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Manuscript for: Midler C, Killen CP, Kock A, (2016), “Project and Innovation Management: Bridging Contemporary Trends in Theory and Practice”, Special Issue editorial, Project Management Journal, Vol 2, pp 3-7.

Project Management Journal Special Issue

Project and Innovation Management:

Bridging Contemporary Trends in Theory and Practice

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Innovation is a hot topic in organizations – driven by the need to compete in an era of increasing competition and uncertainty, rapid technological and market change, and escalating requirements for solutions to complex problems. The strong interest in innovation has spawned a vital and productive field of research; innovation management concepts such as open innovation, effectuation, and design thinking have wide appeal and application. In parallel, the same drivers underpin the growing adoption of project structures for an increasingly broad array of activities. In particular, innovation activities are almost always conducted within a project framework, and there is a growing body of research at the intersection of project and innovation management.

This special issue bridges the fields of innovation management and project management by presenting a collection of papers illustrating collaboration and cross-fertilization between these two dynamic fields. In this issue we set out to ask “How can the project management field learn from concepts and analytical frameworks developed by innovation scholars?” and “How can theoretical developments in the project field contribute to innovation theory and practice?”. Nine papers have been selected to address these

questions while showcasing a broad array of methodological and theoretical perspectives in a variety of contexts.

A wide and ever increasing array of methodologies enriches project management research (Muller 2015). The methodologies represented in this collection of papers include two conceptual papers, one that employs modelling and simulation, five in-depth case studies and one broad cross-sectional quantitative study. Overall, five of the seven empirical papers adopt a single project perspective, while two consider multi-project environments.

Context matters in innovation management as in project management; the importance of tailoring management approaches to the context is a recurrent theme in both fields (Burns & Stalker 1961; Ettlie et al. 1984; Shenhar & Dvir 1996; Shenhar 2001; McGrath 2001; Söderlund 2004; Turkulainen et al. 2015; Unger et al 2015). This issue contributes to this contextual approach by encompassing a variety of innovation project contexts, from explorative and complex product development projects to infrastructure megaprojects. The findings enhance our understanding of how context and management approaches can work together for successful innovation project management.

A recurrent theme in this special issue is the need to manage projects in the uncertain, dynamic, and complex environments that are typical for highly innovative projects. Such environments are often ill-suited for traditional “rational” project management approaches due to unclear goals, shifting milestones, and evolving and unfolding activities. Alternate perspectives and approaches are analyzed in this collection of papers; they provide conceptual inputs as well as evidence and in-depth empirical understanding of how and when project management structures can provide benefits in managing innovation.

We open the special issue with an invited paper by Professor Ann Huff entitled “Project Innovation: Evidence-informed, Open, Effectual and Subjective”. Ann Huff is a major contributor in the fields of innovation management, strategic change, and academic

research strategy. Her conceptual paper builds on these three domains of expertise to craft a framework that we have used to provide a perspective on contributions from the papers in this issue. On the epistemological level, Ann Huff's paper clarifies our purpose of "bridging" different traditions of management. She warns us against the easy but misguided tendency to believe that progress in a management stream can be achieved by bundling concepts from different fields together without a thorough analysis on the basic underlying assumptions. Four theoretically distinct approaches to innovative Project Management are identified: The evidence-informed approach (which refers to traditional project management approaches), the open innovation logic, the effectual approach, and finally subjective-interactive innovation management. Ann Huff characterizes the specific logic behind each stream and illustrates each through iconic examples of innovation successes such as Procter and Gamble's "Connect and Develop" program, the Ice Hotel and Airbnb. In doing so, she paves the way for new avenues for project management studies in a radical innovation context.

In the second paper, "Dynamic Capabilities for Complex Projects: The Case of London Heathrow Terminal 5", Andrew Davies, Mark Dodson, and David Gann show how complex one-off projects benefit from dynamic capabilities (DC). The DC framework (Teece & Pisano, 1994) is a key strategic management concept that addresses the increasing influence of innovation and change. It characterizes the ability of firms to adapt, integrate, and reconfigure their competences, resources, and routines in response to rapidly and profoundly changing environments. Dynamic capability theory has previously been applied to understand how decisions about an organization's project portfolios can contribute to competitive advantage (Killen & Hunt, 2010, Killen et al., 2012, Sicotte et.al, 2014, Winch, 2014). In such environments, it is the ability to respond to change by altering the mix of projects in the portfolio and thus reconfiguring resources that can provide advantages. Product development environments also provide examples of DCs in practice (Eisenhardt and

Martin 2000, de Brentani and Kleinschmidt 2015). Andrew Davies and co-authors make practical and theoretical contributions to the research on DCs and projects by exploring yet another context: complex one-off projects. On the practical side, they reveal that innovation within complex one-off projects often appears as a major and largely unsolved problem (see for example Flyvbjerg, 2014 on megaprojects). On a more theoretical level, the authors extend the DC concept beyond the context of permanent organizations. Exploring its application in temporary organizations raises the question of how to build such DCs from scratch, and how DCs can operate and be dissolved during the limited time of a project. Building on a deep longitudinal analysis of the Heathrow Terminal 5 project, the authors present a model explaining how DCs can be built, codified, and mobilized in a three phase process to support the strategic management of complex and uncertain projects. This model demonstrates links with the effectuation approach presented by Ann Huff and fruitfully complements the domain of megaproject management. The authors also provide an important link for empirical development by expanding the scope of the strategic management field to the domain of complex projects.

When innovation is strongly radical, the exploration dimension of the project becomes dominant. Can project management concepts be useful in such a domain? In his article “Floating in space? On the strangeness of exploratory projects”, Sylvain Lenfle answers this question positively and provides support for structuring such exploratory projects. When compared to traditional projects (the “evidence-informed” ones as depicted by Ann Huff), the project explored through this in-depth case study in the space industry is said to appear as “strange” or “floating”. Relying on advances in design theory (Le Masson et al., 2010), Sylvain Lenfle proposes that this “strangeness” is not a symptom of mismanagement but that it follows a specific “expansion logic” adapted to the discovery situation. By detailing the management practices in a rich case example, he reveals how success was achieved through

monitoring knowledge expansion in multiple unknown dimensions of the project (the opposite of an evidence-informed situation in Ann Huff's terms) while retaining the ability to flexibly respond to change and evolve over time. The use of a project management structure, albeit not a traditional approach, provided specific benefits – in particular in fostering communication, collaboration, and coordination among a 'community' of actors spread across different disciplines. Importantly, this paper reaffirms extant research (Lenfle, 2008 and Lenfle & Loch, 2010) showing that managers need to recognize the type of project at the start, resist institutional pressure to adopt traditional "rational" approaches to all projects, and apply an appropriate approach – one that is tailored for the project type. For project academics, this calls for continuing the effort to formulate and legitimate a diversified and contingent theory of PM.

Success stories proliferate in management journals, but the analysis of problematic cases often provides more fruitful learning material. The next paper, by Vered Holzmann, Aaron Shenhar, and Yao Zao, is a case in point. Their paper "The Challenge of Innovation in Highly Complex Projects: What Can We Learn from Boeing's Dreamliner Experience?" confirms Sylvain Lenfle's findings about the importance of a contingency perspective in project management theory through a retrospective analysis of the Boeing Dreamliner case, a project that suffered extensive delays and cost overruns. The paper addresses the questions: "What happens when a highly innovative and complex project adopts a standard development project management model?" and "How can we precisely diagnose the nature and uncertainties of an innovative project in order to tailor the project management model?". Vered Holzmann and co-authors demonstrate that the problems in the Dreamliner case resulted from the combination of complexity and highly radical innovation. They draw upon the innovation and project management literature on contingency (specifically models from Pich et al., 2002; Shenhar & Dvir 2007; and Geraldi et al., 2011) to propose a methodology

to classify projects based on novelty, technology, complexity, and pace in order to guide the design of a suitable project management model.

Aircraft development is also the sectorial background behind the paper from Henk Akkermans and Kim van Oorschot, who ask whether increasing the level of concurrency in new aircraft development projects could reduce the frequent occurrence of significant delays. Their paper, “Pilot Error? Managerial Decision Biases against Concurrency as an Explanation for Disruptions in Aircraft Development and Production” explores managerial decision making in complex environments, and suggests that increasing the level of concurrency can reduce delays. Concurrency in an innovation process has long been advocated, especially for complex integrated product development processes such as those used in the automotive industry (Clark & Fujimoto, 1991, Midler & Navarre, 2004). By overlapping the phases of the process and enhancing communication to enable early information to be considered in advance planning even before formal close of the earlier phase, concurrent processes have shown improvements in speed, quality, and cost in several studies on the use of such approaches for product development. However, for large and highly innovative complex systems, managers often consider concurrency as too risky and feel it may cause delays. Henk Akkermans and Kim van Oorschot model the decision scenario for an airline development using system dynamic modelling. They incorporate multiple factors, acknowledge the special circumstances of complex project management, and explore the effects of different degrees of concurrency. The results of the modelling show that although downstream phases may require more rework due to flaws in the early information released in a concurrent process, the benefits of enabling the feedback loops between the phases outweighed the risks, and overall a medium level of concurrency minimized project delays. These results confirm and generalize Sylvain Lenfle’s paper conclusion of the importance of

project coordination for exploratory “strange” projects that face many unknown-unknown risks (Pich et al. 2002).

In “The Innovation Journey and the skipper of the raft: about the role of narratives in innovation project leadership”, Tanja Leontine Enninga and Remko van der Lugt focus on project leadership in radical innovation projects. The importance of storytelling and narratives in organizations has already been established in studies of corporate culture, sense making and organizational leadership (Kets de Vries, 1998; Czarniawska, 2014; Weik et al, 2005), but little attention has been paid to storytelling in innovative project management. The authors characterize the role of the project leader as an implementer of four intertwined but different and often non-convergent processes: developing the content of radical innovations, stimulating creativity for the projects, meeting time, cost, and quality performance levels, and managing the project group dynamics, internally as well as externally with the key stakeholders. Based on a deep longitudinal case analysis of a radical innovation project in a major beer firm, they demonstrate the predominant role of narratives in these intertwined processes. Their analysis highlights the specific contribution of storytelling and story making within the project team in an approach that could be interpreted as a form of project control in a ‘subjective-interactive’ project management style as typified by Ann Huff’s paper.

Thus far, the papers presented in this special issue have focused on individual innovation projects. The following two papers adopt a multi-project perspective to extend the scope of this special issue beyond projects as singular objects of analysis. This is especially important in the current intensive innovation context, where business success depends on the capability to multiply the response to the innovative challenge, to go beyond emblematic but singular success, and to achieve efficiencies in repetitive innovative endeavors. In addition the management of multiple projects offers a higher-level strategic perspective to project and

innovation studies. Project portfolio management is therefore a key topic in multi-project management.

Many papers of this SI emphasize the importance of the upfront creative and explorative phases in the management of innovative projects. The authors of the next paper, Alexander Kock, Wilderich Heising, and Hans Georg Gemünden, consider the issue from a project portfolio management perspective. While contemporary developments in innovation research often focus on improving the creative ideation phase (as discussed in the final paper on design thinking in this special issue), the upfront (“pre-project” or “fuzzy front end”) phases are often disregarded in project portfolio management practice and research.

Alexander Kock and co-authors ask whether attempts to improve creative ideation are worth the effort and test the correlation between upfront phase success and project portfolio performance through a quantitative study reported in “A Contingency Approach on the Impact of Front-End Success on Project Portfolio Success”. The authors furthermore investigate which factors influence the strength of the correlation. On the methodological side, this survey has addressed the challenge of developing rigorous and relevant criteria to evaluate front-end performance. Drawing upon previous research, the authors propose three dimensions for success measurement: effectiveness, timeliness, and efficiency of the front end. The large-scale study (175 project portfolios) found a strong correlation between front end success and project portfolio success, with the degree of complexity as an important moderating factor. This result has implications for professional practice, and suggests that more attention should be devoted to upfront phases. It is also important for scholars in the project management field because it invites them to enlarge their scope of analysis to new territories, those “strange” projects as Sylvain Lenfle labels them, and to consider ways to enhance the efficiency of such creative activities, not as the result of mysterious genius or

serendipity (van Andel 1989), but on the contrary as a domain to be organized through tailored project management approaches.

When developing multiple products, how can managers reconcile the innovation imperative with the push for component commonality which is a major efficiency lever in most industries? This issue is usually addressed as a trade-off between two opposing forces. The use of common components in innovative product development processes is seen as a constraint that restricts innovation by enforcing a level of standardization. In their paper “Innovation for Multi-project Management: The Case of Component Commonality”, Tuomas Korhonen, Teemu Laine, Jouini Lyly-Yrjänäinen, and Petri Suomala illustrate how the design of common components can be a source of innovation rather than a barrier. This paper takes a wide view of the impact of component commonality across a portfolio of projects, and shows how multi-project synergies, once recognized, can justify the development of innovative solutions; common componentry can therefore be innovative. In the end, the challenge for innovation is to meet the customer’s needs; this paper shows how component commonality, when viewed from a multi-project lens, can cost effectively free up the organization to meet customer needs in innovative and responsive ways. This paper provides managers and practitioners with a detailed example and the related cost implications across the project portfolio, demonstrating how a wide perspective can be employed to fully reveal the benefits of common componentry in innovative product development.

We conclude this special issue with a conceptual paper by Sihem ben Mahmoud Jouini, Christophe Midler and Philippe Silberzahn on the “The Contribution of Design Thinking to Project Management in Innovation Contexts”, This paper explores the potential benefits of cross-fertilization between the Project Management domain and ‘Design Thinking’, an approach from the design discipline that is becoming increasingly popular in general management. The authors first summarize the literature on challenges to be addressed

by the PM academic community, reflecting the themes identified in many papers in this special issue. These challenges are: developing appropriate project management approaches for exploratory and creative situations (beyond the usual traditional development situation); developing strategic capability as a legitimate and efficient component of the project management role (beyond the traditional implementation capability); and analyzing the role of projects as an important element in the strategizing process of the ‘permanent’ firm (beyond the traditional vision of project selection based on ‘alignment’ to a stable ‘top-down’ firm strategy). Sihem ben Mahmoud Jouini and co-authors find that the principles underlying the design thinking concept align with these three project management research challenges. Building on this alignment and their exploration of the ways design thinking concepts can contribute to PM research, they conclude with a set of propositions that could form an agenda for further research on innovation project management.

As a whole, the nine papers offered in this rich and diversified collection converge to address our special issue’s purpose to bridge and cross-fertilize the fields of project management and innovation management. The establishment of such a bridge has opened new perspectives and enriched both fields, paving the way for further cross-fertilization. We look forward to continuing the scientific conversation between those two dynamic fields in a forthcoming special issue of Project Management Journal on the management of exploratory projects.

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