Storyboards for Agile Management

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Abstract: Agile has fast become the now preferred approach to project management. The traditional, sequential approach to project management is a formal, documentation heavy process to running and managing projects. The transition from a sequential approach to an agile approach to project management, has proved challenging. One of the key areas of concerns for project managers, has been how they could effectively monitor, track and forecast the project deliverables and progress within an agile approach to projects. Agile is a light weight, leaner approach to running projects, however in this, the traditional mechanisms by which a project manager could track the progress of work, is no longer available to project managers. However, the concept of a wall or a storyboard to highlight and track work, has proved incredibly useful for the project team as well as the project manager alike. The aim of this manuscript is to introduce agile and the way storyboards have evolved to become one of the most powerful tools available to project managers within agile projects.
Keywords: Agile, Storyboards, Projects, Project Management, Kanban, Scrum.

INTRODUCTION

There has been a steady but significant shift in how projects are delivered in today's fast paced and ever changing project landscape. Project's provide the avenue by which new and improved products and services are delivered to market.

The way projects were previously delivered was very sequential in nature. This sequential approach to project management is predominantly referred to as the waterfall approach to project management. However, the fast paced and online way society now exists has seen the advent of a leaner, change driven and iterative approach to project management. Agile project management is now by far the preferred approach to project management. It provides a leaner, and more agile way projects can deliver new and improved products and services to market ever more quickly and effectively.

Agile has taken on the role as the preferred and default project paradigm that organisations now turn to, when starting a new project initiative. With this comes its challenges. Being a relatively new paradigm, that is supposed to be lightweight, the management approach has been varied and informal. There is not a single approach to how Agile Projects are run. Agile Methods is a phrase used to define the numerous methods, or variants of Agile that exist, that are employed across organisations to date. Different agile methods are used for different types of projects, and different types of deliverables. Within each of these agile methods, different approaches are employed to navigate the light weight and iterative nature that agile projects support. The main goal of Agile Methods is to increase the ability to react and respond to changing customer, business and technological needs at all organisational levels [1].

Many techniques are used to manage the proposed work, the in-flight work and the work still yet to come. The main formal approach for doing this, is using a product backlog. For a project manager, a need to see how in-flight work is progressing and how the work is tracking is vital to understanding how well the project is tracking to its agreed time, scope and quality. One such successful technique that has been employed, that has been taken from the Kanban agile method, is the concept of a Story-Board. The Story-Board sometimes referred to as a Kanban Board or an Agile Story-Board, is one approach that has been successfully employed by organisations to track the proposed, inflight and still to come work.

The remainder of this manuscript will go as follows. The first section will look at the Agile Manifesto and how it helped pioneer the predominant usage of Agile as todays preferred approach to Project Management. The next section will look at two of the most commonly applied Agile Methods, Scrum and Kanban and some of the main highlights of these two Agile Methods. The next section will look at how a piece of work is managed through the life cycle of an Agile project. The next section will look at the concept

of a Story-Board, and how this has evolved over the last decade. The last section will draw the conclusion.

AGILE MANIFESTO

The Agile Manifesto was formulated by a group of dedicated, IT visionaries who perceived the agility and leaner approach to managing projects that was required, to support this new and constantly changing project landscape. Initially developed as a set of core values that would underpin the framework for delivering IT projects. The four values that define the very essence of the Agile Manifesto are provided below, as highlighted in [2]:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

The Agile Manifesto also introduces 12 principles that underpin the very essence of what the Agile Manifesto is attempting to achieve. Initially portray and utilised in software projects, Agile has since grown in popularity. So much so, that it has had a more profound and far more reaching impact than anyone could have imagined. As summarised in [3], agile is based on a set of principles that focus on customer value, iterative and incremental delivery, intense collaboration, small integrated teams, self-organisation and small and continuous improvements.

Projects are the framework in which new products, enhancements, migrations, legislation changes, upgrades delivered into an organization and its product offerings [4]. Today's project landscape has changed. No longer is it viable for an organisation to run a lengthy, documentation heavy and rigid project from start to completion. As highlighted in [5], A sequential approach to project delivery does not support change and is perceived as cumbersome and slow to deliver. The market place is changing too quickly, for organisations to be able to spare that much time, effort and cost in running such a formal and rigid project. That is why we have seen such a strong uptake of the use of Agile as a framework for running both software and non-software projects. It provides how a leaner, more efficient, and quicker project can be delivered, whilst embracing change. These are some of the key values that agile supports and can help provide through the Agile Manifesto principles. Providing the avenue by which projects can work efficiently and deliver good quality new and improved products and services to market.

However, what has puzzled many of the sceptics, is how is a project to be effectively tracked and managed using only four values and twelve principles as the basis. After years of formal stage gates and documentation heavy programs of work, how teams transition over to such a light weight and loose definition of how a project has been a keen area of interest. Organisations are facing loose definitions and guidelines by which Agile should be implemented. Leaving behind their traditional sequential waterfall approach which had very structural and formal guidelines in place, and instead moving towards this new agile way of working. As described in [6], the flexibility, simplicity and ability to get to market within smaller timeframes within deliverable components, has made agile the preferred approach to project management.

The Agile Manifesto introduced a new way of working, that has been embraced by software and non-software projects alike. The Manifesto provides the values and principles by which a project can abide by and embed in their day-to-day practices to support an agile way of working. To provide further guidelines and clarity and options to organisations, many Agile Methods have arisen over the past two decades which have helped to provide greater formality and a framework by which the Agile Manifesto can be supported, some of the more popular Agile Methods include Scrum, Kanban, eXtreme Programming. In the next section, we will review how Agile Methods have played a key role in assisting non-software projects establish practices and ceremonies to implement the Agile Manifesto within their organisations projects.

AGILE METHODS

Agile Methods are paradigms that if followed and implemented to support the principles and values that the Agile Manifesto advocates. As highlighted in [7], Agile methods have short but fast development life cycle and focuson iterative and incremental development, customer collaboration and delivery of lightweight working code; that is why, these methods are generally known as lightweight development methods. As described in [8], agile methodologies are widely implemented and used around the world. There are over 20 different agile methodologies and their types. Choosing and adaption of the methodology depends on project types, company and its employees. Two of the most popular agile methods are Scrum and Kanban. Scrum is the most used Agile Methodology, while the Lean-Kanban approach is perhaps the fastest growing Agile Method [9]. To highlight how popular Scrum has become, in 2011 it was observed in [10], that Scrum was being used in 75% of Agile implementations worldwide.

The term Scrum originates from rugby, in a management context the idea originated in 1986, when first introduced by Hirotaka Takeuchi and Ikujiro Nonaka as a new approach to increase speed and flexibility in product development [11]. Their idea focused in teams working together towards common

goals [12]. Scrum was then more formally been presented as a formal approach to software development and the management there of [10]. Scrum can be thought of as the three by three Agile Method. As highlighted in [9], Scrum has three roles (Product Owner, Scrum Master, Team), three ceremonies (Spring Planning, Sprint Review and Daily Scrum Meeting), and three artefacts (Product Backlog, Sprint Backlog, and Burndown Chart). Scrum promotes the use of timeboxed iterations, in order to deliver product outcomes in small, manageable pieces of work.

As highlighted in [9], Kanban is a Japanese term that translated literally means visual (Kan) and card or board (ban). Kanban, as a management method uses cards as visual symbols to trigger and control flow through a production process [12]. Initially introduced and used in the Toyota production system [13], to help create a visual workflow process, for managing production. It has since evolved and it is heavily used within both software and non-software projects. As highlighted in [14], Kanban systems are an approach to scheduling work. It is perceived as a simple way to obtain the benefits of a lean approach to managing projects and their associated tasks. As highlighted in [12], Kanban creates a visible workflow in a process, showing all the steps of the process, omitting all that are unnecessary, and focusing on maximising value for the customer. As such the Kanban Wall is one of the more popular tools employed to manage Agile projects. As described in [9], the Kanban board provides high visibility to the software process, because it shows the assignment of work to developers, communicates priorities and highlights bottlenecks. Agile methods provide ways to develop quality software quickly and allow accommodating change requests at any stage of the software development process [15]. In the next section, we will review work management within a project.

WORK MANAGEMENT

Within a traditional approach to project management, each stage of the project had clearly defined tasks and deliverables, for each project team member. However, within an Agile approach to project management, short iterative sprints are the norm, and no longer are there clearly defined project stages. Without clearly defined project stages, agile practitioners were faced with a dilemma, how could they continue to have visibility of how the project and deliverables were progressing without clearly defined deliverables. The old, large documentation heavy approach to project management was no longer viable, to support a leaner and more efficient way to deliver projects to market. As such, Kanban boards have proved useful and are becoming ever more popular in providing a means by which project managers are able to track in flight work, as well as the work backlog.

As highlighted in [16], the main differences of the traditional and agile approach can be classified in four groups: requirements & specifications (the level of detail at the beginning of the project), project scheduling (iterations and a rough schedule at the planning phase), team work (self-organised teams, daily meetings), and the client collaboration (the representative of the client as a regular team member). The focus of this manuscript is how project managers can competently manage the team work and project scheduling with the new minimal tools and data available to them in an agile project environment.

Unlike the traditional approach to project management, agile methods support an iterative approach to delivery. Breaking up the project deliverables into small manageable, sizeable junks of work that is delivered in timeboxed periods, commonly referred to as iterations or sprints.

A given piece of work will traditional navigate through the following key phases of delivery:

There is flexibility within an agile project, as to how the Inflight component of the project delivery can occur, it will traditionally involve an iterative, process, that will continue to loop
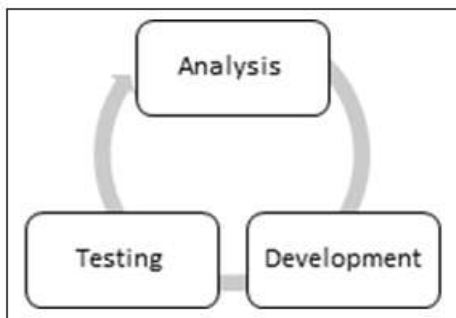
Development in this context, does not purely refer to IT software development, instead it refers to the inherent changes that need to be developed to support the new product, service, process change etc that the piece of work is aiming to provide.

This will continue to circle and loop through the three stages until the given piece of work is ready for delivery, hence the reference to an iteration, within agile methods.

The success of project delivery is a core dependency of an organisations' ability to grow, develop and to some extent even survive in the competitive world market place [17], and managing this to success is a key focus of a project manager. A project manager in the traditional sequential approach to project management was used to being able to quite closely and accurately manage the project work, that was both in flight and pending. This was due to a very structured and documentation heavy approach to project management. Within an agile approach to project management, the landscape greatly differs. The product backlog is the main source of truth regarding work pending, whilst the inflight work is harder to manage. This is where Kanban boards have proved useful and are gaining popularity, and fast becoming a key tool for managing and tracking workload. In the agile space, a hybrid board commonly referred to as a storyboard is used to manage and track inflight work.

This next section will review the usage of storyboards within the agile space.

AGILE STORYBOARDS
Agile is proving to be the go-to project framework for delivering projects, in today's constantly changing, online marketplace. Managing and having visibility of the inflight and future work load is a key aspect to the success of projects. As highlighted in [18], Project planning and control is a challenge for companies engaged in developing new products and/or technologies. Therefore, it has been a critical aspect of agile methods, that they provide a tool to support project managers in doing this role.

Kanban introduced the concept of Kanban boards, with much success. This has evolved, and a hybrid approach to the Kanban board, commonly referred to Storyboarding, is employed by many agile methods employed by today's organisations.

Story boards are proving a useful tool to manage two key aspects of agile projects. The two key management capabilities storyboards are proving useful to manage:
- Inflight work
- Work Backlog

Agile storyboards have evolved to meet the growing needs of agile project managers. Initially as agile began to gain popularity, agile boards were manually produced. A whiteboard, or a spare wall in the office, was dedicated to the concept. A matrix of sorts was drawn up, columns highlighted the various stages that the project needed to support its existing in-flight project. Often a swim lane concept is employed, where by swim lanes help to organise work items in horizontal lanes on the board [19]. Commonly referred flow steps include, but are not limited to:
- To-Do
- In Progress
- Sign-Off
- Blocked
- Done

Each day, during a daily stand-up, project participants would 'gather around the storyboard wall' to discuss, three main things:
- What they are currently working on?
- What they will be moving onto next?
- What, if any, blockers exist?

However, a physical wall was not always practical, there are two main concerns with this:
- Story cards would go missing, and fall off as people walked past, so the status of the wall could not always be guaranteed
- Dispersed project team, with a flexible team working environment and a globally dispersed workforce, a physical wall could not be updated and viewed by all project participants

The physical wall has slowly transitioned over to an online soft version of the wall. The status of the wall, could better be maintained. Also, all project team members can now access and update the Story Board as and when required.

Setting up a project Agile wall would entail:
- Defining the project stages e.g. To Do, In Progress, Blocked, Sign Off, Done
- Defining the project card e.g. Title, Summary, Description, Priority, Status, Reporter, Assignee, Iteration, Date Created, Date Closed, Links
- Setting up project team access
- Defining the Agile Story Board View

A soft copy of the Agile Story Board has been proved more useful. Along with greater accuracy and visibility by all team members. A soft version of the Agile Story Board, if set up and used consistently by all team members, contains a great deal of data that project managers can use to run detailed analytics and reporting. This reporting is proving useful to managing the current in-flight work, tracking the state of the project, and future planning for the project through to delivery.

CONCLUSION
Projects provide a critical way new and improved products and services are delivered to market. The old, sequential approach to project management was documentation heavy and provided sufficient visibility for project managers to easily track the progress and forecast the ultimate project timeframe and deliverables. However, there has been a steady but significant shift in how projects are delivered in today's fast paced and ever-changing project landscape.

Agile project management now the preferred approach to project management, it provides a leaner, and more versatile way projects can deliver new and improved products and services to market.

Being a paradigm, that is supposed to be lightweight, the management approach was initially varied and informal. However there has been a steady shift towards using Story Boards, a hybrid approach that has evolved from the initial Kanban Wall concept. The Agile Story Board is one approach that is proving successful, for organisations to track the proposed, inflight and product backlog.

As shown in this article, the evolution of the Agile Story Board from a physical manual paper wall, to an online soft version has proved important. As it has provided the capability for project managers to pull a great deal of data, and run analytics and reporting against, to successfully manage the current in-flight work and future work load.

Agile is a lightweight approach to both project management and project delivery. Agile Story Boards have evolved to be a useful tool by which agile projects can be monitored and managed to completion.

Future work is expected to undertake survey analysis of the types of key analytics and reporting that project managers can extract from Agile Story Boards.

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