retrospective meetings and update process improvement user stories for the next sprint.