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HOW CAN OPEN INNOVATION PROJECTS GENERATE VALUE IN AN ORGANISATION?

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ABSTRACT

This paper investigates how open innovation (OI) projects can generate value in an organisation. To answer this underlying research question, we conducted a qualitative analysis of both formalised and informal links between OI projects, the permanent organisation and external partners in several Danish case study firms. The main findings concern the interplay of links between OI projects and permanent organisational structures and processes. We found that such links are context-dependent.

The paper contributes to the literature on OI and project management by providing a more detailed understanding of how firms should organize OI projects. Of prime importance is securing links between the OI project and the permanent organisation to generate value not just for the end-user but also the firm.

The main managerial implication for our case study firms is that a systematic effort to link OI projects and the permanent organisation contributes to value generation. This is a challenge especially for smaller firms with limited resources. However, also in larger enterprises formalised processes for the governance of innovation projects are necessary.

1. INTRODUCTION

A growing body of research has in recent years focused on open innovation (OI) (Bogers et al., 2017; Dahlander and Gann, 2010; Radziwon and Bogers, 2018; West and Bogers, 2014). The concept of OI is rather broad and refers to different types of innovation, from idea platforms and competitions, to lead user participation in innovation development and testing, the involvement of key actors as suppliers, to universities and similar research organizations playing a role in the early phases of firms' innovation management (Radziwon and Bogers, 2018). Such OI activities are frequently organized as projects, and so projects can be considered an "engine of innovation" (Davies, 2014). Therefore, understanding OI projects, and how best to organise them, is vital for ensuring that these projects seize all opportunities available to them and generate maximal value to their lead organisations (Chesbrough, Lettl, and Ritter, 2018; Teece, 2012).

Organizing is of great importance to the outcome of OI, yet it remains an under-researched topic and Bogers et al. (2017) call for more investigations in this field. OI activities, the actors involved, and

their interactions, have predominantly been studied in isolation from one another and only at certain stages of the value process (Bogers et al., 2017; Dragsdahl Lauritzen and Karafyllia, 2018; Hienerth, Lettl, and Keinz, 2014). To reach a more nuanced and comprehensive understanding of value generation processes in firms conducting OI projects, we assume that one must consider the context of the entire value generation process in order to build a more detailed understanding of the organisation of firms' OI projects. As such, here we investigate the links between OI projects and the permanent organisation of the firm, because it is important that OI projects are not isolated from the rest of the organisation, in order to generate value (Andersen, 2008; Riis et al., 2019; Salomo et al., 2007). We emphasize the complex interplay of links within the project, and between it and the permanent organisation, as well as the links between the project and external partners that help to ensure value is generated.

This paper is based on previous research in the two disciplines of innovation and project research and is positioned in the cross field between OI, and the value generated by projects and their permanent organisation. The paper addresses the following research question:

How can open innovation projects generate value in an organisation?

2. THEORETICAL FRAMEWORK

The theoretical framework of this study builds on two streams of literature, that of innovation and of project management. While these two streams are often closely related in practice, researchers tend to distinguish between them, despite the fact that innovation activities are frequently organized as projects (Davies, 2014). Projects are often treated as black boxes, although some authors investigate innovation projects on the project level as (e.g. Tranekjer and Søndergaard, (2013)). We believe it is important not only to understand the single innovation project, but also the management structures and processes on the organizational level.

2.1 OPEN INNOVATION

Chesbrough defines OI as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively” (Chesbrough, 2006). Alexy and Dahlander (2014) recently offered their own definition, one emphasizing value and, therefore, more in line with our study: they define OI as all flows – inbound and outbound – of knowledge across the boundaries of the firm, independent of the form or direction, the purposes of which are to create and capture value.

A sub-stream of the OI literature that is especially pertinent to this study is the research on opening the innovation process for inputs from external actors (i.e. a form of inbound OI) that is sometimes referred to as ‘knowledge sourcing’. Its proponents argue that sourcing knowledge from the outside has a positive influence on the outcome of the innovation measured as e.g. innovative performance. However, some studies, such as those by Praest Knudsen and Bøtker Mortensen (2011) and Tranekjer (2013), have questioned the virtues of knowledge sourcing, pointing to various drawbacks and challenges that accompany the involvement of external partners. However, one could argue that these problems are not a feature of OI itself, but rather of the management and organisation of the OI projects.

The literature on opening the innovation process for inputs from external partners has investigated different dimensions to better understand the nature of the relationship between the organisation and

partners. For instance, Laursen and Salter (2006) measured OI in terms of breadth and depth and found that the number of partners influences the outcome of the OI projects. Others have researched the effect of different groups of partners, such as market and science partners (Du et al., 2014). Some authors have studied specific types of partner and their influence on the outcome of innovation. Such studies investigated customer involvement (Cui and Wu, 2017; Gemser and Perks, 2015; Mahr et al., 2014), integration of suppliers (Lau et al., 2010) and industry-university collaboration (Bruneel et al., 2010).

Besides studies of the number and type of partners, the importance of the type of relationship between the firm and the partner has been a research topic. The concept of ‘tie-strength’ (Granovetter, 1985; 1973) is the foundation for the discussion of strong vs. weak ties and is one way of investigating the type of relationship in question. However, the results in the literature are ambiguous when it comes to the type of ties most beneficial for innovation. The arguments put forward for strong ties is that firms that are familiar with each other find joint solutions and transfer knowledge between themselves. For example, Uzzi (1997) finds that to a certain extent strong ties between partners (measured as embeddedness) give access to special opportunities because of risk-sharing and exchange of information. After a certain point, embeddedness forces insulation and lack of exploration of new possibilities. Hansen (1999) proposes that strong ties are best when knowledge is highly complex/tacit, weak ties are best when knowledge is not complex or explicit. The arguments put forward for weak ties are that they will provide access to knowledge which is otherwise hard to access, and they will initiate innovation projects and expedite their implementation (Noordhoff et al., 2011; Powell and Grodal, 2005; Rogers, 2004; Uzzi, 1996). In line with the argument for OI projects with external actors it gives firms access to complementary resources and new knowledge (Teece, 1986).

The literature on OI rarely examines innovation projects in detail but instead tends to regard projects as black boxes whose precise content and organising are unknown. Therefore we mined the literature for project research in order to develop an understanding of how OI projects might be best organized to ensure that opportunities are seized and value generated (Chesbrough et al., 2018; Teece, 2012; Teece et al., 1997).

2.2 PROJECT RESEARCH

For a nuanced and comprehensive understanding of the generation of value in organizations by OI projects, one must consider the links between the temporary and permanent organisation. These links are part of the literature on ‘Governance of Projects’ (Müller, 2011). Governance of projects describes new structures and processes aimed at ensuring that projects generate a discernible value for the permanent organisation (Riis et al., 2019). Governance of projects has become increasingly prominent as a research topic during the last decade (Anell and Wilson, 2002; Aubry et al., 2007; Midler, 1995; Müllern, 2002; Narayanan and DeFillippi, 2012), and includes the emergence of a new literature that situates projects in their institutional contexts (Morris et al., 2011). However, little research has so far been dedicated to the value generated by OI projects in particular (Jones and Lichtenstein, 2008; Bogers et al., 2017; Dragsdahl Lauritzen and Karafyllia, 2018; Hienerth et al., 2014).

2.2.1 VALUE GENERATION

The concept of projects as temporary organizations (Lundin and Söderholm, 2013; 1995) and the Organizational Perspective characterize the results of an OI project as contributing value to a “desired future situation” for the permanent organisation (Andersen, 2008), or the project owner and stakeholders (Morris, 2013). The ‘desirable situation’ has classically been evaluated financially, but

newer studies have moved beyond these metrics to include non-financial effects (Laursen and Svejvig, 2016; Martinsuo and Killen, 2014; Pitelis, 2009; Bowman and Ambrosini, 2000).

In this paper we consider the initiation, as well as the outcomes, of innovation projects (Young et al., 2012). Securing value for the organisation occurs in three steps (Riis, 2015):

Identifying value (defining and initiating an OI project)

Creating value (carrying out an OI project)

Harvesting value (ensuring that the receiving organisation incorporates the innovation project results and that they are utilized).

Past research has mainly analysed the value process in the context of innovation using one or more of three main approaches. The first refers to organisation studies and strategic management scholarship and emphasizes value identification and value creation as the central issue (Pitelis, 2009). The second focusses on building theory from practical observations. Each of these approaches have somewhat different perspectives on the topic in hand, such as whether value is to be analysed from the point of view of single innovation projects or from that of the organisation as a whole. Synthesising these strands (Andersen, 2008; Pitelis, 2009), we propose the following working definition of value for use in our study:

Value is “activities, products and services, engendered by projects and programmes, that are perceived as desirable by potential beneficiaries.”

The value contributed to an organisation by OI projects is the economic value plus a subjective value minus the costs.

2.2.2 LINKS

Based on White and Patton (2002) the early version of the Organizational Perspective referred to different “critical links” that connect and integrate the strategic plan of a project with its implementation. Critical links can take the form of guidelines, persons and teams, organizational units such as a Project Management Office, and connecting processes (Andersen, 2006). Other authors distinguish between organizing, individual and HRM links (Galbraith, 1973; Roberts, 2004; Thompson, 1967; Williamson, 1996):

- Organizing links deal with structures, such as organizing design, roles and documentation (guidelines, models, templates, agendas etc.) or processes, such as formal or informal meetings, dialogues etc.
- Individual links refer to approaches, such as the project perspective, or role perceptions and priorities that individuals or groups adopt, or to the alignment with models and guidelines etc.
- HRM links deal with interpersonal structures, such as career path and competence development, or processes like on-the-job-training etc.

3. RESEARCH DESIGN

Data collection was carried out in four case companies, with a focus on OI projects and organizing individual and HRM links. We selected organizations of differing sizes to accentuate similarities and differences as part of this empirical, multiple case study (Herriott and Firestone, 1983). Focussing on structural, interpersonal and technological links, we examined how value was generated through OI projects. Our research assigned the same weight to documentary and interview data, which were considered to accurately represent reality.

3.1 CASE STUDY ORGANISATIONS

The starting point for selecting case firms was a compilation of all land transport firms in Denmark (Bisnode Denmark A/S, 2018), excluding companies transporting passengers. We selected potential interviewees based on criteria of (i) size (small, medium, large), and (ii) sector (transportation and suppliers).

The sampling of cases was theoretical and case organizations were selected because they were likely to replicate or extend the emergent theory (Eisenhardt, 1989). We found additional firms through a snowballing strategy to include business customers of transport companies and suppliers of transport equipment (excluding vehicles).

Table 1 shows the case firms and the roles of the employees interviewed. Our research team audio-taped all interviews and transcribed them verbatim immediately afterwards. On average an interview lasted for one hour.

Case	Type of firm	Unit of Analysis			
		Unit	Approximate number of employees	Interviewees	Types of OI projects
A	Freight transport by road	Operations	50	1. Chief Operations Manager	Digitalization
B	Freight transport by road	Operations	350	1. Head of Innovation Management Unit (IMU) 2. Data Expert, IMU 3. Project manager, IMU	Digitalization
C	Freight transport by road and warehousing	Business support unit	550	1. Head of Strategic Business Development	Digitalization
D	Manufacturer of general-purpose machinery	Equipment department	65	1. Head of Department	Transport equipment

Table 1. Profile of the case firms

The interview transcripts were then analysed according to a coding system (including both descriptive and interpretive codes) that was based on the research question and our theoretical framework (Kvale and Brinkmann, 2009), and that was modified during the coding process, i.e. inductive coding took place (Hartley, 2004).

We carried out an iterative analysis of the transcripts and firms' documents using MaxQDA ("MaxQDA," 2019). The data were sifted and grouped in several rounds in order to identify differences and similarities, and ultimately patterns, in the types and frequencies of links observed. The links between the projects, the partners and the permanent organisation were categorised according to their type and where they were situated in the value process.

4. RESULTS AND DISCUSSION

The typical partners in the OI projects examined are suppliers, and some of the firms also involve consultants. In all cases ties to these external partners are seen to be weak. The benefit of involving suppliers is providing the knowledge to the project that makes the digitalization successful, and thereby generate value for the firm. The challenge of this arrangement, for two of the firms in particular, is that when there is little formalized organizing and knowledge within an OI project, the suppliers usually determine the way in which project work is carried out, and this is not always ideal or maximally beneficial for the firm.

Documents that are the basis for OI projects, such as business cases, contain a brief statement of the project background and the reasons for initiating the project. All case organizations primarily identify value in the form of financial indicators like cost reductions, operational savings and improvement of the bottom line. Intangible value is not documented at the project initiation stage. Furthermore, a distinction between value creation targets and value harvesting targets is not clearly made.

A mandatory project management (PM) model, adapted to the department, is in place only in case D and covers the entire innovation project life-cycle, including structural links throughout the value process. In cases A and B, considerations are ongoing regarding which PM model to use. The few processes in place only contain a structural link for initiating projects. In case A links are individual, but some of these recur throughout the value process. Finally, Case C does not have a mandatory model; its model varies by projects, but it contains several structural links for decisions and reporting. A structural link in the form of a steering committee is found only in cases C and D. In all four cases only a small number of HRM links were identified.

In general, if the PM model or established ways of working do not contain multiple structural links with partners in the OI projects, the cooperation partners' model (or lack thereof) determines what is used. The partners' models, or ways of working without a model, are described in interviews as only being focused on the value creation phase. When asked about the links most important for generating value, no single type was nominated by interviewees.

4.1 IDENTIFYING VALUE

All four case firms have established links between the higher management and the projects. In cases A, C and D these are structural and involve a decision board, thereby involving other parts of the firm in decisions. In case B such decisions involve only the CEO. C and D have additional structural links in the form of a project management model describing the roles and tasks of both the project and the firm.

Processes for screening ideas and initiating projects exist in general, but these processes vary in their formalization. In cases B and C, ideas for innovation are developed and adjudicated in a closed process without external input. Cases A and D receive knowledge from outside partners, including customers and suppliers, early on in the value identification phase and focusing on the need of the end users of the project result. Other, non-financial forms of value such as "creating strategic knowledge," "reducing CO₂ emissions" or "expanding to different industries" were identified in all cases.

4.2 CREATING VALUE

In Case A one link was observed that stems from the conviction that incentivizing a particularly important stakeholder group ensures it actively contributes to the project – these stakeholders being the employees. After all, the employees’ way of working will undergo a major change when using the project result. Another individual link is frequent interaction and subsequent active support with the project owner (top management) throughout the value creation stage and continuing into the value harvesting. Case C has a structural process link involving the departments receiving the project result in the project group, where the link focusses on value harvesting. During implementation, project managers in Case D use structural links – involvement of both end users and specialists from their external suppliers in project reviews – with a focus on both value creation and harvesting.

4.3 HARVESTING VALUE

Transferring of the project’s result from the project to the permanent organisation is partly formalized in case A and entirely formalized in cases C and D (e.g. a handing over of documents). In case B there is no structural transition link, which causes delays in handing over the project result. Harvesting value is the phase in which all case firms saw the greatest opportunity for improvement. The responsibility for overseeing the generation of value in cases A, B, C is anchored in the permanent organisation, where it resides with the top management.

Summarizing the above case findings, the front-end of OI projects is especially important, which aligns with recent research for other, non OI projects (Samset and Volden, 2016). Three of the four case firms examined here involve suppliers and customers as one of their most central PM elements when identifying value.

5. CONCLUSION

In our study we have adopted a holistic perspective to investigate the value process from beginning to end, as per Bogers et al. (2017) call for multi-level investigations of open innovation. The paper includes both theoretical and empirical work and identifies elements that have been proposed as important for value generation in OI projects. Furthermore, the paper’s theoretical contribution is that of combining the literature on OI and project management to provide a more detailed understanding of how firms should organize OI projects and secure links between these and the permanent organisation, so as to generate value not just for the end-user but also the firm.

The findings of the study have clarified the interplay of links between OI projects and the permanent organizational structures and processes. Most importantly, our case studies show that such links are context-dependent. We contend that it is the existence of the links themselves, and not the type of link, that matters most. Despite the considerable differences of our case firms in terms of size, product/service portfolio and experience with innovation and project management, the interviews revealed similar basic drivers and challenges for implementing OI management. First, OI projects are generally rather isolated from the overall organisation and work processes of the respective firms. This organizational separation implies structural difficulties with the transition from OI projects to the permanent organisation that need to be addressed.

The key managerial implication of our case studies is that a systematic effort to link OI projects with their permanent organisation greatly helps to generate value and ensure that it is captured. This is a challenge, especially for smaller firms with limited resources. Yet even in larger organizations management decisions like formalized processes for the governance of innovation projects are

necessary. All of the case firms described here are Danish, and three of the four operate in the transport sector. Future research will benefit from examining firms in different sectors, in different countries. Furthermore, existing survey data could be used for the purposes of cross-validation.

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