

Critical Evaluation of Prince2 and Agile Project Management Methodologies for a complex project

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Abstract: Most of major IT projects failed due to its complexity and the project complexity is determined by the intensity of business requirements and its fluctuant nature. Prince2 is the solution for a sophisticated project because of its vast range of stage driven processes which mainly focus on project benefits in each stage. The main objective of Prince2 is breaking the complexity into small parts/stages which can be achieved easily. The seven processes of Prince2 cover the entire project lifecycle including requirement gathering, as-is process, development, and product delivery. The seven themes cover major concerns of any project including business case, risk management and quality on deliverables. The seven principles are the seven pillars of Prince2 which sustain its standard. It is understood that the Agile project management methodology is suitable for medium and small scaled projects. The five groups processes of Agile project management intensely focus on development activities and make sure the required product is delivered without any error. It is recommended that Prince2 is certainly suitable for complex projects as a dominant project management methodology, however, Scrum technique can be used for depth IT development as a secondary project management methodology within Prince2.

Keywords: Prince2, Agile, Scrum, Risk, Project Manager, Team, Plan, Process.

1. Introduction

This research report intended to deliver critical evaluation of Prince2 and Agile project management methodologies. Firstly, Prince2 project management methodology is examined and its seven principles, seven themes, and seven processes are described in brief. Secondly, Agile project management methodology is explained and its five process groups are described in short. Thirdly, the critique of Prince2 and Agile methodologies is further described while explaining comparative advantages and disadvantages, and strengths and weaknesses of both the methodologies. These critiques are presented in a table presentation for easy comparison of both the methodologies. Finally, discussion and conclusion for the report is cited and in discussion a combination of both Prince2 and Agile project management methodology is depicted. Conclusion leads the understanding of this research and the report is prepared based on literature review of peer-reviewed electronic journals and electronic books which are referred from ProQuest, ebrary and Google books databases. APA referencing is embraced to cite the references in referencing section. In the Appendix section, important images of both Prince2 and Agile project management methodologies are presented with its description and source of the image.

2. Literature Review

2.1 Prince2 overview

Prince2 project management methodology is underpinned by seven principles, seven themes and seven processes (Kruger & Rudman, 2013). Project outcomes are utterly determined by achieved benefits against the amount of money spent. Therefore, benefits are weighed against the cost, and a successful project delivers outweighed benefits than cost. Prince2 project management methodology drives each phase of the project in order to achieve expected benefits within the

estimated cost while mitigating the risk (Barker, 2013).

2.1.1 Seven Principles

Continued Business Justification (CBJ)

The entire project processes are aligned with business objectives and each objective needs the clear justification of their existence in the project lifecycle and CBJ is an iterating process in each stage and makes sure the objectives are up-to-date (Barker, 2013).

Learn from Experience

The entire knowledge learned from in each stage is recorded irrespective of whether it is a success or a failure execution. Root caused is identified for both success and failure executions and documented (Barker, 2013).

Define Roles and Responsibilities

Each phase of the project is executed by an appropriate staff member/members, who is experienced in identified task/tasks within the project and who comprehends on what is expected to be delivered (Hinde, 2012).

Manage by Stages

Project management team has to identify each stage of the project, for instance, planning, designing, transitioning, and delivering. Most importantly, project board needs to accredit each stage, and the project manager has to provide outcomes of each stage to the board (Hinde, 2012).

Manage by Exception

Each management level within the project lifecycle has their own freedom to manage their accomplishments. For instance, team leaders manage their team without any influences from the project manager (Hinde, 2012).

Focus on products

Every step of the project is focused on well-defined deliverables or products. And the description of each product is used as the basis for all the activities such as planning and designing (Hinde, 2012).

Tailor to Suit the Environment

Under this principle, overly detailed activities are tailored in order to reduce overburdens. "Lightness of touch approach" is

the method use to tailor those implementations (Hinde, 2012).

2.1.2 Seven Themes

Business Case

Business cases document describes the actual requirements and anticipated outputs, outcomes, and benefits of the project (Hinde, 2012):

Organization

Organization represents the entire project team and ensures everyone involves in the project at the decision, management and delivery levels. The Corporate Management oversees the project and the Project Board provides the accreditation to the Project manager and the Team managers to manage their respective activities (Hinde, 2012).

Quality

Any deliverable should be fit for it purposes within the scope. Quality management is embraced by four sections, these are Quality Management System (QMS): a centralized repository of various documentations; Quality Assurance: the methodical process to ensure those deliverables are meeting its objectives; Quality Planning: The process of defining the scope of the deliverable and its accomplishments; and Quality Control: The process of testing deliverable against its objectives (Hinde, 2012).

Planning

This is the most significant process describes in Prince2 which iterates in project planning, stage planning, and team planning activities (Hinde, 2012).

Risk

The risk is defined as “the possibility of incurring misfortune or loss which has an effect on the achievements of the objectives” (Hinde, 2012). Risk management is comprised of four sections which are described below:

Risk Management Strategy

Strategic directions need to be set in order to identify and assess risks. Once it is identified, the project team should plan to implement proper responses to mitigate those risks, based on its severity level, risk category, and proximity (Hinde, 2012).

Risk Responsibilities

Risk responsibilities are cascaded amongst each and every role within the project. The Project manager leads the risk management process and the team managers should participate in risk workshop whereas project board oversees identified risk and makes timely decisions where appropriate (Hinde, 2012).

Risk Management Procedure

Risk is identified by three factors, such as Risk Cause: the source of the risk, Risk Event: indefinite event/events which trigger the risk, and Risk effect: effects on projects objectives

Risk Management Products

Risk management products are documentations such as risk registry and risk management techniques.

Change Management

Any change to the baseline project plan need to be captured and examine the impact, and propose the solution, and make the decision, and implement the change by the team.

Progress

The Progress of the project is managed by defining tolerance levels and exceptions. Tolerance limits can be varied based on time, cost, scope and risk (Hinde, 2012).

2.1.3 Seven Processes

Starting Up a Project

As a very first step, all four levels of project management

teams and their subordinates need to be appointed (as shown in figure1). Business case and the initial stage of the project plan need to be prepared (Hinde, 2012).

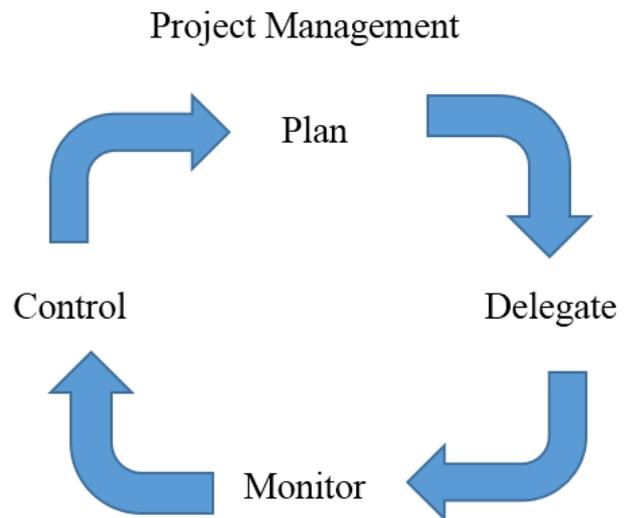


Figure 1: Four main areas of Project Management which reiterate each and every stage. Retrieved from (Hinde, 2012).

Initiating a Project

Strategic direction and the project plan need to be finalized. Each project process needs to be defined such as risk controls, quality assurance, communication and configuration.

Directing a Project

Corporate/Programed Management is directing the project till its end and oversees each stage of the project. They involve in exception planning and approve each stage commencement.

Controlling a Stage

Every stage of the project is controlled and managed by the project manager while taking corrective actions and providing authorization on work packages. Project manager reviews work packages and escalate identified issues and risks to the board.

Managing Product Delivery

Development team and managers are utterly responsible for delivering planned products in each stage while accepting a work package (Hinde, 2012).

Managing Stage Boundaries

This process is conducted at the end of a stage, especially, creating an exception plan by the project manager. Project manager creates the stage report and next stage forecasting plan (Hinde, 2012).

Closing a Project

Project closure is the last stage of the project. This activity is performed by the project manager after completing project evaluation, product hand over, documentation on lessons learned and project closure notifications processes (Hinde, 2012).

2.2 Agile Overview

Agile methodology is mainly intended to deliver IT industrial projects, especially focus on IT development activities. Agile is the solution for budget overrunning, deadlines missing and low-quality outputs' IT projects (Cooke, 2012).

Sprint

Sprint is the duration of a product delivery which is not more than three weeks.

Scrum

Scrum is the iterated Agile methodology which is used to

deliver product at the end of a sprint. Transparency, inspection, and adaptation are the main pillars of the scrum (Levy, Short, & Measey, 2015). Scrum resources are mentioned below:

Scrum Master

Scrum master is the project facilitator who clears roadblocks and keeps the Agile process consistent (Cobb, 2015).

Development team

Anyone who involves daily software development activities is a member of the development team that includes designers and testers (Cobb, 2015).

Product Owner

The product owner is the bridge between business team/customers and development team who provides the development requirements and fills the gap between the business team and the development team (Cobb, 2015).

Subject Matter Expert (SME)

SME is a well-experienced person in Agile project management implementation who mentors the team and provides valuable inputs and advice when required (Cobb, 2015).

Stakeholders

Anyone, who is interested in the project and affected by project outcomes,. A stakeholder can be a person within the organization or someone from a different organization (Cobb, 2015).

Business Sponsor

Business sponsor is responsible for the final product and ensures proper resources are available during the implementation. Moreover, business sponsor reviews and approves the entire product development activities before its execution (Cobb, 2015).

2.2.1 Agile project management five process groups

Initiating the project

Once requirements are finalized, development team estimates the effort while identifying values, risk and initial time. In this process team completes project release plan, sprint plan, and formal documentations (Rico et al., 2014).

Planning the project

The project plan is developed in detail while specifying each task. Tasks are mentioned on the project plan while adding cost, time, and resources. Sprints are identified, and sprint planning is prepared accordingly (Rico et al., 2014).

Executing the project

Team performs various activities in project execution, such as teamwork, project coordination, and communication, application development, quality assurance, information distribution, and subcontracting (Rico et al., 2014).

Monitoring the project

Project scope, cost, schedule, quality, risk, and change are monitored while managing stakeholders and sub-contractors by the team. The team ensures that the product release is in line with sprint planning (Rico et al., 2014).

Closing the project

Project closure and contract closure is focused at the end of the sprint while releasing the deliverables to the customer (Rico et al., 2014).

2.3 Critique of Prince2 and Agile

Below mentioned Table1 and Table2 describe, comparative advantages and disadvantages, and strength and weaknesses of Prince2 and Agile project management methodologies respectively.

Advantages	Disadvantages
Prince2 scrutinises cost vs. benefit in each stage.	Agile estimates the cost and focus on deliverables within the cost.
Prince2 maintains a knowledge bank which is utilised in critical situations (Barker, 2013).	In Agile learning outcomes are not documented by the team.
A vast range of risk management methods and techniques are available in Prince2. For example, risk tolerance, and risk profile diagram (Hinde, 2012).	Agile focus more on technical risk in on-going tasks.
Risk is focused on various levels in Prince2 such as stage level and project level.	Risk is focused on sprint level for that particular delivery.
Prince2 outputs are measurable by outweighed benefits (Hinde, 2012).	Agile always focus on the final product irrespective of its benefits.
Agile delivers products in 3 weeks and always performs tasks in time-boxing concept (Cobb, 2015).	There is no proper period defined for any deliverable in Prince2. It depends on the scope.
Agile is more flexible in planning and designing processes (Sommer, Hedegaard, Dukovska-Popovska, & Steger-Jensen, 2015).	Prince2 needs a huge amount of time for planning and designing.
Agile is enriched with its tools, such as Scrum boards, Burn-down chart, daily Scrum, product backlog and value-chain model.	Prince2 tools are project-benefits oriented such as cost-benefit analysis (Hinde, 2012).
Agile has less documentation work and more focus on development (Cobb, 2015).	Prince2 is more on documentation and standard templates oriented. Each step needs to be documented (Hinde, 2012).
Agile team performs more cross-functional activities and the team has opportunities to explore more knowledge of the project (Cobb, 2015).	Prince2 team focus on their specific work related activities based on defined roles and responsibilities.

Strengths	Weaknesses
Prince2 is for large and medium size projects.	Agile is for medium and small scoped projects.
Prince2 is for any nature of projects.	Agile is mainly for IT development projects.
Agile concepts can be used within any other project management methodology because of its agility (Sommer et al., 2015).	Prince2 always will be a dominant methodology in a project.

3. Discussion

According to Darryl Carlton (Carlton, 2014), business process complexity is one of the reasons that most of New Zealand government's projects are getting failed. In addition to that, lack of risk management, overrun project period, over budget and requirement changes over a period have a direct impact on a project failure. For example, Novopay project failure (Haworth & Pilott, 2014). Therefore, to manage such issues as-is business process needs to be studied and documented. The critical requirements need to be broken into stages which can be easily managed and deliver. Most importantly, the chosen methodology should be enriched with risk identification and control techniques. In addition to that, the chosen project management methodology should have a proper budget control and should be able to manage dynamic changes in the business environment. Prince2 is fully enriched with these provisions; therefore, Prince2 is definitely for medium and large scale IT projects which business requirements are really complex. One of an important process of Prince2 is validating outcomes soon after completing a stage against its anticipated benefits and the next stage is executed based on satisfactory outcomes of the previous stage. In Prince2 cost is always weighed against the attained benefits after completion of each stage and cost benefit analysis provides better insight on the cost controls. Furthermore, Prince2 is fully equipped with risk management controls and techniques such as risk registry, and risk profile diagram.

Recommendation

Agile has its own advantages and really suitable for medium and small scale IT projects which focus more on IT development activities. Daily scrum meeting and working on deliverables within a sprint are some advantages of Agile. It is understood that within a large project small sub-projects can be created which could focus on specific goals. In this regards, Agile can be used and better results can be obtained. Agile can be plugged-in within Prince2 because of its agility. Therefore, for a critical project, Prince2 can be used broadly, especially on, planning, designing, documenting, and risk management. Agile can be used within the stages while focusing on the depth of each stage especially on IT development activities. Therefore, while integrating Prince2 and Agile any complex and fluctuant business requirement's project can be managed and deliver successfully. For instance, if someone wants to develop a system to manage New Zealand state and state integrated school wages, the integrated solution of Prince2 and Agile could be the best solution as the project management methodology. Below figure 1 describes how prince2 and Agile can be integrated into a project.

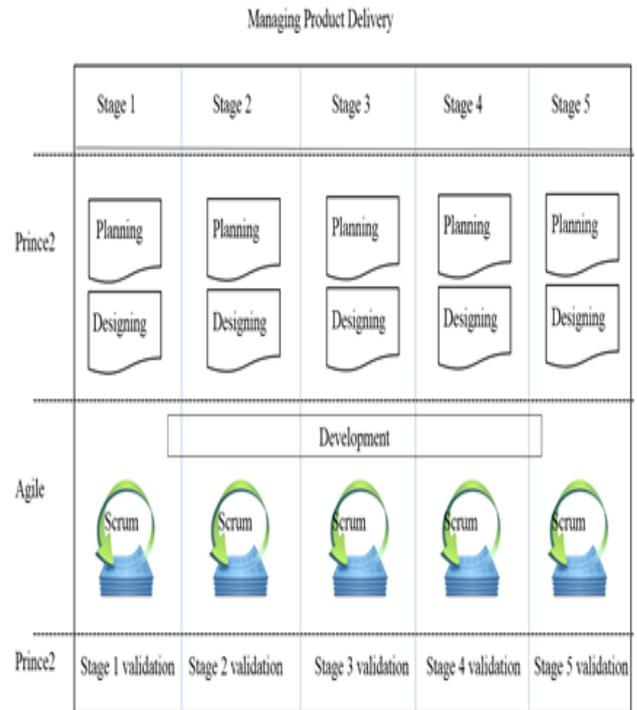


Figure 1: Integration of Prince2 and Agile methodologies (my own depict).

4. Conclusion

It is important to understand the breadth and the depth of a project before justifying what project management methodology is used. Each and every IT project is unique and it has its own complexness. For a small scaled project, Agile is the solution and for a medium scaled project either Prince2 or Agile can be used as a project management methodology, however, for a very complex and large project Prince2 is the best solution while comparing with Agile. Prince2 project management methodology is fully equipped with various processes, technics and methods which can be utilized to cover the breadth and the depth of a project. However, Agile do have some advantages, for instance, Scrum. As a recommendation, using both Prince2 and Agile can yield better results. Prince2 has its own capabilities to identify and mitigates risk in a broader perspective and Scrum is the key process of Agile which focuses on software development. Project scoped can be segregated as stages while applying Prince2 methodology especially for planning, budgeting, risk mitigation, designing and documenting. Project development can be utterly completed by Scrum methodology which describes five process groups to make sure IT development is done as expected. Therefore, using both Prince2 and Agile methodologies in a complex project could make more project success rates in IT industry.

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