




The current state of agile methodology utilisation in a South African insurance company

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Background: South African insurance companies are under pressure to adapt to the constantly changing environment and customer-changing requirements. Agile software development presents itself as a viable solution for swiftly meeting these demands. However, there is a lack of comprehensive understanding regarding the current utilisation of agile methodologies within the South African insurance sector; this article aims to bridge this gap.

Objectives: The purpose of this theme is to fully understand the extensive level of the experience for the participants and the nature of projects the participants have been involved in and lastly time frames of the projects and how long have insurance been using agile methodology.

Method: For this study, purposive sampling that involves the selection of the units to be observed based on your own judgement about which ones were the most useful or representative will be applied. The criteria were based on the participants having played a role as stakeholder in a project that has used agile methodology within the selected organisation within the past 3 years to remain relevant to this study purpose.

Results: The identified patterns from the respondents showed that agile methodology is currently utilised for the following in the selected insurance company:

- software upgrades
- new product
- new function

Conclusion: In summary, the current state of agile methodology utilisation in a South African insurance company is associated with application transformation to cloud computing, work transformation, onboarding of new applicants, environment enhancements, schema amendment, introduction of new product such as sales force, automating insurance claims documents, scheme enhancement, fund anniversary and renewal of people's schemes.

Contribution: This comprehensive research significantly contributes to the body of knowledge, shaping the strategic direction of agile methodologies within software development project environments.

Keywords: agile software development; south african insurance industry; IT project management; information technology; information systems.

Introduction

The rapid developments of information technology (IT) have evolved into more than an enabler of business operations towards an efficient survival backbone of organisations. It is also one of the critical tools for gaining a competitive edge while meeting stakeholder needs. Such strength has resulted in an increased rate of developing IT systems for various organisational divisions, such as Enterprise Resource Planning systems, Business Intelligence, Business Information systems and customer relations management systems. Nevertheless, implementing these systems is performed on a project-by-project approach, which positions successful IT project management and implementations as a critical success factor for organisational survival.

Therefore, organisations are trying to respond to increasing pressures, which are trying to deal with the constantly changing environmental forces and customer requirements (Shah & Soomro 2021).

In order to provide effectiveness and the fastest delivery in any organisational software development project, there must be a methodology in place to manage those software projects

(Leffingwell 2020). These projects and methodologies are typically conducted and applied within the IT project management lifecycle.

However, in the South African context, the finance and insurance sectors are dynamic competitors driven by the declining economic state of the country and the continued weakening economy (Olawaju & Msomi 2021). This environment has proven that traditional software development and IT project management methodologies must be more responsive to the needs of dynamic industries. Thus, new methods that enable flexibility and adaptability are required to comply with customers' often-changing requirements (Grześ 2023). The need for flexibility and adaptability led to the growing popularity of agile methodologies (Shah 2017). Agile methodology promotes adaptive planning, self-organising teams, rapid and frequent delivery and client focus. Agile methodologies encourage continuous improvement and rapid, adequate response to change (Choras et al. 2020).

The need for agile methods is driven by the incapacity of traditional waterfall software development methodologies to implement successful information systems (IS) projects, primarily characterised by the expansion of information systems together with complexities in managing them (Pearlson, Saunders & Galletta 2024). Such environmental dynamics within IS have obligated the development of resilient and robust software (Ahmed et al. 2022). Agile methodologies have thus been introduced to offer adaptive software solutions for competitive business environments through a manifest-oral declaration aiming 'to discover better and rapid ways of developing software by doing it and helping others do it' (Al-Saqqa, Sawalha & AbdelNabi 2020)

Over time, organisations have found it beneficial to embrace the agile methodology because of its advantages, including adaptability and the capacity to deliver products in dynamic settings efficiently. Agility involves promptly and flexibly responding to change, facilitating efficient communication among stakeholders, engaging customers and structuring a team to manage the tasks effectively (Pressman 2009). Every project in the agile environment should have a holistic view of what the business wants to achieve at the end of the project; this requires setting up self-organising teams, distributed leadership and decision-making, incremental development and supporting organisational culture (Hekkala et al. 2017).

The agile methodology has some strengths, such as improved software quality Al-Saqqa et al. (2020), focus on customer needs, adaptability to changing requirements, faster development times (Heimicke, Kaiser & Albers 2021) and flexibility. Martin (2023) in agreement highlighted that agile methodology has some challenges as they are founded to focus working software rather than documentation, assurance may therefore be granted that important feature will be delivered first (Heeager & Nielsen 2018).

In addition, according to Shore (2021), agile methodologies disregard significant architectural principles, which perpetuates

poor design qualities in software development. These cited quality challenges of agile are essential for the insurance industry, especially for those in South Africa who have been reported to be adopting and using agile methodology. Although that is the case, very limited studies indicate the success or failures of agile, and those factors impacting such success or failure in South African organisations. Therefore, this study seeks to understand the current state of agile software development utilisation within South African insurance companies and establish the current state of agile utilisation within the organisation.

This article is structured in the following manner: literature review, research methodology, results and interpretation, conclusion and recommendation for future studies.

Literature review

Strategic importance of information systems in insurance companies

Insurance companies are reliable business entities for promoting financial well-being, with expertise in guiding individuals through high-quality advice, products and services. These organisations dedicate themselves to assisting individuals in meeting their financial requirements by tailoring pertinent and distinctive solutions that align with their financial capacities and individual situations. In a global context, insurance companies prioritise improving their information systems, recognising them as essential for their financial strategic planning, as underscored by Dingsøyr and Lassenius (2016). This focus reflects the industry's acknowledgment of the pivotal role that robust information systems play in achieving competitive advantage and operational efficiency (Dingsøyr & Lassenius 2016). Aligning information systems with organisational goals through strategic management grants insurance companies a competitive edge (Reskino 2021). As pivotal in risk transfer, savings and investments, insurance companies rely heavily on effective information systems to fulfill their roles (Hamal 2020).

Information systems hold immense strategic importance for insurance companies, profoundly impacting their performance and profitability. These systems are essential for efficient data management, risk assessment, claims processing and timely stakeholder communication (Hamal 2020). Strategic management is crucial for enhancing the quality of accounting information systems within insurance companies. Implementing policy and rule changes, both internally and externally, can significantly improve these systems (Reskino 2021).

Best practices and principles in agile software development

Agile software development refers to an iterative and incremental development approach in which requirements and solutions evolve through collaborative efforts within self-organising, multifaceted teams. In agile software development, programmers must collaborate in pairs, working closely to

write code. This approach fosters collective code ownership and facilitates knowledge sharing within the team. Additionally, it acts as an informal review process, with multiple individuals reviewing each line of code. The team is also encouraged to engage in refactoring, benefiting from a collective effort (Catolino et al. 2020). According to Farley (2021) and Sahu (2024), this can also be further comprehended as a software development rescue from the misconception that there exist predictable solutions for every software problem (Khan, Ali & Nazir 2024).

In the software development context, agile methods emphasise crucial factors such as customer satisfaction, collaboration, communication, teamwork and maintaining high quality (Tam et al. 2020). These principles can significantly influence the operational development processes across diverse organisations, including software development ventures, enhancing overall project effectiveness and outcomes.

A comprehensive exploration of agile practices in global software engineering has been conducted through a systematic mapping approach, shedding light on the varied practices utilised in agile software development across different geographical locations (Mourão et al. 2020). This research initiative offers valuable insights into the adaptability and applicability of agile practices in diverse global settings, underlining their potential for widespread adoption and implementation.

The essence of agile software development lies in social interaction, teamwork and autonomy, with the adoption of agile practices and effective team processes being pivotal for project success (Gren & Ralph 2022). The agile manifesto principles guide teams in evolving specific practices, continually refining and adapting them to suit the unique needs of software development projects (Al-Saqqa et al. 2020).

Noteworthy agile methodologies, such as Scrum and XP, prioritise member capability, synchronisation and consistent deployment of products, particularly aligning with the iterative and evolutionary development processes conducive to mobile software projects (Block 2023). These methodologies offer a structured approach, enabling teams to evolve in a way that ensures product success and customer satisfaction, especially in dynamic mobile software projects.

The essence of agile methodologies is rooted in satisfying customer needs through the early and continuous delivery of valuable software (Zorzetti et al. 2022). This approach is supported by a focus on security considerations, ensuring that software development incorporates robust security measures to deliver safe and reliable products.

In a distributed development context, a systematic literature review delves into agile practices in global software development, providing an expansive overview of different practices utilised and their effectiveness in distributed

development teams (Manjavacas et al. 2020). This is important for understanding the dynamics and effectiveness of agile practices in a globally distributed software development landscape.

For efficiency purposes, agile project management tools are widely employed to monitor project progress and product quality without heavy reliance on extensive development documents (Mishra & Alzoubi 2023). These tools streamline project monitoring and management, aligning with the agile principles of flexibility, collaboration and rapid response to change.

In response to the limitations of traditional project management methodologies, agile methodologies have emerged as a preferred alternative, offering distinct advantages such as adaptability to changing business environments and overcoming the unique challenges posed by financial software development (Munteanu & Dragos 2021). These methodologies provide a tailored approach that addresses the dynamic nature of modern businesses and enables efficient and effective software development in financial domains.

Success factors in information technology project implementation

Factors that influence ICT projects' success include executive support, user involvement, experienced project managers, clear business objectives, minimised scope, standard software infrastructure, reliable estimates, risk management and proper planning (Abule & Aduomer 2022). Other critical success factors influencing the performance of construction projects include effective project planning, project team competence, stakeholder involvement, clear project objectives and proper project control (Shayan, Pyung Kim & Tam 2022).

Venkatesh (2022) cited that the rapid development of IT projects has made organisations understand the importance of implementing IT projects; factors for the success of those IT projects go a long way in improving and establishing IT projects. The combination of ideas, methods and project management during the implementation of any IT project is very important. The success of an IT project refers to countless factors such as top management support, leadership (Fayaz et al. 2017), effective communication, process quality, training (Sicotte et al. 2021), project progress schedule, selecting the right team, customer involvement, risk management, effective monitoring and control and acceptable requirements (Arto et al. 2011).

A study by Yohannes and Mauritsius (2022) specifically addresses the critical success factors in IT projects. The findings of this study reveal the significant relationship between effective organisation communication, project team capability and competence, methodology, tools and techniques with IT project success. This reference provides valuable insights into the success factors that are relevant to IT project implementation.

Critical factors influencing agile approach adoption and project success

Ciric and Lalic (2010) conducted a study focusing on critical factors contributing to the success of agile project management. The research emphasised the significance of collaboration, customer involvement and iterative development in ensuring project success. Similarly, a quantitative study conducted by Binboga & Gumussoy (2024) in Brazilian organisations investigated the correlation between agile principles and project success. The study identified pivotal factors such as customer collaboration, self-organisation and iterative development as crucial for achieving success in agile projects. Additionally, Graafmans et al. (2021) proposed a maturity model to assess the adoption level of scaled agile development. This model underscored the importance of organisational culture, leadership support and team collaboration for successful adoption.

Regarding ERP implementation, Wijaya and Egeten (2023) explored the use of agile methodologies and identified customer collaboration, continuous communication and iterative development as critical for overcoming challenges in ERP implementation projects. Similarly, Gandomani and Afshari (2022) utilised a grounded theory approach to investigate the essential prerequisites of agile transition and adoption. Their findings highlighted organisational culture, management support and team empowerment as vital components for successful transition and adoption.

In a distinct context, Khayer, Bao and Nguyen (2020) examined predictive variables for successful agile development, particularly in integrating cloud computing services. The study emphasised the importance of team collaboration, customer involvement and effective communication in achieving success in agile projects. Moreover, Chiyangwa and Mnkandla (2022) identified and modelled critical factors contributing to agile software development projects in the South African context. Customer collaboration, team empowerment and effective communication were crucial determinants of success. Lastly, Guerrero et al. (2021) conducted a case study to explore the application of agile methodologies in software project management. The critical success factors elucidated in this study included customer collaboration, iterative development and continuous improvement, all of which played pivotal roles in achieving project success.

Research methods and design

Research paradigm

A research paradigm refers to the belief that influence the approach in which data about a phenomenon should be gathered analysed and reported, with Positivism and Interpretivism being the most common philosophies in IT research (Creswell 2009). For the purpose of this study, an Interpretivism paradigm, which asserts that only through the subjective interpretation of and intervention in reality can that reality be fully understood (Dewi 2021), will be followed to understand the organisational factors that hinder the

adoption of agile in IT projects. Sharma et al. (2023) support that paradigm will assist this study, which attempt to understand people's perceptions towards events that are external to them, as it attempts to elicit the understanding, experience and perceptions of the participants on the identified those quality factors around the agile use in IT project within their organisation.

Research approach and strategy

According to Welman, Kruger and Mitchell (2005), the research can be conducted in either a quantitative research or qualitative research approach, where *Quantitative research* is focused on facts and causes of behaviour and the results are presented in a statistical format (Pacho 2003), while *Qualitative research* involves exploring issues, understanding phenomena and answering questions through multiple methods such as open-ended interviews, informal and formal observations, open-ended questionnaires and case studies (Creswell 2009). For this study, qualitative research approach will be adopted, within a *case study design* strategy. According to Yin (2003), a case study refers to an empirical investigation of an existing event in an environment, and case studies can be single or multiple-case. For this study, a *single case study approach* was employed for an in-depth understanding of the complete quality factors that contribute to agile adoption within an insurance organisation.

Sampling method

A sample is a representative part of the targeted population that is methodologically selected to participate in a study (Blumberg, Cooper & Schindler 2014). For this study, purposive sampling that involves the selection of the units to be observed on the basis of your own judgement about which ones were the most useful or representative will be applied (Wessels, Pauw & Thani 2009). The criteria were based on the participants having played a role as stakeholder in an IT project that has used agile methodology within the selected organisation within the past 3 years to remain relevant to this study purpose; these will include roles such as Enterprise Architect, Senior Specialist – PPM Governance & Value Management, Lead Specialist QA, Chapter Lead, Lead Specialist: Digital Transformation and BA, Business Analyst X2, Manager to Business Analysis, Scrum Master, Group Chief Enterprise Software, Team Lead of Developers and Software Developer. A total of 12 participants were sampled for interviews.

Data collection instruments

This study used interviews as the main data collection instrument, as outlined next:

Semi-structured interviews: a semi-structured interview was employed to afford the researcher the flexibility to adjust the sequence of questions to be asked and to add follow-up questions based on the responses of the participants (Cooper & Schindler 2006). Therefore, there was an interview schedule designed ahead with all intended interview questions,

follow-up questions were created during the interview, allowing both the interviewer and the interviewee the flexibility to probe for details or discuss issues (Kvale & Brinkman 2008). The interviews on Microsoft teams for about 30 min, recording was turned on and transcript were turned on for the purposes of taking notes.

Data analysis

Data analysis refers to the process of collecting, reducing and summarising the data collected in the study (Cooper & Schindler 2006). Data analysis allows the researcher to organise and bring meaning to large amount of data (Creswell 2009). Creswell (2009) suggests a procedure for qualitative data analysis to follow for data preparation, coding and interpretation; this will be used following the bottom-up thematic analysis technique to identify and analyse the background of the insurance company and participants' background. Moreover, the analysis of data further revealed the type of projects and time frame of projects the insurance company take on using Agile Software Development.

Analysis of background and information of the insurance company

The purpose of this theme is to fully understand the extensive level of the experience for the participants and the nature of projects the participants have been involved in and lastly time frames of the projects and how long have insurance been using agile methodology.

A sample of interview questions:

1. Please provide a brief description of an agile software development project you have worked on.
2. What was the timeframe of the project?
3. Further, elaborate on how long the insurance company has been using agile methodology.

The results that emerged from this theme were categorised into new product, new functions and software upgrades. These categories emanated from the findings that showed that some participants have been involved in agile software development project on different projects such as designing a new product or function and software upgrades projects. Only experts in software development projects participated in the insurance company and some projects take minimum of 1 month while others take maximum time of 3 years.

1. *Category One:* New Product

Participants 2, 3 and 4 have been involved in agile development project recently when they were designing a new product for insurance company:

'I think I've been involved in so many projects at the Insurance Company, but the one that stands out for me, it's one of quite a huge success for the Insurance Company, it was all about introducing new products to our customers, so we have implemented Salesforce so that we can deliver to customer.' (Participant 2)

'We have moved away from the term project to product, we've created long running teams that that build new products out.

I don't work on project per ser as leader of chapter but the project within chapters takes minimum of 9 months and maximum of 3 years.' (Participant 3)

'My most interesting project was in 2017 and it was robotics and just looking at automating the documentation as we received it for claims for insurance and auto sending of documents to the customer, auto fill correct record for claims. Enable for the assessor to extract that information in making his decision, and then I moved onto the why did we call him the cloud customer experience team and the customer experience team was again looking at automating. We looked after the Insurance company website but the servicing side of the Insurance company website. This project took 2 years maximum.' (Participant 4)

2. *Category Two:* Software Upgrades

Participants 1, 5, 8, 10 and 11 have been involved in agile development project recently when they were doing software upgrades to an existing solution for insurance company:

'There were different projects I was involved in, because if it's in software, they differ in the sense that the company has lots of legacy issues. If the software needs to be developed it will run on other software's. You find that whatever you do or where you develop or when we see these software needs to be developed, the software does not run on its own. And it's supposed to integrate, maybe with the existing software as well. Integration might be problem because you may find that the existing other software is in English. Software upgrades that difficult or it can take time to integrate with and also that sharing of data and also ensuring that development should be done on the right platforms. The other issue is the availability of this software developers. We are, we are resource constraints as well.' (Participant 1)

'In the past I have delivered a lot of the technical transformation work within the Insurance company space. So, for instance driving the data and transformation work we've done and going back 5 years ago already. Starting to implement agile as a as a practice support X increased execution.' (Participant 5)

'There's one project I worked on it a nice, fast it was, when I started, it was already flow. Is it already started, and I worked on it for about 8 months, basically on that project we needed to provide a solution for onboarding new applicants, The department itself, I'm not sure when it started being agile, but I started last year January, I'm a year and 2 months.' (Participant 8)

'I lead a team of developers in the Integration space we do production support and Application development, we work on projects and you also part of the bigger governance to ensure that the practices are followed and that had to close the organization. We worked recently on a project that does upgrade programmes for big applications, so we have to enhance the environment to adhere to the incoming upgrades.' (Participant 10)

'I recently worked on a schema amendments project for 9 months now and we have been agile for 2 years now. so the business analyst is writing stories, we are using Azure DevOps as a tool, so they are writing the stories.' (Participant 11)

3. *Category 3:* New Function

Participants 6 and 9 were involved in a project that was designed to deliver new functionality to an existing application within an insurance section. The following data were gathered and interpreted by the researcher:

'I'll talk about the recent one. Am I just picking recent one and they all interesting how we were implementing service console

on Salesforce? So basically, taking a specific number of functionality's that are residing on an old was not old, but it different workflow management system as well. As you know your source system policy administration systems and automating that, so it it's in one place for the agents to resolve the case without having to go to multiple systems and basically, they manage it on sales posts and resolve it on Salesforce. Whereas if they would have had to go to an investment platform or risk platform and workflow management platform, And Blueprint online just to process one request for a customer. It was implementing that. It's well, we have. It's been more than a year, I guess. Well, I left on November 1st, so I was there from March it the team had just started.' (Participant 6)

'I've worked on quite a lot of projects right up. Maybe I can just pick up the scheme enhancement projects. So, scheme enhancement is a business process that is used by Insurance company to amend also enhance Your customer data. Because Agile is different from what's we used to, right? In terms of how you scope, you deal with small manageable chunks. So, if I were to do a rough estimate, three to 6 months to finish a process. The organization has been Agile for the past 3 years.' (Participant 9)

To be noted, I am a senior manager, I run the governance framework, the governance team. Within my department. No, so I don't. I don't work on projects. I put guidelines for them how to ensure that the regulatory Stuff are intact. I don't work on projects at all.' (Participant 7)

Ethical considerations

Ethical clearance to conduct this study was obtained from the Tshwane University of Technology Faculty of Committee of Research Ethics. The ethics clearance number is FCRE/ICT/2021/09/002(1).

Results and interpretation

The data analysed the data using open-ended question to identify patterns that are linked to the goal of the study (). The identified patterns from the respondents showed that agile methodology is currently utilised for the following in the selected insurance company:

Current state Software upgrades (Application transformation to cloud computing, work transformation, onboarding of new applicants, environment enhancements, schema amendment)

Al-Refai et al. (2017) conducted a study on merging prototyping and agile approaches in software development, which offers insights into different approaches for software upgrades using agile methodologies. In addition, Arbain et al. (2020) presented a case study on managing changes and requirements during software upgrades in agile software development, specifically focusing on non-functional requirement change impact traceability.

This study revealed that software upgrades encompass a comprehensive array of enhancements aimed at optimising various facets of a system. The first aspect, application transformation to cloud computing, involves migrating

traditional applications to cloud-based platforms, leveraging the benefits of scalability, flexibility and cost efficiency. Work transformation focuses on redefining workflows and processes to enhance efficiency, collaboration and adaptability within the organisation. Onboarding of new applicants entails streamlining and digitising the process of integrating new hires into the workforce, and ensuring a seamless and organised transition. Environment enhancements involve refining the software's operating environment to improve performance, security and overall stability. Lastly, schema amendment entails modifying the data structure and organisation within the software, optimising data management and retrieval, which is vital for maintaining an efficient and effective software ecosystem. These upgrades collectively work towards fortifying the software's capabilities, aligning it with contemporary technological trends and facilitating smoother operations and improved user experiences.

Current state: New Product (introduction of new product such as sales force, automating insurance claims documents)

As study conducted by Jain, Kansal et al. (2023) introduced and outlined the design of a novel approach termed the 'Eclectic Agile Methodology'. This methodology is crafted to address the current obstacles faced in agile software development and offers valuable perspectives and instructions for creating a new IT product utilising agile practices. In addition, products developed using agile methodologies prioritise meeting customer requirements by employing small, frequent and rapid iterations, thereby minimising the need for extensive rework (Sohail et al. 2021). The research findings highlight a shift towards more efficient and customer-centric practices, underscoring the value of employing agile methodologies in the selected insurance company to introduce new products. Agile methodologies empower IT professionals to be more responsive, customer focused and efficient in developing innovative solutions such as sales force platforms and automated insurance claims processing systems.

In adopting the agile methodology for creating a sales force platform, the research emphasises the iterative and collaborative nature of agile development, allowing for constant feedback loops and the ability to adapt to evolving requirements. The findings demonstrate accelerated development cycles, enabling the insurance company to swiftly respond to changing market demands. Moreover, the research showcase improved adaptability, transparency and cross-functional collaboration, resulting in a sales force platform that aligns more closely with user needs and expectations.

For the automation of insurance claims documents, the research highlights how agile methodologies enable a flexible and dynamic approach to product development. By breaking down the project into smaller, manageable iterations, IT professionals in the selected insurance company achieve quicker wins and validate the product's features

incrementally. The findings also reveal a reduction in time-to-market for the automated claims solution, leading to a faster and more efficient claims processing system. In addition, the research demonstrates enhanced stakeholder engagement, as the agile approach often involves continuous involvement and feedback from stakeholders, ensuring that the final product meets their requirements effectively.

Current state: New function (Scheme enhancement, Fund Anniversary, Renewal of people's schemes)

Existing studies support these findings, for example, Sohaib et al. (2019) explored incorporating design thinking principles into extreme programming (XP) methodology with the aim of enhancing software product quality and fostering creativity and innovation. Their study offers valuable perspectives on integrating user-centred design principles during the development of new functions using agile methodologies.

The research findings highlight the effectiveness of implementing agile methodology in the selected insurance company for developing new functions related to scheme enhancement, fund anniversary and scheme renewals. Agile's iterative and customer-centric approach enhances the overall customer experience, promotes efficient processes and ensures that the company remains competitive and responsive in a dynamic insurance market. This somehow shows the benefits of adopting agile practices to meet evolving customer and business needs.

With relation to scheme enhancement, the research revealed how agile methodology facilitates iterative development and continuous feedback, enabling insurance companies to enhance existing schemes swiftly and efficiently. The findings also emphasise improved adaptability to market dynamics and customer preferences, leading to enhanced scheme features, better coverage and more competitive offerings. Agile's customer-centric approach ensures that scheme enhancements align with policyholders' requirements, contributing to higher satisfaction and improved retention rates.

Regarding fund anniversary, agile methodology offers a structured framework for planning and executing updates or new functionalities around this critical milestone. The research underscores the importance of agile sprints and prioritisation, allowing for the timely deployment of features related to fund performance analysis, investment options and client communications. The iterative nature of agile ensures that the selected insurance company adapts its offerings based on real-time market conditions and customer expectations, ultimately enhancing the fund anniversary experience for investors.

In the case of renewing people's schemes, the research highlights how agile methodologies streamline and automate the renewal process. Agile's focus on collaboration and customer involvement ensures that the renewal process is efficient, user friendly and tailored to individual preferences.

The findings might indicate reduced renewal processing time, personalised renewal options and increased customer engagement through iterative feedback loops. Agile's iterative planning and execution contribute to smoother renewals, leading to higher customer satisfaction and retention.

It is worth mentioning that some of the respondents used phrases 'new function' and 'product' interchangeably. However, the researcher chooses to list these separately as it can be seen from the given data that a new product is about introducing a completely new development such as sales force and automation while a function is about an enhancement to an existing product such as schema amendments. Figure 1 shows the corresponding patterns identified from the analysis:

Figure 1 illustrates that the majority of respondent have used agile software development for software upgrades, and other participants have used agile software development for either developing a new function or product. The insurance company also focuses on running governance framework to ensure compliance and regulations are followed.

As it can be seen from the evidence gathered from the research, the current state of agile utilisation within insurance company is to develop a new product and function and do software upgrades for the existing application. Literature concurs with the evidence gathered in this article. As Nerur et al. (2005) suggest that organisations are trying to respond to increasing pressures that are trying to deal with the constantly changing environmental forces and changing requirements of customers.

Table 1 shows the time frames of agile software development projects and how long has the insurance company using agile methodology:

The minimum time frames of the agile projects in insurance company are 1 month and maximum 36 months, and it can be seen from the research that both new function and product and software upgrades takes maximum of 36 months to complete. The reasons could be different things such as size of the project, resource involved in project and user's demand for the project.

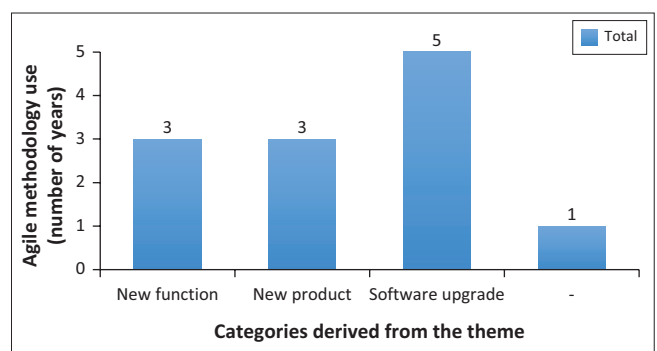


FIGURE 1: Patterns identified from responses and findings.

TABLE 1: Time frames of the agile projects in insurance company.

Participant ID	Key point	Time frame (months)		Agile use (years)
		Minimum	Maximum	
Current state of agile utilisation				
P1	Application transformation to being cloud based; Software upgrade	1	3	-
P2	Introducing new product (Sales Force); New product	-	-	-
P3	Move away from projects concept to product; New product	9	36	-
P4	Automating insurance claims documents; New product	-	24	-
P5	Work transformation; Software upgrade	2	36	-
P6	System automation; New product	-	36	-
P7	-	-	-	-
P8	Onboarding new applicants; Software upgrade	-	8	-
P9	Scheme enhancement; New function	3	6	3
P10	Environment enhancements; Software upgrade	-	5	5
P11	Schema amendment; Software upgrade	-	9	2
P12	Fund Anniversary; Renewal of peoples schemes (Software upgrade)	-	6	3

ID, identification.

The maximum number of years the company has been utilising agile 5 years; clearly the evidence gathered here is valid as the insurance company has been involved in agile for the period of 5 years. Even though we have a maximum number of 5 years seven out of 12 respondents got involved, while the agile project was ongoing; hence, they could not provide the number of years the company has been involved in agile.

Major findings and shortcomings

This study discusses the multifaceted nature of software upgrades, highlighting various enhancements aimed at optimising system performance. These upgrades include application transformation to cloud computing for scalability and cost-efficiency, work transformation for improved workflows and collaboration, onboarding of new applicants for seamless integration, environment enhancements for better performance and security and schema amendment for optimised data management. These upgrades collectively strengthen software capabilities, aligning it with modern technological trends and enhancing user experiences.

The research findings emphasise the adoption of agile methodologies in an insurance company to enhance efficiency and customer-centric practices, particularly in the introduction of new products. Agile methodologies empower IT professionals to be responsive, customer focused and efficient in developing innovative solutions such as sales force platforms and automated insurance claims processing systems. The study highlights the iterative and collaborative nature of agile development, enabling constant feedback loops and adaptation to evolve requirements. Accelerated development cycles allow the insurance company to swiftly respond to changing market demands, resulting in improved

adaptability, transparency and cross-functional collaboration. For the sales force platform, agile methodologies lead to a product that aligns closely with user needs and expectations. Similarly, for the automation of insurance claims documents, agile methodologies enable a flexible approach to product development, resulting in quicker wins and a reduction in time-to-market for the automated claims solution. Enhanced stakeholder engagement ensures that the final product effectively meets their requirements. Shortcomings would include:

A lack of specificity: The summary provides a broad overview of software upgrades without delving into specific examples or case studies, which could offer deeper insights into the practical implications and challenges faced in implementing these enhancements.

Limited scope: The summary focuses primarily on the positive aspects of software upgrades and may not adequately address potential drawbacks, such as implementation complexities, resource constraints or resistance to change within organisations.

The summary presents software upgrades as a universally beneficial solution without considering the diverse needs, contexts and constraints of different organisations or industries. It may omit details that have an impact on the feasibility or success of implementation in specific circumstances. Addressing these shortcomings could enhance the credibility, relevance and applicability of the study's findings for practitioners, researchers and decision-makers in the field of software development and system optimisation.

Conclusion

The aim of this study was to assess the current state of agile methodology utilisation in a South African insurance company. There are some observations and limitations: Participant 7 is working at the governance division of the organisation, and thus could not contribute to interview questions.

The data collected in this section shows that the insurance company has been using agile for maximum period of 5 years, and their project runs for maximum month of 36 months long for either to upgrade an existing software or for designing a new solution. Twelve participants were interviewed to understand their background, role and time frame of the project they have worked on, furthermore in their own knowledge how long has the department using agile.

In summary, the current state of agile methodology utilisation in a South African insurance company is associated with application transformation to cloud computing, work transformation, onboarding of new applicants, environment enhancements, schema amendment, introduction of new product such as sales force, automating insurance claims documents, scheme enhancement, fund anniversary and renewal of people's schemes.

Recommendations for future studies

Perform a comparative analysis

Compare the time frames for agile projects in the insurance industry with those observed in other sectors to uncover distinctive factors influencing project durations in an agile setup. Evaluate project completion data for upgrades and new product development initiatives to define standard benchmarks and exemplary approaches. Conduct an extensive comparative study to gauge the agile project time frames specific to the insurance domain against prevalent industry standards and evolving trends. Discern emergent trends and methodologies that have the potential to optimise agile project durations within the insurance sector.

Establish a comprehensive governance framework

Formulate an all-encompassing governance framework tailored for agile software development in the insurance sector, incorporating insights derived from earlier research stages. Validate the framework through targeted pilot implementations within insurance organisations, gathering valuable insights and feedback from various stakeholders including teams, project managers and key decision makers.

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Authors' contributions

L.N. contributed towards the research methodology and data collection, analysis and investigation. N.R. contributed towards the supervision, review and T.R.S. contributed towards the supervision and writing draft.

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Data availability

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