Optimizing The Flow

Process Improvements For High Performing Agile Teams

Paulo Caroli

Optimizing The Flow

Process Improvements For High Performing Agile Teams

Paulo Caroli

This book is for sale at http://leanpub.com/optimizingtheflow

This version was published on 2015-07-09

Tweet This Book!

Please help Paulo Caroli by spreading the word about this book on Twitter!

The suggested hashtag for this book is #AgileFlow.

Find out what other people are saying about the book by clicking on this link to search for this hashtag on Twitter:

https://twitter.com/search?q=#AgileFlow

Also By Paulo Caroli

Fun Retrospectives

Direto ao ponto

To the point

My special thanks to Patrick Sarnacke. Pat and I worked together on the first five chapters. Pat´s collaboration was essential for shaping this book: exchanging ideas, simplifying and improving the text.

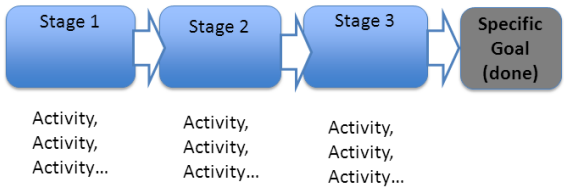
On the book you read we or us, meaning Paulo and his amazing coworkers who reviewed this work.

Contents

Workflow

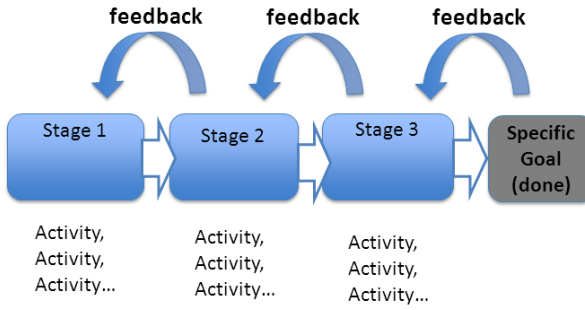
Intro to workflow

A workflow is a sequence of steps or connected work stages and work activities performed by a person or a team, to accomplish a specific goal. A sequential workflow is a workflow where each stage of the work is dependent on the preceding stage. In this case the completion of the activities on a preceding workflow stage controls the advancement of the work to the next workflow stage. The figure below represents a sequential workflow. In this book we use the word workflow as a synonym for sequential workflow.



Sequential workflow representation

A workflow typically has feedback loop between adjacent work stages. This is an effective mechanism to improve the workflow. The subsequent stage is the consumer of the work from the previous stage. Therefore, the subsequent stage is the best source of feedback for the work it consumes.



Workflow feedback loop

A manufacturing production line is an example of a workflow. The image below shows the Boeing 737 manufacturing line. In this example, the work (the aircraft under construction) slowly moves along an assembly line through all the work stages, where different activities are performed by a person or a team. Parts, equipment and tools are available at each work stage.

the Boeing 737 manufacturing line

The video for manufacturing the 737 Boeing [1] depicts very clearly the workflow work and work itself.

Another example of workflow is the creation of an e-commerce website. This workflow would have stages such as analysis, coding, testing and deploying. These two sample workflows–the aircraft manufacturing and the e-commerce website creation–have different workflow representations. The aircraft is built on a physically moving assembly line. The working team, parts, equipment and tools are made available at the required workflow stages, and the item under production –the aircraft– physically moves through the workflow stages. You can see the work as it moves along the workflow. On the other hand, the e-commerce website creation does not have physical parts moving along an assembly line. Yet it is still a workflow. For such cases, we can create visual representation of the work, and the workflow stages. The chapters to follow go in details on software development work stages, and visual representations of its workflow.

Brief history

The modern history of workflow can be traced to Frederick Taylor. At the end of the 19th century, he created the Scientific Management approach (also known as Taylorism). His approach intended to improve organization of work and labor productivity by analyzing and establishing workflow processes. His approach was documented and applied mostly in the context of manufacturing.

Since its creation, the Taylorism has had a huge impact on organizational structure, management and the workforce. However it has been often criticized, most commonly for: emphasizing the individual instead of groups or teams; leaving no room for individual preferences or initiative; treating people as machines; and

[1] The video is available at YouTube.com (search for "Boeing 737 manufacturing"). You can also find it at http://www.caroli.org/boeing-737-manufacturing/

separating planning from execution. As a response to some of these criticisms, newer workflow improvement theories have been implemented in the modern workplace. These include: Six Sigma, Total Quality Management, Business Process Re-engineering, and Lean Thinking.

The ideas of Taylorism have also influenced software development. Similar to the innovations above, Agile is a reaction from the developer community to the application of traditional industrial practices that have been standard since the 70s.

Workflow example

Let's take a look at another simple, yet effective, workflow example: ordering coffee at the Starbucks coffee shop. Ordering coffee and building software are fairly different processes. However, the simplicity of the coffee shop example provides us an effective way for explaining key concepts, relating it to the card wall, and exploring Agile thoughts. A few sections of this book will refer to this example.

We have selected the Starbucks coffee shop example for a few reasons. First, most programmers drink coffee daily, and many of us have spent plenty of time at Starbucks. Second, the process of getting your cappuccino at Starbucks has far fewer variances than software development, which provides us with a simplistic example. Finally, the coffee shop example has been successfully used in other books on similar subjects. This either means that the book authors spend too much time in coffee shops, or that this example is a good way to introduce workflow concepts. We believe both are the case.

Below are the typical stages for ordering coffee at Starbucks. We will describe the stages based on Paulo's extensive experience of ordering cappuccino.

The Registry queue

When Paulo arrives at a Starbucks, he comes across a queue of people at the register.

Registry queue

Because of his previous experience with this workflow, he has a pretty good idea of how long it should take to receive his order. He will infer this time based on the number of people ahead of him at the register.

The register

Once Paulo reaches the register, he places his order. The cashier collects his money, and makes some marks on the empty cup. Then he places the empty cup at the area between the register and the barista.

Marked cup

Waiting for the Barista

The marked empty cup remains in the area between the register and the barista until the barista is done preparing the orders prior to Paulo's. At times, there is more than one cup in this area, and they form a queue of waiting orders. If the queue is piling up, the cashier will slow down the rate of which he takes new orders.

The Barista

Once the barista is done working on the previous orders, he takes Paulo's cup, reads the marks on it, and starts preparing the cappuccino. When it is ready, he places it in another area next to the

espresso machine. Typically the barista will call the name written in the cup.

Order is ready

Once Paulo hears his name, or notices his marked cup on the counter, he collects his cappuccino. Sometimes Paulo's cappuccino is mistakenly prepared with whole milk instead of soy milk. If that happens, the barista takes it back, and immediately start preparing the corrected (soy) cappuccino.

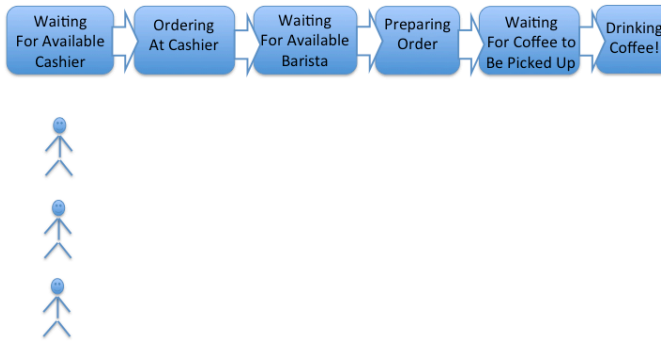
Order is ready

A Visual representation

Boxes and arrows can be used to build visual representation of workflow. There are a lot of ways to do it. Below is a basic diagram representing the whole workflow for ordering coffee at Starbucks.

Starbucks workflow

Let´s add a little more to the basic Starbucks workflow representation. Below is a sequence of visual representations for the workflow, as the order moves between the workflow stages. The cup location indicates the given stage of the order.



stage 1: Customer Waiting For Available Cashier

stage 2: Ordering At Cashier

stage 3: Waiting for Available Barista

stage 4: Preparing Order

stage 5: Waiting for Coffee to Be Picked Up

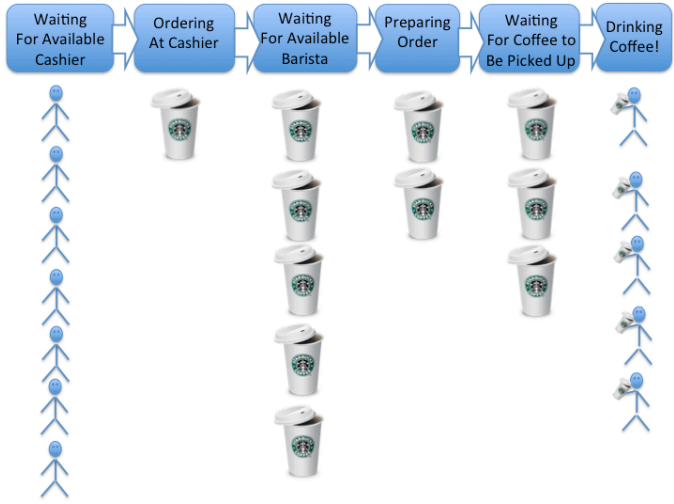
stage 6: Drinking the Coffee!

A Snapshot

The sequence presented follows the workflow for one customer's order. As it is usually the case, you are not alone at Starbucks, and several orders are in progress at a time. Following the same visual representation, below are two different snapshots for this workflow. They have been taken at different times at a given Starbucks.

Ordering coffee at Starbucks - Snapshot 1

In the diagram above, two customers are waiting in the cashier queue. One customer is placing the order at the cashier. The barista is preparing two orders, while two are waiting for the barista to be available. One order is ready waiting for its customer. And two customers are drinking their coffee.



Ordering coffee at Starbucks - Snapshot 2

In the diagram above, seven customers are waiting in the cashier queue. One customer is placing his order with the cashier. The barista is preparing two orders, while five are waiting for the barista to be available. Three orders are ready waiting for their customers

and five customers are drinking their coffee.

The Workflow snapshot diagram shows us how much work is in each stage of the workflow at a given point in time. We'll be revisiting the Workflow snapshot diagram in following chapters.