Agile Project Management and ambidexterity - A reconciliation of contextual exploration and exploitation

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Abstract

Purpose of the paper: Besides a traditional contingent perspective that frames change projects within the opposite planned-exploitation oriented and emergent-exploration oriented forms, we aim at exploring a connected perspective, through the contextual ambidextrous lens on the Agile project management context.

Methodology: We adopt a multiple case study, based on interviews to different agile oriented companies, by using a grounded approach for discovering the modalities through which agile adoption shows both emergent (exploration-oriented) and planned (exploitation-oriented) tensions, in a perspective that connects, more than separates, them.

Main Findings: We discover different main categories that capture the tensions between planned- exploitation oriented and emergent exploration-oriented issues of agile projects: direction, objectives, boundaries and leadership. Each category highlights the connection among exploitation and exploration aspect of agile projects.

Practical implications: Exploring the tensions on Agile projects provide with a more complete understanding about how such opposite forces are connected and how such paradoxical forces are managed within a real project context.

Originality/value: Differently from previous research, we highlight the agile nested tensions, from a real-world project context, by describing how Agile project management

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1

connects both explorative and exploitative aspect of change and the main variables that enable such connections.

Keywords*: Agile projects; ambidexterity; planned projects; emergent projects.*

1. Introduction

Researchers and consultants have mainly seen projects within the opposite form of planned (Burnes, 2004) and emergent models (Weick & Quinn, 1999), differently applied regards to different contingencies. However, there is a growing attention to consider planned and emergent projects besides such traditional view, in order to providing with a more comprhensive and realistic description of how change actually happens within a project (Farjoun, 2010; Livne-Tarandach & Bartunek, 2009; Marshak, 1993). Literature, drawing on ambidexterity, suggests that one effective approach for revisiting such a dichotomy is to consider a perspective that connects planned, exploitation-oriented and emergent, exploration-oriented perspective within the same context or project initiative (Livne- Tarandach & Bartunek, 2009), by considering planned change and projects often presupposing an emergent approach (Bateson, 1972; Weick & Roberts, 1993) and vice-versa (Farjoun et al., 2018). However, empirical research that effectively shows such comprehensive and paradoxical perspective is missing. In order to shed lights on such issue, in this paper we analyze how planned, exploitation-oriented and emergent, exploration-oriented issues of projects can be reconciliated into a unique, ambidextrous perspective. Particularly, we analyze the agile project management perspective on three companies of different industries (retail, financial services and manufacturing) for understanding the contextual ambidextrous perspective (Vidgen & Wang, 2009) related to agile projects, and particularly how exploration and exploitation, while conceptually distinct, are mutually enabling and constituent of one another on agile project management. We analyze agile teams as the building blocks of agile project management, a well established discipline for enterprise solution delivery. Particularly, agile teams allow organizations to create and deliver value by optmizing "*their business processes, evolving strategy with clear and decisive new commitments, and quickly adapt the organization as needed to capitalize on new opportunities*" (Safe 5.0). Therefore, they represent a focal context for understanding how effectively perform within a bounded instability, with "*stimulation and freedom to experiment and adapt but also with frameworks and structure to ensure they avoid complete disorderly disintegration*" (McMillan, 2004:p.22) and paradoxically, exploitative-stable and explorative-unstable dynamics at the same time (Stacey, 2003). Drawing from the previous premises, our research objective is related to understand how emergent and planned interact during an agile project management approach.

The paper is organized as follow: the research background explores the literature gaps and the research problems. Method section describes the cases analyzed and the methodology we choose for address our research question. Findings section show the main variables we found by analyzing our sources. Discussion and conclusion highlight the main theoretical and empirical impacts of the study.

2. Research Background

Researchers and consultants have mainly seen project management within the opposite form of planned and emergent models (Weick & Quinn, 1999), by relying them on opposite poles of a dichotomy: two "*contradictory yet interrelated elements that seem logical in isolation but absurd and irrational when appearing simultaneously*" (Lewis, 2000, p. 760). This view frames planned and emergent tensions of the project "*respectively associated with the systematic*

exploitation of existing resources and knowledge [and] ... to the exploration of new resources and knowledge" (Spisak, Grabo, Arvey, & Van Vugt, 2014: p.805), under one pole over another by dissociating them according to different contingencies, as the market dimension or environmental characteristics (Livne-Tarandach & Bartunek, 2009). According to such perspective, planned driven projects, characterized by long term multi- year strategy are effective in more stable situations by having a stronger exploitative tendency (Sailer, 2019). They are characterized by attempts to lay down different attributes of project, as timetables, objectives and methods in advance, and are strongly dependent on change agents and the role of project managers, that have the responsibilities of developing project objectives and strategies, by assuming that they can have a complete understanding of the consequences of their plans that will be accepted and implemented by the change recipients. Differently, emergent-oriented project, characterized by a strategy of quickly development of working features and improvements, aim to create order from chaos in complex systems, being bottom-up, continuous, cumulative (Burnes, 2005) and exploration-oriented: small and medium-sized change that is generated from the bottom-up and need to emerge locally and incrementally (Blomme, 2012). It can better fit for small-to-medium projects with highly dynamic and unpredictable requirements, and it is more effective in unstable environments, which is due to their more explorative tendency (Sailer, 2019). However, such "either/or" approach is closely related to a contingent view, according to which projects must correspond to the nature of the environment which it finds itself in, by focusing on separation efforts on either exploitative or exploratory needs (Andriopoulos & Lewis, 2009). This approach has been criticized in literature, as projects overemphasizing one side of the pole over another, risk getting caught into failure or success traps (Levinthal & March, 1993) by producing a negatively cycles where "*one action or attribute perpetuates itself until it becomes extreme and therefore dysfunctional*" (Quinn & Cameron, 1988, p. 6). Moreover, from a practical point of view, it doesn't *"take into account very fully the tensions, critical interdependence, and mutual influence of planned and emergent* [aspect] *of change*" (Livne et al., 2009: pag. 14) and risk to be not completely representative of how a project actually is implemented in real contexts, in which actors link opposite tensions (Lewis, 2000) mainly through a "both/and" approach (Papachroni, Heracleous, & Paroutis, 2015). In order to frame a more comphrensive and realistic description of how projects actually happen, literature has focused on a more dual view (Farjoun, 2010; Livne-Tarandach & Bartunek, 2009; Marshak, 1993) that embraces and gives voice to such bipolar and ambidextrous positions. It provides with a fruitful alternative to established trade-offs based reasoning by highlighting synergistic polarities that foster opposite forces and tensions simultaneously (Gibson & Birkinshaw, 2004). According to literature, ambidexterity promises superior performance (Papachroni et al., 2015) by simultaneously pursuing the tension and conflicts (Geraldi, 2009) between the opposite processes of exploration (characterized by search, variation and risk taking) and exploitation (characterized by refinement, efficiency and execution) sides of a project. Exploitation is aimed at maintaining current efficiency, control, improvement, implementation and operationalization, increasing certainty and reducing diversity, by aiming at the short-term survival. It is focused on maintaining a competitive advantage in terms of existing products, services and technologies by reducing costs and achieving economies of scale. Exploration as search for new development opportunities through the use of research, changes, experiments, discoveries as well as flexibility, innovation and risk taking requires more risks associated to investments and with searching for new solutions. Ambidexterity can be achieved in different ways: structural, temporal and contextual. Structural ambidexterity is mainly related to spatial separation between explorative and exploitative business units, coordinated at the top management team (Turner, Maylor, & Swart, 2013). It mainly concerns organizations as unit of analysis, by requiring top executives to

explore and exploit by connecting and coordinating different organizational units with different capabilities.

Temporal ambidexterity, based on punctuated equilibrium (Papachroni et al., 2015) model, suggests alternation between exploitation and exploration, through which the organization switches from one mode to another depending upon market requirements. However, structural and temporal ambidexterity seem to not be useful for project context. Previous studies show that structural ambidexterity is appropriate for non-temporary context even in dynamic markets in which conditions are rapidly changing (Shibata, Baba, Kodama, & Suzuki, 2019), more than projects context (Eriksson, Olander, Szentes, & Widén, 2014), while sequential ambidexterity, also used on project context, may be more suitable in stable markets (Shibata et al., 2019), that is not usual in today's economy. In general, given the dynamic and uncertain environment, the high rate of interdependences between different actors, and their explorative and exploitative activities, a distinct separation of exploration and exploitation may be unsuitable for project context. Contextual ambidexterity is focused on creating a supportive context in projects by pursuing both exploration and exploitation, in a combination of hard and soft elements (Papachroni et al., 2015; McCarthy & Gordon, 2011), as culture, ceremonies, processes, routine (Im & Rai, 2014) beliefs, that shape team behaviors (McCarthy & Gordon, 2011) to achieve synergy between alignment (exploitation) associated to clear and predictable outcomes with adaptation, experimenting, learning, emergence (exploration) and improvisation (Lindskog & Magnusson, 2021) and adaptation (Im & Rai, 2014). At the project level, recent studies suggest that contextual ambidexterity is deemed to be the most effective means of actualizing ambidexterity (Geraldi, 2009) for explaining how planned and emergent issues of project actually happen, being grounded on the simultaneous pursuit of exploration and exploitation within and across unit of analysis (Eriksson et al., 2014). Contextual ambidexterity overcomes the concept of trade-off (Turner et al., 2013) by highlighting the simultaneously pursue of opposite tensions of exploration and exploitation according to the context. Contextual ambidexterity related to project management can be considered in "a multi-level perspective" where exploitation and exploration are simultaneously related to different organizational or project level, as *"the pattern of exploitative and exploratory actions among a group of individuals, the sum of which provides exploitation and exploration at the level of the group, organisation, project or work unit [...]"* (Turner et al., 2004 p. 12). Despite contextual ambidexterity appears a valid construct for describing the underlying tensions at the project level, studies on this area are scarce, especially on agile project management, that only very recently has received attention (Jørgensen & Becker, 2017). Therefore, we analyze agile project management context as fruitful construct for understanding the main variables of such dualistic tensions (Lindskog & Magnusson, 2021), by answering the following question: *How agile teams combine emergent and planned tensions?*

3. Method

This study adopts an interpretive research approach by emphasizing the different aspects related to planned and emergent approach within the agile management perspective. Multiple case study is considered as an appropriate research method to investigate agile management projects in a real-life context, without controlling it (Yin 2003), but comparing and contrasting different cases. The cases are represented by three different manufacturing and services agile companies. In particular, Company A operates in the GDO sector and is part of a group of companies that counts 456 stores in 15 countries with more than 124.000 collaborators around the world. The company serves 28 million clients and it has a revenue of 1,5 milliard of euros. With respect to the Italian branch, it counts 50 stores distributed into 14 different regions. In 2016, it started creating the first agile teams to develop the website and in 2018 it decided to

change the approach by adopting the agile methodology for common development, in terms of Software as a Service. Company B is an Italian leader in the field of industrial automation operating at a global level. it is part of a group of companies and it is specialized in processes and automated systems to improve corporate manufacturing production. the company is divided into three business units: robotics, powertrain and automation systems. it counts 9000 employees which are dispersed in 17 different countries as part of a network built to tempestively answer customer needs and requests. the company started to adopt an agile approach mainly to be able to release in short time software updates for the robots. Company C is a leasing company part of a financial group headquartered. The company is a leader in the leasing solution market which is present in 22 countries around the world and operates in different markets such as agriculture, construction industry, technology solutions, food machinery and rental sector. It counts 6000 collaborators in Europe and 450 in Italy where it has 121.000 active clients. Cases have been used to analyze the modalities through which agile approach shows exploration and exploitation issues, by analyzing the main concepts and factors that enable and inhibit the opposite tension of agile projects rather than being viewed them as separate approaches. According to literature (Bell, Bryman, & Harley, 2018; Castillo-Montoya, 2016) the interview protocol has been developed by aligning our research question to the general research aim, focused on exploring and framing the main variables *of agile management that enable such connections.* Particularly, we framed the interview protocol as a set of broad, open-ended questions focused on Agile Management. In order to refine and validate the questions we received feedback on interview protocols from the consultants, considered as experts on the topic. We adopt an interpretive approach for analyzing data by first applying the open coding procedure to interview analysis and generating a large quantity of codes by elucidating themes within the data (Strauss and Corbin, 1997). We broke down all raw data (transcripts and documents) into segments of text by choosing sentences as units of analysis and by assigning labels to sections of text that have some distinct meaning, in order to simultaneously categorize, summarize and account for each piece of data, and organize and interpret them. We collected a total number of 125 raw concepts as free NVivo nodes. We then collected these open codes into six new categories which were in turn classified into two first level categories, matching both planned and emerging change categories.

4. Findings

Findings from the cases analyses are summarized below. They reflect the tensions that enables an agile perspective and how such tensions are enacted and organized within these different categories.

4.1 Direction of Change: Top-Down and Bottom-Up

Our evidences highlight that agile projects start with a high-level planning (annual) that is then roll-out into a down level, bottom-up approach. Both perspectives, that are usually seen as separated, are connected to each other, with the same importance and the same reciprocal value: without top-down planning, bottom-up perspective is not possible, and vice-versa:

"They [decisions] are a mix. Some of them come from strategic group level, others come from needs that emerge on the customer side or on the store side" (A).

During top-down approach, the Project Managers set objectives, detailing what the team should done or have already done and should be improved, estimate what will be delivered and highlight the dependencies with other Agile teams. Moreover, a bottom-up approach is necessary, as well, for making the project implementation effective.

"We have an annual planning, but ... these plans are often and willingly revised because priorities change, maybe we expected the installation of a hardware component to support us that has slipped or because in the meantime there was another intervention to do, at that point or other activities take over in the meantime and then we go to review the planning in the short term (B).

Structured planning and controlling are necessary for structuring the change and setting the strategic streams, that are declined into objectives and projects for being formally approved. Without the approve, bottom-up approach shouldn't be completed.

Agility is necessary besides planning and controlling for shaping clients' requirements. Even if objectives are planned, feedback of ongoing progress supports future project especially as the uncertainty in the project increases, the likelihood of changes also increases. Product manager uses the plan objectives to update the projects and roadmap, by improving next plans, based on what was learned during iterations. Agile teams continuously plan, deliver, learn, in an ongoing cycle as more information becomes available from review of frequent deliveries and from the bottom.

"*we are hierarchical, but in a positive way [...] we feel free to bring problems at the top management level and they are willing to manage and talk about it without prejudice*" (C)

4.2 Agile objectives: ambiguity and clarity

By analyzing our data, we discovered the interaction of different objectives features related to agile projects. Agile projects are complex systems existing in changing environments where the search for business opportunities is less straightforward and requires effective search behaviors in order to understand market needs. Complex projects come along with ambiguity and uncertainty. However, long term project objectives in which release planning are based on a longer-term view (beyond sprints) (Hoda et al., 2016) is important on agile practice (Therrien, 2008; Cao et al., 2004), especially during the initial project estimation step. Particularly, long-term objectives, defined at product level, are often ambiguous and challenging, they cannot be coded precisely into clearly understandable categories, causing also comprehension problems of projects expectations.

"... in the long term [objectives and plan are] much more [something] "desired" (B)

General goals require a reduction and iterations for an effective project implementation, being reviewed and combined at short-term team level. The ambiguity created at the product level is solved at team level throughout the interaction between clients and project team.

"short-term objectives are defined at scrum team level in which everything is much more clearly defined [...]" (B)

Having small iteration settings helps however to manage them, also because in the face of the needs that may come from a customer, these can be argued both from the point of view of one's own technological needs, because one needs an environment to be able to realize what is asked for.

"We are often forced a bit to put things back on the ground to clarify [the specific client needs and priority]" (C)

4.3 Boundaries of change: Close and Open interactions

We found that the agile perspective combines, at one hand, a closed, exploitation approach, in which project is designed and planned within the organizational structure and functions boundaries:

"our company maintains the guideline and each BU is a carrier of an element of the product, this to make everything faster. So, we then organized ourselves at the community level and then going to the "Scrum of Scrum" organization" (A)

On the other hand, at the bottom level, the agile perspective is more open and exploration oriented, by involving the clients and considering their feedbacks into the project.

In fact, the implementation step of the agile project management is a strong orientation towards the client, being based on frequent interaction in terms of plans and re-plans, as more information becomes available from review of frequent deliveries through user stories.

According to literature, as contrast to using agile processes in the early stages of innovation, firms start with their established processes, which may also involve open innovation and user innovation methods (Lettl, Herstatt, and Gemuenden 2006).

"so I interface with the different clients and projects I follow (now we are following one project in China and 3 projects in Brazil) and it's my job to bring the requests and prioritize them according to the deadlines agreed or imposed by the client." (B)

4.4 Leadership: Top-Down and Servant Leadership

Our evidences highlight that an agile environment requires a connection of both traditional leadership styles, focused on a vertical decision-making process about product and solution management for customers and stakeholders and a more distributed leadership for fine-tuning solution with customer feedbacks.

Accordingly, our results suggest that on agile management approach are present, at the project management level, traditional leadership approaches:

"Projects [that are] considered strategic axes [..] of the company are those that the Holding decides to develop centrally" (A)

These ones are based on command-and-control systems, hierarchical structures and extensive planning activity, in which directives and rigid instructions are decided at top-level.

"We have the strategic stream leaders who prioritize the strategy portfolio. Below are the product leaders and domain leaders, under the POs and BOs. The strategic stream leaders are part of the management committee, reporting to the CEO, and have their own contact person who supports them in the daily management of the strategic project stream" (A)

Besides the traditional approach, at the implementative level, project managers provide with information product owners and scrum master, that should facilitate the team in a collaborative leadership style, also defined as servant leadership, the practice of leading through service to the team, by fostering collaborative working relationships with the stakeholders and clients, through the project's continuous feedback for realizing objectives and deliverables.

"On servant leadership we have a manifesto, which is a way to make people understand what is expected of them, and we also have a leadership model. So asking for feedback, putting yourself to the test, learning from the ecosystem, changing within an interconnected system, measuring the impact of your own actions on others, being enterprising, affecting performance, improving, getting to know each other, trying to meet each other, being a leader that drags, are the ways in which we are proposed leadership in our company as a servant" (A)

We notice that servant leadership was not only implemented at the agile team level but also at the project management level.

"Every day we ask ourselves whether we are doing right or wrong, so the things that happen never go unnoticed, we always ask ourselves if we are making the right decisions" (C).

5 Discussion and conclusion

This study builds on previous research (Lindskog & Magnusson, 2021) and describes how agile projects team combine exploration and exploitation processes and the main related variables through the lens of contextual ambidexterity. While previous research has mainly focused on describing ambidexterity (and especially at the organizational level) instead of understanding "how" it can be expressed concretely (especially at the team level) (Lindskog & Magnusson, 2021), our perspective fills such literature gap and contributes to describe how the paradoxical tensions between exploitation and exploration are contextual connected at agile team level (Ramesh et al., 2012) in a duality perspective (Farjoun, 2010). We suggest that agile projects team pursuit simultaneously alignment and exploitation, such as long-term planning activities together with adaptability and exploration, such as emergent iterations and user stories. We found that such simultaneity is related both to hard and soft variables. An example of hard variables in this study is project direction. It describes how the bottom-up is connected to top-down direction (Kuusinen, Gregory, Sharp, & Barroca, 2016) and each approach is necessary for each other. Despite studies usually states that agile management is prevailing a bottom approach, characterized by iterations, sprints, local management (Dybå and Dingsøyr, 2008; Schwaber and Beedle, 2001) and feedback loops based upon recurring project cycles, our evidence illustrates how agile management is the result of a combination of top-down, strategic perspective, combined with bottom-up short-term initiatives that necessarily coexist to enable the agile management team.

Another variable has been categorized as "objectives". It is a dimension related to the needs for reducing project complexity. Literature usually talks about ambiguity and clarity with a clear demarcation respectively defined at strategic level, in which objectives are quite ambiguous, and at implementative level, where objectives are usually operationalized and clear for the agile teams. Besides this idea, our results highlight the reciprocity of ambiguity and clarity, as specific goal setting process attributes, that are not only sequential but also recursive nested and multilevel. For overcoming ambiguity, planning step requires also exploitation and for refining clarity, at the implementative level exploration is necessary as well. Agile teams deal with ambiguity at the planning level, and overcome it with clarity at definition of projects stream line, but also at the sprint level, when teams deliver user stories by sprints and finally clarity is present with deliver. Our insights highlight the recursivity of ambiguity and clarity at different project level. Despite ambiguity can benefit innovation by keeping more fallback options available and by keeping a larger solution space open (Brun, Sætre & Gjelsvik, 2008) and clarity is not desirable when setting goals for innovation (Stetler & Magnusson, 2015). Moreover, our evidences highlight that an agile environment shows both closed and open boundaries tensions. Particularly, agile teams engage in opposite tensions of closed strategic activities, including definition of the project vision, planning, and controlling as well as open-exploration activities, as searching for solution from different external sources such as companies, innovation intermediators, customers, end-users (Similä, Järvilehto, & Kuvaja, 2008) for developing the service or the product requirements. Agile teams should be able to connect different perspectives both within the organization and between organization and stakeholders, included the client. Tensions are related to a contextual ambidextrous culture focused in some respects to a close oriented mindset, together with a more open one (Herzog and Bröring, 2008). The team must be able to consider themselves valid as ideas within internal boundaries, but also as humble in accepting external ones. This double skill must be clear within the team and the product owner who are called to switch according to the specific situation they are experiencing. On the other hand, soft variables in this study are, for example, leadership styles. Our evidences highlight that an agile environment requires a connection of both traditional leadership styles, focused on a vertical decision-making process about product and solution management for customers and stakeholders and a more distributed leadership for fine-tuning solution with customer feedbacks. Agile, again, combine an ambidextrous perspective

to leadership, in which the leadership style for the agile team can be paradoxically different. Responsibilities are related to the product management, in the reaching the business and economics goals established by the portfolio for the business objectives, and building the required functionality, collaboration with IT to ensure solutions are deployed to internal customers and users and with an even larger set of business stakeholders to deliver products to the market. Product Managers ensure their offerings are supported and enhanced to create a continuous flow of value (Safe 5.0). Moreover, product management is related to the agile team through the product owner that works in a more distributed approach to those people who have the knowledge to get work done, by being the center for serving the team and the management is required through self- organized team does not have a clear manager, and the customer might take the lead as a scrum master. Accordingly, our results suggest that on agile management approach are present, at the project management level, traditional leadership approaches. Our findings offer both theoretical and practical contributions. In terms of theoretical contributions, we describe the agile teams through the lens of contextual ambidextrous perspective by highlighting the different multiple connections of a specific set of variables that affect agile project dynamics. Such variables, according to contextual ambidexterity theory, are related to exploration and exploration processes and describe how opposite dynamics are connected both within the team level and among agile teams and other project levels, showing both the planned and emergent traits of projects, that are present in a connected view. Such contribution informs ambidexterity theory and project management literature by highlighting the importance of considering different, and sometimes opposite, processes, and the importance of considering them connected and reciprocally important for agile team dynamics and for getting benefits from the tensions about different and opposite dynamics. In terms of practical contributions, our results suggest the importance for managers to understand and develop different set of skills related to agile project management in order to be able to deal with different and opposite dynamics. Agile team members should be able to perform different roles within the project in order to achieve projects result. Particularly they should be able to receive project proposals from the top of the organization, but also interact with top organizational level in order to improve and adapt solution to the clients' needs. Moreover, agile team members can approach the projects being aware about the ebb and flow of ambiguity and clarity, by considering ambiguity as a necessary attribute of the projects objectives, that, together with clarity, provides with a more consistent final result for the client. Such continuous end-less flow should be considered as an ordinary characteristic of the agile team. Agile teams should be able also to manage project boundaries in an ambidextrous way, by considering the necessity for developing a traditional close mindset, related to the exploitation of project objectives, combined with a more users-oriented mindset, related to the exploration of their needs or requirement for the project success. From our analysis it appears that while the agile teams need to develop the ability of managing a combination of different leadership styles and dynamics, putting together the traditional and hierarchical approaches with the new servant leadership models, so to effectively manage both the exploitation and the exploration phases. Finally, agile team is represented by the importance of develop the ability of managing a combination of different leadership styles and dynamics, not only related to servant, but also to more traditional and hierarchical approaches.

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