

Governance Arrangements for Agile Projects

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Abstract

Organisations find themselves in a rapidly changing business environment where their success and sustainability depend largely on their ability to respond to these changes timeously and effectively. Given that traditional project delivery elongated the time to respond to these rapid changes, organisations are opting for agile methodologies to deliver projects in order to keep abreast of changes. Agile project management allow for greater focus on business value, getting continuous feedback from customers and reducing release times. The processes are flexible and allows changes to be adapted if the customers or business needs are not met. However, this approach poses its own challenges when it comes to governing project delivery. It require control, responsibility and accountability.

The study seek to answer the question of what governance mechanism should be used in Agile Project environment to ensure responsibility and accountability toward the project outcome. From a quantitative perspective, a survey was used to gather data from key role players in the agile project environment, and they were analysed using descriptive statistics. While agile software project delivery is a growing trend to deliver projects, it still poses many challenges to various business stakeholders in measuring the value derived. The study has proposed a conceptual framework for governance of agile projects.

Keywords

Agile project management; Traditional project management, agile governance framework.

1. Introduction

Agile software development encapsulates various software development methods that work in an incremental and iterative way. These methods are formed based on continuous improvement, better communication by fostering collaboration, embracing and adapting to changing requirements (Agrawal, Atiq and Maurya, 2015:291). Traditional project management operates on following established plans, which are inflexible, and should these plans change, an approval process must be followed to cater for the changes (Collins, 2017).

In traditional project management, governance frameworks were in place to assist with the management of projects and bridging the gap between IT and the business. Müller (2009) defines the concept of governance as the combination of the value system, responsibilities, processes and policies that provide organizations a framework emphasizing the distinction between ownership and control for decision-making and managerial action to serve the best interests of internal and external stakeholders and the organization itself.

Agile projects by their nature are managed differently as compared to traditional projects therefore the current framework may not be suitable in an agile environment. However, agile projects still require much control, responsibility and accountability as it is the case with traditional projects.

Upon review of literature, much more work still needs to be done on agile governance as there is no governance framework that covers agile projects.

The question is what governance mechanism should be used in Agile Project environment?

2. Literature Review

2.1 Agile methodology overview

The agile methodology has been a growing trend to manage the complexities that come with software development projects (Lappi and Aaltonen, 2016:263). Organisations are leaning towards this methodology due to one of the

important principles of the agile manifesto, which is, satisfying the customer by delivering software that adds value. Alahyari, Svensson and Ghorscheck (2017:271) states that software development projects have always been characterized by late delivery and budget overruns which resulted in minimal value for the organisation and dissatisfied users. Extensive planning, development and management went into these projects yet the return on investment was not satisfactory to the investors. The agile methodology seeks to address this phenomenon and looks at providing customer satisfaction through early and continuous delivery of valuable software (Unhelkar, 2013:23).

The term business agility is widely used term lately that refers to the ability of an organisation to respond quickly to internal and external changes, this can be reactively or proactively, in an efficient and effective manner (Sa Couto et al, 2015: 1099). In his book Unhelkar (2013) states that business agility should cater for the many nuances of the organisation, such as their clientele, marketers, type and size, as well as geographical considerations. There is tremendous pressure for organisations to be agile for them to be able to deal with uncertainties, cease opportunities and identify threats in this environment where there is market volatility, uncertainties in the world economy and products having a shorter life cycle (Sa Couto et al, 2015:1100)

It can be argued that organisations are relying more on the use of agile methods as it brings about benefits that support business agility. These benefits include the risk of a project failing is reduced as a small increment of the software is delivered (Bass, 2016:1); improving interaction and collaboration (Kamei et al, 2017), and Unhelkar (2013) identifies that misunderstanding of requirements surfaces much earlier and the sponsor can terminate the project earlier and still have measurable benefits.

2.2 Agile projects versus Traditional projects

Waardenburg and van Vliet (2013: 2154) state that traditional software projects encompasses all software development methodologies characterized by a structured software life-cycle consisting of predefined phases, extensive design and requirements documentation. These traditional projects also have a low release frequency, typically a single release per six months or more. Where there are changes in requirements, it is only dealt with in the next release. Traditional approaches to project management are also described as methods that require a set plan where if there is any divergence, the project manager needs to communicate it and get it approved. During the development process, the requirements would have changed substantially (Collins, 2017:529).

Further research shows that with limited client interaction during the development cycle of a product, there is a risk that the client's needs and requirements may change and the product no longer meets their needs when the end of the cycle is reached. The agile methodology advocates for continuous feedback and active engagement with the client, which ensures the prioritisation of requirements and design of the product. Traditional methods are more concerned with the delivery of a product within a given timeline, within an allocated budget and a set schedule (Collins, 2017:52). Drawbacks of traditional methods include excessive re-work, lack of flexibility, customer dissatisfaction, and the potential for a project to be fully developed only to find technological advances have eclipsed the need for it (Serrador & Pinto, 2015:1041).

2.3 Challenges of the agile environment

Much research has been done on the benefits that agile provide for the organisation, however there is still a gap in research that addresses the challenges faced by agile practitioners. Agile is a very broad concept that is not easily defined and many have relied on the agile manifesto, the principles and its practices as a guide for implementing the methodology in executing projects. The Agile manifesto is not a strict plan or process but rather a statement of its values therefore leaving options to organisations on how to implement and use agile. Based on the organisations' interpretation they may or may not succeed in its implementation (Unhelkar, 2013:35).

In their research on agile concerns Gregory, Barroca, Sharp, Deshpande and Taylor (2016: 93) identify a few challenges that are being faced by practitioners which include: using agile in waterfall environments, IT being agile but business still has a waterfall thinking and the definition of 'done' was not aligned amongst the various IT teams and business. This misalignment in an organisation leads to the very project failures which Agile seeks to address.

The agile manifesto encapsulates four values, which are:

1. Individual and interactions over processes and tools
2. Working software over comprehensive documentation
3. Customer collaboration over contract negotiation
4. Response to change over following a plan.

In all the four values, the latter part of the statement characterizes the traditional software development like waterfall-based methods. Some of the challenges can be attributed to the mind-set change that is required to adopt agile and further research is still required to assess the impact of this change on individuals, the projects being delivered, the impacted customers and the organisation at large (Fowler and Highsmith, 2001).

The first value statement prioritises people and their interactions over processes and tools. This statement is also supported by the agile principles that advocate self-motivation of individuals and face-to-face conversations. Gregory et al, (2016: 94) identified some of the challenges faced by the people involved in the agile process and the themes identified include the fear developers have due to skill and business knowledge deficiencies, dependency on social skills, implications of the transferred decision making and lack of motivation from developers to use agile methods.

The second value statement gives lesser prioritisation to the writing of documentation in favour of working software. Drury-Grogan, Conboy and Acton, (2017: 255) examine how decision making is challenged with the absence of documentation and their study found that decisions are made on vague understanding of functionality which may lead to planning and technical decision being incorrect due to inconsistent data. Gregory et al, (2016: 98) found that from a management perspective there is a gap with regards to communication, where management prefers formal written communication while the agile teams prefer informal and verbal communication with less documentation.

The focus of the third value statement is collaboration with the customer. Lack of business involvement characterized by requirements gathering and prioritization, limited feedback from business regarding product usage by users, and channelling business knowledge through a product owner are some of the challenges identified concerning collaboration (Waardenburg and van Vliet, 2013: 2167). A mind set change is required from business for collaboration to work. Business presence and availability is critical in agile and the culture of defining requirements and walking away from the project until final product is delivered needs to change.

The final value, response to change over following a plan embraces changes regardless of when in the development process they occur. Due to agile promoting less documentation, changes are made to requirements and these changes are not documented leading to necessary information not being filtered down to the team (Drury-Grogan, Conboy and Acton, 2017: 249). In their work, Hochmuller and Mittermeir (2018) seek to understand why requirements change overtime. It could be that the requirements are volatile and cannot be foreseen however, it is possible that some requirements are elicited without much care because agile allows for changes. These sorts of requirements pose a risk in the future as the amount of rework can cause unnecessary cost explosions, and it is therefore necessary for stable requirements to be acquired from the beginning.

2.4 Governance practices currently used for agile projects

Project governance focuses on individual projects or a group of projects at a program or portfolio level (Joslin and Muller, 2015). Brunet and Aubry (2016:1598) see project governance as consisting of a value system in which project operate in, roles and responsibilities within the project, processes required to meet project objective and a set of procedures that need to be adhered to.

Project governance provides a framework that deals with supervision, monitoring, control and direction (Sa Couto et al, 2015:1100). Monitoring and control remains a critical factor for executives to know the state of IT in their organisations. Sa Couto et al (2015:1104) studies the relationship between current IT governance and business agility and uses COBIT 5 critical success factors (CSF) to measure this relationship. The outcome shows relationship between governance, strategic and IT alignment and business agility.

Manwani (2013) looks at the five IT decisions areas to assess governance in agile projects and how uncertainties affects governance, which proved the importance of executive stakeholder's involvement in managing uncertainties.

There are many challenges that arise with the structure and flexibility of agile methods. These challenges arise due to lack of IT governance instruments to manage control in agile environments (Lappi and Aaltonen, 2016:269). Control and monitoring in traditional projects has defined process in place, whereas agile puts emphasise on people instead of processes. Roles, responsibilities and communication, including reporting, are still burning issues concerning governance in an agile environment (Lappi and Aaltonen, 2016:268). Current research shows that organisations are highly dependent on the use of traditional governance methods as there is no framework in place to govern agile projects. The current governance framework does not address the monitoring, control and direction setting for agile

2.5 Governance framework for Agile Projects

In their research Vlietland and van Vliet (2015:64) identifies key areas that are a challenge in agile. These include lack of coordination, mismatches in the backlog, misalignment between teams, lack of automation, delivery that is unpredictable in relation to the commitment, and information not being visible. However, the research did not outline any governance framework that is proposed for future use, or that is currently being used. Vlietland and van Vliet (2015:64) suggests that future research for a governance framework should consider these challenges to develop a comprehensive framework.

According to Alahyari, Svensson and Gorschek (2016:271), the first principle of the agile manifesto states the importance of satisfying a customer through delivery of valuable software. Chikhale and Mansouri (2015:289) suggests that enterprise elements such as stakeholders, IT, business process and business strategy should be aligned to value creating capabilities which include building trust, commitment, shared leadership, identity and understanding. These capabilities form a basis for collaboration within and outside of the organisation, stakeholder commitment to the process and shared leadership to promote transformation and enable agility.

The disciplined agile consortium suggests these principles for Agile Governance (Disciplined Agile Consortium, 2014:18):

- Collaboration over conformance;
- Enablement over inspection;
- Continuous monitoring over quality gates; and
- Transparency over management reporting.

This report seeks to address the question concerning the governance arrangement for agile projects. It aims to propose a framework that will ensure that agile methods, its principles and practices are supported whilst ensuring that the organisation can assess that business objectives are met, IT and business strategy are aligned, there is metrics in place to measure progress, they are compliant and there are always continuous improvements in place.

To answer the main research question, what governance mechanism should be used in Agile Project environment, the following sub questions have been identified to answer the main research question:

Research question 1 (RQ1): Why are organisations using Agile?

Research question 2 (RQ2): What makes agile project management different from traditional projects

Research question 3 (RQ3): What challenges are unique to agile environments?

Research question 4 (RQ4): What practices are organisations using to govern agile projects?

Research question 5 (RQ5): How should agile projects be governed?

3. Methodology

Creswell (2014) defines a research approach as a plan and procedure for research that summarises the broad assumptions into detailed methods of data collection, analysis and interpretation. As part of the plan a decision must be made on which approach would be suitable to study the topic.

In this study, to address the defined research questions, the researcher first looked at a qualitative approach, this was done using a literature review. According to O'Leary (2014) literature review is a critical assessment of a body of knowledge including its findings, theoretical and methodological contributions. Neuman (2011) suggests that by conducting a literature review, the researcher avoids "reinventing the wheel" by trying to address the issue on your own. Reviews bring the researcher closer to the topic and helps gain a thorough understanding and insight into previous research, which relates to the research problem. The literature study for this research helped the researcher gain a better understanding on the agile methodologies, its benefits and challenges and the various governance arrangements that are present to administer both agile and traditional project management.

The researcher also used a quantitative approach to evaluate agile methodologies that are used in organisations, what challenges are faced with this method and who is mostly impacted by these challenges. We also sought to find from the study whether organisations have a governance framework that specifically governs agile projects. Surveys were used to support this approach as they gather information on the backgrounds, behaviour, beliefs or attitudes of the people who are involved in the completion of projects (Neuman, 2014).

4. Data Collection

Data collection was done through online surveys and the sampling technique was used to aid the research. Surveying provides a quantitative or numeric description of trends, attitudes or opinions of a population by studying a sample of that population (Creswell, 2014:13). The population for this study is all IT stakeholders who take part in the software development life cycle (SDLC) and the external business stakeholders who are impacted by IT. This sample best depicts the people who are impacted by a governance framework as it provides guidance on their tasks that need to be executed to deliver a project.

5. Results

The respondents were chosen from various organisations that have IT departments and have the core individuals involved in the SDLC. The first section of the survey was profiling the participant to ensure that the right candidate participated. This was done through two questions in the survey. Figure 1 paints a picture of the various industries the participant is distributed in. Figure 2 confirms the right audience participated in the study to get beneficial and relevant information to answer the research problem.

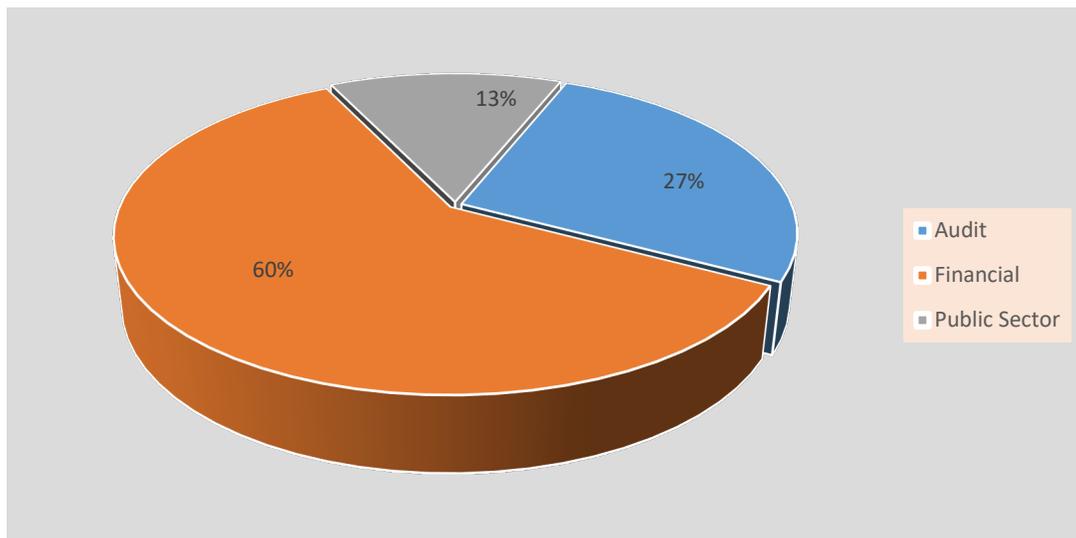


Figure 1. Participants per employment sector

Figure 1 shows the employment sector of the participants of the survey and the large corporations that they are employed by have started utilising agile methodologies. Many participants come from the financial sector showing the reliance on agile methodologies to deliver projects.

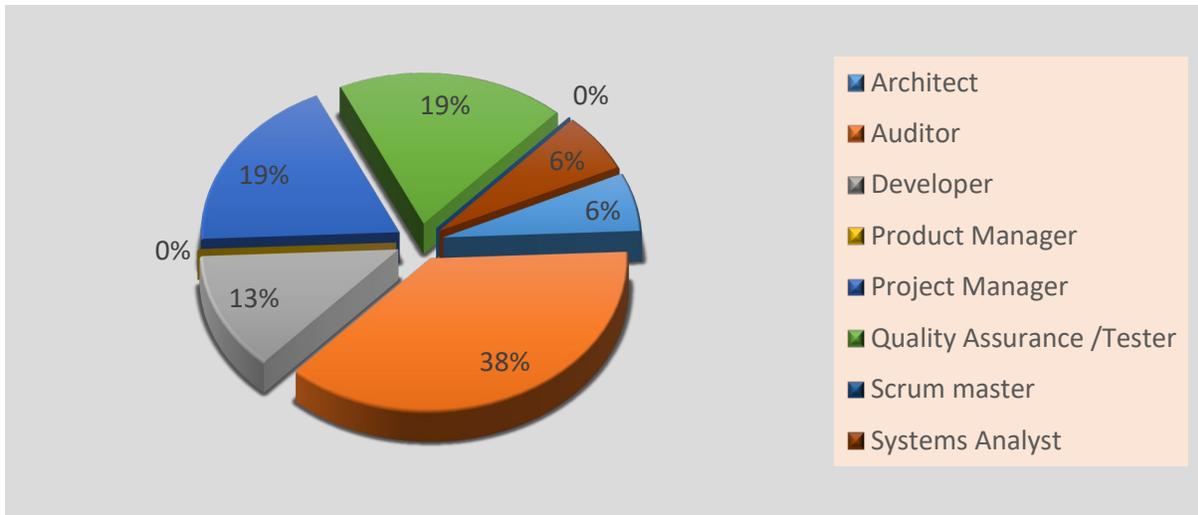


Figure 2. Role of participant in IT projects

Figure 2 depicts the role each participant plays in IT projects. This was to ensure that the right respondents participated in the survey. This also shows the various roles required and represented in delivering a project.

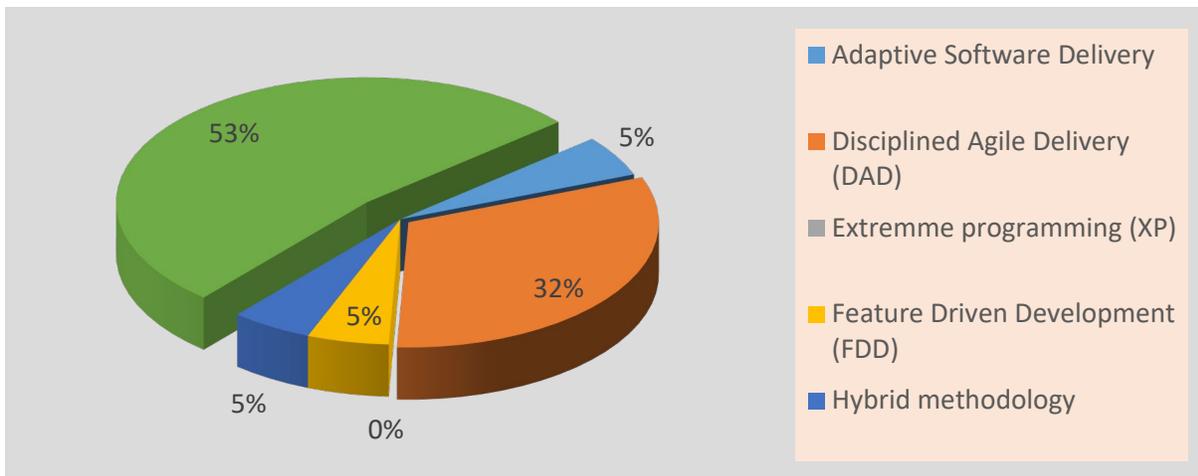


Figure 3. Various agile methodologies adopted by organisations

Figure 3 indicates that the various agile methodologies which organisations are using. Bass (2015) indicates that there are ranges of agile software development methodologies, which are being adopted, and they include Feature Driven development, Scrum, Extreme Programming (XP) and Lean Software Development. For the study, we had to ascertain that the organisations of the respondents are already on the agile journey.

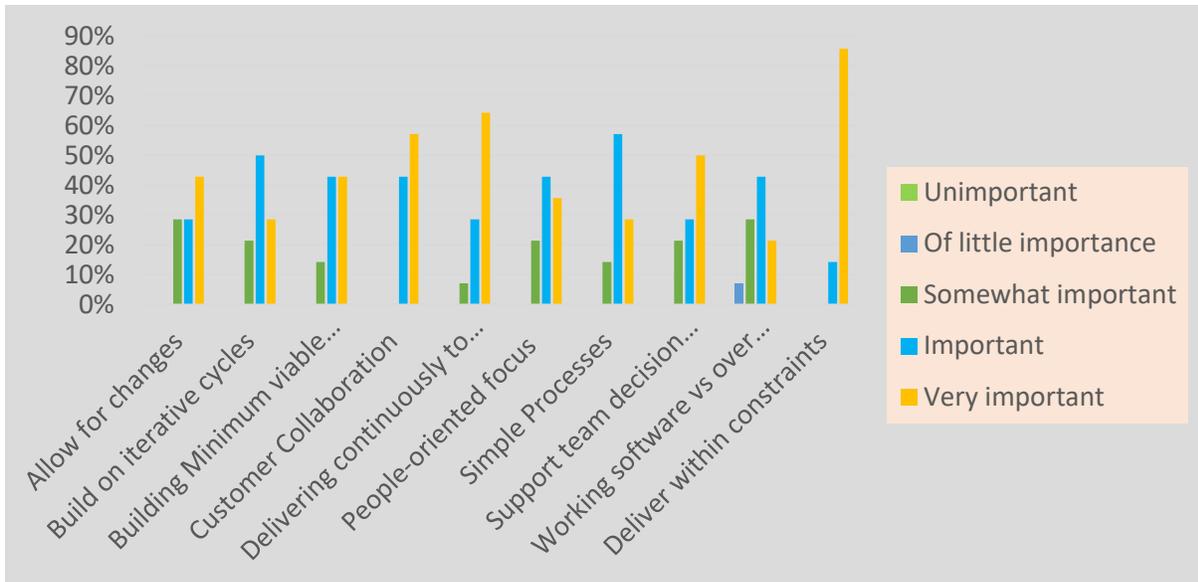


Figure 4. Agile efficiencies importance as perceived by respondents

The agile methodology is formed on a basis of an agile manifesto. The first key principle of the manifesto alludes to the highest priority to satisfy customers through delivery of valuable software (Alahyari, 2017). Figure 4 aims to get an understanding on the people's beliefs on the principles presented in the manifesto. The results show that most people have bought into the principles of the manifesto. However, these principles suggest a different way of working from the traditional methods. The literature survey attest to these changes as we have discovered that the four values of the manifesto deviate from the traditional way of working. Very few participants as seen in the results, have not truly bought into the agile methodologies as they feel certain values of the manifesto are less or somewhat important.

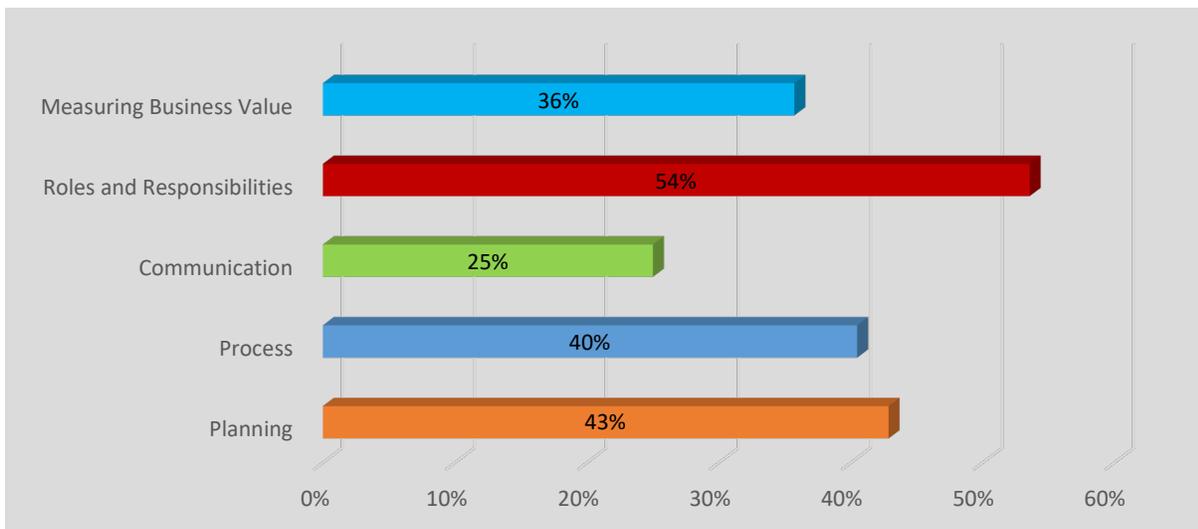


Figure 5. Challenges faced with the use of agile methodologies

The results in Figure 5 reveal that the most common challenges in agile revolve around process, planning and roles and responsibilities. The governance framework should aim to address these issues. Challenges around planning, lack of understanding of agile philosophy by top management and lack of focus on business value are some of the issues highlighted in the literature survey by Gregory, Barroca, Sharp, Deshpande and Taylor (2016: 100).

Interrogation of literature revealed that there are still some challenges faced with fully implementing agile methodologies. Gregory et al (2016: 93) state that as agile methods mature, agile practitioners and organisations are

experiencing new challenges. The challenges experienced vary area by area, as some organisations are far down the line and have resolved these challenges, for some the journey is still new and rocky.

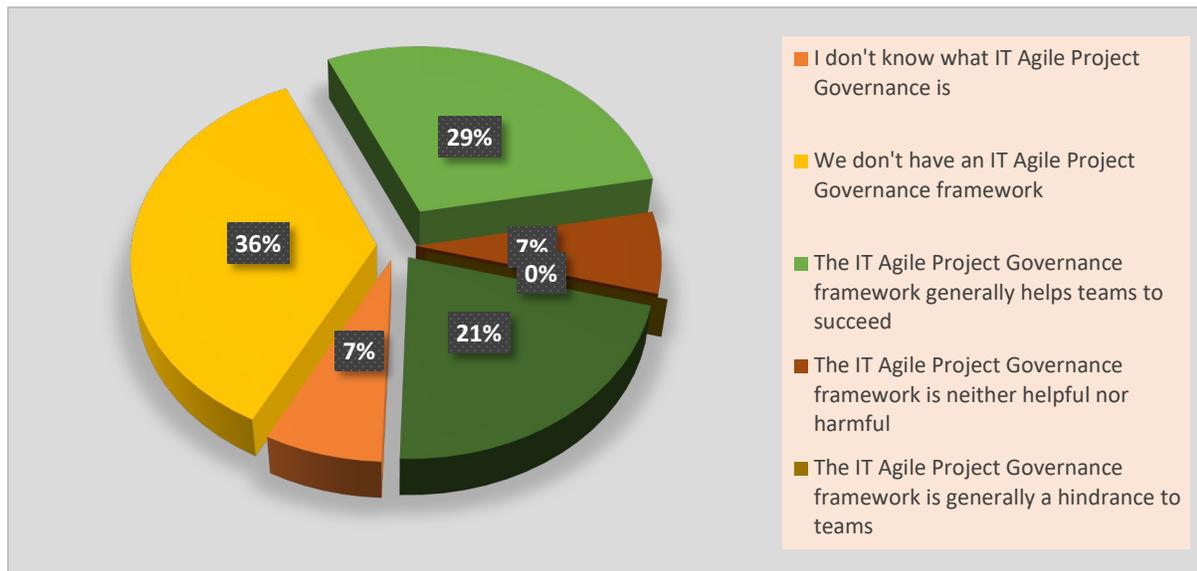


Figure 6. Agile Governance Framework existence in organisations

The participants were asked whether an agile project management governance framework exist in their organisations. Figure 6 depicts the existence of an agile governance framework in organisations. It has been highlighted that many organisations do not yet have a framework to deal with agile methodologies. Thirty six percent of the respondents indicated that in their organisations they do not have a governance framework in place to manage agile projects. Based on the results above there is a need for an agile project governance framework to govern projects. Kwete (2011) defines project governance as a subset or integral part of corporate governance comprising structure, system and processes that ensure strategic alignment, efficient delivery and sustainability. Agile methods are no different to traditional methods concerning having a governance in place; however, the nature of agile projects is different and cannot be governed the traditional way.

6. Discussions

The results from the survey have indicated that majority of organisations have undertaken the agile journey for delivery of their projects. It has also revealed that some IT practitioners buy into the values of agile. The agile methodology has various benefits for those who have mastered the art of continuous delivery and delivering business value.

While agile methodologies allow for flexibility in delivering projects, the survey has also shown that there are still various challenges that organisation are facing with the implementation of agile. An integral part of governance is that business and IT must always be aligned, and the interrogation of literature has shown that one of the challenges faced is the misalignment between business and IT. The misalignments stem from the miscommunication between business and IT as seen literature and responses from the survey. The miscommunication results in a disconnect between business and IT concerning daily progress, requirements, raising and managing risk timeously etc.

While surveying literature there was limited information on agile project governance frameworks and there is a desperate need to have a governance framework that can address these challenges. The results have shown that organisations do not have this in place and it could possibly help in overcoming some of the challenges that arise with trying to implement agile methodologies.

Based on the results produced from the survey and literature review, the common challenges stem around processes, planning, roles and responsibilities.

In earlier discussion, it has been mentioned that the study seeks to propose a conceptual framework for the governance of agile project. The modelling-by-design approach has been selected to develop the framework. The components for the framework were identified in the literature review and they are collaboration, continuous monitoring, enablement

and transparency. The key elements for each component were derived from the survey conducted. In figure 7 the results of the survey outlined the key principles of agile methodology and looked at the efficiencies that come with the use of agile methodologies. These principles and efficiencies guided the elements. The key elements have been mapped to the main components to provide a complete view. The framework also looked at the key challenges that IT practitioners face and were used to ensure that the framework addresses the challenges.

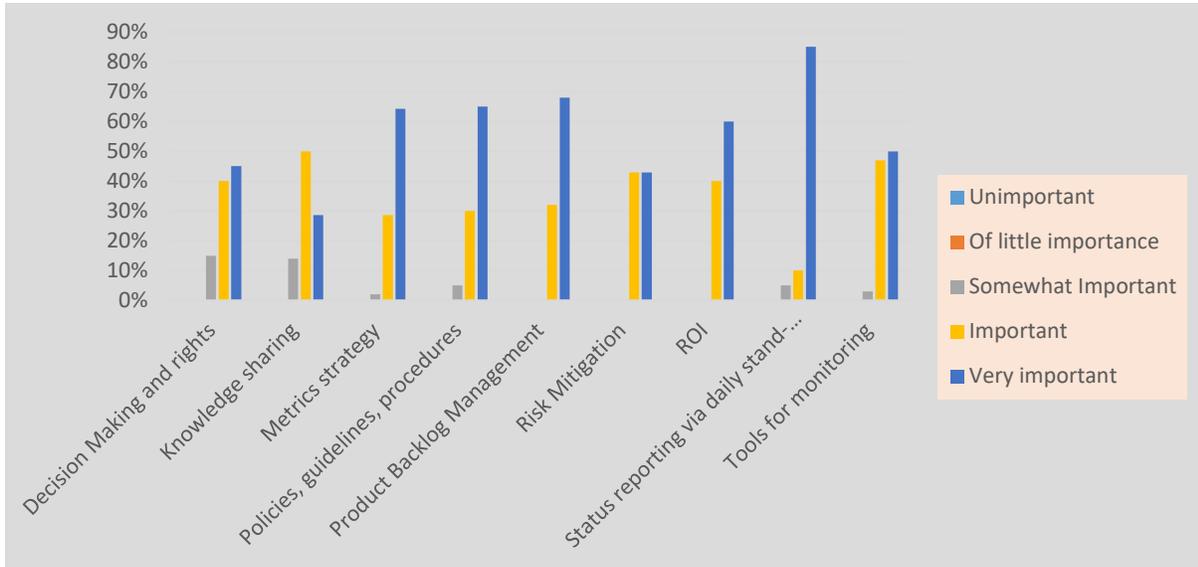


Figure 7. Key elements for the proposed framework

Figure 8 depicts the proposed framework, which still need to be expanded on as we do further research into how we address agile challenges. The key components contained in the framework are collaboration, enablement, transparency and continuous monitoring.

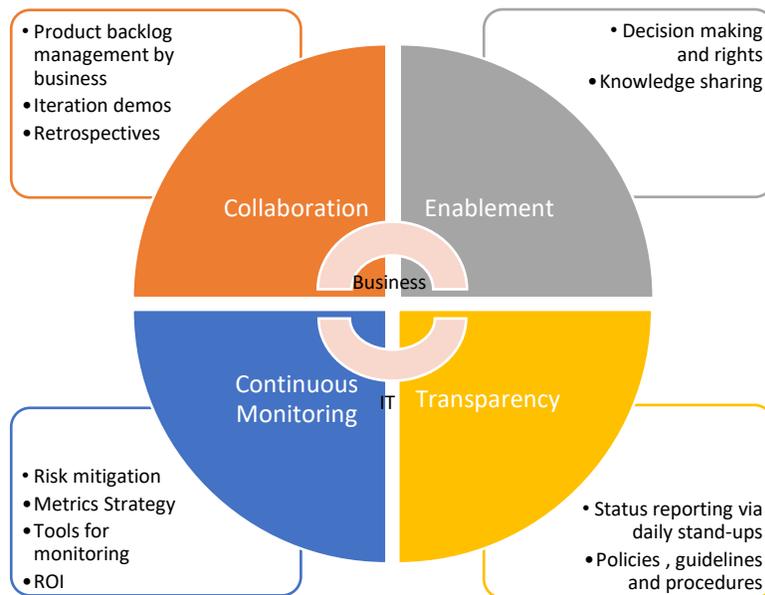


Figure 8. Conceptual Agile Governance Framework

6.1 Collaboration

Business and IT working closely together to plan for work to be done is very important. Studies show that it is imperative for business to be involved to create a balance for the portfolio iteratively, be part of release planning and ensure frequent portfolio reviews to ensure the correct and value creation deliverables are being worked on (Stettina and Horz: 2015).

6.2 Enablement

Lappi and Aaltonen (2016) found in their research that project ownership and decision-making authority were vague concepts in the projects that they analysed, there were also limited guidelines for the members in terms of how these projects should be executed. This reveals an important aspect of knowledge sharing and agile methodologies promote tacit knowledge as excessive documentation is frowned upon.

6.3 Transparency

Communication came out as a challenge in the studies conducted. Kamei et al. (2017) identifies communication as benefit for agile projects as the team gives daily feedback on progress and issues and risks can be mitigated much earlier. However, there is no direct relation that the customer is satisfied all the time, as communication still needs to be improved upon.

6.4 Continuous Monitoring

Metrics need to be put in place to ensure continuous monitoring. Various tools can be used, which have been designed for agile to measure deliverables. Burn down and velocity charts can be used to measure the amount of work being done and the consistency at which it is done (Talby and Dubinsky:2009).

Business and IT need to play an equal role in the delivery of projects. Clear roles and responsibilities need to be defined, they need to define reporting tools and structures; however, IT alone cannot deliver without business. The business needs to provide support all the time and IT needs to account for the work that they do and constantly communicating with business.

7. SUMMARY, CONCLUSION AND RECOMMENDATIONS

The primary objective of this study is to define a conceptual framework for agile project governance. The study has emphasised the importance of having an agile project governance framework in place to monitor and control these projects. The business world today is changing at a rapid rate and business requires IT to respond timeously and effectively to these changes and ensuring that a high level of quality is maintained always. Agile methods enable IT to be swift in their response, this is possible through automation, continuous delivery, and monitoring and collaboration with team members and business to always ensure the right things are being worked on.

Agile project management is the future of delivering projects. Traditional methods meant longer feedback loops and responding late to changes. Traditional methods had defined process in place, which could be followed, and some organisations prefer remaining in their comfort zone as this type of delivery is very controlled. The need arises to have a governance framework in place to improve comfort levels of some teams and organisations who have fears around agile methodologies.

A governance framework is also needed to manage those who become “too” agile. Even in agile environments, governance is still very essential. This study evaluated the principles of agile in conjunction with the challenges experienced to find a mechanism to bridge the gap between the two.

The literature review conducted explored agile methodologies in more detail, its principles and its values to gain an understanding of why organisations are leaning towards this path. The review also differentiated between traditional methods of delivering projects in relation to agile project delivery, which yielded much better benefits when delivering the agile way. The study also found that there is not much literature relating to governance frameworks for agile methods, hence the decision to use quantitative methods to further explore this topic.

Through the review of literature important findings were made, which include:

- Agile methodologies are fast growing and will not diminish in the future, they can only get better with research and studies being conducted. Organisations need to start familiarizing themselves as there is a growing need for business agility;

- Agile methods have challenges that need to be addressed to enable and empower IT practitioners to deliver on projects and reduce number of failed projects;
- Senior leadership need to acquaint themselves with the theories of agile delivery to provide the necessary support to IT for them to deliver timeously and deliver the right things;
- Collaboration and communication remains an issue to be further addressed amongst agile delivery teams and external stakeholders;
- Minimal research has been done on agile governance framework and more studies need to be conducted regarding this topic.

Through the empirical study, the following findings were made:

- Organisations are on the agile journey utilizing different methodologies, some still have a mix of traditional and agile methods, however they are learning and improving through the process;
- A governance framework is required to monitor and control agile projects, traditional frameworks are creating obstacles in the agile delivery space;
- There is a need for education around governance frameworks for IT practitioners.

The objective of this study was to address the gap about a governance framework for agile projects. Based on the results of the studies high level components were identified that needs to be in a framework, however there is further studies that need to be conducted to find a framework that will be conducive for organisations and be recognised by ISACA as a standard of monitoring and control.

We can draw a conclusion that agile methodologies have brought about an appreciated change in the industry. The issues that are still experienced need to be researched and find ways to reduce their occurrence. A well-defined governance framework will ensure good governance for organisations.

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Kwete's research interest focus on enlightening organisation effectiveness in deriving, managing, overseeing, controlling and sustaining IT investments through IT projects, programmes, and portfolios, and looks at both traditional and agile project management approaches. He is a reviewer for SAICSIT, SACLA and the African Journal of Information Systems. He supervises masters and honours students.

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