

Agile Documentation

Dr. C Murdaca*

Research Centre, Spring Bud Pty Ltd, GPO Box 1771, Sydney, NSW 2001, Australia

***Corresponding author**

Dr. C Murdaca

Article History

Received: 22.05.2018

Accepted: 27.05.2018

Published: 30.05.2018

DOI:

10.21276/sjbms.2018.3.5.13



Abstract: Projects are a means by which new and improved products and services can be delivered. In today's digital, real-time marketplace, it is important that organizations are able to deliver products and services to market as quickly and efficiently as possible. A sequential approach to project delivery does not support change and is perceived as cumbersome and slow to deliver. In contrast, agile project delivery is adaptive and flexible. The agile approach to project delivery supports a differing mindset. A mindset that is focused on growth and delivery, in short manageable components, embracing and not rejecting change. Working within an agile project delivery framework is different, and requires project team members and participants to embrace a new way of working. A way of working that is focused on delivery through collaboration, and less of an emphasis on documentation.

Keywords: Waterfall, Sequential, Agile, Change Driven, Project Framework, Project Management, Documentation.

INTRODUCTION

Projects play a critical role in enabling today's organisations to deliver new and improved products and services to market quickly and efficiently. Projects are the framework by which new and improved products and services can become a reality. The evolution of the market place that organisations need to compete in, has similarly seen an evolution in the types of projects methodologies that organisations employ to help them deliver projects successfully.

A few decades back, waterfall or an in-house variant of the waterfall approach to project delivery would be the preferred project delivery methodology. Waterfall project delivery supported a sequential approach, allowing an organisation to monitor its progress through various vigorously monitored stage gates, where greater clarity and costings could be obtained. However, the ability to get to market quickly and the ability to absorb change along the way, proved problematic. Although not an issue initially, as today's market place has become more fast paced and online, it has created an environment that requires organisations to be able to deliver their new and improved products and services to market quicker and to be able to easily absorb change along the way.

In order, to meet this growing need of a more agile approach to project management, along came the Agile Manifesto, an attempt to bring agility and the ability to absorb change, in a new project delivery framework. The Agile approach to project delivery is as revolutionary as it is different. It supports small iterative phases of development, allowing an organisation to re-prioritise delivery items. The ability to get to market quickly and the ability to absorb change, is part of the key features that make agile more palatable in today's ever-changing project landscape.

In order, to support a paradigm that can deliver projects quicker in smaller increments understandably requires a lean approach to project delivery. A leaner approach to project delivery has a greater focus on collaboration and a lesser focus on project documentation. This is in strong contrast to the approach taken in the waterfall approach to project delivery, which is documentation heavy. The minimum level of documentation that should be employed to successfully support agile project delivery, is an interesting challenge faced by organisations as they try to navigate and embrace a more Agile way of working. The aim of this manuscript is to review the minimal documentation required for an organisation to deliver an agile project, successfully.

The remainder of this article is organised as follows. Section 2 reviews waterfall project delivery. Section 3 reviews agile project delivery. Section 4 reviews the different approach to documentation within waterfall versus agile projects, and the challenges that agile project delivery is facing in the advent of such a sweeping embrace of the paradigm. Section 5 draws conclusions and considers future work.

WATERFALL PROJECT DELIVERY

The waterfall approach to project delivery provides clear sequential stages in which a project will travel along its project journey. These stages of project delivery can be broken down into the following main six stages of project delivery:

- Initiation
- Analysis
- Design
- Build
- Test
- Implementation

These six stages of a waterfall approach to project delivery, provide clear milestones and

associated deliverables that need to be produced, before the project can move into the next stage of the project. This is important, as it helps ensure that each phase has clear exit and entry criteria. These exit and entry criteria for each stage gate, are often referred to as stage gates, and will traditionally be managed by an organisation's project management office (PMO). These stage gates are an avenue by which the project can be monitored to ensure it stays within the boundaries of its approved scope, time and effort.

These clearly defined steps within a waterfall approach to project management, allows each impacted party clarity around the stage at which the project is at, as highlighted in the table below:

PMO	Greater clarity and ability to monitor the project's performance against stringent stage gates and associated entry and exit criteria
Project Management	Focus on the management of each stage of the project sequentially, without needing to be clouded with multiple stages.
Project Team	Focus on the current stage of the project, with a strict adherence to approved scope, so minimal rework required, as change is kept to a minimum.
Project Sponsor	Clear visibility of how the project is tracking, at any point in time.
Stakeholders	Clear visibility of each stage, helps stakeholders to manage the level of engagement required of them.
Impacted Business	Clear visibility of the project's progress, its impacts, and how to manage the impacts to their business area.

As described in [1], the traditional project management involves very disciplined and deliberate planning and control methods. This approach to projects was ideal from an oversight and management

perspective, as it provided very clear stages and stage gates by which the project could be managed. However, the disadvantage of this approach to project delivery has been:

Duration	Due to the sequential nature of the project and the administrative and documentation heaviness of the project, means waterfall projects by their very nature are projects that take a long time to complete.
Flexibility	The sequential nature of the project delivery means the project is unable to easily absorb change.
Time to Market	The administration and documentation heaviness of the project, along with the sequential nature of the analysis, development and testing, means greater time is spent working on the full end to end project, and minimal gains can be obtained in the short term.
Administration Overhead	Project Managers spend more time working on ensuring all artefacts are delivered to meet the exit and entry criteria of the stages, and less time managing the project.
Documentation	The documentation heaviness of the framework, means project team members spend more time documenting, and less time collaborating. Reducing the effectiveness of the team knowledge and increasing the time it takes to deliver the project.

Unfortunately, today's organisations are faced with an online, real-time market place. It is through projects that we create improved business processes and new products and services as a response to changes in the business environment [2]. The ability to be and remain competitive is hinged on the ability to get new and improved products to market, quickly and ever more efficiently. As highlighted in [1], in traditional project management, the teams strive to finish the project on time and under budget and often lose sight of the overall benefits the entire effort is intended to bring the organization. As a result, of these disadvantages, companies initially sort to develop their own hybrid

approaches to project delivery that was an attempt to combat some of these disadvantages. However, with the underlying framework being a sequential approach to project management, the benefits still could not be achieved.

As highlighted in [2], the success of project's delivery is a core dependency of an organizations' ability to grow, develop and to some extent even survive in the competitive world market place. It is through projects that we create improved business processes and new products and services as a response to changes in the business environment. A mindset

change was required. No longer could a sequential approach to project delivery be sustained if organizations were to remain competitive in the ever changing, online market place. This next section will look at the Agile approach to project delivery.

AGILE PROJECT DELIVERY

The agile approach to project delivery was introduced as a powerful, yet alternative approach to a sequential way in which to delivery projects, that was initially targeted at the software development community, initially. The Agile Manifesto was formulated over a weekend which included representatives from Extreme Programming, SCRUM, DSDM, Adaptive Software Development, Crystal, Feature-Driven Development, Pragmatic Programming, and others sympathetic to the need for an alternative to documentation driven, heavyweight software development processes [3]. The resulting manifesto can be best summarized by its four key values, defined as follows:

- 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 changing dynamics of today's fast paced, online marketplace, has meant that for organisations within financial services to remain competitive and leading in their field, they need to be able to deliver their new and improved products and services to market, quickly and efficiently. More so, than what can be supported within a waterfall approach to project management. As a result, we have seen a steady shift, not only within software development projects, but across all projects undertaken within organisations. As highlighted in [4], successful organisations share a common feature: the ability to pivot and implement quickly in order to achieve competitive advantage. No longer are we seeing the traditional waterfall, phased approach to project delivery. Instead, Agile has become the preferred approach to project delivery for both IT and non-IT projects alike. As described in [5], agile adoption is a reality. The financial services industry provides a very good example of the success of agile as the dominating philosophy over the waterfall approach, and it is the agile "brand" value proposition [6]. Organization's across all industries are increasingly adopting Agile principles, and software engineers and other project team members are picking up Agile principles. A manifesto that was developed predominantly for software development, is quickly becoming the preferred approach to project delivery. As described in [7], today's organizations have embraced with vigour, the agile manifesto, a framework for delivering quality deliverables, quickly and efficiently in smaller incremental changes to market.

The agile way of working, has provided an avenue in which organisations have been able to streamline their project delivery, allowing companies to get to market quicker and with greater efficiency. Therefore, although the core principles of the agile manifesto are defined for software development, they have been eagerly embraced, and provide the core principles and foundations upon which non-software development projects are also now being worked on and delivered.

Agile project delivery is perceived as the game changer. Unlike the traditional sequential waterfall approach to project delivery, the agile project delivery embraces change, as the change-driven approach to project delivery. It provides a vehicle by which a project can be delivered in small, manageable chunks. Allowing organisations to build upon their new or improved product or service iteratively, ensuring it stays relevant and can support change along the way, if required.

Unlike the waterfall approach to project delivery, there are no clear sequential stages for a project to travel along its project journey. Instead Agile mainly consists of three main stages, as described below:

- Project Initiation
- Iteration Cycles
- Project Closure

Now, let us look in more detail, at how each of these stages are undertaken.

Project Initiation

Agile provides a great deal of flexibility in how a project can be undertaken, there are no hard and fast rules, that is why it is important that at the start of each project, how a given agile project will be run and the ceremonies that will be used, are agreed upon by all project participants.

During the project initiation stage of the project, the scope of the project is defined, and the associated product backlog is formulated and agreed upon. The iteration cycles are determined, along with an agreed set of agile ceremonies. Agile has several ceremonies that can be performed, however they may not all sort a given project, and/or the frequency of their usage may vary depending on the type of project being undertaken. Generally, a mix of the following ceremonies will be used by agile projects, daily stand-ups, iteration planning sessions, product backlog (re-)prioritisation sessions, showcases and retrospectives. Lastly an Agile Contract should be drawn up. This forms a project agreed list of actions and ceremonies that each project member agrees that they will participate and contribute to, as a valuable project team member, to give the project the best chance at achieving

its target and deliverables. It's viewed as a social contract that project team members are proud of, as it forms the basis of the work ethic that the team then works towards, to ensure successful of the project.

Iteration Cycles

Within an Agile project, each iteration cycle, will traditionally comprise the following core activities:

- Iteration Commencement
- User Story Definition & Analysis
- User Story Development (either from a system or process perspective)
- Testing
- Deployment
- Showcase
- Retrospective
- Product Backlog prioritisation
- Iteration Closure

Overlaying and underpinning these iteration activities will be the agile ceremonies that the project members will also undertake, such as the daily stand-up.

Project Closure

Once all the planned project iterations are complete, and the main product backlog items have been delivered, the project will naturally move into a project closure stage. The product backlog will be formally closed, any remaining items will either be deemed no longer required, too low a priority or will be moved onto another project.

All support activities will be transitioned over to a BAU (Business as Usual) process, with documented procedures and a formal handover performed.

Finally, the project artefacts will be archived for future reference and potential audits. The Agile school of thought, is based on four key principles

- People matter more than process,
- Deliverables matter more than documentation,
- Collaboration matters more than contracts, and
- Planning matters more than any given plan [8].

Although the Agile Manifesto has ushered in this new way of working, organisations have not had a clear view of how to completely transition their existing, proven methodology over to this agile way of working. This is particularly event in how much or how little documentation is required to support Agile iterations. There is a gap, which leaves ambiguity and no clear guidelines by which organisations can confidently define the level of documentation that is required to successfully support an agile project. This next section will look at the documentation required to support a successful Agile project.

DOCUMENTATION WITHIN PROJECTS

Organizations have attempted to align themselves with the agile delivery framework, and with that come challenges. At the heart of this alignment is the differing documentation deliverables that should be used to support this new project delivery framework. As described in [9], rapidly changing market conditions are requiring companies to shorten delivery cycles and become more responsive to customer expectations. In order to achieve this, a key challenge that organisations face is how to get to market quickly and efficiently, whilst still maintaining and tracking key project milestones and approval gates. How can this be supported though in a framework that requires its participants to be agile, and light in their approach to project delivery.

A dominant “lean” mentality was advocated with a view to minimising unnecessary work, particularly with regard to the creation of wasteful documentation. While this was misconstrued by many to mean “no documentation”, the discerning realised that this meant documenting only what was necessary and nothing more [10].

Waterfall Documentation

Within a waterfall project delivery framework, the core set of project delivery documentation focuses on three main key areas:

- Project Management Documentation - Documentation relating to the management of the project
- Registers - Documentation relating to the management of items that impact the project in the form of risks, issues, changes, and decisions
- Project Delivery Documentation - Documentation relating to the management of the actual project deliverable(s)

The minimum documentation associated with each of these three key areas of waterfall project delivery, encompassed at a minimum:

1. Project Management Documentation
 - Project Charter
 - Project Business Case
 - Project Management Plan
2. Registers
 - Change Control Register
 - Decisions Register
 - Risks & Issues Register
3. Project Delivery Documentation
 - Business Requirements Document
 - Functional Requirements Document
 - Architecture Document
 - Functional Specification Document
 - Test Management Plan

The above highlights the formal documentation that supports the successful delivery of waterfall projects. As detailed in [11] "predictive approaches typically call for formal documentation and representations".

Agile Documentation

Within an agile project delivery framework, the framework's focus on agility, means documentation is light. As detailed in [11], adaptive approaches favour defining requirements and designs through team interaction and gathering feedback on a working solution.

In stark contrast to waterfall, within agile, there are only two main areas that will generate associated documentation, that is:

Product Backlog

Agile project delivery is delivered in short iterative sprints that deliver small incremental deliverables to market, quickly and efficiently. At the heart of agile delivery, is breaking down a project into small, manageable deliverables. A product backlog is used to continually prioritized and re-assess the relevance and priority of each product backlog item. The product backlog is used to record, track and prioritise project scope and priorities. Any changes are added as new scope items in the product backlog, to be prioritised along with other remaining product backlog items. As highlighted in [11], mandatory requirements representations are often limited to a prioritised requirements list.

Agile Board

The project agile board forms the main key living and evolving project artefact within agile project delivery. Once a product backlog item is prioritised for iteration, the associated user stories will be documented and added to the project agile board, all related requirements, specifications; test cases will all be linked and managed within the agile board. Noting also, any decisions, risks, issues and changes that it spawns, will also be tracked with the user story and managed on the project agile board.

Note, how the above two items for agile that generate documentation are informal and fluid approaches to documentation. This is in stark contrast to the formal documentation that previously formed the backbone of the sequential waterfall approach to project delivery. In order to support a framework that focuses on growth and delivery, in short manageable chunks, within agile project delivery, priority instead is given to delivery and lesser emphasis is placed on documentation. Documentation is one of the largest mindset changes in the agile approach to project delivery. Agile software development methods and their proponents suggest 'just enough' documentation on agile projects [12].

Initially when organisations became to transition over to an agile project delivery framework, agile boards consisted of post-it-notes that were used to track in-flight iteration work. The post-it-notes would then be moved along the agile board to track the progression of work. The Agile Board would literally consist of either a large whiteboard or un-used office wall. However not only is the products and services being delivered and improved on as part of these projects, predominantly online, so too was the project and the project team. Diversely located, both locally and globally, it was not feasible to maintain physical Agile boards. In a short period of time, we have seen the transition of physical Agile Boards to soft online Agile Boards, accessible by all team members and stakeholders, regardless of which time zone they live in. This has had an important impact on the management of Agile projects, all work is updated real-time and accessible and visible by all. This next section will draw the conclusion.

CONCLUSION

The agile project delivery framework is providing organisations with an opportunity to streamline their project delivery, enabling organisations to deliver new and improved products and services to market ever more quickly and efficiently. Although the core principles and values of the Agile Manifesto were initially defined for software development projects, they have since evolved and been eagerly been embraced for IT and non-IT projects alike.

The agile framework has evolved to quickly be the most commonly employed project delivery framework in today's organizations. The agile framework supports a differing mindset. A mindset that is focused on growth and delivery, in short manageable components, embracing and not rejecting change. Working within an agile project delivery framework is different, and requires project team members and participants to embrace a new way of working. A way of working that is focused on delivery through collaboration, and lesser an emphasis on documentation. Documentation is minimal and captured during iterations, as part of the delivery of each small delivery component, not as large and cumbersome delivery manuscripts, as previously was required in a sequential waterfall project delivery framework.

This leaner approach to project delivery, places a lesser focus and emphasis is placed on documentation, instead the focus is on smaller, iterative deliverables, with an accommodating and iterative approach to project work and hence delivery. Documentation now forms part of the agile project board, as the project navigates through the various iteration cycles within the project. The agile project board initially was implemented across the majority of agile projects as physical boards to manage each iteration. This was not

practical with an online and diversely located project team. This has since transitioned from a physical board, to a soft, online version of the Agile Board. All documentation relating to each product feature is kept to a minimum, but nevertheless, is detailed against each product feature and story card. No longer are large documents, written months before development even begins used to manage the development and delivery of new and improved products and services to market. An efficient, effective yet minimalistic approach to documentation, to support effective agile project delivery.

Agile and Extreme Software Development, 1(1), 23-37.

REFERENCES

1. Hass, K. B. (2007). The blending of traditional and agile project management. *PM world today*, 9(5), 1-8.
2. Hass, K. B. (2005). The business analyst: the pivotal IT role of the future. Paper presented at PMI© Global Congress 2005 – North America, Toronto, Ontario, Canada. Newtown Square, PA: Project Management Institute.
3. Manifesto, A. (2001). Principles behind the agile manifesto. Retrieved July, 23, 2005.
4. Capturing the value of project management through organisational activity. (2015). Project Management Institute, Inc. PMI.org/Pulse Newtown Square, PA: Project Management Institute.
5. West, D., Grant, T., Gerush, M., & D'silva, D. (2010). Agile development: Mainstream adoption has changed agility. *Forrester Research*, 2(1), 41.
6. Rodov, A., & Teixido, J. (2016). Blending agile and waterfall: the keys to a successful implementation. Paper presented at PMI ® Global Congress 2016 - EMEA, Barcelona, Spain. Newtown Square, PA: Project Management Institute.
7. Lessing, E. (2017). Business Analyst Roles and Responsibilities - Where does it begin and where does it end? Available at: <http://business-analysis-excellence.com/business-analyst-roles-and-responsibilities/>.
8. Fewell, J., Jack, M., Prior, D., Rosado, P., & Tarne, B. (2009). Challenges in Implementing Agile Project Management. In *2009 PMI Global Congress-EMEA Proceedings*.
9. Cottmeyer, M., & Henson, V. L. (2009). The Agile Business Analyst Version One Simplifying Software Delivery.
10. Dingsøyr, T., Nerur, S., Balijepally, V., & Moe, N. B. (2012). A decade of agile methodologies: Towards explaining agile software development.
11. IIBA, A. (2015). Guide to the Business Analysis Body of Knowledge (BABOK) v3. *International Institute of Business Analysis*.
12. Hoda, R., Noble, J., & Marshall, S. (2012). Documentation strategies on agile software development projects. *International Journal of*