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Managing Business Process Transformation Projects Using Contextual Hybrid Agile Methodology

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Managing Business Process Transformation Projects
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Acknowledgements

This thesis discusses how organizations can take advantage of both traditional project management and Agile methodologies to fit into the context of their teams using a flexible hybrid approach. This topic arises from my real challenges at work as I start leading a Process Improvement Team and experience the challenges adopting Agile Scrum practices.

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Abstract

Business and business processes never cease to change, and this is especially true with today's accelerating pace of changing business environment. Executives and project teams in both traditional and Agile organizations across industries have been increasingly motivated to find a flexible project management methodology that can work well and can be readily customized in the context of each of their own organization.

This thesis seeks to first abstract the concept and practices of the Agile methodology by examining the hallmarks of both traditional and Agile project management through comparison. It then constructs a contextualized model by identifying key characteristics of a project team and analyzes the most relevant factors that help determine specific Agile practices to adopt. The end goal is to identify an effective and flexible project methodology that business process transformation project teams can use to build or enhance their operating models.

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Introduction

According to studies by the Project Management Institute (2013),

projects for changing the organization or for improving its ability to accomplish its purpose occur in virtually every organization and represent the fourth most common type of project undertaken. In view of this, it is surprising that only one in five organizations formally adopt organizational change management practices.

This should not come as a surprise, as there is currently little consensus or established model guide for small business process transformation teams in large organizations to follow. It is far from clear to typical business managers as to how a business transformation project can be started and carried out without formal support from a centralized PMO. Even less clear is how a project team should structure its practices and business model based on the team's characteristics and purpose. Traditional PM teams that are considering venturing into Agile also face the challenge of addressing the potentially project-derailing risks that comes with Agile adoption, which include size, team experience, lack of organizational support, and many other business-specific constraints (Kruchten, 2013).

Problem Statement and Justification

1. Problem Statement

The problem statement for this thesis is that small teams working on business process transformation projects experience these problems:

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- The traditional PM approach are not always suitable for “light weight” projects, or for projects that need to be responsive to changing requirements (Serrador & Pinto, 2015).
- Although Agile is popular in the software development world, its use and recognition is less widespread in other industries (Conforto, Salum, Amaral, da Silva, & de Almeida, 2014), making it difficult for business managers to adopt.

The goal of this paper is to identify an effective project structure and methodology for BPM teams without project management or Agile experience.

The traditional PM approach usually works well for large projects at organization levels, where there is a PMO dedicated to managing and supporting such projects. However, it is often difficult to for individual teams (business units) to implement their own business transformation projects, due to the lack of a centralized projects team or PM expertise.

2. Problem Justification

For companies aiming to change at faster paces and embrace a more decentralized approach to change, a model that allows new project teams to structure their own project implementation would be especially valuable.

3. Hypothesis (if any) to be tested

The paper hypothesizes that there exists a project management (PM) model that combines the advantages of both Waterfall (traditional PM) and Agile approaches, suitable for business process transformation project teams.

4. Limitations

This paper will not prescribe a one-size-fits-all PM model for any team. Rather, it lays out a general and flexible approach that project teams can use to build a model that best

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fits the context of their specific teams. Neither is this intended to be a replacement of traditional PM or Agile methodologies, as it is meant to help teams who are not mature enough to adopt traditional PM models or are not ready yet to go through a full Agile transformation.

Evolving Business Needs

Although today's executives are well aware of the realities of the increasing pace of changing business environment and far-reaching growth of information and technologies, the search for a flexible project management methodology that work well with those changes remains elusive for company leaders and practitioners. On one hand, "change programs" – initiatives to drive innovation and performance improvement – have seen little success across companies running on the traditional organizational structures (Project Management Institute, 2013). On the other side of the spectrum, the emergence of agile in the Business Process Management (BPM) field is becoming a spreading trend across more dynamic organizations (Bider & Jalali, 2016).

BPM is a discipline that identifies and documents business processes and their metrics, in order to continually improve and innovate these processes. BPM includes the study of company-wide programs that are designed "to establish a comprehensive process view regarding the management of operations within the company" and also to manage the "the day-today management of single business processes" (vom Brocke, Zelt, & Schmiedel, 2016).

One of the growing concerns is how organizations can integrate the projects managed from the top-down and those from the bottom-up.

The top-down approach in organizations focus more on translating their strategies and formulate them into actionable objectives, they should also have more extensive plans for changes on a portfolio, program, and project level, so that "people, process, technology, structure and cultural issues are all integrated" into the overall plan (Project Management

Institute, 2013, p. 19). Kotter (1996) argues that weak leadership and committees that oversee projects are to blame, because no matter the competence of any employee, they “never have all the assets needed to overcome tradition and inertia” in large organizations.

The bottom-up approach suggests that employees should be better empowered to do what used to require higher permissions to carry out. As Frame (2002) summarized, “one key approach has been to provide employees with decision-making authority in their dealings with customers”. There is also the argument that the reason change programs fail can be largely attributed to people failing to initiate change processes by waiting for approval and support from senior management (Beer, 1990). There is always going to be tension between the “top-down design” and “bottom-up routinization” (Crick & Chew, 2017), in pursuit of more flexibility from both sides.

The second major concern is how project team roles should be defined and developed in business transformation projects. As Stummer (2010) pointed out:

Even though change is recognized to be of utmost importance in today’s organisations, there exists no common understanding of change roles. The relationship between change roles and program and project roles seems not to be clear, although many changes are organized by projects.

The line gets further blurred when it comes to the overlapping nature – even rivalry- between Change Managers and Project Managers (Pollack & Algeo, 2013) in a traditional PM context. This is a non-trivial issue, because each of these role has been identified to hold drastically different views and beliefs on the ownership of different stages of organizational change projects (Pollack & Algeo, 2014).

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This paper builds on these discussions by recognizing validity in each of these viewpoints, and attempts to consolidate and extract a consensus that is applicable to leaders (whatever their formal title may be) of business transformation projects in typical corporations today. The paper will evaluate the strengths and challenges of the traditional PM model and the Agile model, and identify approaches that best suit today's business transformation teams.

Limitations of Traditional Project Management

Companies are no stranger to the traditional PM approach, as BPM is achieved through projects in most cases (Paschek, Rennung, & Draghici, 2016). One important reason that corporations favor it is that it works well for projects that need to “focus on formal structures and systems” (Beer, 1990), bringing cohesion, oversight and control that senior management want to see. It requires the business to clearly define the business problem at hand before springing into action, and requires consensus to be built first among stakeholders at all levels to ensure the project team works towards a common goal from the beginning (Beer, 1990).

Successfully managing time, scope and cost – the triple constraints – is the cornerstone and primary success criteria of traditional PM (Frame, 2002), which can be critical for businesses that value predictable and well-defined execution on projects. Frame (2002) also points out that although team roles change all the time, they are usually well-defined in tasks, milestones, kickoff meetings, and team rosters, which means that each project team member generally has a good idea of what their role is and what tasks they are supposed to perform. In fact, all project roles, including the decision makers, senior

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management, approvers, even clients, are clearly defined and documented, fully transparent to the project manager (Snyder, 2014).

Although these are highly desirable advantages, teams working on business process transformation projects should not ignore the downsides of such approach that may significantly limit the functioning their teams. Nicholls, Lewis, & Eschenbach (2015) point out in their journal paper *Determining When Simplified Agile Project Management Is Right for Small Teams* that

Traditional PM works well when the project is in an execution mode, such as construction or product launch where task dependencies are well known and can be readily documented. Forcing traditional PM tools onto small projects is often a waste of valuable time and a source of continuing frustration.

The frustration does not stop at the team, unfortunately. A common criticism of traditional PM methodologies is the loss of “customer focus” (defined by how well the project deliverables match the customer’s needs). A project that meets all of the triple constraints does not necessarily translate to success in the customer’s eye, and vice versa (Frame, 2002).

As vom Brocke pointed out, although the Business Process Management discipline has helped drive many successful projects that help organizations innovate and be more efficient, its scope is still limited to a handful of well-researched types of business problems, and is not context-sensitive when it is applied to individual businesses (2016).

The project team is also expected to coordinate their efforts with program management and change management (Project Management Institute, 2013), but small project teams may not be interested in interacting with these groups at all, or vice versa. Business

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model innovation is often risky, and decisions are sometimes made using “limited, unknowable information” (Bock & George, 2014), requiring high flexibility and fast reaction to change. Businesses that value innovation, autonomy, empowerment and customer satisfaction, are often times left to find their own ways to work around those challenges if they use traditional PM methodologies – unless they are willing to undergo an Agile transformation.

The Agile Attraction

There are many good reasons for making the switch. In general, traditional project management does not work as well as Agile does for teams that value innovation and have “a high degree of dynamism” (Bider & Jalali, 2016). One obvious reason is that by definition, a project in the traditional sense is “a temporary endeavor” that “has a beginning and an end” (Snyder, 2014). This goes counter to the ideal of continuous business process improvement and transformation. For many team-driven projects, the actual time spent on the projects may only be a small part of one’s daily workload, and Agile is a great fit in these types of situations where part-time resources are the norm rather than the exception (Nicholls, Lewis, & Eschenbach, Determining When Simplified Agile Project Management Is Right for Small Teams, 2015) – the goal-oriented nature of Agile makes it work well when dealing with uncertainties in terms of team member schedules and the extent of collaboration. Agile could also be a good option when a team has to work with multi-role assignments, which has traditionally been a challenge for project managers (Stummer & Zuchi, 2010). This is especially valuable for very small teams that have to give people multiple hats to wear. One of the most attractive features of Agile is its flexibility that allows the team to adjust and figure out changes along the

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way, making it ideal for teams that live in fast-changing environments and need to respond rapidly (Fernandez & Fernandez, 2008).

The effectiveness of Agile has been proven over and over again in the IT industry – even by traditional PM standards using the triple constraints (Rigby & Takeuchi, 2016) (Serrador & Pinto, 2015) (Larson & Chang, 2016) (Bider & Jalali, 2016), so the question to ask is no longer “does Agile work”, but should instead be “how can we make it work in more situations”.

Agile Adoption - Challenges with Business Process Transformation Teams

With the high adoption rate of Agile in the IT industry comes different varieties of Agile methodologies, with Scrum, Lean Development and Kanban being the most popular flavors. As Rigby concisely puts it:

They include scrum, which emphasizes creative and adaptive teamwork in solving complex problems; lean development, which focuses on the continual elimination of waste; and kanban, which concentrates on reducing lead times and the amount of work in process (2016).

One would think that the variety would mean that they can be applied to a wide spectrum of situations in different fields. Unfortunately, it is hardly the case, as these methodologies favored by software developers may seem unnecessarily cumbersome or overly restrictive to non-developer teams. For example, major Agile methodologies, such as Scrum and Kanban, are built on the assumption that the project team will be co-located (Fernandez & Fernandez, 2008) (Conforto, Salum, Amaral, da Silva, & de Almeida, 2014), which may not apply to distributed teams. Likewise, daily stand-up practices may not be feasible for many businesses, as daily face-to-face interactions with team members

and the product owner may not be needed or even possible (Nicholls, Lewis, & Eschenbach, 2015). In addition, as Agile values “Working software over comprehensive documentation” (Beck, et al., 2001), businesses may find it inadequate to maintain the product or pass through the scrutiny from regulators without the level of details they need in the documentation.

In the paper *Determining When Simplified Agile Project Management Is Right for Small Teams*, the authors (Nicholls, Lewis, & Eschenbach, 2015) points out that teams should closely evaluate their project first to decide whether Agile would be suitable for them, based whether it fits into the following four criteria:

- Product owners are uncertain about the end goal
- The time required to complete the project cannot be decided yet
- There are unknown number of iterations the team needs to go through before finding a viable solution
- It is impossible to predict the resources that will be available – whether it is due to fast-shifting company structure or multitasking team members

Although a good general first-step evaluation, it does not specify how a team that meet these characteristics can implement a business model to manage their projects for their situation. Moreover, it overlooks possibilities that teams that don’t fit into these criteria might still be good candidates for agile business transformation.

The Essence of Agile - Abstracted

To add to the confusion, there exists no consensus as to the definition of “agile” in the context of BPM (Bider & Jalali, 2016). In fact, the only agreed-upon definition of this term even in the well-established field of Software Development is extremely abstract –

which is the widely known Agile Manifesto (Fowler & Highsmith, 2001). Further summarizing it, agility can be defined as “the ability of an organization to react to changes in its environment faster than the rate of these changes.” (Kruchten, 2013) And this will be the definition used in this paper, as it transcends the limitation of industries in the original Agile Manifesto. The distinguishing features of Agile from the traditional PM approaches then becomes a “less formal, more dynamic, and customer focused” one (Larson & Chang, 2016). Using the iterative development approach, frequent and unpredictable changes becomes the norm rather than exception; user-oriented products that are delivered more rapidly can also result in more satisfied clients (Drury-Grogan, 2014). As Bock points out in Agile Business Model Innovation, “Agile business model innovators simplify structures, partner for control, instill creativity at the firm boundaries, and foster self-reliance for innovation” (Bock & George, 2014), characteristics that are often seem as a good fit for Agile.

Agile in Context – Identifying Key Characteristics of Teams

When one or more factors of a project team does not align with the typical Agile team (aka outside the Agile sweet spot), risks of failure will mount. These factors may be unorthodox sizes, low engagement from stakeholders, unexperienced team members, etc. (Kruchten, 2013). According to Kruchten’s research Contextualizing Agile Software Development, two sets of factors can be identified for any given project team (2013):

Organizational Level:

1. Business domain
2. Number of instances
3. Maturity of organization

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4. Level of innovation
5. Culture

Project Level (brackets indicate the Agile sweet spot):

1. Size [12]
2. Stable architecture [stable]
3. Business model [in house]
4. Team distribution [collocated]
5. Rate of change [medium – high]
6. Age of system [new]
7. Criticality [low]
8. Governance [simple]

Notice that the experience of the team is not considered a factor in the list. This is corroborated by Serrador's research which discovered that experience of team does not affect the success rate of Agile adoption (2015). This is a promising revelation as it shows that project teams without prior PM expertise can still be successful with Agile. The purpose of this paper is to propose a customizable Agile-Hybrid model that can apply to teams that have project factors outside of the Agile sweet spot.

Methodology

For the final thesis, the following approaches will be taken to ensure that there is sufficient evidence to support the models and results proposed in this paper.

In-Depth Literature Review

With the conceptual framework in place and specific questions to answer from the current literature review, a second round of literature review is necessary to further understand the various factors to be considered when implementing aspects of Agile based on characteristics of different types of project teams. The main focus of the review will be on learning the relationship between certain traits of the project team and the corresponding modifications to Agile or traditional PM methodologies that should be applied to the model.

Conducting Surveys

A survey is designed to gather empirical data about the way project teams are organized, and specific practices that may help their teams manage those projects.

The survey has two sections. The first section helps ensure valid responses by asking whether the respondent has been on a business process transformation project team, what their role was in the project, and what their industry is. It then identifies the various parameters of the project team, such as their size, project methodology used, location, scale of the project, etc.

The second part of the survey asks the respondents to provide their opinion (on a scale of 1 to 5) on different practices of managing projects – including whether they agree that a project should have a comprehensive plan, frequency of communication, waterfall vs iterative process, etc.

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The Survey will be distributed using Survey Monkey's Audience service to send the survey to target demographics that meet the criteria of being both full-time employed and have bachelor's degree or higher. The Audience service of Survey Monkey sends out the survey link to a pool of volunteers identified through prior surveys and regular self-profiling, and ensures that the target demographics matches those specified by the author. Survey respondents get rewarded by receiving donations to their preferred charities.

Generating Conclusions

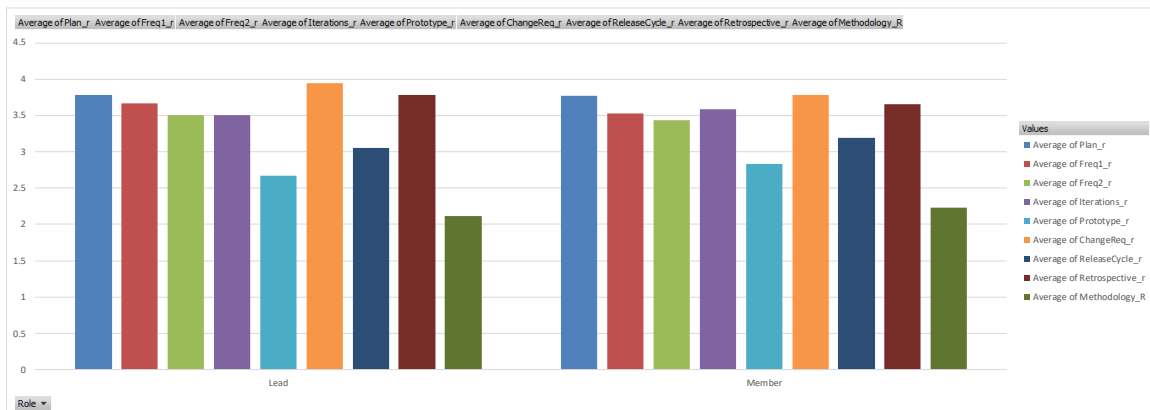
The Results and Findings section of this thesis will focus on consolidating the research from both the literature review and the survey to provide data that identifies the key parameters of a project team and how they can be used to customize a model for project management under that context.

Results and Findings

Overall Trend

Analyzing the results gathered from 110 respondents using R statistics and Excel variance analysis, it is clear to see that most factors from the survey that are used to identify individuals in the survey don't significantly affect their response. For example, the responses to all question from both Project Team Leads and Project Team Members in business process transformation projects were remarkably close on all questions in Section 2, indicating that team roles have no impact on individuals' opinions over best practices in project management. (Figure 1)

Figure 1 Average Responses from Project Leads and Project Members



Similarly, no significant variances were found for projects across different industries, locations (more on this topic below). The scale, complexity and impact of the project also had no significant effect on the responses.

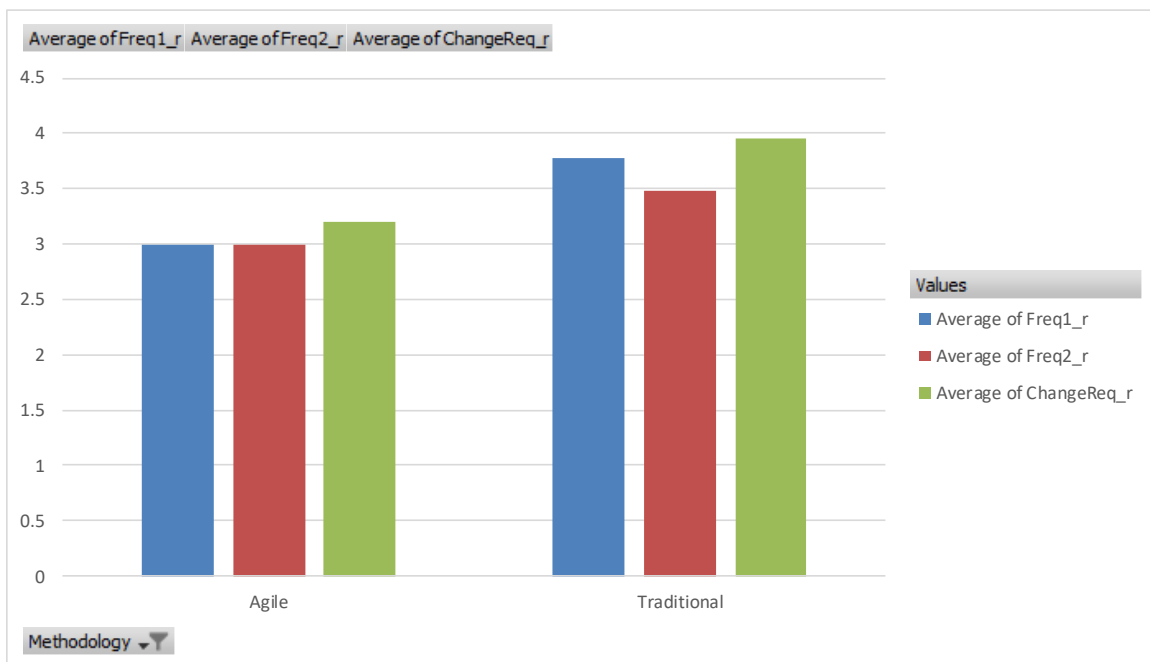
This means that it is going to be more straightforward to build a project management model by focusing on just a few key factors that drive the differences.

Key Factors Analysis

Agile teams and traditional PM teams have a few important differences. Teams using traditional methodologies tend to agree that their projects would benefit from more frequent communication and status updates with the project leader, and from more frequent interactions between team members and the stakeholders (clients). In addition, respondents tend to agree that feedback and change requests from stakeholders during the project should be treated more as the norm than the exception.

Although Agile team members also favor more frequent communication and change requests, they are more neutral than their traditional team counterparts. This is consistent with common observation, as traditional teams generally would benefit more from increased communication frequencies and better change management.

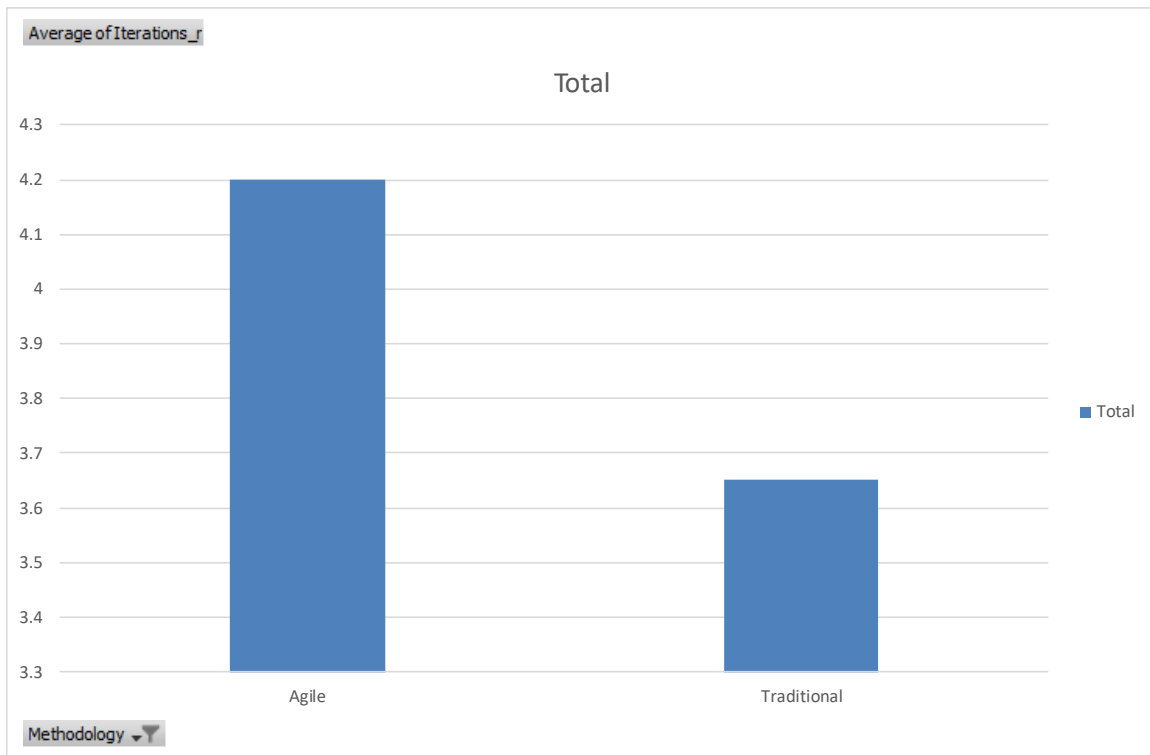
Figure 2 Opinion of Increased Frequency of Intra-Team Communication (Blue), Stakeholder Communication (Red), and Change Requests (Green) by Methodology



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One finding – perhaps somewhat counterintuitive – is that Agile teams tend to agree more with the following statement: their project would benefit from more iterations to add functionality rather than implementing all requirements in one flow. One possible explanation is that traditional teams generally do not have the necessary communication and change management capacity to handle iterative designs. Another possibility is that traditional teams are usually only required to deliver a final product with milestones along the way, and therefore are rarely required to produce “potentially shippable products” by product owners periodically. In most cases, iterative implementation in a traditional PM framework would be seen as a threat to their triple constraints, because each new iteration would bring more uncertainty to time, scope, and budget requirements.

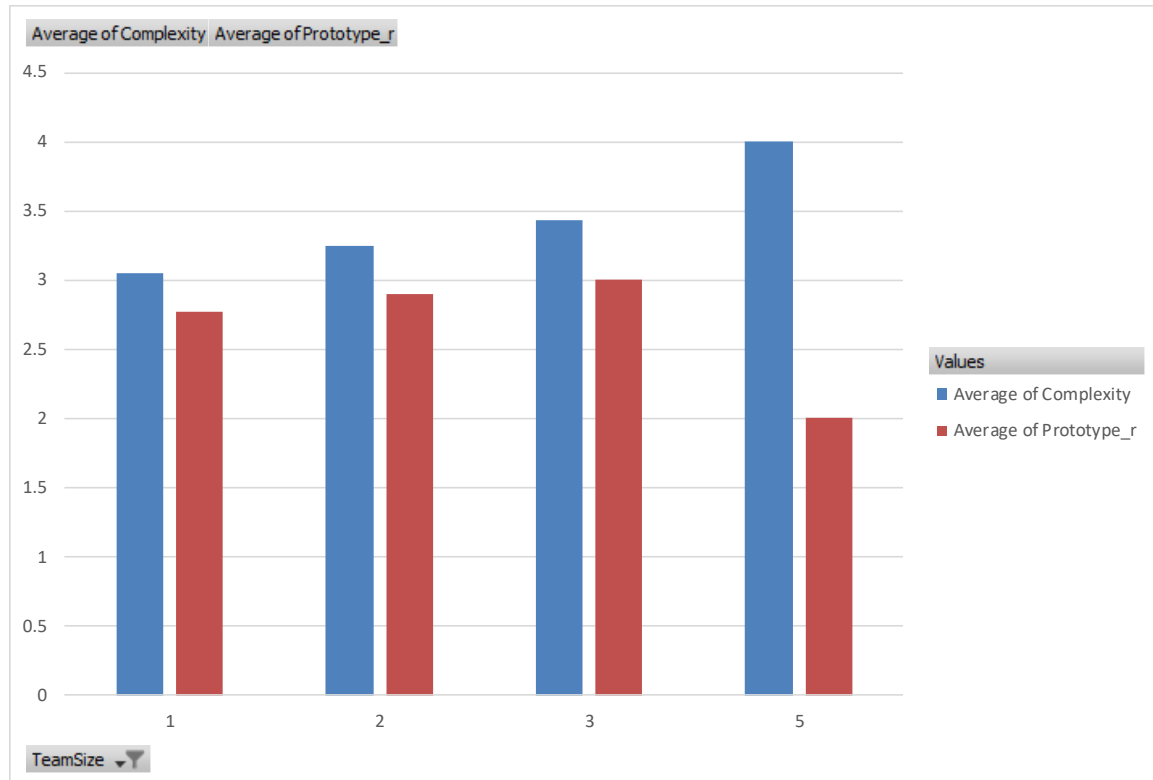
Figure 3 Opinion of Iterative Implementation by Methodology



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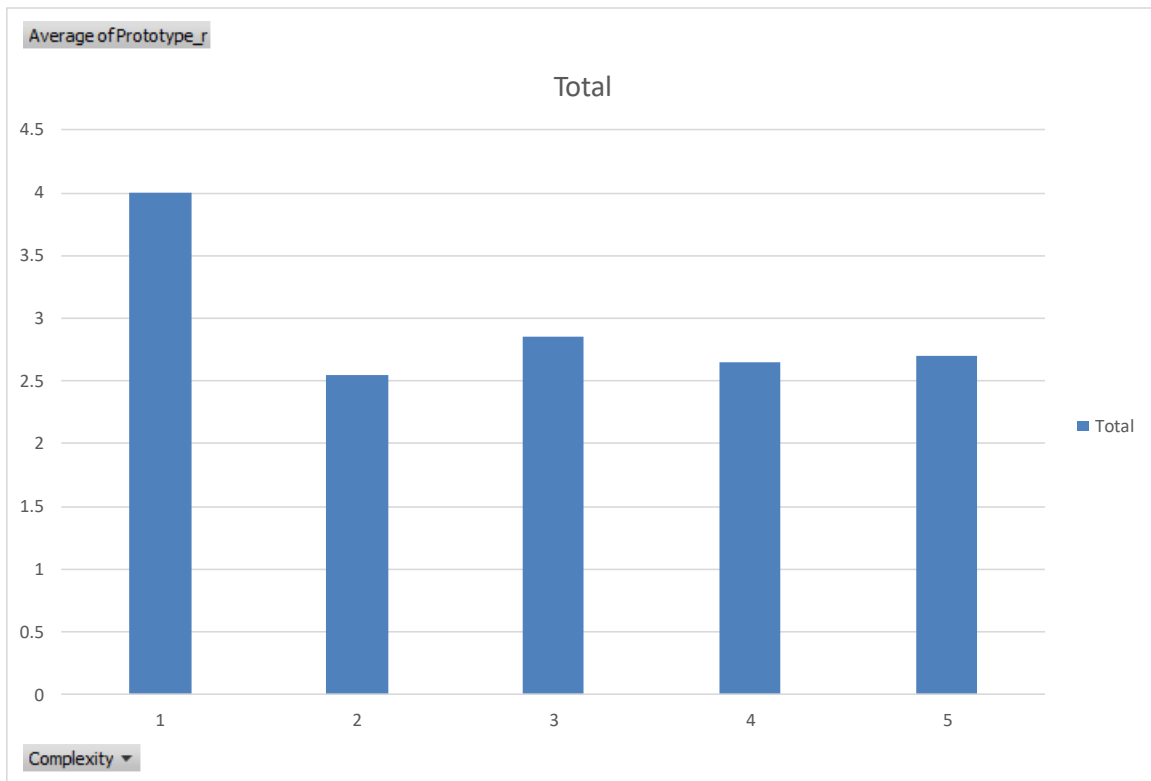
When asked whether delivering a working prototype quickly is more important than delivering a complete product at the end, the results are neutral to favorable for team sizes 15 or smaller.

Figure 4 Project Complexity and Benefit of Early Prototypes by Team Size



A reasonable explanation could be that quickly developing working prototypes are more feasible and beneficial for less complex projects. More complex projects, on the other hand, are more focused on end-product precision, and developing a prototype with all parts working together requires almost as much effort as developing the full product. As the following chart (Figure 5) shows, low-complexity projects benefit most from early prototypes.

Figure 5 Benefit of Early Prototype vs Project Complexity



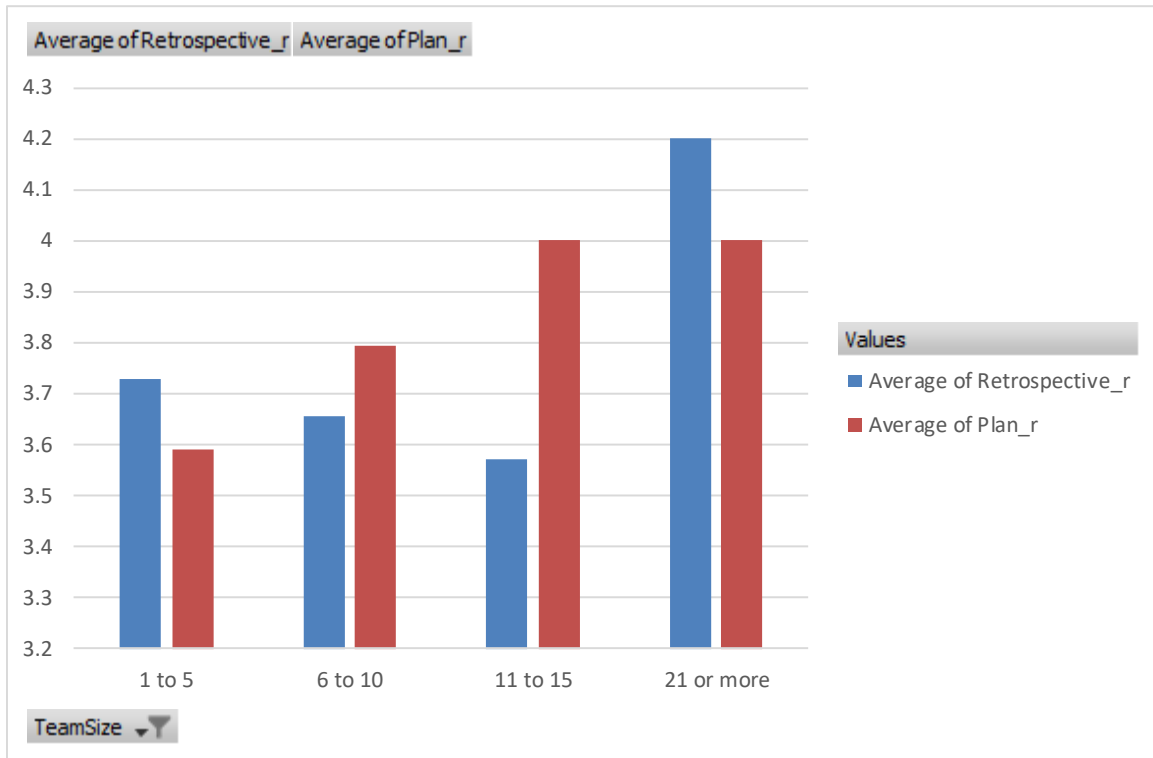
All teams, regardless of size, provided high rankings to the importance of comprehensive planning before the start of project execution. And teams of all sizes generally agree that a "lessons learned" session would be better conducted after every iteration (revision) rather than at the end of the project. (Figure 6)

The importance of planning and frequent retrospectives rises significantly as the team sizes go up. This is a perfect illustration of combining the best aspects of both traditional PM and Agile methodologies.

When organizing a project team model, it is paramount to keep in mind that the larger the project team, the more essential planning and frequent retrospectives become.

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Figure 6 Importance of Detailed Planning and Frequent Retrospectives by Team Size

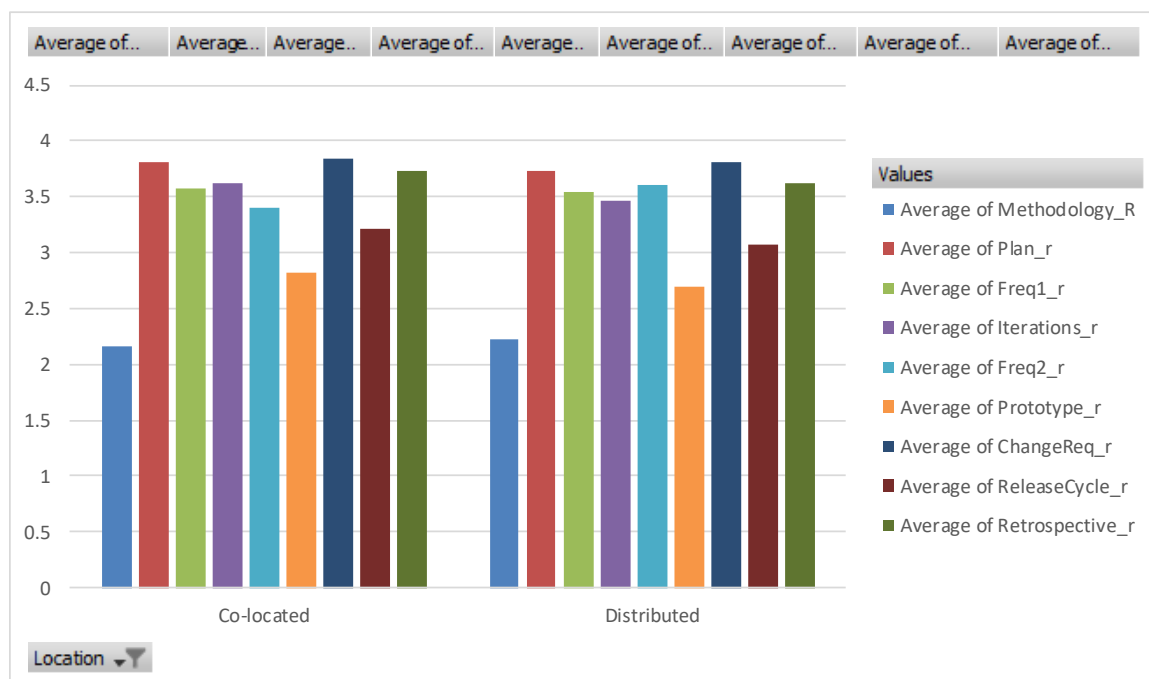


Challenge to Existing Literature

Going back to the topic on location, survey results show that whether a project team is co-located or distributed has virtually no impact on the 9 measures of project management practices surveyed in this study (Figure 7). This contradicts one of the core prerequisites of Agile found in current literature, which prescribes that Agile principles should be applied to co-located teams (Conforto, Salum, Amaral, da Silva, & de Almeida, 2014) (Dingsøyr & Moe, 2014) (Larson & Chang, 2016).

However, this should come as no surprise, as today's telecommunication and Internet technologies are already leaps and bounds ahead of what was available when Agile first started, and running seamless virtual teams has now become BAU for companies worldwide. In fact, the survey in this study shows that Agile teams have higher percentages of distributed teams than traditional teams.

Figure 7 Best Practices for Projects by Team Distribution



Discussion

This study has identified key factors that business process transformation project teams can use to customize their operating models. This is especially helpful to teams that lack project management experience, or to teams that are used to operate in the traditional PM model and would rather adopt a hybrid approach than committing to a prescriptive Agile model like Scrum or KanBan.

Building on the process configuration outline proposed by Kruchten (2013), the below table is created by compiling the findings from this paper and adding them to Kuchan’s existing guidance, which can help project teams decide specific Agile practices to adopt for their particular team’s situation.

Table 1 Guidance for Team Configuration

Factor	Size			Criticality			Distribution			Rate of Change		Complexity		
	S	M	L	L	M	H	-	M	L	L	H	L	H	
Iterations													R	
Daily Standup														
Retrospective			R											
Backlog														
Monthly Release														
Comprehensive Plan		R	R		R	R								R

- Legend:
- R Practice is recommended
 - Practice is not affected by the factor
 - Practice needs caution or adaptation
 - Practice to avoid, could be dangerous or counterproductive

The following points are especially worth noting.

- Cells labeled R refer to practices that are recommended for the specific context.

For example, large project teams are recommended to have retrospectives after

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- each revision and have a comprehensive project plan before execution starts;
- while smaller teams have more freedom to choose depending on their preference.
- The Metaphor context attribute from Kruchten's model has been removed for this paper, due to unclear definition and explanation in the original literature.
 - As discussed in the previous section, since team distribution (co-located or virtual) is found to have no impact on Agile practices, all cells are marked green, which is a big change from Kruchten's model.

Conclusion

After reviewing current literature on business process transformation projects, the author recognized the growing needs for business transformation projects in today's business environment, and identified the main limitations of using traditional project management methodologies for managing business process transformation projects. Although Agile appears to be an attractive alternative, further investigation found that fully adopting Agile may not be a realistic approach for many teams that don't fit into the predefined "Agile sweet spot". It is therefore beneficial to build a more flexible model that these teams can use to help them adopt certain Agile practices based on their specific team's characteristics. Upon conducting a survey research targeting individuals who worked on business process transformation project teams, the author found that current methodology, team size and project complexity are the key factors that determine how a team can customize their business model in the following aspects

- Comprehensiveness of project planning
- The use of iterative development
- Frequency of project team communication and status update
- Frequency of interactions between team members and the stakeholders

Another important finding was that the distribution of project team does not affect the effectiveness of Agile practices, which is different from "conventional wisdom" guidelines for Agile teams.

A recommendation model is then created using the findings, which builds upon prior research. Project teams can refer to the Guidance for Team Configuration when deciding which Agile practices to employ for their team's combination of factors.

Recommendations for Future Work

Although this thesis has explored several factors that help construct a project model for business process transformation teams, the author is fully aware that there are many more factors that can be further explored in future research, such as business environment, geographical location, nature of project, stakeholder requirements, etc.

In addition, a more comprehensive survey, larger survey samples, and more sophisticated statistical analysis would generate more insight into the relationship between the various factors. Due to the limited scale and time requirement for this thesis, only basic descriptive statistics and linear regression modelling were used.

Also worth researching is how organizations can help business process transformation teams more readily transition into Agile by adopting new mindsets (McGuire, Palus, & Rhodes, 2009) – whether it be providing the right tools, creating a supportive culture, or changing the organizational structure - because success of business transformation projects often take more than just a good project team.

In Holbeche's book *The Agile Organization*, 5 specific qualities of Agile-enabling factors at a company level are identified: obsession with providing customer value, continuous adaptation, dynamic network, focus on learning and creating knowledge, and ruthless decisiveness (2015).

With more quantitative study on these factors, more wholistic models may be able to emerge, which can be valuable to organizations looking to evolve and empower Agile teams that are more likely to succeed.

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