What is the ideal sprint duration?

COMP 150- Agile Development Practice

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An investigation into the key factors that dictate sprint duration for Agile projects. This research document, will pose and investigate the question; what factors affect sprint duration and their possible positive and negative consequences. Due to the broad range of activities undertaken by teams in software/game development, and the word restrictions of this assignment, this research document will primarily focus on summarising current leading academic thinking, evidence shared by case studies and material posted on-line in leading software development forums.

1 Introduction

Sprints are a fundamental aspect of any agile project, and although there are a great many documented examples of agile projects available for review, sprint duration, has not been a primary focus of academic research. This has meant that direct and corroborated research regarding agile sprint durations, is sometimes, anecdotal in nature and therefore some aspects of this report are inferred by the research material. Where ever possible, the information

provided in this document has been drawn from Agile case studies and academic journals, in combination with insights from posts made in various software development forums. As an academic paper, this lack of concrete research, is clearly not ideal. But it is the author's intention to high light this lack of research into one of the most important elements of the Agile methodology and recommend further academic research and investigation.

Based on the academic papers, journals and case studies available, it is within the reach of this document to identify that shorter sprint durations are generally preferred. The main body of this document intends to high light the advantages of shorter sprint durations and this will be the focus of this document.

Therefore, this document will reference and summarise key observations by teams using sprints within their agile projects and attempt to identify the key factors that determine their effectiveness.

2 Main

It is worth noting, that although the vast majority of the research material used in this document recognises that shorter sprint durations are generally preferred, it is also clear that there is no ' ideal ' length of sprint duration for any specific type of agile project; i.e. game development. But from a review of the reference material, it is evident, that the following factors greatly influence any project's sprint duration.

2.1 Factors affecting sprint duration

A) Frequency of client input, direction and expectations

B) Experience level of the agile team members

C) Time allocated to overhead planning and review

D) Work flow intensity

E) Budget restrictions

2.2 Frequency of input and direction from the client

Client input on a project is a central influence on sprint duration, as some clients may require regular and in-depth input into the project. This can be inferred, if the project is based on an artist source material (book, film, comic etc.), where the client has ownership of the game concept, or the source material is part of a wider brand or franchise.

It is also true,that client input and direction will be increased in any project that uses sensitive or classified information. Such as user information, private information about the company and or data protected sources [?]. In these situations, where greater frequency of client input is required, shorter sprint durations is often recommended to shape and guide the project. [?]

Shorter sprint duration can also be used to manage client expectations, by involving the client in each step of development. This will give clients a clear and realistic understanding of the development process. Thus, potentially, insulate the project from unrealistic deadlines and expectations. From the research source material, the importance of managing client's expectation is continually emphasised. And so modifying sprint durations to intersect with client meetings can only be beneficial [?].

2.3 Team experience

Current available research recommends shorter sprint durations for inexperienced teams, as this will allow all team members an opportunity to quickly focus on sequential work flow, with regular feedback and review opportunities. Whereas longer sprint duration with inexperienced team members may lead

to mini water fall work flow or unnecessary iterations or complexity.

2.4 Overhead planning and review

As part of the Agile methodology, each sprint cycle is subject to a scrum meeting at the beginning and a review at the end. Because of the frequency of these reviews/meetings, shorter sprint durations may, theoretically, reduce overall productivity. If a meeting/ review (with or without a client) is performed, productivity on the day of the review/scrum can be expected to fall as team members will focus on preparing for the review/scrum and then digest the results afterwards. If there is a weekly sprint with a review at the end, this one review day will account for 20 percent of the team's work time per week (based on a five day working week). This could be a major influence on overall productivity.[**?**]

2.5 Work flow intensity

Shorter sprints naturally breed intensity, and generally unfold in three stages; early intense productivity, mid-point lag, ending with a final crush . Short intense sprints will, therefore, produce fatigue within the team, meaning that high intensity (and high productivity) is unsustainable throughout the entirety of the project, unless regular down periods are factored into the project work flow. That been said, fatigue is not an issue limited to shorter duration sprints, as some of the source material point to longer sprints producing the exact same effect[citation [**?**]. A key insight from the source material highlights the importance of celebrating significant project goals or mile stones throughout the project, with frequent recovery periods allocated, regardless of the duration of sprint involved.

2.6 Budget

Perhaps the most influential force on sprint duration is the allocated budget and time frame for the project. Most client investment will be of a finite amount; and project managers must factor in the financial restrictions when deciding the pace of each development cycle and duration of each sprints.

3 Does sprint durations affect creativity and problem solving?

Although this question is not the focus of this document, the effects of sprint duration on creativity and problem-solving intuitively feels of great importance. When reviewing the case studies available, it is apparent that none of the development teams describe any detectable negative effects on creativity or problem- solving ability of their team members due to sprint duration. This could be because of multiple factors, the review function after every sprint, regular client feedback or the constant iteration of the product being produced. That been said, although the research material, cannot show categorically any detrimental (or for that matter positive) effects, this does not mean that none exists, and so it is this documents recommends that further academic research and investigation into this question is needed.

4 Conclusion

In terms of a conclusion, the research material clearly points to a shorter sprint duration being preferred by academics and industry professionals for overall productivity, adaptability, clear sequential work flow, and inter team cooperation. But ultimately agile projects' sprint durations will be influenced

by the nature and complexity of the project, plus the structure, experience and nature of the teams involved. Clearly, client input and budget restrictions are also two powerful outside factors when deciding upon sprint duration. But it is clear by the weight of current opinion, and the evidence of the source material, that there is a strong inclination towards shorter high intensity sprints of one to two weeks [**?**] .

In the defence of longer duration sprints: some cases studies/research journals do identify three key problems with shorter duration sprints.

1) A de-emphasis on long term planning in favour of short term adaptiveness 2) A neglect of best practices 3) A tendency to micro manage team members

These are fair criticisms, but are generally made by software businesses outside of the games industry [**?**]. Because of the ever-changing landscape of the games industry and the huge time pressures placed on development teams, a trade off in favour of adaptiveness, quick release of products and more centralised control seems like a necessary sacrifice. Yet again, is it worth highlighting that the literature all agrees, there is no ideal duration of sprint.

In closing, shorter sprint durations are generally preferred for their advantages in productivity and budget management and as such are the preferred industry practise.

References