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Competing demands between innovativeness and performance targets in R&D subsidiaries – the learning paradox in technology organizations

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Abstract: Managers of product development organizations have to cope with multiple – and often fluctuating and conflicting – demands and tensions as they seek to maintain R&D performance and, at the same time, foster learning and innovation. This causes a learning paradox, in which the R&D organization is expected to have good capabilities for innovation and learning, while delivering the highest performance possible. In this paper, we study how the managers of geographically dispersed R&D subsidiaries cope with conflicting tensions between learning and performance involving a qualitative case study of six R&D subsidiaries located in Finland.

Keywords: Learning, subsidiary innovation, organizational paradox, coping mechanisms

1 Introduction

Multinational high-technology firms often utilize foreign affiliates, which take an active part in their knowledge-intensive R&D and innovation (Bäck & Kohtamäki, 2016). The relationship between headquarters and its R&D subsidiary can be seen as a mixed-motive dyad, in which the parties have somewhat different objectives. Headquarters expects the subsidiary to fulfil its potential in terms of project performance targets but also in innovation performance. The subsidiary, on the other hand, has its own interests in maintaining its position in the firm's technology network, and also increasing its autonomy in decision-making (Ambos, Andersson & Birkinshaw, 2010). R&D units located in developed countries have to be especially competitive enough to maintain their position in the competition with subsidiaries located in countries offering lower-cost engineering work (Lewin, Massini & Peeters, 2009). To be successful, or even survive, R&D subsidiaries have to constantly sustain their competitiveness by developing dynamic capabilities (Eisenhardt & Martin, 2000; Teece, Pisano & Shuen, 1997), which enable them to draw on, extend and redirect their technological capabilities and R&D

resources (Marsh & Stock, 2003). Thus, R&D subsidiaries have to continuously build new capabilities for the future through learning, renewal and innovation. These efforts may involve building upon, as well as destroying, the past to create the future (Smith & Lewis, 2011). However, besides innovativeness, the subsidiaries have to demonstrate project performance by engaging in strategic goals and targets set by the current competitive environment and the views of headquarters (Ambos et al., 2010). Thus, managers of R&D subsidiaries are increasingly facing a dilemma in terms of how to encourage product development staff to explore innovation, while simultaneously ensuring that the R&D function meets its performance targets in terms of project time and cost (Lewis, Welsh, Dehler & Green, 2002). This causes a learning paradox, in which the R&D organization is expected to have good capabilities for innovation and learning, alongside delivering the highest performance possible. An organizational paradox involves contradictory yet interrelated elements, which exist simultaneously and persist over time (Jay, 2013; Smith & Lewis, 2011). For this reason, paradoxes existing in real-world organizations usually cannot be solved, but they can be navigated through "both-and" thinking (Jay, 2013). In the field of innovation management research, scholars have studied the balance between exploitation and exploration tensions (Andriopoulos & Lewis, 2009; Smith & Lewis, 2011) in terms of organizational learning, but the tensions between organizational learning and performance in the context of R&D innovation is a neglected topic in previous research. Practices related to coping with contradictory demands and tensions especially prompt a call for better understanding within R&D innovation.

This study intends to fill this gap by answering the following research question: *which organizational practices help the managers of R&D subsidiaries to cope with competing demands of learning and performance?* To address this question, the current research analyzes the tension between learning and performance in the R&D subsidiaries, and identifies managerial practices that facilitate the process of engaging in maintaining learning and innovation, while simultaneously meeting performance targets. Using a qualitative case study to analyze six R&D subsidiaries, this study contributes to the literature on organizational paradoxes by presenting practices and mechanisms of coping with learning paradoxes in R&D organizations. Second, the study contributes to the existing work on the role of R&D subsidiaries in global technology organizations by adding findings on the innovation mechanisms in these subsidiaries. The findings can have important managerial implications, given that most multinational technology companies utilize networks of internal R&D subsidiaries, which typically face the challenge of coping with learning and performance demands.

2 Theoretical framework

This study builds on the intersection of theories concerning the organizational paradox between learning and performance (Smith & Lewis, 2011) and the literature on R&D subsidiary innovation and initiative-taking (Ambos et al., 2010; Figueiredo, 2011; Reilly & Sharkey Scott, 2014). The paradox perspective argues that long-term sustainability requires the organization to make continuous efforts to meet divergent demands (Cameron, 1986; Lewis, 2000); and, for this reason, paradox studies explore how organizations may simultaneously attend to competing demands (Smith & Lewis, 2011). Organizational ambidexterity signifies an organization's ability to manage these tensions

caused by contradictory demands (Lubatkin, Simsek, Ling & Veiga, 2006), with ambidexterity scholars having explored different organizational tensions related to innovation (Andriopoulos & Lewis, 2009; Tushman & O'Reilly, 1996), and suggested that the firm manages to find ways to engage in the competing processes at the same time (Tushman & O'Reilly, 1996). Thus, as organizational paradoxes involve contradictory yet interrelated elements that exist simultaneously and persist over time (Smith & Lewis, 2011), they cannot be solved but can be navigated by identifying various organizational coping mechanisms (Jay, 2013). These mechanisms can be found in the process of sensemaking (Weick, Sutcliffe & Obstfeld, 2005). In the literature, sensemaking is defined as an iterative cycle of action and retrospective interpretation to generate stable meaning and organized action (Jay, 2013).

In this paper, we investigate coping with learning paradoxes in geographically dispersed R&D subsidiaries. Integrating the capabilities owned by these subsidiaries is a special advantage of global technology companies (Andersson, 2003; Yamin & Andersson, 2011), while utilizing the competences and capabilities developed in R&D subsidiaries may help the lead unit to improve the company's competitiveness (Birkinshaw & Hood, 1998). Thus, previous research in the area of business relations has acknowledged that subsidiaries often contribute to the competitiveness of the parent company through innovation, knowledge sharing and transfer, as well as by identifying new business opportunities (Reilly, Scott & Mangematin, 2012). The literature on the role of subsidiaries emphasizes the processes of initiative-taking and the utilization of local opportunities in the competition between subsidiaries (Ambos et al., 2010; Figueiredo, 2011). Both of these processes can serve as means to cope with the competing demands of learning and performance in the subsidiaries.

3 Methodology

This paper is based on a qualitative case study approach and examines six R&D units of global high-technology firms. The R&D units in question are all located in Finland and embody product development capabilities of large high-technology firms operating in various areas of information technology. In all cases, the headquarters of the company is located outside of Finland, meaning that the cases represent R&D subsidiaries of global technology companies. Table 1 summarizes the information of each R&D unit referred to in the cases. The empirical data collection for the study involved interviews and discussions with senior corporate executives responsible for the R&D and innovation functions in each case company. The selected interviewees were key decision makers involved in R&D and innovation, as listed in Table 1. The interviews lasted between 54 and 82 minutes, and all were recorded and transcribed. The interview data were analyzed when the case interviews were completed.

4 Results

The purpose of this section is to analyze the interview data collected from each company case study. The analysis is divided into two phases. In the first phase, we examine the tension between learning and performance in knowledge-intensive R&D work, in which performance targets related to time schedules and project cost represent the "tough targets" that must be met by the R&D organization in question. The purpose of this first

phase of analysis is to understand the nature of the learning-performance tension on a daily basis in the technology organizations. In the second phase, we analyze which coping mechanisms and practices the local R&D organizations are able to use on order to strike a balance between learning and meeting performance targets.

Tension between learning and performance

The root cause of the learning-performance paradox in this study is a technology organization's contradictory demands of performing and learning, which have caused competing strategies and goals in the organization. In the R&D subsidiaries examined in this study, the company headquarters has typically high demands concerning project performance. All the interviewees confirmed this, and many of them also highlighted the role of competition between the geographically dispersed subsidiaries of the company:

> *It is certainly true that we are expected to be productive enough to compete with other R&D units that are located in countries with lower cost. (Case B)*

> *We have to continuously prove to headquarters that our work is competitive with the other units' work. (Case A)*

The interviewed R&D managers clearly recognized the tension between the needs of innovation development related to organizational learning, and the performance targets set by corporate management:

> *Yes, we have to continuously struggle with these kinds of competing demands. Project performance is certainly our top priority, but everyone knows that this is not enough – we also have to provide something new that is useful for the company.*

An interesting finding in the interview process was that, while interviewees clearly recognized the tension, the majority of them had never considered it as an organizational challenge as such – it was only seen as a necessary condition for the R&D organization:

> *We just have to respond to performance needs and, at the same time, find time and resources for developing new ideas. This is not always simple, but over the years we have found ways to do that.*

According to Smith and Lewis (2011), paradoxes in organizations are often latent in nature – they remain dormant, unperceived or ignored until environmental factors or cognitive efforts make them salient. This is the process through which the contradictory and inconsistent nature of tensions are experienced by organizational actors (Smith & Lewis, 2011, p. 390), but they can be made salient through processes of organizational sensemaking and change.

Table 1. Description of the case companies and the interviews with participants in each case.

	Case A	Case B	Case C	Case D	Case E	Case F
Number of employees in R&D unit	70	70	40	50	150	100
Main products/ services	Hardware and embedded software	Electrical and electronic devices and systems	Devices and systems for logistics	Software development for mobile communications	Power electronics products	Mobile communications
Location of headquarters	United States	Europe	Europe	United States	Europe	China
Participants in the case interview	Engineering Manager (R&D)	Technology Centre Manager	Global Program Manager	Project Manager (R&D)	Vice President (R&D)	Project Manager (R&D)

Managerial sensemaking and organizational identity in R&D subsidiaries

Organizational sensemaking is seen as a process through which change initiatives, interventions and plans are interpreted by organizational members and translated into action (Lüscher, Lewis, Scher & Lewis, 2008; Weick et al., 2005). An organization must try to understand the events outside itself and actively make sense of them by physically acting in these events, attending to some of them, ignoring others or probably most of them, and interacting with other people in order to align their understanding of them (Daft & Weick, 1984). Thus, interpreting the surrounding environment is a fundamental task for organizational members, particularly in complex or ambiguous environments.

The coping mechanisms related to organizational pressures, tensions and paradoxes can be seen as organizational change processes, which were originally intended to be rational and top-down oriented (Balogun & Johnson, 2005). However, these processes may often turn into an emergent and unpredictable organizational phenomenon, based on individual sensemaking at the local level. According to Balogun and Johnson (2005), the change can be underpinned by a wide range of social interactions in two different kinds of processes: vertical ones between recipients and senior managers, and lateral ones between middle managers at the local level:

> *Yes, over the years we have been discussing this issue many times in our local organization, and tried together to find ways to answer to this challenge.*

> *Our local organization is well aware of the fact that we have to be productive in terms of both performance and innovation. We have to decide internally how to do this.*

In these processes, managerial sensemaking (Lüscher et al., 2008; Weick et al., 2005) is taking place and forms the organizational identity and actions by which organizational transformations and changes happen (Balogun & Johnson, 2005). An example of this kind of transformation can be seen in our interview data:

> *This is not only a managerial issue. All the developers also know that we have to be both productive and innovative at the same time to survive in the global competition. I think that this is a widely accepted fact in our organization, even if it is not widely discussed in our daily work.*

> *In our unit, the people have learned to work as entrepreneurs. Everyone knows the expectations, and this has clearly affected our way of working.*

Thus, local organizational members have to use managerial sensemaking in coping in their attempts to learn and meet performance targets, as well as develop their organizational identity in the direction that supports flexibility and an entrepreneurial mindset among R&D teams.

Coping with the tension between learning and performance

As presented in the previous sections, the local managers in the R&D subsidiaries have to cope with the contradictory demands of learning and performance, and this coping can be seen as a process of managerial sensemaking. When asked about coping practices, the interviewed managers emphasized the processes related to initiative-taking (Ambos et al., 2010; Figueiredo, 2011), by which the R&D unit carries out its own development work and demonstrates the results to the parent unit:

> *Our local R&D is actively seeking new areas of technology that could be useful to our company. We often start minor development projects around these topics to create a prototype or a "proof of concept" that we can demonstrate to headquarters.*

> *We try to be active in proposing new technological solutions and tools that could provide added value for our product development globally.*

In this kind of initiative generation, the R&D unit utilizes its own specific capabilities to focus its development work on its own areas of interest. It is typical for this kind of development to be carried out as internal processes without the involvement of the parent company or other R&D units (Ambos et al., 2010; Figueiredo, 2011). It is also commonplace for these internally initiated development projects to take place without the explicit approval of the parent company (Reilly et al., 2012). When the project offers demonstrable value to the company, the idea can be ‘‘sold’’ to the parent:

> *Many successful R&D projects have been initiated as minor internal projects that have been presented to headquarters as working prototypes or demos.*

> *Very few of our current development areas would ever have been initiated, if we had asked for formal approval to start them from the parent unit.*

> *An idea is so much easier to sell to the parent when you have created a prototype or a working demo.*

In the interviews, the majority of the managers referred to the challenges related to resource allocation for the internal work contributing to initiative generation and innovation, especially in those cases where senior management has not given approval for such activities. However, the interviews also revealed practices that have been developed over time to respond to this challenge:

> *We [as local R&D management] are usually able to arrange some flexible time for the further development of promising ideas in parallel with our daily project-based work. Senior management seems to accept this as long as it does not risk the project work schedules.*

According to the interview data, the agile working methods widely adopted in high-technology R&D often facilitate innovation development in teams:

> *Agile working methods let the teams determine their working priorities, and also decide upon their internal schedules and workshare. This gives them some freedom to also allocate time to innovation development work.*

The managers had rather coherent views that flexible time for innovative work is limited, such that local management has to be quite careful when deciding how to use this scarce resource in the best possible manner. The interviews revealed that R&D management usually allocates flexible time to those developers who are known to be innovative and self-steering:

> *We have to be careful when we make decisions about how we use the limited amount of flexible time – usually, it means that we give this time to those developers who we know are really capable of developing something new.*

5 Discussion

The analysis of the six cases clearly shows that tension exists between performance targets and demands related to innovativeness on a daily basis. This tension can be found on two levels. At the general level, the tension exists in knowledge-intensive R&D work, in which the performance targets related to time schedules and project cost represent the "tough targets" that must be met by the R&D organization. In addition, the interviewed R&D managers emphasized that their senior management expects them to be innovative in their daily work and produce new ideas and innovations in parallel with their ongoing project work. This leads onto the second level of tension: senior management expects the R&D organization to be innovative and initiative-taking. These expectations, however, are more salient by nature and are not communicated by senior management as clearly as performance targets. On the other hand, there was broad consensus among the interviewees about the argument that innovative orientation is a crucial factor in terms of the R&D unit's survival in the competition with the company's other globally dispersed R&D units in the long run. Our analysis reveals that it is possible to identify several kinds of organizational practice that help R&D managers to balance between learning attempts

and performance targets set by upper management. The identified practices include the following:

1. Local R&D management actively seeks new areas of technology through which the subsidiary might find new innovative approaches that could also be in the global R&D management's interest. For this kind of explorative innovation work, local R&D management tries to find "flexible time" for the R&D teams.
2. Local R&D management has adopted new ways of organizing R&D work. For example, agile working methods for software development have provided the R&D teams with more autonomy to plan and organize their work by themselves. In this way, the teams may also choose to carry out more tasks related to explorative innovation without pressure related to project time schedules.
3. Local R&D management has budgeted some time and money for innovation work that does not directly result in a specific product. The R&D management usually allocates this additional resource to people who are known to be innovative and self-steering, such that the management expects concrete outcomes.

6 Conclusions

Taking into account the tensions between learning and performance in R&D subsidiaries, this study builds on the intersection of theories of organizational paradox and the literature on the role of R&D subsidiaries within a global technology company. This study particularly increases the understanding of how the subsidiaries effectively aim to improve their own standing within the internal R&D partner network of the company, in terms of coping practices related to balancing performance and innovation. Through our qualitative analysis related to six R&D subsidiaries of global technology firms in Finland, we were able to identify a number of managerial practices that seek to strike a balance between explorative innovation and pressure related to R&D project performance.

7 Practical implications

Balancing project performance targets and expectations related to innovativeness, learning and initiative-taking is a key managerial challenge in the R&D function of the most global high-technology companies. This challenge may even be more crucial in globally dispersed R&D subsidiaries, which often have to compete against each other within the internal technology partner network of the respective multinational parent company. In order to meet the performance targets set by senior management and simultaneously maintain innovation capabilities, local R&D managers must develop new organizational practices. This study reveals a number of such practices that enable a balance between innovation and performance in R&D units to be struck. The results highlight the agile ways of organizing R&D work, which provide flexible time for innovation creation without risking project schedules. By adopting these new ways of organizing work, local R&D management may also benefit from degrees of freedom to create distinguishing profiles for their development teams in terms of innovation.

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