Case 2: Project Management Methodology

1 Introduction

In this case study, we study the effectiveness of Agile and determine the suitability of Agile in our project. We will first perform a literature review, followed by a comparison of predictive and Agile approaches before deciding on the approach we will adopt in our project.

2 Literature review

2.1 Agile and its success

In 2015, Serrador and Pinto conducted a formal analysis of Agile's success in projects. Serrador and Pinto (2015) explain that Agile emphasises communication and responsiveness over rigid planning, which is usual practice in predictive approaches. This aligns with Koi-Akrofi et al. (2019)'s description of Agile being a more flexible conceptual framework. Works such as Okoli & Carillo (2012), Serrador & Pinto (2015), Casey (2016), and Thesing et al. (2021) explain that Agile provides more flexibility than the predictive approach in project management, allowing for unexpected requirement changes. This approach aims for a more satisfactory end-product to the customers (Stare, 2013). Successful applications of Agile have been observed in many projects such as those reported in Kim et al. (2015).

2.2 Limitations of Agile

The success of Agile described in Serrador & Pinto (2015) implores us to study its limitations. Even Serrador & Pinto (2015) note that most Agile success cases are anecdotal. Our findings from Agrawal et al. (2015) show that Agile does have limitations, such as the lack of upfront planning and project documentation. Hence, Agile may not be the solution to all projects, which prompts us to reconsider adopting Agile.

3 Predictive vs Agile approach

3.1 Predictive Approach

Pros The predictive approach's greatest strength lies in its ease of managing the triple-constraints: scope, time, and cost. This advantage of the predictive approach is brought up in Thesing et al. (2021). Additionally, the predictive approach ensures that project expectations that are communicated by clients upon project initiation will be fulfilled well (Kim et al., 2015). This can be achieved due to the predictive approach's strict adherence to project specifications.

Cons A disadvantage of the predictive approach is its inability to cope with requirement changes. This is compounded by another disadvantage, which is the assumption that all user requirements are known from the beginning and will not change (Okoli & Carillo, 2012). These assumptions on unchanging user requirements are frequently unrealistic, leading to unsatisfied customers even when all documented requirements are met.

3.2 Agile Approach

Pros A major advantage of the Agile approach is its ability to deal with flexible scope and changing requirements. According to Koi-Akrofi et al. (2019), Agile encourages flexible product delivery instead of rigid adherence to detailed documentation, which ultimately enables Agile to fulfil requirements in dynamic environments. Besides that, Agile leads to greater customer satisfaction. Serrador and Pinto (2015) explain that Agile depends on continuous customer involvement throughout development. This would lead to greater customer satisfaction when delivering the end product.

Cons A significant weakness of the Agile approach is its lack of documentation. In a survey by Agrawal et al. (2015), it was found that most Agile projects lacked documentation due to late requirement changes. Agrawal et al. (2015) also reported a need for Agile project team members to receive relevant training for Agile to be effective, which is another weakness of the Agile approach. These weaknesses undermine the effectiveness of Agile in projects.

4 Approach to use in our project

For the following reasons, we have decided to adopt the Agile approach in our project.

4.1 Vague requirements

Primarily, our project team's decision to adopt Agile is due to the vagueness of our project requirements. Our supervisor allows for scope changes in our topic. The Agile approach's motivations lie in the observation that most projects have initial objectives lacking in detail (Stare, 2013). Agile particularly suits our project, which requires constant changes to our assumptions. In this project, our project team will frequently build experimental prototypes, where these prototypes will be completely replaced when required. The vaguely defined requirements have hence solidified our team's decision to utilise the Agile approach.

4.2 Project supervisor

Besides that, our project supervisor's openness to communication and changes makes Agile suitable for our project. Our supervisor, Dr Lim Mei Kuan, encourages schedule flexibility and is open to meetings at any time. Agile enables our team to ask for continuous feedback and constantly update the deliverables. Furthermore, Dr Lim has expressed her inclinations to change the project direction and requirements according to our findings. These changes are best suited for an Agile team, where new client requests are continuously expected (Serrador & Pinto, 2015). Thus, it is evident that our project would benefit from adopting the Agile approach due to our supervisor's mindset and availability.

4.3 Team member expertise

An additional reason for our project team to adopt Agile is due to our prior experience with Agile. Our team members have experience in Agile practices, such as daily Scrums and weekly Sprints. This approach commonly requires practical training to maximise its effectiveness (Casey, 2016), which our team members have received. Ultimately, the best approach is one that allows for collective ease. With our combined expertise in Agile, this approach is the one that we have chosen to utilise.

5 Conclusion

Based on our analysis, we conclude that Agile is the best approach for our project. Despite Agile's limitations, the advantages of Agile outweigh its disadvantages. We believe the Agile approach will lead us to project success.

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