

EXPLOITING FIRM CAPABILITIES BY SENSING, SEIZING AND RECONFIGURING CAPABILITIES: AN EMPIRICAL INVESTIGATION

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ABSTRACT: *The aim of this paper is to study the exploitation of firm capabilities as dynamic capabilities through sensing, seizing and reconfiguring capabilities. Such a perspective enables us to better understand the logic behind the exploitation of dynamic capabilities. This study proposes that firms need to exploit all relevant firm capabilities according to the dynamic capabilities view. We also provide insights into positive practices that underpin dynamic capabilities, as well as negative practices that cause rigidity in their deployment. Our paper highlights the importance of ensuring a continuous commitment to the sensing, seizing and reconfiguring capabilities.*

Keywords: *firm capabilities; dynamic capabilities view (DCV); sensing, seizing, reconfiguring capabilities; information technology (IT industry); case study*

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1 INTRODUCTION

Strategic management consistently faces the task of identifying ways to maintain the competitive advantage/s of a firm. To become and remain competitive, firms need to continuously exploit their capabilities. Exploiting firm capabilities is critical for firm growth, especially for firms in high-tech industries, such as information technology (IT). The use of IT has not only changed the way firms do business but also improved their existing products, services and processes. Given their nature and degree of integration into various other industries, IT firms can impact other firms in either a direct or indirect manner. This makes such firms some of the most dynamic in society. Recent years have highlighted the IT industry's considerable role by enabling business activities and acting as a critical force in economic growth (Turban et al. 2006; Banuls and Salmeron 2008). In addition, the IT industry has been facing high demand for customisation and short

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product life cycles. IT firms are thus required to regularly exceed their boundaries and alter their strategies to suit the latest technological changes and opportunities. In these circumstances, such firms must therefore be agile and rapidly modify their behaviour to allow them to continue to prosper. In 1997, Teece et al. introduced the dynamic capabilities view (DCV) to help disentangle the issue of a sustainable competitive advantage in multifaceted environments that are dynamic (also see Eisenhardt and Martin, 2000). The DCV states that firms which can sense and seize fresh opportunities and then reconfigure their capabilities and resources, are according to the environmental change, as well as recognised opportunities, able to establish and maintain their competitive advantages (Teece, 2012, 2009). We suggest that fine-grained case studies of firms which have been able to hold the competitive advantage, can offer strategies and tactics on how to exploit firm capabilities as dynamic capabilities (Ambrosini et al., 2009). A recent review of the research reveals that most contributions in this field remain chiefly conceptual (Schilke et al., 2018).

Our motivation for conducting this study arises from two main reasons. First, there is a dearth of evidence on how to apply Teece's dynamic capabilities model to build and exploit firm capabilities as dynamic capabilities. That model divides dynamic capability into three types: sensing, seizing and reconfiguring. Several studies in the last few years (e.g. Fainschmidt et al., 2016; Wilhelm et al., 2015), including systematic reviews and meta-analyses, have highlighted that this area of study falls short when it comes to describing the conceptual consequences (Peteraf et al., 2013) and providing robust empirical evidence. We believe that this research is a step forward in being able to understand how dynamic capabilities may be both introduced and used as a source of a sustainable competitive advantage. Second, despite the literature giving empirical evidence showing firms' capabilities may become dynamic capabilities in some industries, such as pharmaceuticals (Bruni and Verona, 2009), the manufacturing sector (Protogerou et al., 2011), magazine publishing (Jantunen et al., 2012), a market-based social firm (Vezina et al., 2018) and the media industry (Jantunen et al., 2018), researchers have yet to more deeply investigate one of the most demanding sectors, the IT industry. In addition, studies primarily look at capabilities of just one or two firms. To our knowledge, this paper is one of the rare reports building on carefully selected case studies of firms which are able to stay competitive in the IT industry and investigating several capabilities of the firm as dynamic capabilities. As mentioned above, IT firms represent a desirable setting for inductively developing a theoretical model of dynamic capabilities and helping organise the framework for the future empirical research. The fact that one of the authors of this paper is an expert with ten years of experience in the IT-industry has helped us better understand the subject matter and conduct a deeper research.

Our main objective is to investigate the composition of sensing, seizing and reconfiguring capabilities in terms of their considerable value for firms. We recognise that six capabilities are relevant for firms in the IT industry: managerial capability as the primary capability that plays the dominant role in exploiting firm capabilities as dynamic capabilities; marketing capability; technological capability; R&D capability; innovation capability; and human resources capability. This paper investigates these capabilities as dynamic

capabilities in line with Teece's model of dynamic capability disaggregation (2007). The central question in our study was: How have these firm capabilities been exploited by way of sensing capability, seizing capability and reconfiguring capability? We also asked the following: Do any common activities and practices help in taking advantage of firm capabilities as dynamic capabilities and hold potential for sustained competitiveness?

The paper is organised as follows. The first section briefly introduces the dynamic capabilities perspective and the model of dynamic capability disaggregation. It also gives an overview of relevant firm capabilities that are further studied as dynamic capabilities. The next section describes the method, a comparative case study. A qualitative analysis is conducted since we believe this will shed light on the ways dynamic capabilities are deployed in practice. Following that, we present and discuss our findings, resulting in a model of sensing, seizing, and reconfiguring capabilities. To clarify the manners in which sensing, seizing and reconfiguring capabilities work in reality, a review of one case study firm's routines that lead to its excellent performance by facilitating the power of its dynamic capabilities is provided. Furthermore, the firm's key capability, that is, its managerial capability, is then described (Helfat and Peteraf, 2015). The findings are used to derive both theoretical and practical implications. The managerial implications incorporate an overview of positive and negative practices while efforts are made to exploit the firm's capabilities. The final section is the conclusion that includes some ideas for future studies.

2 LITERATURE REVIEW

The DCV is the latest perspective that extends on the resource-based view (RBV), which has been recognised as one of the most relevant concepts in the strategic management field (Zott, 2003). The resource-based literature was placed within a comprehensive framework in 1991 (Jay Barney, 1991), where it was contended that in the short run, firms are able to achieve a competitive advantage and increase their performance if they have resources which are of value and scarce. This research by Barney (1991) was called into question for its unvarying nature. Priem and Butler (2001), for instance claimed that despite the RBV's initial dynamism, "much of the subsequent literature has been static, and the concept of competitive advantage still remains in a black box" (Priem and Butler, 2001, p. 33). Teece, Pisano and Shuen introduced the dynamic capabilities framework in 1997 "to explain how combinations of competences and resources can be developed, deployed, and protected" (Teece et al., 1997, p. 510). Their explanation of a dynamic capability was 'the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments' (Teece et al., 1997, p. 516). Their thinking chiefly relied on a firm's ability to make changes to its resource base to ensure the firm is able to endlessly vary its behaviour in response to changes. This work by Teece, Pisano and Shuen (1997) is now regarded as the first pivotal contribution to the area of dynamic capabilities. It spurred over 1,721 articles on the subject between 1997 and 2008 (Peteraf et al., 2013) in various journals on management, and had been cited more than 1,900 times by December 2009 (Di Stefano et al., 2010).

Literature reviews in the last two decades (e.g. Ambrosini and Bowman, 2009; Baretto, 2010; Peteraf et al., 2013; Schilke et al., 2018) have shown the field still mostly focuses on theoretical issues (Winter, 2003; Helfat and Peteraf, 2009), with limited empirical evidence. The critical and detailed overview by Peteraf et al. (2013) reveals the dynamic capabilities field has developed in two separate directions, as strongly influenced by two research papers (i.e. Teece et al., 1997; Eisenhardt and Martin, 2000). These two divergent approaches now make different assumptions concerning the nature of dynamic capabilities, and lead to different conclusions. The latest extensive review by Schilke et al. (2018) considers 300 well-cited articles in top management journals and highlights important gaps that call for future research in many areas of the dynamic capabilities view. They note “the need for significantly more attention to integration of underused theories” complemented by empirical research, such as trying to provide in-depth accounts of how dynamic capabilities are deployed in practice.

In this research, we build on Teece’s model of the microfoundations of dynamic capabilities. Teece broke dynamic capability down into three types of capabilities (see Table 1) (Teece, 2009): sensing capability (ability to explore the firm’s environment in order to identify opportunities), seizing capability (as soon as opportunities are sensed, they must be addressed), and reconfiguring capability (to address new opportunities, firms need to reconfigure their resources). Yet there are differences between sensing and seizing capabilities on one side and reconfiguring capability on the other. The first two encompass relatively basic functions, whereas reconfiguring capability entails greater complexity and might at times require a business model to be fully redesigned (Teece, 2009). The main premise of this breakdown of dynamic capabilities is to shed light on how dynamic capabilities deploy, develop and manifest. In this sense, dynamic capability is a “meta-capability” that transcends an ordinary firm capability (Teece, 2009, 54).

Table 1: *Dynamic capability composed of sensing, seizing and reconfiguring capabilities*

The composition of dynamic capability		
(1) sensing capability	(2) seizing capability	(3) reconfiguring capability
Firms need to explore their internal and external environment in order to identify opportunities.	As soon as opportunities are sensed, they must be addressed through new products, services, processes, etc.	To address new opportunities, firms need to recombine and reconfigure resources and capabilities as environmental changes.
Common practices/activities are: <ul style="list-style-type: none"> identifying new technologies, identifying new ideas, scanning for new markets/customers. 	Common practices/activities are: <ul style="list-style-type: none"> activities to select the “right” new technology or a business model, activities to build commitment and loyalty. 	Common practices/activities are: <ul style="list-style-type: none"> activities to stimulate open innovation, activities to managing strategic fit, deploying knowledge management.

Source: Adapted from Teece (2009).

From the strategic management perspective, a firm's capability may be understood as its capacity to perform a function or activity (Helfat and Peteraf, 2015), although the performance level of each capability is "a matter of degree" (Winter, 2000, 981). We distinguish firm capabilities from dynamic capabilities because dynamic capabilities operate on these capabilities and allow them to change and reconfigure in line with environmental needs. Firm capabilities can be viewed as a resource base that comprises a bundle of heterogeneous capabilities that each firm deploys and develops individually (Breznik & Lahovnik, 2014). We recognise six (6) capabilities as being relevant for firms in the IT industry: (1) managerial capability; (2) marketing capability; (3) technological capability; (4) R&D capability; (5) innovation capability; and (6) human resources capability.

For analytical purposes, our study presents how these capabilities can be disaggregated into sensing, seizing and reconfiguring capabilities.

(1) Managers have a central role in exploiting firm capabilities and dynamic capabilities (Augier and Teece, 2009; Rindova and Kotha, 2001; Teece, 2007; Helfat and Peteraf, 2015). Kor and Mahoney (2005) investigate 60 technological firms and find out that managers have a dominant role in exploiting the firm's capabilities as dynamic capabilities. It is important to acknowledge that a manager's perception of opportunities might generate the exploitation of dynamic capabilities that are not balanced with the environmental needs (Adner and Helfat, 2003; Ambrosini and Bowman, 2009; Harrel et al., 2007) and that a mix of managerial capabilities may add to differences in firm performance (Helfat and Peteraf, 2015).

(2) Kor and Mahoney, 2005, 494 stated that marketing capability is a vital source of a long-term competitive advantage. It provides for the creating of links and nurturing of relationships with customers (Protogerou et al., 2011; Song et al., 2005), enables us to (out) compete by predicting customer preferences (Day, 1994), and enables us to successfully address the rapidly changing environment by developing and exploiting market knowledge (Bruni and Verona, 2009).

(3) Technological capability and (4) R&D capability are closely linked. Technological capability can be seen as a core capability for IT firms. Considering the high technological turbulence, technological capabilities enable firms to develop, produce and use the "right" technology (Wind and Mahajan, 1997). On the other hand, R&D capability helps us identify, recognise and exploit knowledge. It also enables us to create a firm-specific capability (Helfat, 1997) and engenders potential of innovation, which is very important for firms in the IT industry (Verloop, 2004).

(5) Innovation capability has been recognised as a dominant capability in the IT industry (Breznik and Lahovnik, 2014). Based on the literature review, innovation capability is extremely important for being able to survive in today's dynamic environment.

(6) Respected scholars in the strategic management field (for instance, Barney and Clark, 2007; Lado and Wilson, 1994) have recognised human resources as vital and dominant resources of creating and sustaining the competitive advantage. Not surprisingly, human resource capability is today one of the most widely studied capabilities in the strategic management field, especially when considering studying the phenomenon of competitive advantage (Newbert 2007; Breznik and Lahovnik, 2014).

3 METHODOLOGY

To meet our study's purposes, six key performing SMEs in the Slovenian IT industry were chosen, noting that most research has considered large, well-established firms, not SMEs (Zahra et al., 2016). SMEs have certain benefits and drawbacks with respect to larger companies (Rothwell/Dodgson 1991). In the EU and the USA, 99% of all firms in the market are SMEs (Jie et al. 2009, 46; Eurostat, 2015; 2018). The IT industry in Slovenia is particularly competitive and challenging, with leading firms like Microsoft, SAP and Oracle holding considerable market shares. The time before former Yugoslavia collapsed is seen as the 'halcyon days'. The firms included in the case study were then forced to face the transition from socialism to a market economy and, given that they are still the good performing IT firms in Slovenia, it is clear they have generally been successful in today's tough environment.

We selected six firms according to six indicators: (1) the firm is an SME; (2) the firm must have been active in the market for over 10 years (firms should share similar historical issues like globalisation and the transition); (3) the firm must be established in the home country, have local owners (have an independent capital structure); (4) the firm's programmes and business orientation should be comparable (namely, IT industry firms can supply a range of services and products in reflection of their various strategic directions; such differences do not allow a comparison of the case study firms); (5) the firm must be acknowledged as a relevant market player (it accounts for a relevant market share); and (6) the firm must be willing to participate. When considering just SMEs, the sample was reduced to 19 firms, from which the firms not active for a minimum of ten years, as well as foreign-owned firms and the ones being branches of foreign firms, were excluded. The sample was then further reduced to ensure the firms had comparable programmes and business focuses. Subsequently, the firms' sales programmes were assessed (the firms' IT solutions may be an outcome of their own development and innovation activities, or they might provide the IT solutions of foreign firms that are customised for the local market). In the end, the sample consisted of six firms. Eisenhardt (1989) states that while there is no ideal number of cases, a figure between 4 and 10 appears optimal. The selected six case study firms appear to constitute a suitable sample for cross-case analysis, particularly when looking for and identifying common patterns and differences regarding the use of dynamic capabilities.

Oral and written invitations to take part in the research were sent to the chosen firms. We then arranged meetings to describe the study's goals and data collection. We explained the qualitative nature of our study and the related potential benefits and deficiencies, also noting that it would thus be more resource-intensive and time-consuming when it came to collecting and (re)analysing the data. We engaged in an analysis of the content, entailing three phases (Yin, 2009): (1) the analysis and report of individual cases; (2) the analysis and report of cross cases; and (3) the conclusions and implications of the cross cases for both theory and practice (see Appendix, Figure A1). We as the authors were involved in all analysis phases, through individual reports and findings, which we subsequently checked together and came to an agreement on. The various and unstructured data required a database of the cases that allowed us to increase the study's reliability. Important ethical

principles were considered in our research, with respect to the ethical dilemmas that may arise in qualitative research. We chose a multiple case study approach (Eisenhardt and Graebner, 2007; Yin, 2009) as our research design, given that our research is exploratory in nature, as well as detailed interviews from 2011 and 2012, to gather empirical data. The recommendations and measures set out by Rouse et al. (1999) were used because they may be regarded as providing guidelines for research into resource-based competitive advantage in an individual industry. We considered the processes involved in R&D, human resources, sales and marketing, and strategic management. We therefore formulated four questionnaires for the main respondents: R&D/innovation managers, human resources managers, general managers, and marketing/sales managers (see Appendix, Figure A3).

The not unusual situation of certain tasks and responsibilities overlapping in SMEs was evident. The target respondents of the interviews, which were narrative in nature, informal, tape-recorded (with consent) and subsequently transcribed, were primarily the general managers of a group of SMEs that constituted our research focus. In sum, we carried out 16 interviews (with the key respondents), with each interview taking approx. 60 to 90 minutes to complete. In the analysis of the data, we conducted several Internet and telephone communications to clarify certain dilemmas and aspects from previous research phases. We note that one of the authors' of this paper who is an expert with ten years of experience in the IT industry has helped us understand the subject matter better and carry out the research at a deeper level. For each SME, the data were then triangulated with additional secondary sources (financial and annual reports, internal firm documentation, various published materials, and public databases) to reduce bias in the qualitative research. We continually cross-referenced the literature in line with the inductive research approach. For coding and categorising the data, we employed thematic analyses/networks (Stirling-Attride, 2001), together with the process of coding (Rubin and Rubin, 2005; Saldana, 2009) (see an example of the pattern and focused coding methods used in the Appendix, Figure A2; also see Figure A3), the NVivo9 qualitative analysis software was used to retain some of the connections among the interview transcripts and the data collected through the coding process.

4 EMPIRICAL DATA AND ANALYSIS

4.1 Exploitation of firm capabilities as dynamic capabilities

To be able to better understand the logic behind the DCV, we present an overview of practices that support the development of firm capabilities as dynamic capabilities by all six relevant capabilities in Firm A (Table 2, Table 3, Table 4, Table 5, Table 6 and Table 7). When comparing the overall performance of the selected firms, Firm A is one of the best performers (see Appendix, Table A1). As the findings show, Firm A was able to sense and seize opportunities and exploit those opportunities through reconfiguration of its resource base, namely, by all six capabilities (see Appendix, Table A2).

Table 2: *Practices that underpin managerial capability*

Managerial capability as a dynamic capability		
(1) sensing capability	(2) seizing capability	(3) reconfiguring capability
Managers practice and promote open communication.	Managers build, promote and nurture long-term partnerships with customers, partners and employees.	Managerial and leadership capabilities are being developed at all firm levels
Managers are open to novelties.	Demonstrating leaderships.	The firm builds on a winning strategic orientation – In the right place, at the right time, being the first-mover.
Systematic sensing of what is happening in the environment.	Recognising and designing mechanisms to capture value.	Adapting/reconfiguring its business model.
	Managers promote networking.	Attractive, simple and straightforward reward systems.
	Managers form special networking teams for straightforward and focused networking activities.	Managers include key employees in the decision-making process.
	Managers accept diversity and are open-minded.	Building an appropriate organisational structure and culture: a flat, flexible and permeable organisational structure.
		A team-based work environment (shared goals, equal opportunities for all, treating all employees equally).
		The firm appoints a new management team.

Source: Our own.

Table 3: *Practices that underpin marketing capability*

Marketing capability as a dynamic capability		
(1) sensing capability	(2) seizing capability	(3) reconfiguring capability
Networking activities are a vital part of gathering information about target markets, customers, etc.	Goal-oriented networking activities are a vital part of gathering information about target markets.	Constantly improving customers' loyalty and satisfaction.
Employees understand their role within the marketing process.	Goal-oriented networking activities are a vital part of gathering information about clientele – additional projects, potential/new customers – new business projects, etc.	Constantly establishing, building, promoting and nurturing long-term partnerships with key customers, partners, employees and competitors.
On-going industry and competitor benchmarking.	Employees play an active part in marketing activities/ processes (especially employees working as business analysts and project managers): recognising the changing costumers' needs.	

Source: Our own.

Table 4: *Practices that underpin technological capability*

Technological capability as dynamic capability		
(1) sensing capability	(2) seizing capability	(3) reconfiguring capability
Networking activities are a vital part of gathering information about technology trends in general.	Networking activities are a vital part of selecting information and knowledge about key technology trends, strategic vendors/suppliers' strategies, etc.	Reconfiguring the resource base: new and improved products/services in line with technological development and market demands.
Employees closely follow technological development and new trends in the IT area.	Employees objectively seize opportunities related to technological development and new trends and knowledge in the IT area.	Know-how integration.
	On-going technology benchmarking: recognising/selecting the "right" technology and product architecture.	

Source: Our own.

Table 5. Practices that underpin R&D capability

R&D capability as a dynamic capability		
(1) sensing capability	(2) seizing capability	(3) reconfiguring capability
Activities to direct internal R&D.	Recognising and selecting the "right" market opportunity (tapping the potential synergy).	Adopting new/improved knowledge and technologies, and transforming them into market-oriented solutions (knowledge transfer).
Networking activities are a vital part of gathering information about potential R&D partners/projects, etc.	On-going competitors benchmarking: searching for diversity and recognising/selecting the "right" technology.	Improving the effectiveness of business processes.
Employees closely follow technological development and science and technology in general.	Recognising new opportunities outside the firm's boundaries.	
On-going benchmarking.		

Source: Our own.

Table 6: *Practices that underpin innovation capability*

Innovation capability as a dynamic capability		
(1) sensing capability	(2) seizing capability	(3) reconfiguring capability
Innovation activities as a key and dominant part of business processes (non-formalised innovation processes that allow room for creativity and emergent innovation in dynamic IT industry).	Time for creativity: the firm gives employees the time and space to think innovatively.	Establishing a group of more innovative employees (the so called "innovation team"): innovation as a natural part of the business and their work.
On-going industry benchmarking.	Market-oriented innovations. Customers play an active part in innovation activities.	Transforming new ideas into new/improved market-oriented innovations. Stimulation/development of creativity and innovation.
Activities to identify customers and competitors' innovations.	Recognising more innovative employees (the so-called stars).	Well-defined and accepted reward systems. Reward systems with non-financial benefits, e.g. extra holiday time.

Source: Our own.

Table 7: *Practices that underpin human resource capability*

Human resource capability as a dynamic capability		
(1) sensing capability	(2) seizing capability	(3) reconfiguring capability
Employees identify their knowledge deficit (at professional conferences, in collaboration with clientele, partners, universities, etc.).	Employees seize the lack of specific knowledge deficit. Test recruiting as a practice of identifying the "right" employees for their firm/environment.	Human resource strategy is clearly defined and communicated. Knowledge and experiences transfer.
	Employees' self-directed learning: continuous in-house knowledge tests/evaluations.	Established mentorship at the corporate level.
	Time for creativity: the firm gives employees the time and space to think innovatively.	Internal learning system: promoting the transfer of knowledge between the older and more experienced employees and the younger and less experienced employees.
	Effective communication (on-time, face-to-face and open communication).	Established practice of learning by doing and learning from failures.
	Utilising outside staff/human resources (more flexibility, inside-out knowledge transfer, outside-in knowledge transfer).	

Source: Our own.

4.2 Manifestations of exploitation of managerial capability

For a better understanding of how Firm A exploits capabilities as dynamic capabilities, we present its manifestations in sensing, seizing and reconfiguring capabilities with regard to managerial capability. Hence, managerial capability and the role of managers have been recognised as a key component in developing dynamic capabilities. Managerial capability as a dynamic capability is a capability by which the level of deployment of sensing, seizing and reconfiguring capabilities is less developed among the case study firms. In Firm A, the level of deployment of managerial capability is at the highest level (Breznik and Lahovnik, 2016; Breznik and Lahovnik, 2014). Accordingly, Firm A is an example of how dynamic capabilities can be successfully deployed and developed. A deeper investigation of the manifestations of managerial capability allows us to present some of the practices and activities that undergird managerial capability in Firm A.

Managerial capability is the ability to sense opportunities primarily as a result of effective communication. Namely, managers at all levels have adapted face-to-face and open communication. Consequently, the use of effective communication techniques enables managers to sense opportunities inside and outside the firm. Moreover, these skills allow them to tap and receive the right information at the right time. We recognised that managers in Firm A are able to systematically sense their environment, not simply observe it. In fact, their sensing capability is strongly linked with the ability of open mindedness and critical judgment, which can be recognised as the foundations for more systematic sensing. In Firm A, the ability to seize the right opportunities is a result of the firm's business model. Gathering the information and knowledge that enables the firm to recognise opportunities is primarily a result of its networking activities and long-term and trust-based partnerships with customers, employees and other partners. Moreover, practising face-to-face and open communication, the ability to look beyond and promoting diversity in the workplace are practices that enable opportunities to be more quickly recognised than its competitors. Particularly, accepting diversity at the firm level helps Firm A generate new, sometimes radically new ideas. These ideas or opportunities have incorporated knowledge outside and beyond the firm's boundaries. However, recognising opportunities is by itself not enough, as they have to be further developed. After the opportunities are recognised as potential opportunities, they have to be exploited through a recombination of the firm's resource base.

In recent years, Firm A has successfully implemented new approaches and has been moving itself toward becoming a continuous learning and changing organisation. However, if Firm A wanted to accomplish that vision, changes in its business processes had to be made. The first step in the reconfiguration process was to make changes in the top management team, namely, the firm appointed a new management team. With this new team in place, a new strategy orientation was set. Firm A's strategy can be described as "Being the first mover in the right place at the right time." The second step in the reconfiguration process involved the following activities. They completely remodelled two key business processes, i.e. the project management process and the decision-making process. The remodelling phase continued; first, with establishing and promoting project-based work within and

outside Firm A to create and spread its project (knowledge) networks; and second, with implementing changes to the reward system where the focus was on achieving a non-transparent but accessible award scheme. Firm A's activities in the reconfiguration process continued with one of the toughest tasks, changing the organisational culture in line with the new business strategy. To ensure a successful start in making the changes, they first focused on how to promote selected practices, such as teamwork, knowledge transfer, mentorship, effective communication, and internal and external relationships at all levels. As we found out during our research, managers in Firm A took an initiative in exploiting dynamic capabilities by sensing, seizing and reconfiguring capability. Their commitment could be seen in leading by example and vision, which had a great impact on the employees. Namely, it encouraged them to follow and take more initiative.

5 RESULTS AND DISCUSSION

As indicated by theory, the DCV permits firms to respond to changes. The firms under study operate in the IT industry environment, which has seen tough international competition and fast-paced technological changes. Our results reveal that the firms are more or less successfully developing their dynamic capabilities. They are thus able to successfully survive in the dynamic IT sector, even amidst very challenging market conditions, given that the industry analysis demonstrates that companies in Slovenia's IT sector have a relatively low survival rate. Renewing the resource base does not need to require considerable inputs. For example, scanning the environment does not have to incur high costs. In contrast, while a firm can engage a highly-skilled employee simply because it has sufficient funds available, the costs (e.g. of labour) would be greater than the benefits (for instance unexploited knowledge/abilities) if that employee's potential did not grow according to the DCV. Such findings agree with the contention that exploiting dynamic capabilities in response to erroneous cause-effect assumptions can bring negative effects for a company's performance (Zahra et al., 2006; Breznik and Lahovnik, 2014).

As we find out during our research, managers should take an active role in sensing, seizing and reconfiguring dynamic capabilities. Their commitment could be seen in leading by example and vision, and that had a great impact on employees. Moreover, it encourages employees to follow and take more initiative. These findings are in consonance with Rosenbloom's (2000) qualitative research. His research shows that managerial capabilities have indeed played a crucial role in the firm's successful competition in a high technological market for several decades. A deeper investigation of the manifestations of managerial capability allows us to present some of the practices and activities that undergird managerial capability in the presented case study firm. For instance, managerial capability is the ability to sense opportunities primarily as a result of effective communication, e.g. face-to-face and open communication. Brown and Eisenhard's (1997) qualitative study reveals some practices which are preconditions to being able to successfully navigate in a continuously changing environment, such as communication intensity and the ability to exploit opportunities. We can affirm that managers in Firm A are able to sense their environment systematically and not just observe it. In fact, their sensing capabilities

are strongly linked to the ability of open mindedness and critical judgment. It can be recognised as the foundations for more systematic sensing. The results of our study show that managerial capabilities and human resource capabilities seem to be the most difficult and complex in terms of their deployment and development (Breznik and Lahovnik, 2014). Not surprisingly, both capabilities deal with people, i.e. human resources have a dominant role in dynamic capabilities exploitation. Breznik and Lahovnik (2016) found out that a strongly developed human resource capability is related to the recognised practices in the human resource area, e.g. applied mentorships, high job satisfaction, an effective reward system, time for developing new ideas, etc. On the contrary, a weak/moderate evaluation is related to no systematic mentorships, low job satisfaction, an unattractive reward system, a lack of creativity, the unexpected resignation of key employees, etc.

Our case analysis revealed that deploying marketing capability as dynamic capability enables us to better and more quickly understand customers' needs. This is especially important in the IT industry that encounters short product and service life cycles and strong demand for customisation. Additionally, building active long-term partnerships with customers enables to perceive new opportunities that often begin rudimentary development activities. These findings are in line with Bruni and Verona (2009) argumentation that marketing capabilities as dynamic capabilities enable to transform market knowledge to successfully adapt to the changing environment. In Firm A, the ability to seize the right opportunities is an outcome of the firm's business model. Gathering the information and knowledge that enables the firm to recognise opportunities is primarily a result of its networking activities and long-term and trust-based partnerships with customers, employees and other partners.

Verona and Ravasi (2003) argue that a firm must first build dynamic capabilities that allow to continuously generate and integrate knowledge, hence that is the basis for innovation capability deployment. Our findings show that acquiring and adopting new and improved knowledge and further transforming it into market-oriented solutions (i.e. products and services) is the main factor of success in the case study firms. Consequently, we also note that deploying relevant capabilities as dynamic capabilities is crucial for innovation processes, i.e. to innovate profitably and be able to exploit technology opportunities. We can suggest that technological capability is a fundamental dynamic capability in the IT industry, moreover, it enables adapting to rapid technological changes. We argue that the technological changes themselves shape the industry structure. This finding is in consonance with Tripsas' (1997) study of surviving a radical technological change through dynamic capability deployment.

Athreye (2005) argues that the fast-growing demand in the IT industry forces firms to develop abilities to differentiate themselves from competitors. This is in line with our findings; the differentiation is evidently the most selected strategy focus. Our case analysis revealed that sensing capabilities seem to be more alike and comparable across firms in a single industry. On the other hand, seizing capabilities and reconfiguring capabilities may differ more. These findings are in consonance with Jantunen, Ellonen and Johansson's (2012) study. As the results show, all of the case study firms systematically

sense their environment and even use similar communication techniques. We noticed that commonalities in dynamic capabilities, especially by sensing capability, do exist between the case study firms. However, there are more differences when considering the seizing and reconfiguring capabilities. For instance, in Firm A managers at all levels have adapted face-to-face and open communication. These skills allow them to tap the right information at the right time. Evidently, effective communication enables Firm A to recognise and exploit opportunities more quickly than the competitors. Consequently, Firm A has become a continuous learning and changing organisation.

This study can help scholars to move toward the consolidation of empirical support in a more focused way and pay greater attention to the DCV as a source of a competitive advantage. Our study provides evidence for further development of the dynamic capabilities view. First, we have employed Teece's (2009) conceptual typology of dynamic capabilities in order to study the exploitation of firm capabilities as dynamic capabilities. This research takes part in development of the dynamic capabilities view towards empirical evidence. Second, our paper focuses on dynamic capabilities through detailed cross-case studies of firms operating in a turbulent environment. We have shown how deployment of capabilities can be explored through sensing, seizing and reconfiguring capabilities. Such a perspective enables us to better understand the logic behind the DCV. We propose that managers have an important impact on the exploitation of firm capabilities as dynamic capabilities.

Table 8 shows activities – positive practices – that can help firms exploit their capabilities as dynamic capabilities, and activities – negative practices – that firms need to minimise in order to exploit their capabilities as dynamic capabilities. These practices emerge from the comparative analysis of the firms under study. The results may assist managers in comprehending the ways in which dynamic capabilities function and provide guidance while seeking to deploy and take advantage of their firm's capabilities in their particular environment.

Table 8: *Managerial implications for exploiting firm capabilities as dynamic capabilities*

Area	An overview of activities that help exploit dynamic capabilities ("positive practices")	An overview of activities that impede the exploitation of dynamic capabilities ("negative practices")
Strategic orientation implementation	<p>Managers involve key employees in the decision-making process, in some cases all employees participate in management decisions.</p> <p>Open, informal, day-to-day and face-to-face communication.</p> <p>Bad/negative news/information is given face-to-face, immediately and clearly.</p> <p>Willingness to take risks at all levels.</p> <p>Accepting changes and novelties inside and outside the firm's boundaries.</p> <p>Accepting diversity.</p> <p>Promoting respect, loyalty.</p>	<p>Managers do not involve key employees in the decision-making process.</p> <p>Weak communication between the management team and employees (lack of communication in the workplace).</p> <p>Employees do not take responsibility for their work and actions – a lack of proper labour discipline and trust.</p>
Organisational Structure	<p>A flat, flexible and permeable organisational structure.</p> <p>A team-based work environment (shared goals, equal opportunities for all, treating all employees equally).</p>	<p>A flat organisation is not really flat in practice (hierarchical boundaries, special 'unfair' treatment of some employees: bonuses and benefits).</p>
Organisational Culture	<p>Open-door policy.</p> <p>Relationships based on respect and trust.</p>	<p>A lack of open and direct (informal) communication.</p> <p>A lot of rivalry among employees.</p>
Continuous knowledge transfer& absorption	<p>Promoting knowledge transfer between employees.</p> <p>Test recruiting as a practice of identifying the "right" employees for their firm/environment.</p> <p>Employees' self-directed learning.</p>	<p>There is no need for knowledge management implementation.</p> <p>A lack of proper training and development.</p> <p>Managers do not understand the importance of test recruiting as a practice of identifying the "right" employees for their firm/environment.</p> <p>Employees are afraid and usually hide their knowledge and important information.</p>

Area	An overview of activities that help exploit dynamic capabilities (“positive practices”)	An overview of activities that impede the exploitation of dynamic capabilities (“negative practices”)
Managerial capabilities and leadership	Managers continuously identify their knowledge and experience deficit.	
	Managers are open minded.	
	Managers are willing to transfer their knowledge and expertise, especially to high-performing and ambitious employees/co-workers.	Knowledge and experience deficits of the managers are not identified – poor development of managerial capabilities.
	Managers identify perspective/outstanding co-workers/employees.	Managers are not able to effectively exploit networking, unfocused networking.
	Managerial and leadership capabilities are being developed at all firm levels.	
	Promoting (and planning) networking activities at all levels, inside and outside the firm’s boundaries.	
		“Status quo” is a common perspective/notion.
Human resources	A clearly defined and communicated reward system: employees recognise it as “fair”.	Managers do not recognise the real or added value of each employee.
	An established and highly valued/promoted non-financial reward system.	Managers do not identify their experience deficit.
	A balanced mix of financial and non-financial rewards.	A poorly defined and non-communicated reward system: employees recognise it as “unfair”.
		There is “no need for mentorships”.

Source: Our own.

6 CONCLUSIONS

Firms that exploit capabilities as dynamic capabilities were shown in this study to have the potential for a sustainable competitive advantage. Our findings indicate that firms must continually exploit their capabilities consistently with the DCV, a view that today provides several challenges to academics. Yet, this study has a number of possible limitations that need to be addressed. Our study is explorative and qualitative and considers a sample of six representative firms in the IT industry. We did not intend for the findings to be generalised to a population or other settings but to provide empirical insights which expand the DCV's framework. This study of the DCV adopts a pragmatic approach. Our aim was to describe the results and implications for practice in such a way that allows practitioners to understand and apply them in their day-to-day activities.

The future might endeavour to examine firm capabilities as dynamic capabilities at a greater depth, particularly the trajectories and circumstances impacting their exploitation and development. Moreover, it would be of a considerable value to be able to better understand the ways how the routines that support a given firm capability interrelate and interlink. Longitudinal research is welcomed because the outcomes arising from taking advantage of dynamic capabilities are typically only visible in the long run. Other industries might provide a good target for related studies. A comparative analysis of various industries may show differences and common areas vis-à-vis the harnessing of capabilities as dynamic capabilities. Other qualitative approaches like observation methods or focus groups might yield important findings, while incorporating quantitative empirical testing might also be a useful inclusion in a research framework.

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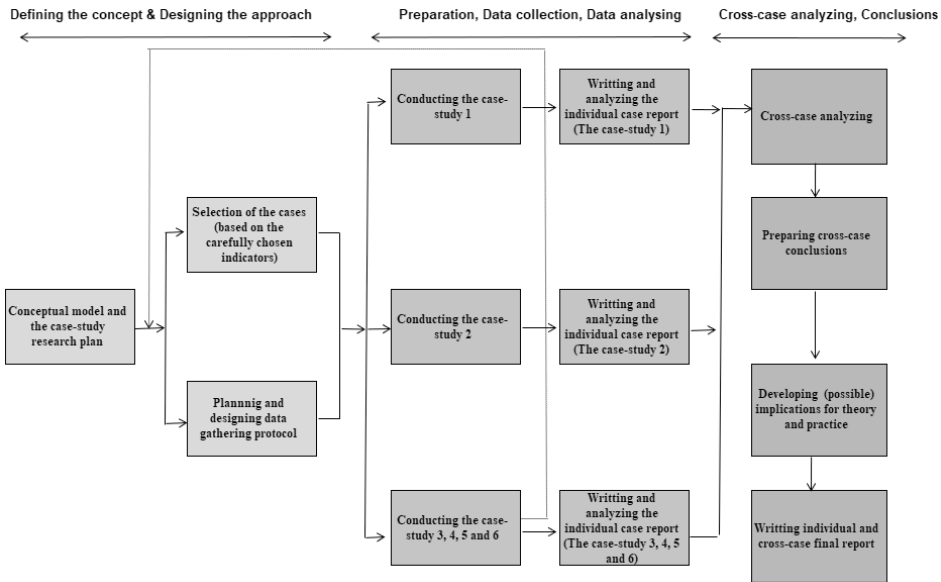
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APPENDIX

Figure A1: Protocol for the case study



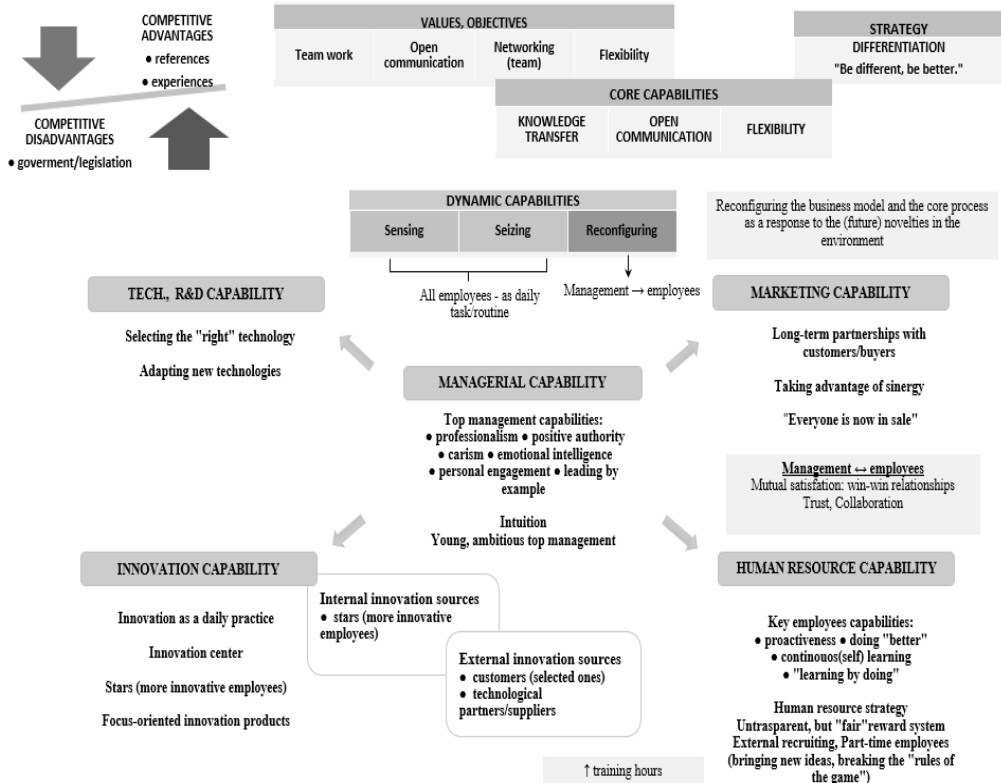
Source: Yin, 2009.

Figure A2: An example of the second cycle of the coding process using pattern & focused coding methods

Components of dynamic capability	Examples indicating the development of dynamic capabilities
Sensing capability	<p>“Let the competition explore new things, we will use and exploit what is already known.” (Sales Manager, Firm A)</p> <p>“Friday’s internal tea/coffee party – a great way to get information you need.” (General Manager, Firm B)</p>
Seizing capability	<p>“If a competitor shows you the solution but you don’t know what to do with it, what’s the point?” (General Manager, Firm D)</p> <p>“When we recruit, we don’t recruit the best on the market but what is the best for our firm.” (General Manager, Firm C)</p>
Reconfiguring capability	<p>“When you reward people, the reward has to be employee-oriented.” (General Manager, Firm A)</p> <p>“Innovations really do just happen.” (General Manager, Firm B)</p>

Source: Our own.

Figure A3: An example of the results for Firm A (after the second cycle of the coding process employing thematic networks)



Source: Our own.

Table A1: Selected indicators and results for the 2006-2011 period

Selected indicators and results	Case study firms					
	Firm A	Firm B	Firm D	Firm C	Firm E	Firm F
Number of employees in 2011	110	55	74	70	63	140
Earnings in 2011 in €	11 million	4 million	6 million	7 million	4.5 million	25 million
ROA: average value 2006-2011	33.78	9.73	42.16 the highest value	4.7	4.66	1.45 the lowest value
ROE: average value 2006-2011	75.13 the highest average value	13.46	50.36	11.25	9.35	6.56 the lowest value
Average value added per employee: average value 2006-2011 in €	55,063	51,054	69,952 the highest average value	37,050 the lowest value (40% lower than the highest value)	37,049 the lowest value (40% lower than the highest value)	50,361
Ratio: total revenues / total expenses: average value 2006-2011	1.19	1.14	1.56 the highest value	1.04	1.02	1.01 the lowest value
Average salary income: average value 2006-2011 in €	2,323	2,522	2,670 the highest value	1,515 the lowest value: below the industry average	2,130	2,614

Selected indicators and results	Case study firms					
	Firm A	Firm B	Firm D	Firm C	Firm E	Firm F
Value of shareholders' funds to assets: average value 2006-2011	45.98	71.15	85.40 the highest average value	38.62	43.98	18.51 the lowest value
Sales growth, ROS: average value 2006-2011	continually increasing by 4% per year	continually increasing by 2% per year	decreased by 5% in the last five years	negative	decreased: sales dropped by more than 30% between 2008 and 2009	decreased: sales dropped by more than 20% between 2009 and 2010
Number ratio of new employment: average value 2006-2011	the highest ratio (the number of employees rose by 44% in the last five years)	continually increasing	increased by 70% during 2006-2010	decreased by 22%	negative	increased by 60%
EBIT: average value 2006-2011 in €	1,152,925	322,864	1,457,394	259,516 decreasing	93,636 decreasing: dropped by 70% between 2008 and 2009	196,072 negative in 2010
Employee turnover: 2006-2011	positive	positive	positive	negative	negative	negative
	High-performing case study firms based on the results of the overall performance (financial and non-financial data)			Low-performing case study firms based on the results of the overall performance (financial and non-financial data)		

Source: Our own.

Table A2: An overview of the dynamic capabilities deployed by the case study firms

Capabilities	Case study firms					
	Firm A	Firm B	Firm D	Firm C	Firm E	Firm F
Managerial capability						
(1) sensing	strong	strong	strong	moderate	moderate	strong
(2) seizing	strong	strong	strong	moderate	moderate	strong
(3) reconfiguring	strong	strong	strong	strong	weak	moderate
Marketing capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	moderate	strong
(3) reconfiguring	strong	strong	moderate	moderate	weak	moderate
Technological capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	strong	strong
(3) reconfiguring	strong	strong	strong	strong	moderate	strong
R&D capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	strong	strong
(3) reconfiguring	strong	strong	strong	moderate	moderate	strong
Innovation capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	strong	strong
(3) reconfiguring	strong	strong	strong	moderate	moderate	strong
Human resource capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	moderate	strong
(3) reconfiguring	strong	strong	strong	moderate	weak	moderate

Source: Our own.

Particular ways of deploying pertinent dynamic capabilities for all case study firms were analysed. With the aim of determining the dynamic capabilities level of deployment, namely weak, moderate and strong, each capability was viewed as containing sensing, seizing and reconfiguring capabilities. A cross-case analysis enabled each capability's evaluation. The level of deploying the capabilities was established after comparing the results for each case study firm.

Table A3: Questions found in the interviews with the key informants, divided into four sections/target respondents

RESEARCH: Exploiting firm capabilities as dynamic capabilities				
Empirical part – Case study research: Interviews with the key respondents				
Subject areas/Questions	Primary respondent	Secondary respondent	Add. respon. 1	Add. respon. 2
1 Basic information about the case study firm				
11 Ownership structure				
111 What is the ownership structure? How has it been changed over the past years and why?	GM			
112 What is the relationship between the role of the owner(s) and the manager(s)?	GM			
12 Organisational structure				
121 How is your firm organised (functional, matrix, divisional, process, etc.) and the reasons (+/-) for such an organisation form?	GM			
13 Performance evaluation model				
131 How do you measure your performance (financial, non-financial perspective, personal goals...)?	GM			
133 What is your comment on your financial performance over the last 5 years?	GM			
2 Developing competitive advantage				
21 Attractiveness of the IT industry				
211 Is the IT industry more or less attractive in comparison with other industries? Why?	GM	SM	R&D M	
22 Strengths and weaknesses				
221 What are the advantages and disadvantages in comparison with your (in)direct competitors?	GM	SM	R&D M	
222 Why do customers buy from you and not from your competitors? What can you offer them in comparison with your key competitors?	GM	SM	R&D M	
23 Building core capabilities				
232 Have environmental (or any other) changes caused any major/minor changes in your core capabilities and strategies? Give an example.	GM	SM	R&D M	
24 Sensing capabilities				
241 How does the process of sensing, tapping new opportunities take place?	GM	R&D M	SM	
242 Are there any areas with more/less opportunities?	GM	R&D M	SM	
25 Seizing capabilities				

RESEARCH: Exploiting firm capabilities as dynamic capabilities				
Empirical part – Case study research: Interviews with the key respondents				
Subject areas/Questions	Primary respondent	Secondary respondent	Add. respon. 1	Add. respon. 2
251 How does the process of recognising the “right” opportunities/ideas/models take place?	GM	R&D M	SM	
252 On which areas have you been able to adapt most of the opportunities and why?	GM	R&D M	SM	
253 How does the process of choosing the “right” opportunity take place? Who is the decision maker and why?	GM	R&D M	SM	
26 Reconfiguring capabilities				
261 How do you follow the new knowledge and technological advancement in your area/ industry and beyond the boundaries?	GM	R&D M		
262 Are you successful (enough) in imbedding the new knowledge in your products/services/ business models (grade 1-5)?	GM	R&D M	SM	
263 How does the process of reconfiguring, implementing, adapting the new opportunities/ ideas/models take place?	GM	R&D M		
264 Have you been forced to make any major changes in your firm? Why?	GM	R&D M		
3 Managerial capability				
31 Accepting and implementing changes, risk-oriented behaviour				
311 What are the biggest risks in your business and how do you cope with them?	GM			
312 How successful is the management team in implementing the changes (speed, results, grade 1-5)? (What would improve their performance?)	GM			
313 Would you say that you are more or less risk-oriented than your co-workers?	GM			
314 Is being more risk-oriented a precondition to sustain (and be able to compete) in the IT industry?	GM			
32 Future-oriented behaviour				
321 What is your planning horizon? How far in the future do you plan and why?	GM			
33 Networking and partnerships development				
331 Is networking important for your business? In which areas and how do you proceed the networking activities?	GM	R&D M	SM	HR M
332 Do you have any specific strategies for doing this the so-called planned networking?	GM			
333 Have you established any long-term partnerships and why?				

RESEARCH: Exploiting firm capabilities as dynamic capabilities				
Empirical part – Case study research: Interviews with the key respondents				
Subject areas/Questions	Primary respondent	Secondary respondent	Add. respon. 1	Add. respon. 2
34 Communication capacity				
How important is effective communication?				
341 How would you describe effective communication?	GM	HR M	SM	R&D M
342 What forms and channels of communication (informal, formal, verbal, non-verbal, etc.) are typical of your business environment (internal, external)?	GM	HR M	SM	R&D M
35 Managerial capacity/competence				
Who is the decision maker (a person or a team) for strategic questions? (To what extent/level of hierarchy do you delegate important tasks and responsibility for taking risks and making decisions?)	GM			
351				
352 What are the key capabilities/competencies a general manager should have?	GM	HR M		
Are there any gaps between the desired competence level and the current competence level (competence gaps)?				
353 (The education level of the management team, previous experiences & work positions, the number and the content of training hours?)	GM	HR M		
354 Are competences at different levels of hierarchy different and if so, why?	GM	HR M	SM	R&D M
4 Human resource capability				
41 Human resource strategy				
411 Who is responsible for planning, developing and executing the human resource strategy?	HR M	GM		
412 Is your human resource strategy written-down? How has it been executed and evaluated?	HR M			
413 What rewarding system/scheme do you have? Do you have any special rewarding system for the “more innovative” ones?				
42 Self-motivation, self-initiative behaviour				
421 Are your employees creative, self-initiative, or average (grade 1-5)?	HR M			
422 How do you support their creativity?	HR M	R&D M		
423 Are your employees the most important source of innovation and if so, why?	HR M			
424 Are any employees more or less innovative? Can you describe their competence profile?	HR M			

RESEARCH: Exploiting firm capabilities as dynamic capabilities				
Empirical part – Case study research: Interviews with the key respondents				
Subject areas/Questions	Primary respondent	Secondary respondent	Add. respon. 1	Add. respon. 2
425 How do you develop competences of your more creative/innovative employees?	HR M			
43 Accepting changes and novelties, risk-oriented behaviour				
Are your employees open for changes, novelties?				
431 Are they ready to take a risk? Give some examples.	HR M	R&D M		
44 Future-oriented, strategic perspective behaviour				
Do your employees take an active part in the strategic planning process and strategy in general? If they do, explain this process.	HR M	GM		
45 Networking possibilities and capabilities				
Are your employees members of diverse professional associations? Which are they and why are they important?	HR M			
452 Do you promote unformal networking and why?	HR M	GM		
46 Human resource capabilities				
What are the key capabilities/competencies employees in your firm (and industry) should have?	HR M			
Are there any gaps between the desired competence level and the current competence level (competence gap) among your employees?	HR M			
463 What is your experience in an internal knowledge transfer and a self-learning process?	HR M			
464 What is the number of training hours per year? What is the content of the training classes?	HR M			
465 What is your fluctuation rate? Do you have part-time employees? If so, why?	HR M			
5 Innovation, R&D and technological capability				
51 Understanding innovation, the innovation process and innovation strategy				
What do you understand under the term innovation? Describe some typical innovations that occurred in your firm in the recent years.	R&D M			
512 How important is the innovation activity for your business and your industry?	R&D M	GM		
Do you consider yourself as an innovative company and why? How would you rate your “innovation fit” between 1-5?	R&D M	GM		

RESEARCH: Exploiting firm capabilities as dynamic capabilities				
Empirical part – Case study research: Interviews with the key respondents				
Subject areas/Questions	Primary respondent	Secondary respondent	Add. respon. 1	Add. respon. 2
514 What is your innovation strategy? Do you have more tendency for incremental or radical innovation?	R&D M			
515 Are you more or less successful in the innovation processes, product/services, position, paradigm (4P Innovation map)? Explain.	R&D M			
516 Explain your innovation activities/processes and the system that supports that?	R&D M			
517 How fast is the R&D process: from basic idea to its commercialisation?	R&D M			
518 How do you evaluate your innovation processes and outcomes?	R&D M			
519 Are you accepting failures and how do you tolerate a trial-error process?	R&D M			
520 Is there “enough” time for being creative? Are there “enough” other resources available for being creative?	R&D M			
52 Innovation sources				
521 Which environmental factors/forces affect the level and speed of innovation (and diffusion of innovation)?	R&D M	GM		
522 Who is responsible for the innovation process and strategy?	R&D M			
523 Who takes the most credit for innovation outcomes and why?	R&D M	HR M		
524 What are the most important internal sources of the innovation process (top management, employees, more innovative co-workers, etc.)?	R&D M	GM		
525 What are the most important external sources of the innovation process (buyers/customers, suppliers/vendors, competitors, industry experts, universities and R&D institutions, government, etc.)?	R&D M	GM		
53 Funding the innovation process, the financial perspective				
531 How do you support your innovation and R&D process and activities?	R&D M			
532 Do you think that being a SME poses obstacles to innovation strategy implementation (lack of financial, human resources, etc.)?	R&D M	GM		
533 What are the costs of the R&D process/ activities? Explain.	R&D M			

RESEARCH: Exploiting firm capabilities as dynamic capabilities				
Empirical part – Case study research: Interviews with the key respondents				
Subject areas/Questions	Primary respondent	Secondary respondent	Add. respon. 1	Add. respon. 2
6 Marketing capability				
61 Customers perspective				
611 Do you consider costumers' needs when developing your business strategies? How?	SM	GM		
612 Are your customers taking an active part in the innovation process? Explain.	SM	R&D M		
613 Can you give a profile/description of your customer(s) taking an active part in the innovation process?	SM			
614 How do you discover the needs of your existing and potential customers/markets?	SM	R&D M		
615 What is your customer retention rate (for the last five years)?	SM			
62 Suppliers perspective				
621 How important is collaboration with the IT suppliers, technological leaders in the IT industry? Why?	SM			
622 What are the financial and non-financial results of these long-term partnerships?	SM	R&D M		
63 Competitors perspective				
631 Do you benchmark your environment? Explain this activity.	SM			
632 Do you have any short-term/long-term partnerships with your competitors (joint R&D, market entrance) and if so, why?	SM			
64 Partnerships, Collaboration and Networking				
641 Do you have any short-term/long-term partnerships with universities, R&D institutions and if so, why (the level of commercialisation)?	SM	R&D M		
642 Do you have any short-term/long-term partnerships with any other subjects in your environment and if so, why?	SM	R&D M		

GM – General Manager; SM – Sales Manager; R&D M – R&D Manager; HR M – HR Manager.

Source: Our own.