Measuring Agile Benefits Realization

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Abstract

This paper presents findings from a case study that sought to understand the effectiveness and the value add of Agile methodology in project management as well as its success. The study focuses on measuring and identifying Agile benefits realization. The research findings suggest that Agile Methodology has, to some extent, facilitated the achievement of project defined benefits. In addition, 'Agile Adoption', a 'Cultural Fit', and 'Process Maturity Level' are critical factors that directly influence the realization of benefits.

Introduction

Project success is indispensably critical for organizations to succeed in executing their strategies and implementing their visions. However, the definition of project success lacks universal acceptance or consensus. Project success can be defined subjectively by the organization and the project management teams. This research aims to define benefits realization as evaluating the benefits delivered by the project meeting the objectives of the organization. This evaluates how well projects deliver the benefits required by business strategies in order to meet wider business objectives and to create value.

Agile process is an iterative and incremental method used in project management. As a project management methodology, it seeks to create a product or service development in an iterative and highly flexible manner. Agile methodology for software development refers to a group of software development methods in which resolutions emerge through the collaboration between cross functional teams, thereby facilitating adaptive planning, ongoing improvement, and evolutionary developments that contribute to a rapid and flexible response to the changes. In the Agile Paradigm, every aspect of the development process is revisited and reiterated continually throughout the lifecycle of the project. The ability to permit the team to stop and re-evaluate the logistics of the project, thus allowing the team to easily navigate in a different direction, has contributed the most to the widespread use of the Agile methodology. The impact of the ability to 'inspect-adapt' to changes accorded by Agile methodology minimizes the time to market and the costs related to development.

Today more than ever, organizations are under increasing pressure to deliver promptly whilst yet remaining competitive and flexible. Agile processes objectives are to address an organization's needs to deliver rapidly. This methodology has evolved in response to the so called *heavyweight software development methods*, which have been argued to exert heavy governance and rigidity upon constituents and participants. Hence, lightweight methods, which later came to be collectively known as Agile

Methods, were championed. Carmel(1999) suggests that among the many benefits expected from Agile Methodology by organizations are 'time-to-benefits, overall quality and efficiency, and team morale.'

Despite the growing body of knowledge, available literature has scarcely challenged this assumption, thereby limiting the focus on the implementation aspects of Agile, adoption, and Agile in distribution environments. As a result, insufficient empirical studies have been dedicated to the benefits realization of Agile Methodology. In addition, the literature shows little evidence of issues faced by organizations as they try to realize benefits from Agile while trying to develop and enhance their Agile Maturity Level. Hence, a comprehensive review and analysis of benefits realized by the organization through adoption and implementation of Agile methodology are required to streamline potential benefits.

Literature Review

Arguments regarding Agile as a methodology in project management have emerged as scholars attempt to highlight the applicability of the method as well as its scope and limitations.

The management of distributed software development projects has more problems and difficulties when compared with the traditional (co-located) development. The reason for this, as identified by researchers and practitioners, is that in a distributed development, new variables and problems are added to the already complex challenge of software project management (Krishna et al., 2004). Distributed Agile projects continue to thrive as software companies have realized the advantage of global software development and production of high-quality software that is both responsive and inexpensive at the developmental front. Based on the challenges associated with distributed Agile projects, it can be concluded that Global Software Development are becoming increasingly difficult and complex to manage (Alzoubi et al., 2015). Cultural differences can also impact team collaboration and communication processes if not dealt with carefully (Agile Alliance, 2010). It is noteworthy that effective communication is a significant element in software production regardless of the development approach (Gill, 2015). In this case study, we hope to learn how Agile methodology has facilitated the realization of the defined business benefits. It also seeks to unveil some limitations associated with the method and demonstrate how these challenges can be overcome.

Research Methodology

The research methodology that is undertaken for this study is in coherence with the classic principles of qualitative research and corroborative conclusions. The central idea to any qualitative research is to ensure that the root causes and root processes (the *why*s and *how*s of the system) are assessed in a subjective manner rather than merely a statistical or factual manner.

In qualitative analysis, there is no discernible distinction between the process and the result. Moreover, the biggest advantage of using any qualitative method is that it wholly reflects the personal ideas of the participants as well as the researcher in contrast to quantitative analysis. Qualitative analysis is also known to bring forth synergetic contributions through interactive techniques of information gathering.

Research Question

The principal objective of this research is to investigate the extent, nature, and scope of the benefits realized through the adoption of Agile Methodology in a given project.

One of the most significant incentives for carrying out this investigation is the fact that there is a clear dearth of documented research assessing the realization of Agile Methodology benefits despite its widespread use. This research will, hence, primarily aim to address this issue through a variety of extensive qualitative methods of analyses.

Case Study Outline

This research is an in-depth analysis of a case study that is comprised of an IT project that employs the use of Agile Methodology. In essence, it is an exploratory study of a project executed globally across Australia, the United States, and New Zealand.

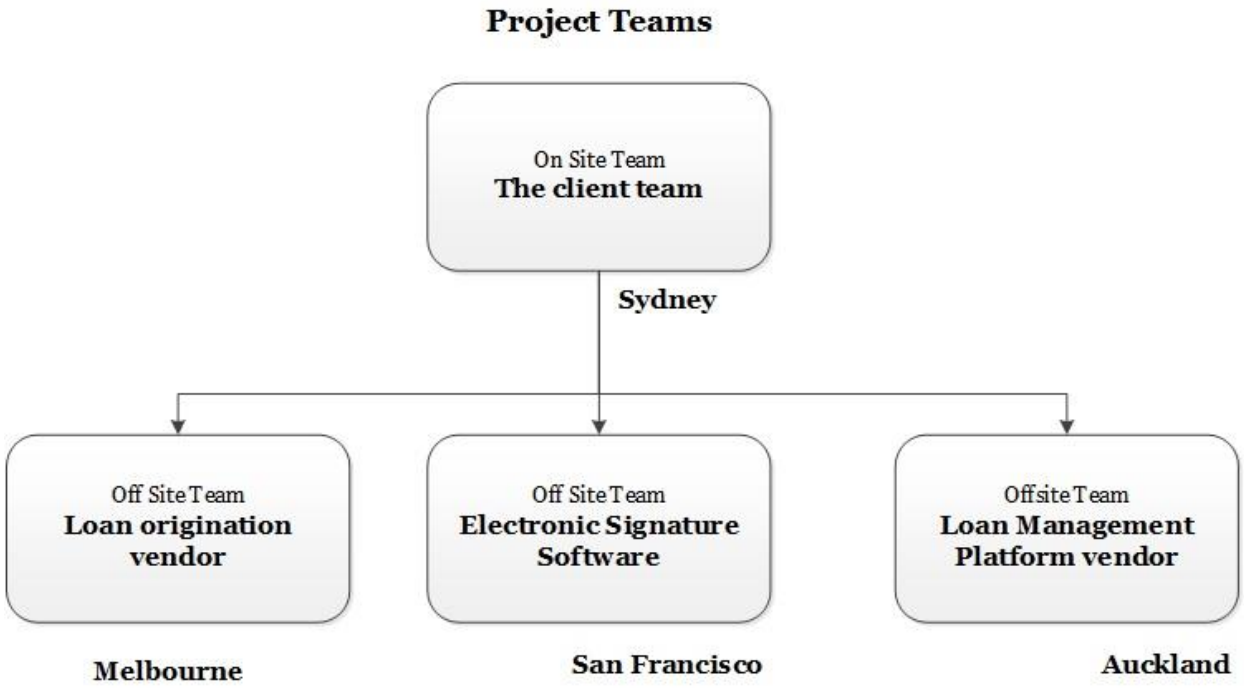

Figure 1: Case Study Team Structure

The salient aspects of this case study that will be probed are as follows:

Project Description

The organization in question for this study will henceforth be referred to as 'MAB'.

MAB competitors have increased their market share on consumer loans compared to MAB. A new class of "No Interest Ever" loan products launched into the market by MAB competitors require customers to apply for a loan of credit at the Point of Sale (POS) in order to get a Credit Decision on the spot.

MAB decided to release a similar product prior to the end of the 2014 financial year. The company was under pressure to maintain their competitiveness by launching a similar product as their competitors. The drivers to adopt Agile were:

1. Fast time to market and
2. Catch up with competitors.

As a result, MAB decided to launch a similar product with more competitive features in order to maintain a competitive advantage. The project's mission was to implement the product in the existing MAB system and processes and then launch the product in the market. MAB resorted to Agile because of the need to produce high-quality software that was relatively inexpensive and which used Global Software Development (GSD). In the present environment, software development organizations are actively seeking the combination of GSD and Agile methods as a potential solution (Alzoubi et al., 2015).

The research sought an understanding of Agile benefits realization. Agile processes objectives are used to address the organization's needs to deliver results rapidly. The business benefits sought in the project subject to this case study is (1) 'fast time to market' and (2) 'managing requirements volatility'.

The outcome of this research suggests that tangible 'hard' and intangible 'soft' benefits were gained as a result of the adoption of Agile Methodology.

Findings

Agile Benefit Realization

This research defines Benefits Realization as the process of identifying, executing, and measuring benefits. The Benefits Realization process enables the project to be defined and implemented, which in turn leads to the delivery of outputs and achievement of set goals. The benefits categorization used in this research elucidates the idea that there are both tangible and intangible benefits. Such dichotomization relates to different elements of the project outcome.

Hard benefits are defined by the project stakeholders as the tangible benefits that can be expected from the project. These benefits are defined upfront and mandated to the project. On the contrary, the soft benefits are intangible and are harvested by the experience of running Agile; however, they were often unplanned.

'Hard' Benefits

The hard benefits are the benefits that have a direct and usually quantifiable impact on the business outcome. They are the expected business outcome relating to 'fast time to market', 'catch up with compititors' and 'managing requirements volatility'.

'Fast time to market': The initial estimate was six months with a three-month contingency period. The project, however, required nine months to be completed. Twenty-one business stakeholders were surveyed and asked whether they consider the 'fast time to market' benefit achieved. Nineteen business stakeholders asserted their satisfaction concerning the fast time to market benefit with one stakeholder stating that '*this is a significant improvement on the way we deliver.*'

'Managing requirements volatility': An overwhelming dissatisfaction amongst business stakeholders regarding requirements volatility was observed. One stakeholder summarized it in the following words: '*We underestimated the level of agility we need. We assumed that our culture can cope with a loose process. However, this experience taught us what we did not know regarding Agile as we thought.*' Another stakeholder, presenting an extended view, opined, '*I don't think it is the volatility of the requirements. We underestimated the complexity of the requirements.*' In this case, an in-depth understanding of the complexity of the project and managing volatility requirements is critical for the success of the project.

'Soft' Benefits

The analysis indicates that some 'soft' benefits have been achieved through Agile Methodology: (1) cultural fit and (2) Agility improvement. At the end of the project, stakeholders belonging to a wide spectrum in IT and business expressed their satisfaction with the experience. One stakeholder stated, *'This is a good fit. We are dynamic and we prefer flexibility.'*

Cultural Fit: Arguably and invariably, Agile methodology incorporates an Agile culture. Numerous organizations have unique organizational cultures. It is clear that certain Agile methodologies fit well into specific organizational cultures but also conflict with others.

The organizational culture of MAB is characterized by the lightweight and the entrepreneurial mentality. They pride themselves on being 'flexible'. A manager explained, '*We have casual attitude in our relationships. We encourage collaboration and no bureaucracy.*' Agile Methodology encourages flexibility so that changes can be tolerated. Business stakeholders endorsed the collaborative, engaging, and 'dynamic' nature of the process. A stakeholder stated, *'I felt engaged and listened to.*'

However, during the project, some stakeholders, chiefly those from the 'Risk' and 'Compliance' sections, objected to the process and demanded a formal engagement and approval process, much akin to traditional processes. A stakeholder from the compliance division explained, *'We don't work this way! We have processes in place to follow. This is risky. It makes our job difficult.*' A stakeholder from the 'Risk' division explained that 'risks' cannot be assessed while working in this 'manner'. There was a consensus amongst stakeholders that the process needed significant improvement. The project sponsor

advised the formation of a 'working group' to implement an 'Agile improvement' process. He explained, '*We believe this is a good fit, but we need to tailor agility to fit our needs.*'

Agile Improvement

The Agile improvement process is a process that essentially revolves around constantly monitoring and adjusting the management and development needs of Agile across the organization. It is a continuous process that aims at improving Agile maturity level at the organization and cements Agile values. Since software development is growing substantially, there is a palpable need to continuously adjust and improve the development needs to make the products/services and the processes more iterative and flexible. The improvement of the underlying Agile process can directly benefit the quality of service and software. The need for improvement arises as a result of the complexity and rigidity of some projects. The increased need for collaboration and the elimination of bureaucracy are what compelled the organization to identify the need to improve and optimize their adoption of Agile.

There is a need for Agile process improvement so as to create an environment that is able to adapt to process improvement and the changing needs of the business. Agile process improvement facilitates the deliverance of more value to the business. It assists the improvement team to deliver quickly and yield maximum value with the utilization of minimal resources (a short time frame and limited budget). Improved Agile iterations enable frequent interactions between those that are involved in the improvement process, incorporating the customers into the change process to a much higher degree.

Factors Influencing Agile Benefit Realization

Agile Maturity Level, Distributed Agile Environment, and Requirements Complexity in understanding the Agile Benefits in their own rights will be among the key factors that influence Agile Benefits Realization to be discussed in this study.

Agile Maturity Level

Agile Maturity Level refers to the level at which the benefits of an Agile adoption fully crystallize in the organization. It involves identifying the adoption levels in the organization and indicating the Agile Maturity Level that the adoption process is currently at. A way of correlating the Agile Maturity Level is to measure the software development Maturity Level (Schweigert et al., 2013). Understanding the Maturity Level helps in the proper execution of the project as the project implementation can then be 'adapted' to a particular Maturity Level

In MAB, the project mission was to implement the product in the existing system and processes with an aim to launch the product to the market immediately. The findings show that the transition from a 'waterfall' project execution mindset to Agile was unplanned and abrupt, as the project teams perhaps didn't think it was necessary to manage a smooth and planned transition. The 'waterfall'-inspired project execution methodology that MAB employed earlier was phase-dependent, with each phase having specific deliverables that are inputs to the subsequent phases. The transition between phases is governed by a 'quality check' and the stakeholders' approval. A change to the requirements or the scope is managed by a 'change management process' where the 'change initiator' requests a change. The change must go

through an approval and assessment process. It has been noted from the meetings and discussions that change to the requirements and scope was not appreciated. The change requests were scrutinized and questioned. When a project manager was asked about his opinion on the 'change process' in place wherein, he explained that the process design was based on spending extensive time up front on the requirements' 'elicitation' before moving to the next stages of the project. This was observed to be in stark contrast to the Agile Manifesto principle that encourages organizations to '*welcome changing requirements even in development*.' The 'waterfall' process is embedded in the MAB organizational culture. They are used as formal processes to move along the overall development of any project.

In a nutshell, for effective implementation, the transition to Agile adoption must be planned. Additionally, the level of maturity must be established before the organization begins the Agile adoption process. Identification of the organizational Maturity Level and conscious efforts to manage it in order to improve the effectivity of Agile adoption are, hence, milestones in realizing Agile benefits of any sort.

Distributed Agile Environment

In a Distributed Agile Environment, the collated Agile benefits of communication and collaboration are mainly lost when executing projects. One of the primary reasons for this can be cited as the inability of various project teams to work in 'close quarters' as they are scattered across countries and time zones. However, the Collated Agile model proves to be far more expensive compared to the distributed Agile environment. This necessitates the creation of Hybrid Agile and 'waterfall' Methodology to overcome these challenges.

In the recent past, organizations have become increasingly distributed at various levels. The distribution is either globally, locally, or a combination of the two. The level of distribution, however important for the 'well-oiled machinery' of the business, adds complexity to projects. The literature suggests that the distribution factor elevates the project execution complexity (Krishna et al., 2004). The Agile framework is thus designed based on the project teams that are co-located in order to account for the needs created by distribution, devolution of responsibilities, and the co-existence of 'levels' in an organization.

In MAB, the distributed environment nature of the project was no thoroughly looked at. To somewhat acerbate the matter, electronic communication between the teams was found to be inefficient. As a result, the SCRUM could not be applied in a distributed environment. To overcome this limitation, a representative of IT providers located outside Australia were brought on-site to participate and liaison the offshore teams with the 'in-house' experts. The process of liaising involved the use of phone conferences and video conferences that were organized to complement the SCRUMS. It becomes, therefore, very crucial to address the issues around distributed environment with caution. Agile adoption was found to function better when aligned with a distributed team so as to ensure efficient collaboration of activities and proper communication during the adoption process.

Requirements Complexity

The concept of requirements complexity has been known to carry highly specific connotations in various organizations. When looked at through a wider perspective, requirements complexity refers to the degree of sophistication and uniqueness associated with a given project. Requirements complexity also relates to

the *tightness* of the real constraints, the overall level of uncertainty in relation to the scope, and the approach to deliver that scope. It is a universally accepted fact that the requirements complexity dictates the rate of success of a particular project in any given organization to a high extent (Gordon and Curlee 2011). In other words, the way in which an organization anticipates, understands, and navigates the complexity of a project determines the rate of success. Where organizational projects have a high degree of uncertainty and tight constraints, the rate of success of that project is likely to be constrained regardless. In order to eliminate the concept of complexity and enable the organization to realize its full potential, the organizational members need to acknowledge the presence of requirements complexity and allow for even higher constraints as the project progresses. This not only improves the rate of success but also allows the organization to have a certain competitive edge over its competitors—a fact that all team members need to be aware of.

In MAB, the level of requirements complexity was not ascertained. The unknowns of the requirements were underestimated. Furthermore, few efforts were made to measure or account for the unknown requirements. In particular, the 'user stories' were not suitable for the complexity of the requirements since an in-depth analysis was not conducted. MAB did not go into the details of the requirements complexity. The user stories dived into more granular details without understanding the holistic picture of the complexity of the project, thereby missing the 'Big Picture'. The requirements approach was not structured, and the complexity was not considered, meaning that it was never addressed either. The assumption made that 'agility' will manage the complexity, incertitude, and unknowns was both inept and invalid. Notable is the fact that not all stakeholders were in agreement with moving to Agile. Some stakeholders preferred a structured phased approach. Qureshi and Alsulami (2014) argue that the focus on little documentation on the Agile process hinders the ability of the methodology to support large and complex projects. The Agile process places less emphasis on documentation and encourages collaboration (Turck et al., 2002). It has also been noted that Agile requirements and development of software evolve in parallel. They share neither a 'mutually exclusive' existence nor a cause-and-effect relationship as MAB anticipated.

To mediate complexity, the project decided to hybrid Agile and the in-house 'waterfall' process to address complexity and stakeholders' objections to 'less documentations'.

Discussion

The realization of Agile benefits, in contrast to the simplistic and partial views undertaken by the organization in question (MAB), is influenced by a number of factors. Most of these factors arise as a direct result of the nature of the project. There are also organization-specific factors that influence the realization of Agile Benefits.

1. **Inner-Organization Factors:**

   A. **Managing the Transition**

   The management of the transition from the current style of project execution to Agile affects the Agile benefits realization in a large capacity. This transition needs to be gradual and well managed rather than abrupt and sudden. Stakeholders across all concerned divisions need to

be made to participate in the decision to adopt Agile. Educational enhancement activities can allow for a better comprehension of this process across the organization. A warm introduction to Agile through a change of management plan can facilitate the overall transition. Senior echelons of management can advocate for, educate on, and evangelize the effects of this transition to gain consensus.

B. Cultural Fit

Much depends upon whether Agile can be implemented successfully in a given organizational culture. Agile is certainly not a cure-all remedy, and only organizations with compatible cultures can reap its benefits to a sizeable degree.

C. Degree of Agility

Agility is not a one-dimensional concept. Organizations tend to have deep-rooted methods of project execution, and the present degree of Agility needs to be accounted for before switching to Agile.

2. Project Circumstances:

Every project tends to bring with it a unique set of circumstances. For this particular case study, project circumstances entailed the handling of a distributed environment and complex nature of requirements. To ensure that such circumstances are taken into account:

a. A realization, acknowledgement, and comprehension of project circumstances and constraints is necessary.
b. Agile must be aligned to these circumstances and constraints (distributed environment in this case study).
c. Adjustments to the Agility Level in appropriate degrees are necessary in certain projects to meet the constraints.

Conclusion

Despite their widespread popularity, the benefits that organizations realize through the adoption and implementation of Agile are generally left to guesswork. Many times, benefits realized are not even quantified properly, making it impossible to maximize them. Further lack of available literature or documented case studies renders the whole preposition tenuous.

This research was undertaken to address this very concern and to get an insight into how Agile benefits realization can be managed to the best achievable degree by understanding and comprehending the transition to Agile in a systematic and well-managed way. The organization in question, MAB, provided a glimpse into how abrupt process execution changes to Agile can not only reduce the benefits realized but also diminish the possibility of goals of a project being met altogether.

Among various findings of this study, the most notable are the ones that manage to establish a correlation of sorts among the factors that influence Agile benefits realization and the ‘quality’ and ‘quantity’ of

benefits realized. They include project-specific factors (for example, distributed environment issues faced by MAB) and inter-organizational factors (lack of communication and/or consensus among stakeholders).

These factors, if and when managed well, can certainly maximize the benefits realized through the adoption of Agile Methodology.

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Adam Alami is a seasoned IT consultant with over 18 years' experience. Business Analysis and Project Management is his passion. His experience revolved around major business transformation projects. He is a versetail IT professional. He accumulated a wealth of cross industry experience with Tier 1 businesses in major projects in the areas of Enterprise Transformation, Integration, Migration, and Systems Modernization.

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