APPLYING GOVERNANCE PRINCIPLES TO IMPROVE AGILE PROJECT SUCCESS

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Abstract

Project governance forms part of the organisational governance structure. Within this governance structure, corporate governance is the highest level. This ensures that the board and management exercise due diligence in their roles and enforce the set of policies and procedures that was established as part of the business strategy. They also need to ensure that the business strategy and direction is implemented by managers and all stakeholders. Organisations that are compliant in corporate governance had better success in implementing Information Technology (IT) governance as well as project governance. IT governance ensures the alignment of IT's strategy with the organisations' strategy and vision. There is a positive relation between IT governance and IT projects that implement the IT strategy and the management thereof. One type of IT project is an Agile project which focuses on software development. Agile software development projects are gaining popularity due to various benefits. But the adherence to governance principles within these type of projects is a concern for IT project managers and organisations at large. Six identified principles could be used to implement agile governance but it excludes project governance. These six principles should be part of Agile governance per se but should also be incorporated into project governance and comply with project management standards, phases and processes. This paper provides evidence that agile software development projects are more successful when governance principles are applied and adhered to. A questionnaire consisting of 26 questions was circulated among a purposive sample of potential respondents. The population consisted of agile software development projects which were completed within a financial services organisation. Project managers of agile software development projects were requested to provide information on the projects they had been involved in. Data regarding 320 software development projects of various durations, budgets, and levels of complexity was received and analyzed. The purpose of the questionnaire was to determine whether a positive correlation exists between successful agile software development projects and compliance to project governance principles. The results indicated that even novice project managers with less than six months' agile experience, already achieved better results than those using the traditional waterfall methodology. Agile software development projects are still more successful when such projects were initiated using a business case and not just an inception deck. Therefore, an inception deck should be used in conjunction with a business case to enhance the visibility of project deliverables and ensure the agile team is aligned to the projects goals and objectives. The results demonstrated that when project managers apply all the agile principles and "ceremonies" prescribed by the Agile Methodology, software development projects were between 39% – 47% more successful. We concluded that the success rate of Agile software development projects are not dependent on project governance but that the success is dependent on the governance of the Agile framework. Agile projects mainly fail because of the lack of management support, lack of training and experience, little support for culture transformation and adoption throughout the organisation. These aspects are directly related to agile governance principles that are not complied with.

The survey results clearly showed that the success rate of Agile projects were not determined by applying traditional project governance, but rather the governing of Agile processes and principles. It could also be established that the success rate of agile projects is dependent on the experience of the team, the support from their stakeholders and the level of agile knowledge the team members acquired.

Keywords: Governance, Agile projects, Agile governance framework, Project management

Introduction

During the era of rapid growth in software demand, the pioneers began to consider similarities between designing software systems and designing engineering systems. Based on this line of thought ideas were born that led to what is called software engineering today. So the fundamental concepts of software engineering were based on the original engineering paradigm which assumes that design of any engineering system follows sequential thinking from identifying a problem that requires an engineering solution to developing the specification which then informs the design leading to the execution of the design into a full product. However, as the software engineering profession grew, it became clear that developing software is a craft involving a lot of abstractions, lack of visibility and does not lead to a physical product. All these attributes of software engineering make it a very complex field that requires more human input than other engineering fields.

The limitations of the classical software engineering paradigm are rooted in a focus on sequential thinking which focuses on the activities presumed to be necessary to produce a result and assumes that one has nothing to learn so that each activity can be completed in sequence (Larman, 2004; Valacich, George, & Hoffer, 2009). To try and solve some of these problems many methodologies emerged from the early 1970s and continue to emerge up to the present moment.

The proliferation of systems development methodologies led to confusion and difficulty in objectively selecting specific methodologies for specific uses (Avison & Fitzgerald, 2006; Cockburn, 2007; ter Hofstede & van der Weide, 1992) classifies software developers into three levels of practice. The three levels describe the stages of learning for a software development practitioner. A 'level one' person is just starting and would not be able to learn many methodologies at once. This is a stage where people look for one methodology that works and they learn it and follow it and expect it to work always. A 'level two' practitioner is at a stage where he or she realizes that the technique will not serve in all situations so he or she looks for rules about when the procedure breaks. At level three, developers do not pay much attention to the methodology formula. They pay attention to what is happening on the project and make process adjustments as they work. They understand the desired end effect and apply whatever works to get to that end" (Cockburn, 2007). The three levels of practice therefore add to the subjectivity of methodology selection rather than providing a solution. The complexities surrounding methodology selection led some to call it a 'methodology jungle'.

In the systems development methodologies context, the term methodology jungle refers to the difficulty of selecting the appropriate methodology for a given project. With so many methodologies to choose from, abstracting to a higher level in order to simplify these methodology issues became inevitable, hence frameworks were developed to wrap-up the methodologies and give a more generic understanding of systems design issues. At an even more abstract level, we find approaches which spell out the general directions or flow of

concepts. While the frameworks give the skeleton of systems design, the approaches provide more of a conceptual image or architectural bias.

Many specialists in the market question whether the Agile methodology has enough governance to ensure that the practitioners of Agile projects comply with all the project management principles and standards established. Some of the main concerns are addressing and managing the risks and architecture requirements. The perception is that these aspects are not properly addressed. Another perception is that agile projects are document light and may not have all the detail that other methodologies require from a governance and compliance perspective. This report aim to address these perceptions and show how project governance requirements are addressed by following the agile processes, principles and ceremonies. In fact, the functional and architecture requirements are continuously addressed and revised throughout the project and adjusted accordingly. The report also aims to show that agile projects are more successful when following the agile processes and that governance should rather include the compliance to the agile framework than to standard project management procedures. Several companies go the agile route because of the success rate of agile projects. Other companies follow the trend but not sure why they selected the methodology. Companies shouldn't just follow the trend or the statistics, they should understand the principles of Agile and realise what the benefits are. The true advantage of following the agile methodology is to support the principle of being Agile in business and being competitive in the market. Rather be the innovator than trying to catch up with your competition. Organisations can no longer afford to take long to initiate a business strategy, they need to be flexible and adaptable to change and they need to be supported by a project management methodology that embraces these changes. Agile support short iterations and frequent releases to business. Business users no longer have to wait twelve to twenty-four months to start using an application or see it for the first time. In some occasions, the business users can use the application even though it only supports parts of their operation. These users can already reap the business benefit at an early stage of the project (Boehm & Turner, 2005).

Literature Review

This section looks at a relatively new group of methodologies known as agile methodologies. These methodologies were initially authored to manage the development of software development projects, but have been extended due to their popularity and success to deal most types ICT projects. Agile software development is a way of software development characterized by an emphasis on (i) People, (ii) Communication, (iii) Working Software and (iv) Responding to Change.

The working definition of agile methodologies can be summarised as a group of software development processes that are iterative, incremental, self-organizing and emergent. Hence from a theoretical perspective agile methodologies can be defined as:

- *Iterative*, the word iterative is derived from iteration which carries with it connotations of repetition. In the case of agile methodologies it is not just repetition but an attempt to solve a software problem by finding successive approximations to the solution starting from an initial minimal set of requirements.
- *Incremental*, each subsystem is developed in such a way that it allows more requirements to be gathered and used to develop other subsystems based on previous ones. The approach is to partition the specified system into small subsystems by functionality and add a new functionality with each new release.
- *Self-organizing*, this term introduces a relatively foreign notion to the management of scientific processes. The usual approach is to organize teams according to skills and

corresponding tasks and let them report to management in a hierarchical structure. In the agile development setup the 'self-organizing' concept gives the team autonomy to organise it to best complete the work items.

• ***Emergent***, the word implies three things. Firstly, based on the incremental nature of the development approach the system is allowed to emerge from a series of increments. Secondly, based on the self-organizing nature a method of working emerges as the team works. Thirdly, as the system emerges and the method of working emerges a framework of development technologies will also emerge.

Agile Project Management

Agile software development methodologies view the process of developing software as a very social set of activities that must be implemented through a highly disciplined approach. The process followed involves deep trust within the team members of the development team, esteeming of the team members as conscious individuals who are of more value to the organisation than the set of processes to be followed. In the agile process unnecessary over-planning is avoided and more effort put on the actual product than the ceremonial process overheads that usually increase the process density and compromise efficiency and effectiveness. Highsmith and Highsmith (2009) considers software development teams to be similar to complex adaptive systems. The project manager in this case assumes the role of a facilitator liaising between the team and top management to resolve issues that negatively affect the progress of the project. Therefore, Agile Project Management is the application of agile values and principles as detailed in the Agile Manifesto to the management of projects. This is not as simple a task as the definition puts it. It involves dealing with some controversial and ambiguous concepts such as vaguely defined principles and practices. Project management standards provide standards or guides to knowledge and processes that are part of a project. These guidelines outlined by the standards should be taken as a set of guiding principles that are based on industry best practices. The application of the standards to any area generally considers the mappings between the knowledge areas and the process groups. Organisations intending to implement these standards, should consider developing more specific methodologies with a focus on the organisation and the application area. Agile Project Management is therefore a methodology for doing software development projects. Just as agile software development methodologies easily integrate with other systems development methodologies, agile project management does not have conflict with the standards.

Success rate of agile projects

According to The Standish Group (2014), software development project that employs agile principles, are more successful that software development project that employ the traditional waterfall method. The results are portrayed in table 1.

Table 1. Project results by Agile versus Waterfall

Method	Successful	Challenged	Failed
Agile	46%	44%	10%
Waterfall	14%	58%	28%

Successful projects are not always the projects that had the best governance. In many cases it is more about the methods and the principles that were applied according to the methodology and how well the methodology has been executed. To identify the aspects that could be

addressed to improve the success rate of agile projects, it was also investigated why agile projects fail. VersionOne Inc. (2015) mentions there are mainly eight reasons agile projects fail:

i. The lack of Agile experience
ii. The company philosophy or culture is not in agreement with core agile values.
iii. The lack of management support is the cause for agile project to fail. There is usually a great excitement about Agile at the team level and even executive support, but middle management is usually the most resistant to change.
iv. Pressure from external parties will force the agile team to comply with the Waterfall method. This is more common in larger organisations where there are many projects and portfolios and one governance platform that already caters for the Waterfall method.
v. Agile projects fail because there is little support for culture transformation. This speaks again to executive support and making sure that the change to agile methods are adopted throughout the organisation.
vi. Agile projects fail because of the lack of communication to all parties of the organisation.
vii. Agile projects fail when the project team is not willing to apply agile principles.
viii. Insufficient training is the cause for agile projects to fail.

The reasons above could be directly related to the practitioners not following the agile principles according to the Agile Manifesto but the main reason for failing could also be aligned to governance aspects that have not been addressed. Points two, three, four, five, six and seven speaks to the governance of IT projects that was clearly not supported in all levels of the company.

Agile governance
Project governance is part of the governance tree structure where corporate governance is the highest level in the tree structure (Project Management Institute, 2016). The purpose of corporate governance is to ensure that the board and top management exercise due diligence in their roles and enforce the set of policies and procedures that was established as part of the business strategy (Institute of Directors Southern Africa, 2009). They also need to ensure that the business strategy and direction is implemented by managers and all stakeholders. A company is only healthy when all business units in an organisation are aligned to the business strategy, which include the governance of IT and all associated aspects of IT. Marnewick and Labuschagne (2011) indicated that organisations that were compliant in corporate governance had better success in implementing IT and project governance.

IT governance ensures that the organisation's IT is aligned to the strategy and vision of that organisation. It is the responsibility of the board of directors and executive management to ensure that all operations, IT functions including IT projects are aligned to the organisation's strategy (Posthumusa & von Solms, 2005). This is substantiated in the King Code of Governance for South Africa (King 3).

One of the IT governance branches is IT project governance. According to Marnewick and Labuschagne (2011) there is a relationship between corporate governance, IT governance and IT project governance. Project management activities should therefore also align to the strategic goals and objectives of the organisation to ensure the success and efficient delivery of projects (Project Management Institute, 2013).

Bekker (2014) is of the opinion that there is still no commonly understood and agreed upon definition for project governance and that IT project governance falls under the domain of single-firm governance. The Project Management Institute (2016, p. 67) defines project governance as "*the framework, functions, and processes that guide project management activities in order to create a unique product, service, or result and meet organizational strategic and operational goals*". The question remains whether there is an accepted agile governance framework that can be incorporated into the PMI's definition of project governance.

According to Goodpasture (2015) agile projects are still governed by the business case, therefore aligning the project goals to the strategy and goals of the organisation. The Agile principles enable the product owner to react to changes in the market and/or the business strategy. Project governance should therefore be applied with common sense, have a purpose and should be an enabler to ensure that projects are successfully delivered instead of being a hurdle in the process.

Governance promotes mechanisms, control, accountability and authority. In order for a business to follow an agile approach, all sectors of the organisation need to support it, including top management (Luna, Kruchten, Pedrosa, Neto, & de Moura, 2014). Qumer (2007) stated that it is a lot easier to enforce governance on an agile project than traditional projects. Stakeholders have great visibility of work being done. They also see regular releases and being the owner of the project deliverables they are able to manage the budget and schedule effectively. They are able to ensure that the team will be directed effectively (Qumer, 2007). The Agile methodology enables the development team to take ownership and address the governance aspects emphasized by the PMBOK standard.

State of Agile governance
Based on the research done by Luna et al. (2014), there is no united reference or international standard to determine the level of Agile governance in an organisation. Their findings did show that Agile Governance in software development was first conceptualised in 2007. Agile was included as part of Software Development Governance in 2009 and in 2010 it was seen as part of IT governance. The Agile Governance standard is still very immature and although there are a set of standard principles practises and values that can be used in the context of Agile Governance these concepts are not organised and structured for direct and immediate application. These concepts need to be translated into a framework that could be applied in each context like software engineering, manufacturing, government and business management (Luna et al., 2014).

Agile governance should give business users the ability to sense, adapt and respond to changes in their environment (Gandomani, Zulzalil, Ghani, Azim, & Sultan, 2013). They should be able to respond rapidly and be sustainable when combining agile and lean practises with governance capabilities. This should enable them to deliver value faster, better and less expensive to the core business. Luna et al. (2014) suggested six meta-principles:
i. *Good enough governance*: Understand the organisation and its market constraints and apply accordingly. Ask the question, how much governance we should apply to achieve agility in the organisation.
ii. *Business driven*: Business layer and governance layer need to be interdependent. The organisation needs to understand and align to the business strategy and every decision and action must be dependent on the business requirements and priority. The relationship

between different business units to achieve the same business goal will increase the flexibility and turnaround times to market.

iii. *Human focused*: It's crucial to include the human component in the governance model. Change management and the acceptance of agile practises are crucial to the adoption of these methods. People must feel valued and need to contribute to create value in the organisation.

iv. *Based on quick wins*: Quick wins need to be celebrated. The same energy that was put in to achieve the goals needs to be used to celebrate the wins. Teams will mature and continuously improve in the governance initiatives with less jerky movements and less issues than previously experienced.

v. *Systematic and adaptive approach*: Teams should develop the ability to change with organisational changes. It should become a natural ability to adapt to the business environment and the associated factors. Although the previous statement sounds easy, it is one of the major challenges many organisation face when trying to adopt Agile.

vi. *Simple design and continuous refinement*: Start with a simple design and improve approach with the next opportunity.

These six principles do not cover the project governance aspects but rather the environmental aspects of agile. These principles should be part of agile governance but not be the only principles that need to be applied. These aspects still need to refer back to project management standards and comply with the variables that are important to the Project managers and Project management office (PMO).

Level of compliance with IT governance framework

IT project governance is one of the components that need to be complied with to ensure adherence to IT Governance. A study by Mahnic and Zabkar (2008) mapped the COBIT processes to agile software development processes. Their results indicate that the following COBIT processes must be considered during agile software development:

i. **PO7** to manage human resources, which include the identification of resources, assigning appropriate tasks and making sure the resources have the relevant skills to complete the tasks assigned to them.

ii. **PO8** to manage quality against predefined objectives

iii. **PO10** to manage project progress and risks.

iv. **AI1** to identify automated solutions which focus on the feasible technical solutions that is still cost effective.

v. **AI2** to acquire and maintain application software and development processes that support it.

vi. **AI16** to manage changes to the IT infrastructure, applications and technical solutions.

vii. **AI17** to install and implement solutions and changes, by ensuring that the solution is properly tested on all environments before doing an official release.

viii. **DS5** to enforce system security which includes defining policies, enforcing and monitoring these policies.

ix. **DS10** to highlight problems or otherwise known as impediments and also the ability to manage these impediments.

These COBIT processes have 26 indicators that can be used to determine whether the Agile methodology comply with these processes

The literature study only revealed some aspects of agile project governance. It specifically highlighted aspects like customer satisfaction, the retrospective ceremonies and showed when

these aspects of agile is exercised appropriately, it will have a positive effect on project success, business value delivered and many other aspects within the project governance framework.

Studies also indicated that failed agile projects were because of lack of agile experience and complying with the agile principles and processes, lack of training and lack of support – especially from top management. There was no clear evidence that agile projects fail because of project management governance principles that were not followed. The question still remains whether agile projects are more successful when the practitioners comply with the governance principles of project management or have better results when the focus was to comply with the principles of the agile framework.

This article addresses two questions with regards to agile governance. It aims to establish whether the agile development methodology include enough governance to ensure that projects are successfully delivered, but also investigate whether agile projects are more successful when these project governance principles are applied?

The following questions have been identified to answer the research problem:
1. Does the agile software development methodology address all aspects of IT project governance requirements?
2. Will an agile project be more successful when complying with a governance framework?
3. Establish the aspects that will ensure that agile projects are more successful?

Research Methodology

Research designs focus on validating the research question through a testing project and can be either quantitative research designs or qualitative research designs (Feilzer, 2010). Quantitative research focuses on answering the research question through the collection of numerical data and the statistical analysis of this data (Balnaves & Caputi, 2001; Blaikie, 2003). The structured questionnaire used in this research was structured in six sections. These sections relate to the research questions posed in this article. A purposive non-probability sampling was used. This method was chosen as the sample was focused on project managers, business analysts and software developers and their responses are appropriate for the research. A total of 48 valid questionnaires were received.

Structured questionnaires make use of closed questions where the results can be analysed quantitatively for patterns and trends. Structured questionnaires ensures that each respondent is presented with exactly the same questions in the same order. This ensures integrity in longitudinal studies as well as comparisons between various subgroups.

If a questionnaire does not measure what it is supposed to measure, then the conclusions and statistical analysis might also be invalid. Validity checks are available to verify that the questionnaire is suitable. The types of validity that can be used to assess the survey questionnaire are face, content, criterion and construct validity. The researcher opted for face and content validity. Face validity refers to the 'obviousness' of a test that is the degree to which the purpose of the test is apparent to those taking it. The purpose of this research, as well as the questions, was clear to the respondents and, thus, it can be derived that there is high face validity. Content validity on the other hand focuses on extent to which the items are fairly representative of the entire domain the test seeks to measure. The questionnaire was evaluated by subject matter experts for content validity.

Results and Analysis

The first section of the survey verified the participant's personal experience and established how relevant the participant's feedback is regarding the success of agile projects. The section outlined their industry and established the participant's role in the organisation.

Figure 1 indicates that the majority of respondents using agile were from the financial services industry (46.3%) as well as from the ICT industry (26.8%). The 'other' category consists of respondents from industries that are statistically insignificant by themselves.
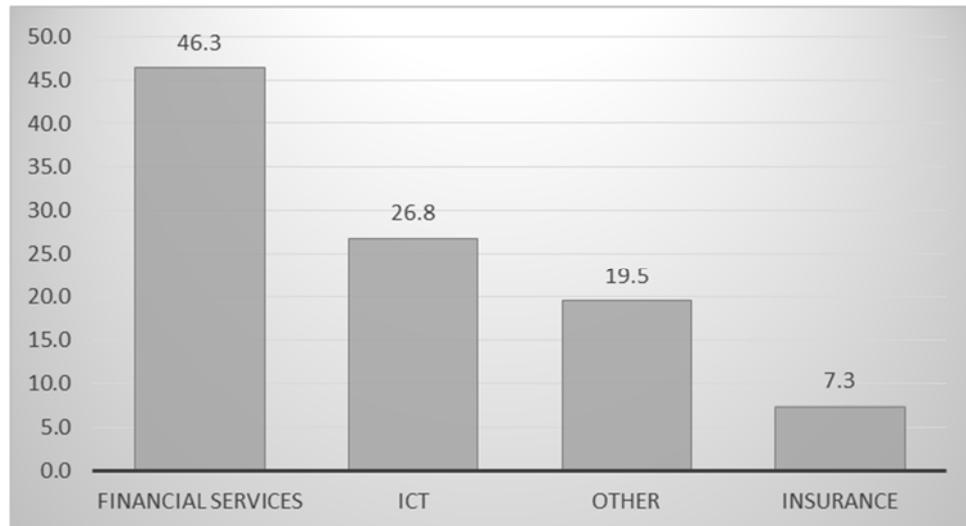
Figure 1. Industry Representation

Figure 2 is a graphical presentation of the role of the respondents versus the years of experience that they have. It is evident from the results that all the respondents are involved in projects one way or the other. They also have experience in their respective fields be it project management or acting as a scrum master.
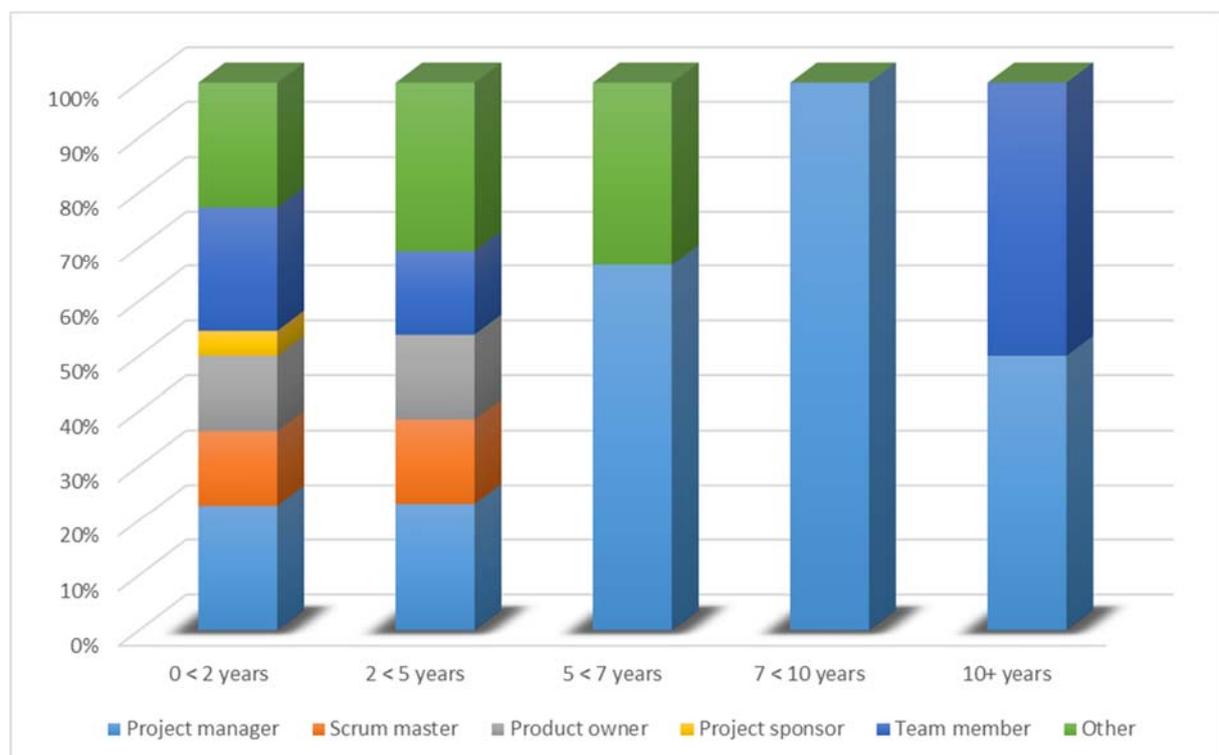
Figure 2. Role versus Experience

The following section outlines the success of projects based on the process the project was initiated with. The participants first had to indicate how many projects they were involved with in the past two years and what the success rates of these projects were. A project was deemed successful when the following applied: *"For the purpose of this research, a project is deemed successful when the product was delivered according to the Inception deck and requirements outlined in the Business case in the time and budget specified"*.

Based on figure 3, 51.3% of participants have been part of at least one agile project. A third of the participants have been part of, between five to ten agile projects. Almost eight (7.7%) percent have been involved with at least 11 projects and 7.7% of the respondents have been involved with more than 15 agile projects. In total, the participants have at least been part of 153 projects.
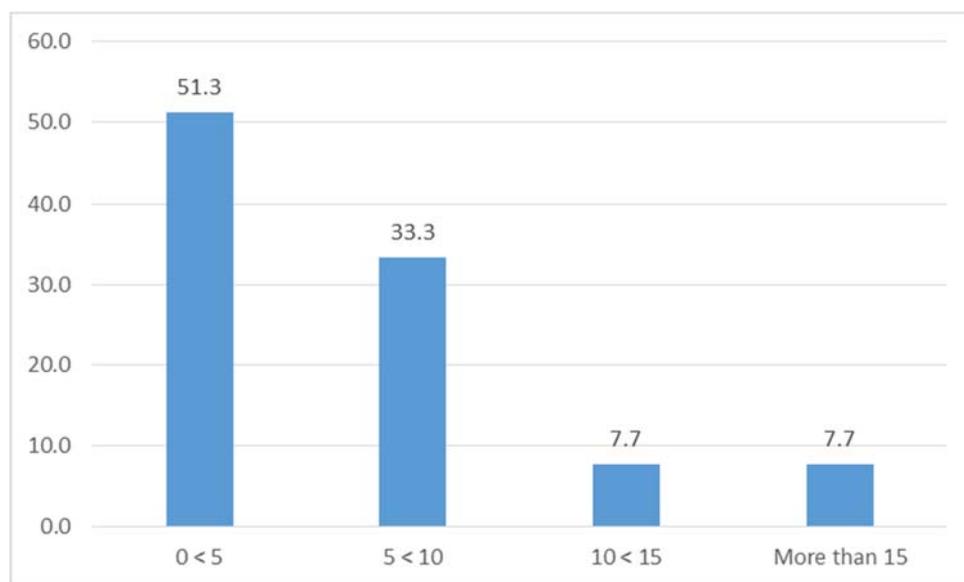

Figure 3. Number of Agile projects in the last 2 years

The respondents were also asked whether they deem agile projects to be more successful. Almost 31% of the responses were neutral, 43.6% of the respondents agreed that the projects they were involved with was more successful and 20.5% of the respondents were even more confident about the success rate of agile projects and selected the 'Strongly Agree' option. Five percent of the respondents disagreed with the statement.
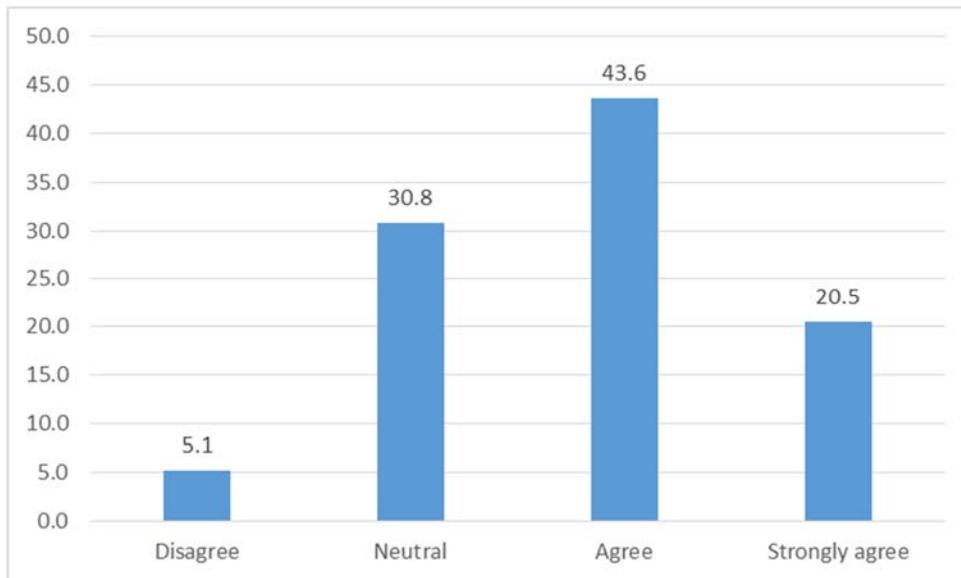
Figure 4. Projects are more successful when following Agile

Table 3 outlines the success rate of agile projects. Two-thirds of the respondents believe that projects are more successful when agile principles are applied instead of the waterfall method

Table 2. Success rate of agile projects

Percentage of project successful	Percentage
<20%	5.1%
20 < 40%	10.3%
40 < 60%	17.9%
60 < 80%	28.2%
More than 80%	38.5%

The following discussion is based on the way and manner that the agile projects are initiated. Three options were provided i.e. the inception deck, a project initation document or the business case. The results are depicted in figure 5.
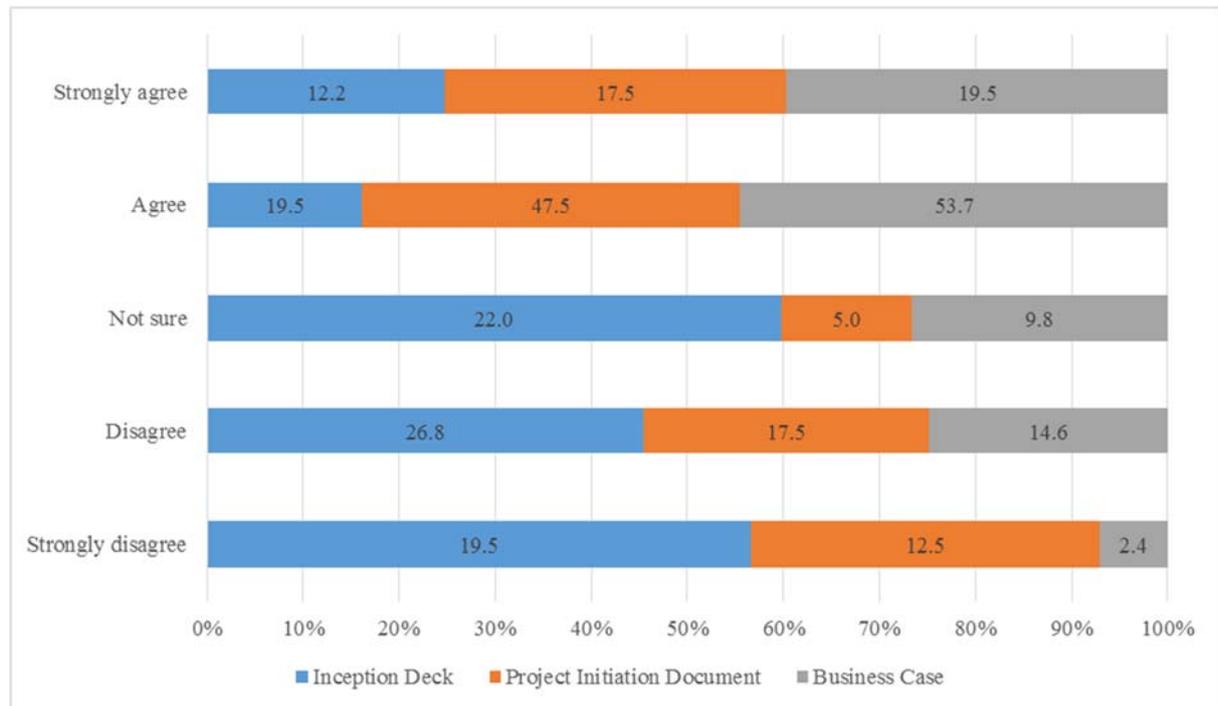
Figure 5. Document that is used to initiate a project

It is evident that the majority of projects are started with a business case irrespective of the method of software development that is used. The inception deck plays a role within the bigger project where it is used to determine the specific requirements of an user. The results make logical sense. The business case is used to initiate a project at large and the inception decks are used to determine the requirements for specific entities within the project.

Agile method and level of support
The third section of the survey focus on the agile method the respondents follow and the level of support they receive from their colleagues and the rest of the business. Based on figure 6, 75.6% of the respondents have adopted Scrum as their primary agile method. Close to 10% have adopted Kanban as their primary method and 12.2% indicated they follow other methods. Some of the other methods mentioned were "Wagile", "Scrum and Kanban - Depending on team", "Mix of Scrum, Kanban, XP", "Hybrid Scrum, Kanban and Waterfall depends on what work" and "Customised agile".
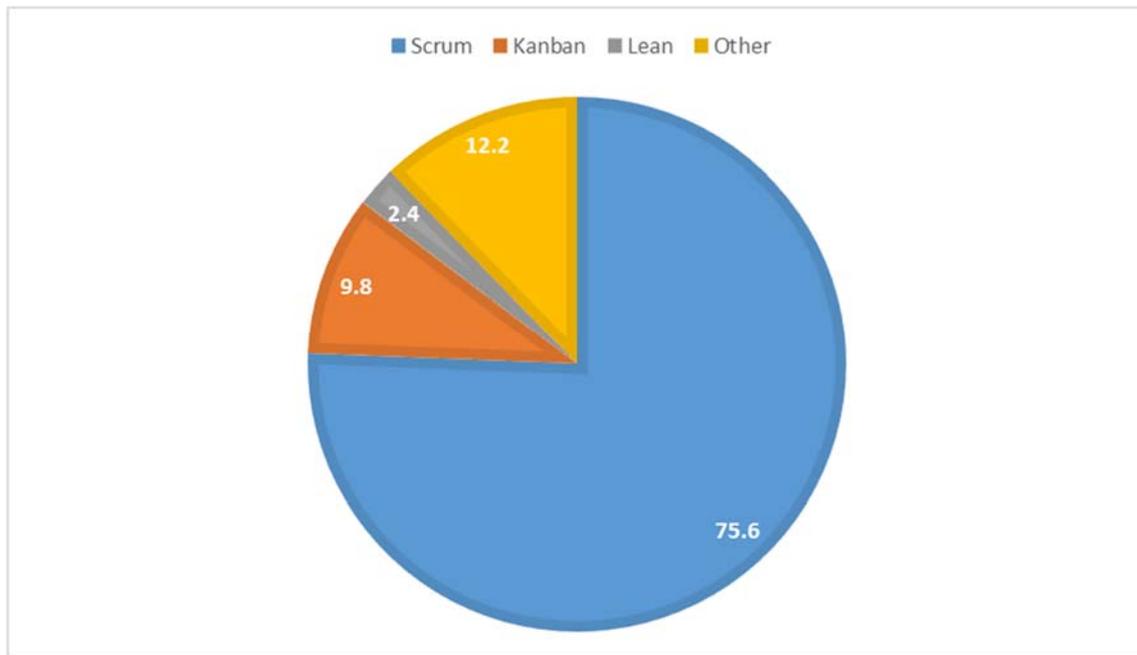
Figure 6. Agile method followed (percentage)

The level of support is very important when adopting a new software development methodology. Figure **7** highlights how the success rates of projects are influenced when there was support within the business for agile processes.
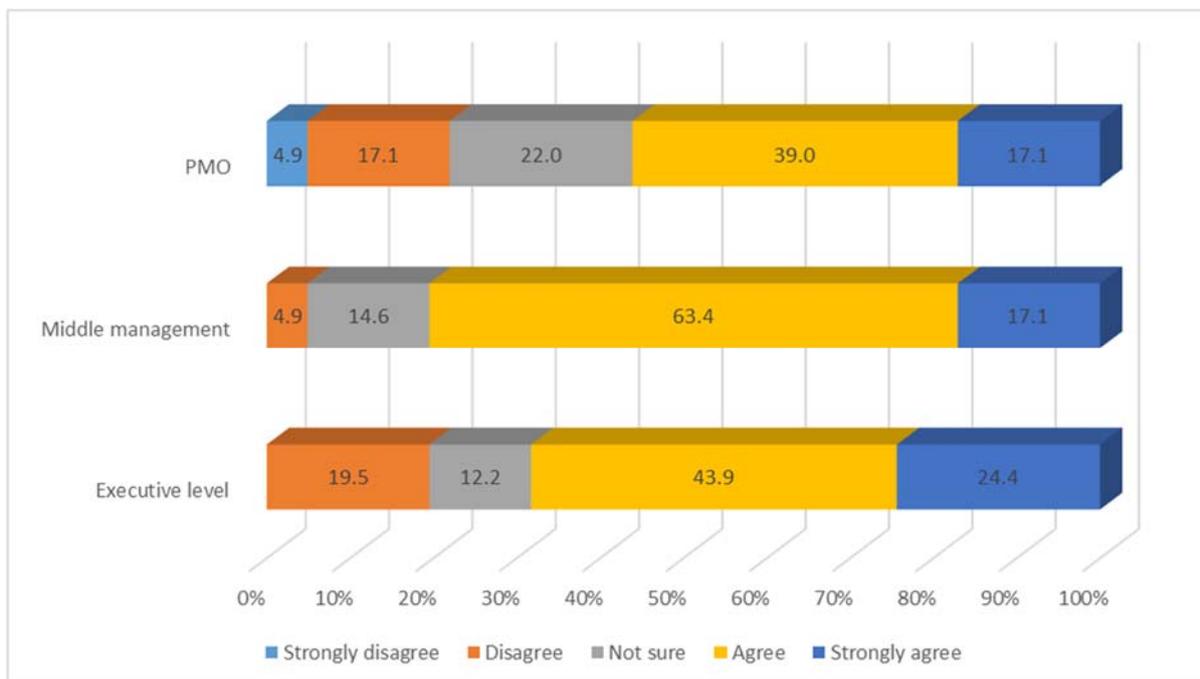
Figure 7. Support for agile processes

The results indicate that there is support for the application of agile processes within the organisations. The respondents felt in 68.3% of the cases that they are supported by the executive level. Middle management is even more supportive of agile projects with 80.7% supporting this initiative. The project management office (PMO) is the least supportive with 53.6% of the respondents feeling that they are not getting enough support from the PMO.

Does this support contribute to project success? A cross-tabulation between project success and the level of support indicated that agile project success rates improve when there is support from the governance structures. The results are displayed in table 3.

**Table 3.** Percentage of successful projects versus support

Percentage of project successful	Executive support	Middle Management Support	PMO Support
60 < 80%	26%	25%	25%
More than 80%	31%	33%	32%
Total Responses	56%	58%	57%

Fifty-six percent of respondents indicated that more than 60% of their projects are successful when they have the support of their Executives. Fifty-eight percent of the respondents indicated that their projects are more than 60% successful when they are supported by their Middle Management and 57% indicated that their projects are more than 60% successful with the support of the PMO.

Agile in Practise
The last section of the survey concentrated on the commitment of following processes followed and adherence to principles. This was also used to establish whether there is any form of governance applied on agile projects.

Figure 8 shows that 46.2% of the respondents believe that the success of the agile projects can be contributed to the compliance of agile processes.
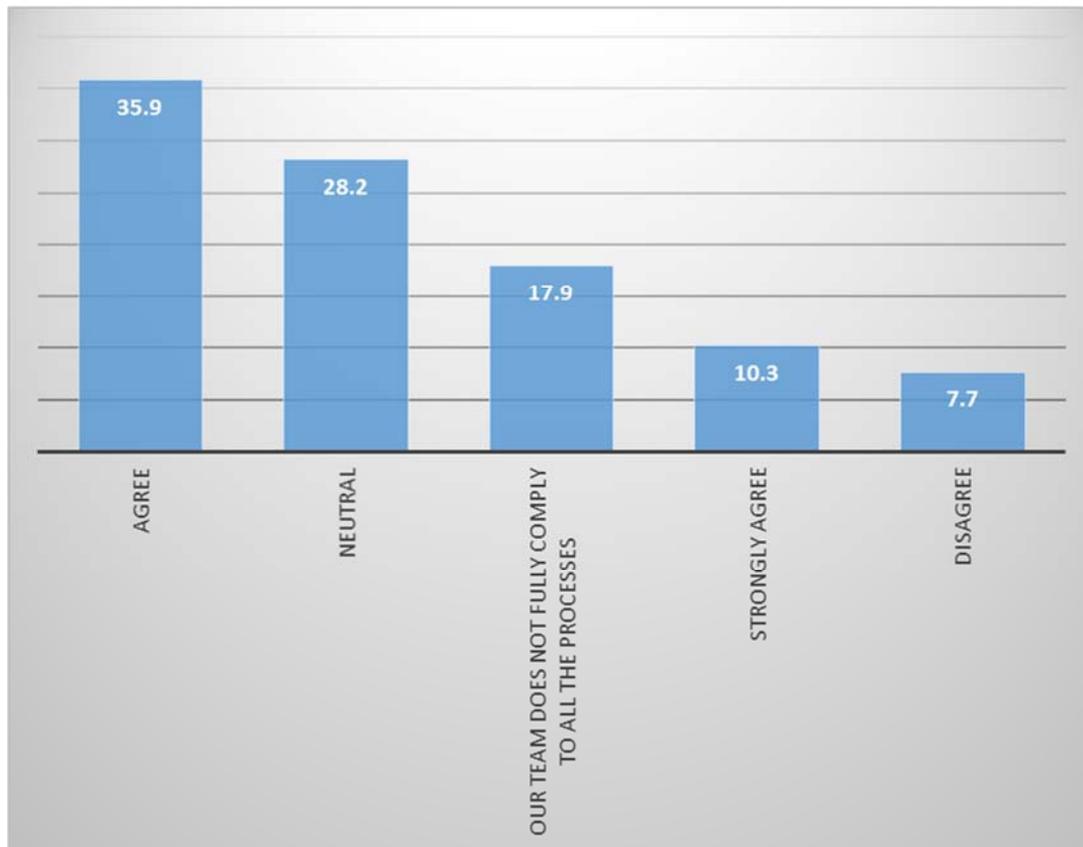
Figure 8. Success is contributed to compliance to processes as per agile standard

Table 4 refers. Thirty-eight percent of the agile projects are more than 60% successful when adhering to agile processes. Only eighteen percent of the projects are more that 605% successful without any adherence to agile processes.

Table 4. Project success rate when Agile processes are adhere to

Percentage of project successful	Not following all	Agree & Strongly agree	Disagree
60 < 80%	10%	13%	0%
More than 80%	8%	25%	0%
Total	**18%**	**38%**	**0%**

The next section addresses the agile principles specifically which in turn speaks directly to the adherence of governance principles. The agile principles that were the focus of this study is (i) Backlog creation, Grooming and Refinement, (ii) Sprint Planning, (iii) Sprint Reviews and (iv) Retrospective Ceremony.

The results are illustrated in **Table 5**.

Table 5. Project success rate when Agile principles are adhere to

Percentage of project successful	BC, G, R	SP	SR	Retro
60 < 80%	18%	13%	16%	13%
More than 80%	32%	39%	37%	34%
Total	50%	52%	53%	47%

The results indicate that adherence to these four agile principles contribute to the successful delivery of a project. The results in table 4 and table 5 highlight the importance of adhering to agile processes and principles. Adherence leads to agile project success.

Discussion

The objective of this article was to determine whether agile projects are more successful when complying with governance principles specific to agile projects. The literature review indicated that agile governance is very immature and there is no real agile governance framework to comply with. The research results were aimed to establish whether agile projects are more successful when respondents that follow some sort of agile framework and principles religiously, get better results.

The first section focused on the participant's personal experience and to establish whether the success rate of projects improved when the participant had more agile experience. It was found that participants that had more than two years' experience had better results than participants that used Agile for less than two years. It was also interesting that participants with at least 6 months' agile experience, already achieved better results than before they used agile.

The second section of the questionnaire focussed on the way an agile project was initiated. It was established that projects are still more successful when a project was initiated using a business case and not only using an inception deck. Therefore, an inception deck should be used in conjunction with a business case to enhance visibility of the project deliverables and ensure the agile team is aligned to the projects goals and objectives.

Section three of the questionnaire focussed on the method and level of support in the participant's organisation. It was found that the Scrum agile method was the most adopted method. The participants also indicated that they had very good support from their Executives, middle management and the PMO. The results show that the projects related to these participants was also more successful.

The fourth section was included to determine whether training, being certified in Agile and doing self-study, improved the success rate of projects. It was found that more than 50% of the respondents deemed their projects to be successful when they did Agile training and got certified. The rate even increased when the participants did their own self-study about Agile.

The fifth section addressed the agile principles and assessed whether the participants follow all the "ceremonies" prescribed by the agile methodology. It was found that projects were between 39 – 47% more successful when agile principles and ceremonies were adhere to.

Conclusion

Based on the aspects mentioned in the literature review it could be established that Agile projects mainly fail because of the lack of management support, lack of training and experience, little support for culture transformation and adoption throughout the organisation. These aspects are directly related to governance principles that are not complied with.

Corporate governance addresses the aspect of making sure that board and top management enforce and apply the business strategies throughout all the business units in the organisation. IT governance needs to align to the strategy outlined by the corporate governance framework. IT project governance needs to align to the IT governance framework. The agile methods used in projects need to be in line with an IT project governance framework to ensure projects are executed in line with the business strategy. If the goals and objective of a project is not aligned to the business strategy, it could not be classified as a successful project even if the project meets the goals outlined by the product owner or sponsor of the project.

Hence the aforementioned, it could be concluded that a project need to follow governance principles to ensure the success of a project. Project governance is usually established within an organisation. It usually follows a standard like the PMBOK® Guide or a methodology like PRINCE2 and is usually applied differently across organisations or even business units. The challenge is that agile is a complete different development methodology and not supported by traditional governance frameworks.

The survey results clearly showed that the success rate of agile projects were not determined by applying traditional project governance, but rather the governing of agile processes and principles. It could also be established that the success rate of agile projects is dependent on the experience of the team, the support from their stakeholders and the level of agile knowledge the team members acquired.

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