Enhancing Innovation at Work through Human Resource Management

André A.R. Veenendaal
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ENHANCING INNOVATION AT WORK THROUGH HUMAN RESOURCE MANAGEMENT

DISSERTATION

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on the authority of the rector magnificus,
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on Friday the 8th of May 2015 at 12.45 hrs

by

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in Groningen, the Netherlands
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Chapter 1

Introduction
1.1 Introduction

Innovation is undoubtedly considered of crucial importance for organizations in terms of survival (Dess & Picken, 2000). This is not only reflected in the numerous popular practical publications, many company statements and publications also use innovation terminology, and there is a plethora of academic literature in the field of innovation management (Crossan & Apaydin, 2010). Given the low-cost competition from manufacturing firms in Southeast Asia, Latin America and Eastern Europe, the need for western companies to innovate seems obvious. Competing on the basis of high quality is seen as the only viable option, and is logically tied to a constant effort by companies to bring new and improved products to the market. Not only global competition plays a role, also such factors as ageing populations, increasing product variety and shortening lifecycles contribute to the increasing importance of innovation in western economies (Nooteboom & Stam, 2008). Firms benefit from innovations in terms of higher productivity, new markets, higher revenues, competitive advantage and long-term survival for example (e.g. James, Leiblein & Lu, 2013; Rogers, 2004).

In the available academic literature on innovation, different scholarly approaches can be identified. One approach seeks an understanding of what innovation is, for example in terms of level of novelty (Garcia & Calantone, 2002), types of innovation (Damanpour & Evan, 1984), forms of innovation such as product or service innovations (Wang & Ahmed, 2004) or dimensions of innovation (Gopalakrishnan & Damanpour, 1997; Crossan & Apaydin, 2010). This approach deals with the challenge in the innovation literature resulting from the complex nature of the concept itself in terms of meaning, the categorization of innovations and innovativeness, and the level of analysis (Linton, 2009; Garcia & Calantone, 2002). There is no clear, consensus-based, understanding of innovation. This is partly because different authors operationalize innovation in different ways to delineate their research and so contribute novel insights to the field. Although some studies do offer conceptual frameworks in an attempt to integrate the
understanding of innovation (e.g. Crossan & Apaydin, 2010; Linton, 2009; Garcia & Calantone, 2002), the complex nature of innovation remains. Another approach examines determinants of innovation (Crossan & Apaydin, 2010). Perhaps as important as understanding the concept of innovation is determining how innovation can be affected. Certainly, this approach requires the concept of innovation to be delineated and understood, otherwise how can one study how to affect it? Depending on the level of analysis and the classifications of types of innovation studied, various determinants of innovation are brought forward, such as organizational or psychological climate, firm size, type of industry, leadership characteristics, organizational strategy, external orientation, organization characteristics and individual characteristics (e.g. Scott & Bruce, 1994; Rogers, 2004; De Jong & Vermeulen, 2006). Most of the studied determinants focus on having a positive influence on innovation, to determine what organizations can do to enhance their innovation output.

This dissertation is part of the larger ‘Competences for Innovation’ research programme that takes an integrated approach towards shaping innovations at different levels in organizations (Looise, Löwik, Veenendaal & De Visser, 2013). The ‘Competences for Innovation’ programme aimed to develop a scientifically responsible and integrated approach for gaining insight into and enhancing the innovation performance of SME’s (Looise, 2013). On the one hand, in line with the first innovation approach mentioned above, this is done in such a way that a broad perspective on innovation is demarcated, involving both individual and organizational levels of innovation and multiple possible innovation classification methods, as well as potentially multiple types of innovations, i.e. product, service, or process innovations. On the other hand, in line with the second innovation approach, this research programme distinguishes three pillars of innovation competences as determinants of innovation and aims to explore these three types of determinants. By bringing these three pillars of innovation competence together, integration is established in terms of enhancing
innovation at different levels (Looise, 2013). First we will discuss two pillars, taking the approach and findings of these studies to set the stage for the third pillar.

The first pillar concerns the absorptive capacity of organizations, on both the individual and organizational levels, and provides insights into how collaboration with partners can enhance the innovation performance of small and medium sized companies (SMEs) (Löwik, 2013). SMEs, given that they experience ‘resource poverty’ (Welsh & White, 1981), often feel a need to collaborate with external partners such as suppliers, customers and universities. Löwik (2013) studied the role of the absorptive capacity of small and medium sized organizations (SMEs) in enhancing innovation performance. Löwik (2013) found two strategies that SMEs could use to improve their innovation performance induced by collaborating with their external partners. The first strategy concerns absorptive capacity: in order to increase their innovation performance, SMEs should increase their absorptive capacity. A condition for this to take place is having individual employees with high individual absorptive capacities, which depends on four characteristics. Two of these characteristics are about diversity: prior knowledge diversity and external network diversity. The other characteristics are firstly a bisociative cognitive style, which is about searching for solutions outside disciplinary boundaries, and secondly an organizing capability. These characteristics emphasize the need to gain new knowledge and insights, to acknowledge current boundaries and then cross them, and to strive for diversity within the whole system within which the organization is active. Second, contrary to what the literature suggests, alongside weak network ties, strong network ties were also found to create and hold new knowledge. This works through SMEs using so-called bridging capabilities. Using these bridging capabilities means that SMEs do not need to further develop their absorptive capacity (Löwik, 2013).

The second pillar concerns internal individual, team and organizational antecedents of innovation characteristics in the form of exploration, exploitation and ambidexterity in organizations (De Visser,
Introduction

The multidimensionality of innovation is taken into account by considering the effects of cognitive and structural factors in innovation on multiple levels. The study of De Visser (2013) provides in-depth insights into the dynamics of a growing organization’s exploration levels, and therefore its exploitation levels, and explains how structural and individual factors interact with and impact on these over time. Formalization of exploitative activities can de-absorb human slack resources (De Visser, 2013). Human slack refers to the difference between specialized and skilled human resources that are rare and absorbed (Voss, Sirdeshmukh & Voss, 2008). Absorption of human resource slack refers to the extent to which these resources are committed to on-going activities (Voss et al., 2008). De-absorption of the skilled and rare human resources can then be redeployed for explorative activities. Here, efficient exploitation can have a positive impact on the level of exploration. Another finding was that, when an organization evolves from an organic to a more mechanistic organizing mode, the work environment could become less motivating for employees that prefer an intuitive style of thinking. If such employees leave the company, an important stimulus for innovation may disappear along with their tacit knowledge, making exploitation less efficient (De Visser, 2013).

Particularly this finding aligns with the first and next pillar of innovation competences in the research programme, given developments in technology and demography. These developments both require and enable collaboration and coordination to ensure new information and knowledge can enter organizational boundaries. Human resource management can play a leading role here.

The third pillar, which is the subject of this dissertation, concerns the role HRM has in enhancing innovation performance, and the innovative work behaviour of employees. Before this study, despite growing scholarly interest in studying the influence of HRM on innovation, little was known about the underlying mechanisms that explain how HRM affects organizational innovation. Here, we examine both the individual and the
organizational levels of innovation, focusing on HRM and HR practices and how these can enhance innovation, while introducing mechanisms explaining the relationship.

The overall research question is: What is the role of HRM in enhancing innovation on both the organizational and individual levels?

We use Coleman’s (1990) diagram to explain our approach on both the organizational and the individual levels. The Coleman diagram shows two levels of analysis as used in sociology, macro- and micro-, which we will use to clarify HRM implementation in organizations (Figure 1.1). In this dissertation, the macro-level is the organizational one, and the micro-level refers to individuals. Although we do not carry out a multilevel analysis in this dissertation, nor claim to provide empirical evidence supporting the proposed multilevel relationships, we do build on the assumptions implicit to the diagram. The arrows in the diagram represent the causal mechanisms that produce the observed associations between phenomena (Minbaeva, Mäkelä, & Rabbiosi, 2012). In the upper right-hand corner, representing the organizational level, innovation performance is explained through the actions of employees, in our case by the level of innovative (work) behaviour shown by employees on the individual level (arrow c). These behaviours follow from individual-level conditions, i.e. how the employees perceive the HRM practices executed within the organizations (arrow b), which in turn are influenced by organizational-level HRM practices (arrow a). In this way, the organizational-level phenomenon of innovation performance is explained by HRM practices on the organizational level (arrow d) through individual-level phenomena. Intellectual capital, in the form of knowledge and skills of a social collectivity (Nahapiet & Ghoshal, 1998), such as the employees of an organization, can be used to explain the linkage between HRM and innovation (e.g. Kang & Snell, 2009; Yang & Lin, 2009). However, intellectual capital theory, as well as human and social capital theories, are not able to fully explain the relationship. In the
following two chapters of this dissertation we introduce the concept of creative capital as an explanatory variable for organization-level innovation that follows from managing human resources and focus primarily on the upper part of the diagram. Chapters 4 and 5 are more concerned with the lower part of the diagram, focusing on the individual level.

**Figure 1.1**: Organizational- and individual-level research model of this dissertation.

1.2. Literature background and concepts

**HRM and innovation**

In searching for how organizations can enhance their innovative outcomes, the role of human resources and their management is increasingly studied in the last decade or so (e.g. De Leede & Looise, 2005; Shipton et al., 2006; Beugelsdijk, 2008; De Winne & Sels, 2010). Some scholars have studied the relationship between HR practices and organizational outcomes in terms of innovation performance (e.g. Cano & Cano, 2006; Beugelsdijk, 2008), while others have looked at the way HR practices can lead to different types of innovation and especially incremental and radical types (e.g. Subramaniam & Youndt, 2005; Cabello-Medina, Carmona-Lavado & Valle-Cabrera, 2006). HR practices have been found to play an important role in stimulating organizational innovation by enhancing the creativity of individual
employees (e.g. Mumford, 2000; Dul, Ceylan & Jaspers, 2011). For example, Jiang, Wang and Zhao (2012) found that several HR practices, including hiring and selection and rewards, affect employees’ creativity. Most such studies focus on the organizational level of innovation. HR practices or HR systems are found to affect innovative outcomes, albeit through mediating variables such as knowledge, human capital or intellectual capital (e.g. Chen & Huang, 2009; Yang & Lin, 2009; Cabello-Medina, López-Cabrales & Valle-Cabrera, 2011).

This dissertation introduces the concept of firm-level creative capital to bring greater understanding to the HRM-innovation link at the organizational level. Innovation management traditionally works with different theoretical perspectives when explaining the possible role of HRM. We will briefly discuss in what way this dissertation embeds these traditional theoretical perspectives, before elaborating on our main contribution of creative capital. We will use a configurational approach to HR systems, by proposing two HR systems, one that is designed for standard employment arrangements and another HR system geared towards external employment arrangements. Both HR systems can be seen as HR instruments to affect organizational innovation outcomes. Although the literature shows growing interest in the role of HRM in innovation performance at the organizational level, the role of HRM in enhancing individual innovation seems to be somewhat neglected (Dorenbosch, Van Engen & Verhagen, 2005). Wright and colleagues (1994) suggested combining two aspects of human resources: the knowledge, skills and abilities (KSAs) of individuals within and accessible to the organization on the one hand and, on the other, the “characteristics of individuals [that are] utilized through employee behaviour” (Wright, McMahan & McWilliams, 1994: p. 304). So, for individual employees to demonstrate innovative work behaviour, they therefore need to possess the necessary KSAs. Consequently, an appropriate way to influence innovative work behaviour is through HR practices that alter the KSAs of the human capital pool (e.g. Guest, 1997). That HR practices affect the innovation performance of an organization through its
employees reflects the basic principal of the behavioural perspective (Schuler & Jackson, 1987), which is that the objective of HR practices is “to elicit and control employee attitudes and behaviours” (Wright & McMahan, 1992: p. 303). According to social exchange theory (Homans, 1958; Blau, 1964), actors such as employees see HR practices as signals of the organization (Bowen & Ostroff, 2004; Dorenbosch, Van Engen & Verhagen, 2005). With these HR practices comes an expectation of reciprocity: that individuals aim for a balance between what they get and what they give (Homans, 1958). If organizations send out signals of commitment towards employees, employees will reciprocate that perception towards the organization (Dorenbosch et al., 2005). Further, committed individuals are essential for creating new ideas and knowledge (Nonaka, 1994) and for knowledge-sharing behaviour (Camelo-Ordaz, García-Cruz, Sousa-Ginel & Valle-Cabrera, 2011). As such, one can argue that perceptions of a range of HR practices geared towards high commitment will separately affect innovative work behaviour (IWB).

After showing how this dissertation uses and embeds theoretical explanations of the HRM-innovation link, we will only refer to these and explain further in the next chapters of this dissertation, for example when explaining theoretical backgrounds and relationships. Our main contribution lies in the creative capital perspective in explaining how HRM can enhance innovation.

Creative capital

The need for innovation in organizations should lead to a competitive advantage, which in turn should lead to economic growth in organizations. Creative capital builds on the seminal work of Richard Florida, who argued in his 2002 bestselling book that social capital stifles innovation whereas ‘creative capital’ promotes innovation, in so doing coining the concept of creative capital in the regional economic development literature. In Chapter 2, we define creative capital as the set of diverse knowledge and skills,
outside the fixed and closed setting of the organization, which are available and accessible to the organization in order to create value for its core activities. The definition of firm-level creative capital used in Chapter 3 evolved so that we are able to operationalize the concept. In that chapter, we shift the focus towards creative abilities by defining firm-level creative capital as the aggregated creative organizational ability. This amounts to the organizational integration of both the ability of its employees to make a valuable contribution to the organization by combining previously unrelated concepts, knowledge, ideas or experiences, as well as the creativity embedded in their relationships. The concept of creative capital was initially presented to draw attention to the need to understand “why some places are better able to develop, attract, and retain human capital / skills / creative capabilities” (Florida, 2004: p3). The logic behind Florida’s assertion emerges from the idea that strong ties within a group, a key prerequisite for social capital, can obstruct new ideas from entering that group. Conversely, weak ties may allow such new ideas to enter a group and possibly lead to innovation. In Florida’s reasoning, these weak ties lead to the build-up of ‘creative capital’. Creative capital is about skills and knowledge, and best measured by what people do, rather than what they have been trained to do (Marlet & Van Woerkens, 2007). This distinguishes ‘creative capital’ partly from ‘human capital’, if not fully conceptually than at least in measurement, given that human capital is typically measured in terms of educational achievements (Florida, 2004; Marlet & Van Woerkens, 2007). We will address the conceptual differences with human capital and social capital more elaborately further in this section. In this dissertation, we argue that creative capital is a valuable addition to approaches based on intellectual capital. Intellectual capital has three multilevel components: human capital, social capital and organizational capital, and can be described as an organization’s current knowledge stock (Kang & Snell, 2009). Intellectual capital and its three components separately are considered resources that are linked to an organization’s competitive advantage, thus forming part of the resource-based view (Reed et al., 2006). Research based on intellectual
capital theory often takes the broad concept of intellectual capital as a single explanatory variable to predict organizational outcome (e.g. Wu et al., 2008; Reed et al., 2006). We would argue that including the separate types of capital at the heart of research enables one to better predict innovation drivers. While intellectual capital, as an overall construct, emphasizes the role of knowledge in achieving organizational goals, there is a need to differentiate between the types of knowledge and explain how these types of knowledge are characterized if one is to bring greater understanding to the research field on innovation performance. Consequently, specific types of capital, as components of intellectual capital but less broad, should be better explanatory variables than intellectual capital itself.

Creative capital has been criticized for being close to the concept of human capital (Glaeser, 2005) and for being too similar to the concept of social capital (Straatman, Veenendaal & Van Velzen, 2012). While we agree that some elements of human capital and social capital are to be found in the concept of creative capital, the latter adds to the intellectual capital approach. In Figure 1.2 we position creative capital in the intellectual capital context. Organization-level human capital is defined in the second chapter of this thesis as “the aggregate accumulation of individual human capital that can be combined in a way that creates value for the unit” (Wright & McMahan, 2011, p.95). An individual’s human capital comprises his or her knowledge, skills, abilities and other characteristics (KSAOs) that can be used to create value (e.g. Subramony, 2009; Munyon et al., 2011; Ployhart & Moliterno, 2011). Firm-level creative capital has similarities with human capital in terms of the knowledge, skills and abilities available to and accessible by the organization in order to make a valuable contribution to the organization. However, creative capital does not cover all the KSAOs available to an organization, it focuses on the skill of creativity, on the ability to combine previously unrelated concepts, knowledge, ideas or experiences, and on the explicit ability of organizations to use KSAOs from beyond their boundary. Furthermore, while human capital is often used in terms of what people are
trained to do, creative capital is about what people actually do. Consequently, creative capital is not seen as a different concept but rather as a part of human capital. This was also seen by Marlet and van Woerkens (2007) who found creative capital to be a better predictor of employment growth than education (part of human capital). Further, whereas creative capital is also about KSAOs available through relationships, human capital resides in individuals alone. This brings us to the concept of social capital, which is defined in terms of the value available in relationships, generated through socialization and sociability, as a form of social support (Borgatti & Foster, 2003; Huggins, 2010). Social capital has three widely recognized dimensions: the structural, relational and cognitive dimensions (Nahapiet & Ghoshal, 1998). Similarities between creative capital and social capital are mainly to be found in the structural dimension. The structural dimension of social capital is described as the overall pattern of connections between actors or nodes (Burt, 1992). Three key elements of the structural dimension are the network ties between actors, the network configuration, and appropriable organization, which is the existence of networks created for one purpose that may be used for other purposes (Nahapiet & Ghoshal, 1998). These three elements of the structural dimension of social capital offer social actors opportunities to jointly create value (Adler & Kwon, 2002). For example, their social network ties offer individuals access to resources and thus the opportunity to combine those resources in order to create value (Coleman, 1988), which is also the case for creative capital. Furthermore, the network configuration, with properties such as density, connectivity and hierarchy, influences the flexibility and ease of information exchange (Nahapiet & Ghoshal, 1998). This is explained by the impacts that a network’s density, connectivity and hierarchy have on the level of contact and the accessibility provided to their network members (ibid.). This same mechanism also applies to firm-level creative capital, where looser network configuration characteristics assure greater accessibility to information resources. Creative capital thrives on weak ties rather than on strong ones. The main difference lies in the cognitive dimension, referring to attributes
such as shared codes that facilitate a common understanding among parties (Tsai & Ghoshal, 1998). Creative capital thrives on new insights and new information, for which a shared understanding acts as an impediment rather than as an impetus. Finally, since social capital can encompass both internal and external relationships, we argue that firm-level creative capital encompasses both internal as well as external relationships. The described position of creative capital in intellectual capital context is illustrated in Figure 1.2. Summarized we can say that creative capital holds elements of both human capital and social capital, and adds to these capitals.

**Figure 1.2:** Positioning creative capital in the intellectual capital approach.

![Creative capital diagram](image)

**Innovative work behaviour**

Often innovation is seen as the result of collaboration and team work (Faems, Van Looy & Debackere, 2005; Chen, Chang & Hung, 2008). However, innovation is largely in the hands of individuals: individuals play a vital role in all innovations because they are the holders and processors of ideas (Van de Ven, 1986; Shalley & Gilson, 2004). This reasoning follows
from the observation that at the basis of most innovations lay good individual ideas which are then further developed (Amabile et al., 1996: p. 1154). Looking at individual innovation, the role of human resource management (HRM) seems somewhat neglected in the literature (Yuan & Woodman, 2010). In order to gain an understanding of how individual employees can be stimulated to utilize their ideas and turn them into innovations, it is necessary to determine what stimulates individual innovative behaviour (Scott & Bruce, 1994). As Lepak, Marone and Takeuchi (2004) argue, organizations can trigger certain behaviours by using HR practices that “motivate particular employee attitudes and behaviours while discouraging others” (p. 641).

In the literature, individual innovation is operationalized and used in several ways. Three of the available operationalizations can be described in terms of personality characteristics, outputs and behaviours (West & Farr, 1989; Kleyesen & Street, 2001). Individual innovation is seen as personality based in literature focussed on cognitive styles (e.g. Kirton, 1976; Allinson & Hayes, 1996; De Visser, 2013; Löwik, 2013). Here, an individual’s cognitive style can be associated with either an “analysis” or an “intuitive” type of cognitive classification (De Visser, 2013). Individuals with an analytic cognitive style are more likely to favour a structured problem-solving approach, using systematic methods of investigation, an approach that is associated with an exploitative innovation orientation (De Visser, 2013). Conversely, individuals with an intuitive cognitive style are more likely to prefer an open-ended approach to problem solving, using somewhat random research methods, an approach associated with a more explorative innovation orientation (ibid.). Individual innovation as an output is based on the outcomes of an individual, in terms of the number of new ideas brought forward or changes initiated within the work environment of that individual (Bunce & West, 1995). Both the volume of newness brought forward and the degree of novelty and magnitude in the innovations play a role in output-based individual innovation (Janssen, Van de Vliert & West, 2004). In our study, we align with the research stream that sees innovation as behaviour.
Therefore the concept of innovative work behaviour (IWB) is used as a conceptualization of individual innovation (e.g. Scott & Bruce, 1994; Janssen, 2005). IWB is defined as individual behaviour to intentionally create, introduce and apply new ideas, processes or products (Janssen, 2000).

The behavioural perspective sees HRM affecting firm outcomes, such as innovation, through the attitudes and behaviour of employees (e.g. Schuler & Jackson, 1987; Wright & McMahan, 1992). This behaviour itself is seen as a process, which can be subdivided into various stages. Some studies have used two stages within IWB, with labels such as invention and implementation (e.g. Dorenbosch et al., 2005), a more detailed approach with three stages (e.g. Scott & Bruce, 1994) or even four or five stages (Kleysen & Street, 2001; De Jong & Den Hartog, 2010). In order to ensure that we comprehensively address the spectrum of innovation, we will elaborate using three or four stages throughout this dissertation. In Chapter 4 we study IWB in depth, looking closely at three dimensions of IWB and, in Chapter 5, we treat IWB as a one-dimensional construct (cf. Scott & Bruce, 1994; Janssen 2000; Kleysen & Street, 2001). The first stage within the innovation process is the exploration of opportunities. The second stage is then idea generation. These first two stages concern the initiation of an innovation, or the creative phase. In Chapter 4, we combine these two first stages as a single dimension of IWB: idea generation. The following two stages concern the implementation phase of an innovation. This starts with the third stage, championing, in which the idea is promoted throughout the organization in order to find support for this idea to be further developed. The fourth and final stage is application. All of the four stages require different employee characteristics.

1.3 Challenges
Having discussed the main concepts and the two main research focal points for this dissertation (creative capital and innovative work behaviour), we can
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now summarize the challenges that will be addressed in the subsequent chapters:

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<th>Challenges</th>
<th>Research objectives</th>
<th>Methodology</th>
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<tr>
<td>Affecting innovation through HRM: the role of creative capital</td>
<td>(1) The field of HRM is missing an explanation of the role of HRM in enhancing innovation.</td>
<td>To apply creative capital concept to intellectualize organizational effects, achieved through managing human resources, on innovation performance.</td>
<td>Developing an integrated framework for studying how organizations might affect their innovation performance through managing their human resources.</td>
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<td>Firm-level creative capital and the role of external labour</td>
<td>(2) The concept of firm-level creative capital has not been tested yet. An empirical challenge is to be able to explain the role of external labour for enhancing creative capital empirically.</td>
<td>To explore whether creative capital can be distinguished at the firm level and to determine what role external labour plays in enhancing firm-level creative capital.</td>
<td>A qualitative design. Interviews are held with eight managers knowledgeable on HR implementation and the use of creativity within their firms.</td>
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<tr>
<td>Perceptions of HRM and their effect on dimensions of innovative work behaviour: evidence from a manufacturing firm</td>
<td>(3) Prior research presents multidimensional conceptualizations of innovative work behaviour with each dimension requiring different behaviours and characteristics, yet measures it as a one-dimensional construct. Also the effect of HRM on these separate dimensions is unclear. (4) It is unclear what the effect of employees’ perceptions of HRM on their individual innovation performance is. This lack of clarity complicates the organization’s innovation management.</td>
<td>To empirically test the effect of four high commitment HR practices on three dimensions of production workers’ innovative work behaviour.</td>
<td>Analysis on data collected through a survey among 328 employees in one Dutch manufacturing company.</td>
</tr>
<tr>
<td>HRM and innovative work behaviour: the moderating effect of an innovative climate</td>
<td>(5) Literature lacks understanding on possible third variables in the relationship between HRM and innovation.</td>
<td>To analyze the effect HR practices have on the innovative work behaviour of production workers and to examine the role of an innovative climate in this relationship.</td>
<td>Analyzed quantitative data from 463 employees of four manufacturing firms situated in the eastern part of the Netherlands</td>
</tr>
</tbody>
</table>
1.4 Outline

The remainder of this dissertation consists of five chapters; four in the form of research papers published or under review by international peer-reviewed journals or books, and a concluding chapter.

Chapter 2 is a conceptual chapter and provides a framework for studying how organizations can enhance their innovation performance using HRM. In this chapter, the concept of creative capital on the organizational level is introduced. It is argued that human capital, social capital and firm-level creative capital affect innovation in ways that tend to be either explorative or exploitative.

Chapter 3 explores the concept of firm-level creative capital and develops an operationalization that is able to identify creative capital at the firm level. Further, this chapter continues along the path of conceptualizing HRM, started in the second chapter, by determining the role of external labour in enhancing firm-level creative capital.

Chapter 4 reports on an empirical study, at the individual level of innovation, into the effects that perceptions of four specific HR practices have on three specific dimensions of innovative work behaviour. The four perceived HR practices - supportive supervision, training and development, information sharing and compensation - were all found to have an effect on all three dimensions of innovative work behaviour (i.e. idea generation, idea championing, and idea application). Positive perceptions of supportive supervision appear to be most beneficial in terms of enhancing employees’ innovative work behaviour.

Chapter 5 contains an empirical analysis into how perceptions of HRM affect the innovative work behaviour of employees at four manufacturing firms. The moderating role of innovative climate is studied, and the results show that innovative climate can moderate the relationship between certain HR practices and innovative work behaviour.
Finally, Chapter 6 discusses the findings of the four research papers, reflects on the results of these chapters, and their empirical limitations, and offers suggestions for the direction of future research.

1.5 References


Introduction


Chapter 2

Affecting innovation through HRM: the role of creative capital

Abstract
This paper provides a new and integrated approach to understanding, through creative capital, the relationship between human resource management (HRM) and innovation. The conceptual framework presented, building on insights from social capital research and the field of regional economic development, offers a new view on how organizations improve their innovation performance through managing human resources. We advance the idea that the relationship between innovation performance and HRM is path-dependent, influenced by human capital, social capital and creative capital. The creative capital concerns the openness of organizations to the diversity of knowledge, skills, attitudes and other characteristics available to it. The implications of our framework are discussed, as well as the practical implications. A research agenda for future research is proposed.

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Affecting innovation through HRM: the role of creative capital

2.1 Introduction
Innovation is increasingly important if organizations are to survive in a competitive environment. Firms based in Europe, and in developed countries elsewhere, face the challenge of competition from firms based in emerging markets that can, for example, manufacture products more cheaply because of lower labour costs. Within the innovation management literature, the openness of firms and the overarching model of open innovation are increasingly used to provide greater understanding of how to deal with such challenges facing firms (Chesbrough, 2003; Laursen & Salter, 2006). During the past decade, scholars have shown a growing interest in the role of Human Resource Management (HRM) in stimulating organizational innovation performance (e.g. De Leede & Looise, 2005; Beugelsdijk, 2008; Chen & Huang, 2009; De Winne & Sels, 2010). Although some research has addressed the HRM – innovation link, little is known about the underlying mechanisms that explain how HRM affects organizational innovation. Given the increased openness of innovation processes and the emphasis on open innovation models (Chesbrough, 2003), we argue that merely using the human capital approach, even in combination with social capital, is insufficient to explain the role of HRM in enhancing organizational innovation performance. In this paper, we will present a conceptual framework on how innovation performance can be enhanced by managing human resources that views social capital and creative capital as the explanatory concepts.

Innovation performance can be analyzed using the notions of exploration and exploitation (March, 1991; Gupta et al., 2006; Li et al., 2008). Exploration involves searching for new knowledge, technologies and products, whereas exploitation is about using and refining existing knowledge, technologies and products (March, 1991; Greve, 2007; Li et al., 2008). We will argue, by looking at different compositions of an organization’s human capital, that exploration is stimulated differently than exploitation. The knowledge, skills, attitudes and other characteristics (KSAOs) available to organizations through their human capital pool play a
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critical role in innovation (Nonaka & Takeuchi, 1995). However, innovation originates not only from the KSAOs residing in employees, but also depends on the available social capital, which has been described as the knowledge and skills embedded in the relationships between actors (e.g. Leana & Van Buren, 1999; Subramaniam & Youndt, 2005; Chen et al., 2008). However, social capital can, alongside being an impetus, also be an impediment to innovation (Coleman, 1990). Negative effects on innovation from social capital are found in its “detrimental effect on the introduction or consideration of new information by members” (Leana & Van Buren, 1999, p.551). Staying close to Coleman’s (1990) original ideas on social capital, we use social capital in terms of the value available in relationships that is generated through socialization and sociability as a form of social support (Borgatti & Foster, 2003; Huggins, 2010). Since social capital research is unable to fully explain how organizations gain new information in order to be innovative, the concept of creative capital has been introduced and contributes to the social capital literature. In this paper, creative capital concerns the permeability of organizations, their openness to the diversity of KSAOs available. We define creative capital as the diverse knowledge and skills, both inside and outside the fixed and closed setting of the organization that are available and accessible to the organization in creating value for its core activities.

In this paper we present three contributions. First, we integrate the HRM and innovation literatures and add to the existing literature by providing an integrated framework for studying how organizations might affect their innovation performance through managing their human resources. Part of this framework is not new, but helps by providing a more comprehensive overview of the way HRM affects innovation. Human capital and social capital are well-established concepts but, by adding the concept of creative capital to our understanding of the relationship between HRM and innovation, we address a gap in the knowledge on how to stimulate innovation, and in particular exploration. Second, this paper contributes to
knowledge on how to manage a range of knowledge sources from an HRM perspective. Currently, HRM is largely internally focused, and we argue that, by looking outwards, the HRM function could contribute to innovation performance by managing the KSAOs available beyond the boundaries of the organization. Third, we argue that HRM could be more effective in enhancing innovation performance if organizations have different HR practices for different groups of individuals (Paauwe & Boselie, 2005). In the framework presented, rather than assuming that all employees make similar contributions to organizational innovation performance, we propose differentiating in the management of the KSAOs embedded in standard employees, non-standard employees and other stakeholders. In our framework, this differentiation is modelled using two forms of labour: internalized labour and externalized labour. Labour should be understood in the broad meaning of the KSAOs used to fulfill tasks for the organization, rather than the narrow sense of traditional employees with an employment relationship.

Figure 2.1 shows the potential contributions of HRM and various types of capital to exploration and exploitation by depicting the proposed relationships between them.

In the next section, we develop the conceptual framework. First, we will elaborate on the existing knowledge base related to innovation by discussing the roles that human capital, social capital and creative capital have in innovation. This will be followed by considering how HRM stimulates exploration and exploitation. Finally, we discuss the implications of the integrated framework for managers and academia.
2.2 The role of human capital in innovation

In considering innovation, we build on March’s (1991, p.71) understanding of exploration as “things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation” and of exploitation as including “such things as refinement, choice, production, efficiency, selection, implementation, execution”. In the literature, there are various approaches to distinguishing between exploration and exploitation, and these are mainly related to the different research fields such as organizational learning, technological innovation and strategic renewal (Li et al., 2008). In the field of technological innovation, exploitation involves a “local search that builds on a firm’s existing technological capabilities” and exploration a “more distant search for new capabilities” (Li et al., 2008, p.115). We adopt the view held by several scholars who see exploitation as using existing knowledge and technology, and exploration as the search for
new knowledge and technology (e.g. Rosenkopf & Nerkar, 2001; Vermeulen & Barkema, 2001; Benner & Tushman, 2002; Greve, 2007).

The various analyses of innovation and human capital studies share many concepts. As such, scholars describe human capital in terms of an individual’s knowledge, skills, abilities and other characteristics (KSAOs) that can be used to create value (e.g. Subramony, 2009; Munyon et al., 2011; Ployhart & Moliterno, 2011). On the organizational level, human capital is “the aggregate accumulation of individual human capital that can be combined in a way that creates value for the unit” (Wright & McMahan, 2011, p.95). Organizational human capital can be viewed as homogeneous or heterogeneous (Willis, 1986; Gong, 2003) depending on whether the composition of human capital reflects a group of employees with similar or with different knowledge, skills and experience. Organizations have access to knowledge primarily through the available KSAOs of their employees. Knowledge, but also the skills to use this knowledge, is essential for both exploration and exploitation. Innovation integrates knowledge and action (Scarborough, 2003), where the actions can be seen as the skills of employees. Organizations tend to become increasingly homogeneous in terms of their human capital through a socialization process. According to the attraction-selection-attrition framework, socialization is strengthened over time because the employees of an organization tend to have shared attributes, both because they were selected for having these and because employees who do not have these attributes will eventually leave the organization (Schneider et al., 1995). A homogeneous human capital will rely on existing knowledge and create new knowledge based on the organization’s set of knowledge boundaries. Using the terminology of March (1991), organizations that have a homogeneous human capital will refine existing technologies, aiming for efficiency. This may lead to exploitation, which will “increase the likelihood of rewards for engaging in this activity, thereby further increasing the competence and the likelihood” (March, 1991, p.73). Heterogeneous human capital, as Gong (2003) argues, is necessary if one is to facilitate exploration through organizational learning and innovation. If
organizations are able to establish a more heterogeneous workforce, then new knowledge and skills from beyond the existing knowledge boundaries will enter the organization. This may lead to the use of new KSAOs and technologies, or as March (1991, p.85) puts it “experimentation with new alternatives”. In this way, organizations are able to explore new possibilities. Based on the above, we propose Proposition 1a and 1b.

Proposition 1a: *The more an organization’s human capital is homogeneous, the more likely it is that the organization will aim for and succeed in exploitation.*

Proposition 1b: *Similarly, we propose that the more an organization’s human capital is heterogeneous, the more likely it is that the organization will aim for and succeed in exploration.*

2.3 The role of social capital in innovation

In order to stimulate either exploration or exploitation, it is not sufficient to just have access to an individual’s KSAOs. Innovation seldom occurs in isolation and is often the fruits of shared knowledge, trust and other elements tied to group processes (e.g. Tsai & Ghoshal, 1998; Perry-Smith & Shalley, 2003; Chen & Kaufmann, 2008). Interactions through relationships established between individuals enhance the knowledge and skills available to the organization. The concept of social capital is frequently used to explain the potential benefit for innovation of interactions through relationships (e.g. Inkpen & Tsang, 2005; Chen et al., 2008; Laursen et al., 2012). The interpretation of the term social capital has been stretched over the years (Inkpen & Tsang, 2005; Huggins, 2010) such that it now appears to be about all types of “ties, interactions and relationships held by economic actors” (Huggins, 2010, p.336). We draw on ideas of social capital from Coleman’s (1990) work, defining social capital in terms of the value available in relationships, generated through socialization and sociability as
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A form of social support (Borgatti & Foster, 2003; Huggins, 2010). An important aspect is that innovation is effected through a collective goal orientation, the trust shared among connected people and the shared interpretations that can be developed with high levels of social capital (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998; Meijerink et al., 2013). Strong ties within firms, which can be found with homogeneous human capital, also contribute to strong cohesion between individuals (Granovetter, 1973). The norms of collaboration, interaction and the sharing of ideas result in social capital (Putnam, 2000). Social capital enriches the quality of group work and information exchange among an organization’s members (Subramaniam & Youndt, 2005). This will lead to the development of the organizational knowledge base by drawing upon and refining the available knowledge (Subramaniam & Youndt, 2005).

Therefore, we expect Proposition 2a.

Proposition 2a: The effect that homogeneous human capital has on exploitation is partially through social capital.

Social capital research in the field of organization studies has revealed that social capital can have strong positive effects on organizational performance (Leana & Pil, 2006) and on several outcomes relevant for organizations (e.g. Adler & Kwon, 2002). However, social capital research studies frequently accentuate the positive consequences of social capital (Portes, 1998). High levels of social capital have also been found to have disadvantages for organizations. These are rarely mentioned, and generally only organizational or individual benefits are ascribed to social capital (Portes, 1998; Adler & Kwon, 2002). Focusing on innovation performance, Coleman (1990) noted that social capital can be an impetus or an impediment to innovation. In an attempt to benefit from the available social capital, organizations strive for stability in employment relationships and attempt to develop trust through norms and relationships, resulting in being able to efficiently use the organization’s existing knowledge base and technological capabilities. A
potential disadvantage of strong social capital is that strong trust between actors in a relationship can hinder organizational development (Westlund & Bolton, 2003; Huggins, 2010). If an organization remains in its own familiar field of expertise, without new resources, such as other skills, knowledge and attitudes, it lacks stimuli to change.

The second limitation of social capital research is that it is often used as a container to explain various phenomena on different levels. Research has been carried out on the level of society (e.g. Putnam, 2000), on the organizational level (e.g. Leana & Van Buren, 1999) and on individuals (e.g. Belliveau et al., 1996). Even in social capital research with only one level of analysis, such as on organizations, the concept is stretched. The problem with defining a concept too broadly is that it becomes impossible to “capture the complex variety of factors” (Inkpen & Tsang, 2005, p.161), in our situation those associated with social interaction processes.

To overcome these limitations of social capital research in explaining innovation, we consider relationships that are not, by definition, within the current networks of an organization. We specifically address bringing new KSAOs to an organization, described by Matusik & Hill (1998) as achieving more permeable organizational boundaries. Huggins (2010) argues that homogeneous knowledge and static networks are not appropriate if one wants to enhance the exploration capabilities of actors within such a network, and that “a superior choice may be networks that are more temporary in nature and geared towards achieving specific outcomes” (p.343). One stream of research on social capital in communities suggests distinguishing between two types of social capital: bonding social capital and bridging social capital (e.g. Woolcock, 1998; Putnam, 2000). A similar distinction applied to social capital in organizational studies is between cooperative social capital and entrepreneurial social capital (Kang & Snell, 2009). Bonding or cooperative social capital refers to relationships between individuals that are closely connected, such as family members or friends, and establishes a homogeneous group. Bridging or entrepreneurial social
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capital refers to a more loosely connected social system among diverse social individuals and groups. Such a distinction could help to enrich social capital research. However, given our argument that social capital theory is already overstretched, it would be perverse to extend it by adding a distinction between bonding and bridging or cooperative and entrepreneurial social capitals. Rather, we take a different approach in addressing the perceived shortcomings of social capital research, in terms of gaining new information and ideas, by introducing the concept of creative capital (Florida, 2002).

2.4 The role of creative capital in innovation

The concept of creative capital was introduced in 2002, initially in regional economic development literature, to draw attention to the need to understand “why some places are better able to develop, attract, and retain human capital/skills/creative capabilities” (Florida, 2004, p.3). In an earlier study, Florida (2002) had found that US regions with low innovation levels scored highly for social capital, and areas with high levels of innovation had below-average scores for social capital. In the words of Florida et al. (2002), social capital seemed to stifle innovation (see also Coleman, 1990). The logic behind Florida’s findings built on the notion that social capital can obstruct new ideas from entering a region. Rather, it is external relationships that allow new ideas to enter a group, and this can lead to innovation. In Florida’s reasoning, these external ties lead to the build-up of ‘creative capital’.

Before delving further into the concept of creative capital, we raise a criticism of creative capital seen in the regional economics research field: the apparent emphasis on creativity (e.g. Glaeser, 2005; Hoyman & Faricy, 2009). Here, contrary to some authors (e.g. Florida & Goodnight, 2005; Matthews, 2008), we will not assume that creative capital is somehow the sum of creative people. Rather, as we will argue later, creativity is a skill in itself, and therefore falls within the scope of creative capital. Even though our emphasis is not on creativity, we will continue to use the term ‘creative’
because the three types of capital are frequently used together in the field of regional economics research (e.g. Marlet & Van Woerkens, 2007; Batabyal & Nijkamp, 2010). Often, social capital and creative capital are juxtaposed, with both explaining innovation performance and economic growth. The conceptual framework in our paper can be seen as a translation of this perspective to the organizational level. Therefore, notwithstanding the pitfalls and criticisms of earlier work on this topic, we retain the creative capital label in this paper.

Previous research on creative capital has focused almost exclusively on the regional level. Creative capital is used in regional economic literature to explain how the innovative performance of cities and regions can be enhanced, leading to economic growth, by gaining new knowledge through the openness of the cities and regions (Florida, 2002; Batabyal & Nijkamp, 2010). In our view, organizations are open to similar mechanisms as regions since a region’s performance level can be seen as the cumulative performance of organizations within that region. Organizations, just as regions, with high social capital are hindered in their innovation performance by the lack of new information, ideas and stimuli. We adopt the line of reasoning previously applied to cities and regions to the organizational level, using creative capital to explain how innovation can be enhanced by an organization accessing new KSAOs and stimuli. Some of the basic premises of creative capital are based on the same arguments as openness and open innovation (Chesbrough, 2003). As Dahlander and Gann (2010) argue, “open innovation reflects social and economic changes in working patterns, with professionals no longer seeming to aim for lifetime employment but rather seeking portfolio careers” (p.699). From a more organizational perspective, it can be argued that firms are better able to trade ideas because of technology developments and improved market institutions such as venture capital and intellectual property rights (Dahlander & Gann, 2010). Further, technology developments also enable new ways to collaborate and coordinate across boundaries, they may be geographical or otherwise
Affecting innovation through HRM: the role of creative capital

(Dahlander & Gann, 2010). With this, firms use knowledge and ideas from within and from beyond the organization to innovate and gain a competitive advantage. This is in line with our concept of creative capital. In this paper, we define creative capital as the diverse knowledge and skills, both within and beyond the fixed and closed setting of the organization, that are available and accessible to the organization in creating value for its core activities. An important characteristic is that these skills and knowledge are to an extent available through relationships with external stakeholders. These stakeholders are seen as including temporary employees, short-term agency workers and advising consultants, as well as possible employees, who are all potentially part of the creative capital. These participants illustrate the permeability of organizations. High inflows and outflows of knowledge and skills are indicators of permeable organizational boundaries being crossed, something that is required if innovation in the sense of exploration is to be achieved. We will argue later that this is in line with arguments for outsourcing or externalizing employment (Lepak & Snell, 1999; Nesheim et al., 2007). External labour can generally be considered as forming nodes with weak ties with, and within, the network of the firm (Kalleberg, 2003). We follow the reasoning of Granovetter (1973) on the strength of weak ties, accepting that individuals with weak ties are more likely to come into contact with, and access, new information. We have not yet explicitly mentioned external stakeholders, such as customers and suppliers, without an employment relationship with a firm. These external stakeholders have been found to be important for firms in generating new ideas and innovations (Von Hippel, 1994). Given our definition of creative capital, we see these external stakeholders as having a role in creative capital since they are able to provide knowledge and skills that create value for a firm’s core activities. In this paper, we are focusing on how innovation performance can be enhanced by managing human resources. Traditionally, external stakeholders that lack an employment relationship with a firm are not considered a target for an organization’s HRM instruments. These stakeholders are often ignored when considering the influence of HRM.
However, given recent developments, not least due to emerging ICT, organizations increasingly deploy the KSAOs of actors with whom they have no formal employment relationship. For example, Enterprise Resource Planning (ERP) systems hold inventory modules, providing opportunities to keep in close contact with suppliers, and firms use HRM instruments such as training or the involvement of a supplier’s employees to enhance their value for the focal firm (Dery & Wailes, 2005; Bondarouk & Ruël, 2009). Another example can be found in the use of social media, making it possible for individuals to maintain weak ties (Zupic, 2013) that increase the flow of information and knowledge. Exploration is enhanced by moderate levels of staff turnover (March, 1991, pp.78–79). Organizations may deliberately seek a regular inflow and outflow of knowledge and skills in order to enhance their innovative strength. Newcomers may bring fresh ideas and knowledge that are not yet part of the organizational code of languages, beliefs and practices (March, 1991). The extent to which an organization desires a steady influx of new ideas determines its openness. This openness leads to differentiated knowledge within the organization. Given that the creative capital enables new KSAOs to enter the organization, socialization does not occur to the extent that it leads to homogeneity. An organization’s access to KSAOs from outside its comfort zone stimulates the development of heterogeneous groups with different professional backgrounds, and this leads to the firm acquiring new knowledge and skills.

Proposition 2b: Therefore, the effect of heterogeneous human capital on exploration is partially through creative capital.

2.5 How HRM affects types of capital
An important question for organizations is how, in the first place, to gain and develop the human capital through which other types of capital can be increased. There seems to be a consensus that HRM plays an important role in gaining and developing human capital (Lepak & Snell, 1999; Lepak &
Snell, 2002; Wright & McMahan, 2011). In this paper, we build on the HRM definition by Wright and McMahan (2011) who define HRM as “the pattern of planned human resource deployments and activities intended to enable the firm to achieve its goals” (p.93). We follow a configurational approach that assumes that HR practices are most beneficial when bundled or combined with other effective practices in HR systems (Lepak & Shaw, 2008). This approach has a greater ability to explain differences in innovation performance than considering isolated HR practices (Laursen & Foss, 2003). Without going into detail of the design of HR practices, we present two sets of HR practices based on two types of human capital. Lepak and Snell (1999, 2002) argue that organizations are able to gain advantages from human capital by carefully addressing different combinations of its value and uniqueness. These combinations of human capital value and uniqueness can be reinforced by HR practices. A practice, such as recruitment, may play different roles with different combinations of human capital. HR practices are not universal throughout an entire organization but applicable to specific human capital within organizations (Lepak & Snell, 1999, 2002).

Here, a distinction is made between internalized labour and externalized labour (Lepak & Snell, 1999; Lepak & Snell, 2002; Kalleberg et al., 2003). Organizations internalize human capital in order to hold on to the specific knowledge and skills of their employees and to avoid the danger of losing this human capital. Here, the importance of developing KSAOs is emphasized by considering the standard employee (Lepak & Snell, 2002). A standard employee is understood as one who is involved in productive activities, fulfilling tasks for the organization “on a full-time basis, under the employer’s supervision, and with the mutual expectation that employment will continue indefinitely” (Way et al., 2010). Employees who fulfill core activities tend to be cherished and, as such, have greater access to HR practices than support employees (Lepak & Snell, 2002). Developing the human capital broadens the existing knowledge and skills, and is therefore linked to exploitation in the innovation process. For example, training the available human resources will lead to organizational homogeneity in terms
of structure, processes and culture (Ángel & Sánchez, 2009), and to homogeneity in terms of knowledge and skills (March, 1991).

As such, Proposition 3a: *the use of HR practices designed for standard employment arrangements, and the accompanying development of standard employees, increases the homogeneity of an organization’s human capital.*

Organizations may externalize human capital in order to increase organizational flexibility. In our view, externalized labour incorporates KSAOs embedded not only in a non-standard or contingent workforce, such as temporary agency workers, part-time employees, consultants and independent contractors (Way et al., 2010), but also in the network partners of employees, off-site external inputs and unpaid help used in the work an organization requires to create value. Deploying externalized labour has been empirically shown to be positively associated with organizational innovation performance (Song et al., 2003; Nesheim et al., 2007; Altuzarra & Serrano, 2010). Firms often use externalized employment to minimize risks, such as those associated with fluctuations in demand or labour costs (Houseman, 2001; Vidal & Tigges, 2009). Further, external HRM arrangements, besides managing risks, can also result in opportunities being seized. For example, according to Houseman (2001), an employer’s use of flexible staffing arrangements has few detrimental consequences for existing workers, and may even be beneficial by providing access to (employees with) special skills, and facilitating current employees that want to work shorter hours. Using flexible HR practices to access workers with special skills has been directly linked to innovative capability, with empirical evidence available on the positive relationship between flexible HRM arrangements and the innovative capability of firms (e.g. Storey et al., 2002; Nesheim et al., 2007). A firm may need additional KSAOs to seek out inventions, and even to implement inventions, and these may be acquired on a temporary basis through the external market.
Based on the above, we argue that

Proposition 3b: The use of HR practices designed to externalize employment boosts the heterogeneity of an organization’s human capital.

2.6 Discussion
As March argues, while a low personnel turnover may benefit exploitation, the opposite may be true for exploration: the process of experimenting with new directions is enhanced by moderate levels of turnover (March, 1991, pp.78–79). Organizations may deliberately look for ongoing inflows and outflows of knowledge and skills, by going outside the organizational boundaries, in order to enhance their innovative strength. Additional KSAOs can be brought to the organization, for example by hiring consultants (Nesheim et al., 2007), by recruiting talents from outside the firm (Rao & Drazin, 2002) or through consulting a supplier (Love & Mansury, 2007). The extent to which an organization desires an influx of new ideas determines its openness. This permeability is partly realized through an organization’s staffing practices, and specific KSAOs may be acquired on a temporary basis from the external market. Human capital theory and social capital theory, by ignoring the concept of creative capital, suggest that human capital becomes homogeneous over time. The classic social capital approach suggests that, in the short term, heterogeneity can be stimulated by attracting outsiders to the firm and bringing in external influences through training. However, in the longer term, employees who do not share the attributes of the organization may leave (Schneider et al., 1995). The creative capital approach explains how heterogeneity can be fostered in the long run. It is important that organizations look beyond their organizational boundaries in order to boost innovation performance. The creative capital approach is especially useful for organizations lacking stable networks, or when resources are only available to a limited extent. Since the maintenance of strong ties requires time and effort, we assume that limited resources force organizations to develop weak rather than strong network ties (Granovetter,
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1973). The concept of creative capital explains how organizations can still benefit from these loose ties.

The proposed conceptual framework suggests that organizations can adopt their innovation strategy by purposefully managing their human resources. Specifically, the emergence of external knowledge sources, partly because of ICT developments, requires organizations to adopt a different approach to managing knowledge if they want to enhance innovation performance. We argue that organizations should utilize the possibilities of both internalizing and externalizing HR practices. This applies not only to recruitment practices and training, but also to other HR practices such as performance appraisal and compensation (e.g. Chen & Huang, 2009; De Winne & Sels, 2010). Given the diversity of HR practices available, we have deliberately avoided looking into specific HR practices and instead focused on a more general approach by distinguishing between organizations opting to use external and internal development practices in their HR system (e.g. Lepak & Snell, 1999). Traditional HRM approaches suggest that a single HR system can be effective within an organization, whereas we take the view that managing different groups of individuals differently can be more effective (Lepak et al., 2006).

In this contribution, we have assumed that organizations can follow one of two paths, either the ‘exploitative path’ or the ‘explorative path’. This choice, once made, is not set in stone, and can be changed over time. Further, although there might appear to be a choice between two paths, a combination is possible. Evidence is available on the need for organizations to be ‘ambidextrous’, to combine exploitation and exploration (March, 1991; Kang & Snell, 2009), if they are to achieve both short-term and long-term goals (e.g. He & Wong, 2004). The conceptual framework does not include such ambidexterity as a variable but does assume possible interplays.

One of the most vivid changes in the labour market that we observe is that people are increasingly loyal to their tasks, rather than to their employers or organizations (Collings et al., 2009). Looking at the recent
economic crisis, and the considerable number of restructuring programmes with massive layoffs, also shows a need for flexibility in an organization’s loyalty to its employees. The conceptual framework developed provides insights into what investing in human, social and creative capitals can bring organizations, and this is relevant for both academia and for practitioners.

On the practical side, the given framework indicates that managers need to understand the linkages among HRM, the various types of capital and innovation; and to be aware of the choices they have at their disposal to innovate. Many organizations are unaware that HRM can be deployed for innovation purposes, illustrated by what we heard an HR manager say recently: “our HR department has no involvement in the innovation process, that’s up to the R&D department”. Our framework provides guidelines on how organizations can manage innovation by considering the type of innovation process required and making strategic choices on how to design and develop the human capital available. Managers need to look beyond their organization to become explorative, and HRM can contribute to this. Managers, and thus organizations, should look for regular inflows and outflows of knowledge and skills in order to gain new ideas and information. Organizations can achieve this by getting an externalized workforce involved in their business activities, for example by hiring temporary consultants, exchanging employees with partner organizations or by inviting external members to join innovation projects. In addition, collaborations with stakeholders such as suppliers and consumers could bring new KSAOs into the organization. We see this as in line with the open innovation approach, reflecting a need to react to social and economic changes to overcome contemporary innovation impediments.

As this paper has intended to do no more than provide a conceptual framework, no empirical evidence is presented to test the model. However, we now include suggestions as to where to target future research. As this is one of the first papers where creative capital is analyzed on the level of the organization, there is a lack of theory about the nature of this concept and the ways in which HRM can contribute. One suggestion for future research
would be to build on the literature from the regional economics research field, where the idea of creative capital was introduced. To gain further understanding of creative capital, and to determine if it can be identified in organizations, we propose empirical research, starting with a qualitative study of the concept. An explorative, qualitative study would be beneficial for operationalizing creative capital, for creating an instrument to measure the concept and, ultimately, for testing the conceptual framework presented in this paper. Further, such a study could gain additional insights into contextual factors that play a role in the proposed relationships.

2.7 Conclusions
Despite the growing interest from scholars and from practitioners in the role of HRM in innovation performance, little is known about the underlying processes through which HRM affects exploitation and exploration. To explore, integrate and advance understanding on the relationship between HRM and both exploitation and exploration, we provide a conceptual framework in which we introduce the concept of creative capital. Using the concept of creative capital helps to overcome some of the limitations of social capital theory in explaining organizational innovation performance. Based on the presented conceptual framework, we propose a research agenda that future researchers could use to further explore the HRM – innovation relationship. Future research could usefully study whether exploration and exploitation are indeed affected by HRM through the various types of capital as proposed. Further, the framework offers a useful tool for practitioners that could help them in understanding how to stimulate exploration and exploitation.

2.8 References
Affecting innovation through HRM: the role of creative capital


Affecting innovation through HRM: the role of creative capital


Affecting innovation through HRM: the role of creative capital


Affecting innovation through HRM: the role of creative capital


Affecting innovation through HRM: the role of creative capital


Chapter 3

Firm-level creative capital and the role of external labour

Abstract
The goal of this study was to empirically determine whether creative capital can be distinguished at the firm level and to determine what role external labour plays in enhancing firm-level creative capital. This study was conducted using a qualitative design. Interviews were held with eight managers knowledgeable on HR implementation and the use of creativity within their firms. Creative capital was identified on the organizational level. The use made and roles given to external labour, in the form of contract and project-based employees as well as consultants and specialists for core activities, are important aspects in enhancing firm-level creative capital. We also found support for the claim that the use of labour market intermediaries in involving external labour differs between organizations with low and high levels of creative capital. Further, the findings indicate that more use is made of external labour in highly creative capital organizations when they are operating in dynamic environments. Organizations can enhance their innovation performance through using firm-level creative capital, using external labour to acquire and retain the KSAOs needed. Given out sample limitations, future research should develop a study design that allows our findings to be generalized to a larger population, including a focus on specific distinguishing departments within organizations.

Keywords: Creative capital; firm-level creative capital; external labour

This chapter is published as:
3.1 Introduction

Research on creative capital, a concept introduced in 2002 by Richard Florida in his best-selling book *The Rise of the Creative Class* has been focused on the urban level. Creative capital is considered a key predictor of economic growth in urban cities and regions. Regional economic growth is considered to be ‘powered by creative people, who prefer places that are diverse, tolerant and open to new ideas’ (Florida, 2002: p. 249). Creative people are seen as central in attracting creative businesses, generating innovation and achieving high levels of entrepreneurship. The economic performance of a city or region is based on the accumulated performance of organizations within that area. Therefore we argue that creative capital is expected to be potentially available at organizations. We would therefore expect creative capital to contribute to an organization’s performance in a similar way to it does on the urban level (Veenendaal, Van Velzen, & Looise, 2014). In this chapter, we define firm-level creative capital as the *aggregated creative organizational ability, which is the organizational enactment to integrate the creativity of individuals as well as the creativity embedded in their relationships*. Individual creativity is understood as the *ability of employees to make a valuable contribution to the organization by combining previously unrelated concepts, knowledge, ideas or experiences*.

The focus of this chapter is on the relationship to and role of external labour in firm-level creative capital. Firm-level creative capital, as with urban-level creative capital, is embedded within employees. Organizations can obtain firm-level creative capital by using or adding knowledge and skills (Straatman, Veenendaal, & Van Velzen, 2012). This added knowledge and skills can be embodied in employees with standard employment contracts or in flexible, external employees. External labour is understood as all forms of non-standard employment including temporary agency workers, consultants, part-time employees, network partners and alliances. These employees are hired for a fixed, relatively short, period or for the duration of a certain project and satisfy specific requirements in terms of knowledge, skills, abilities and other characteristics (KSAOs) that are otherwise
Firm-level creative capital and the role of external labour

unavailable within the organization. Organizations wanting to innovate can achieve this by hiring external labour with specific scarce KSAOs that, in turn, generate new ideas (Nesheim, Olsen, & Kalleberg, 2007). These authors refer to this as ‘qualitative flexibility’ and argue that external labour allows a company ‘to assess, create, and implement new knowledge and to change tasks and activities according to changes in the market, the strategy of the firm, and relevant technology’ (p. 251). We argue that this ‘qualitative flexibility’ also applies to firm-level creative capital, and we would therefore expect the use of external labour to enable new knowledge development through a wider available network of diverse KSAOs leading to increased firm-level creative capital.

Florida (2003) argues that three factors are critical in regions and cities attracting members of the creative classes and encouraging them to be innovative, and thereby increasing creative capital: technology, talent and tolerance (the 3Ts). Both technology and talent involve the possession of KSAOs and resources. Tolerance relates to the openness, inclusiveness and diversity that can be used to mobilize KSAOs and resources and thence creative capital. This can be translated to the organizational level in terms of creative capital not only being obtained but also mobilized. Although both homogeneous and heterogeneous workforces could possess creative capital, a heterogeneous workforce is more likely to mobilize it (Straatman et al., 2012; Veenendaal et al., 2014). Further, as Shalley and Gilson (2004: p. 43) argue, ‘increasing diversity should increase the range of knowledge, skills, and perspectives available within a group that should positively impact creativity [and] stimulate the consideration of nonobvious alternatives’. This view is in line with human capital theorists who argue that a wide variety of knowledge, skills, abilities and other characteristics leads to higher performance in areas or organizations (Glaeser, 2005).

In order to gain new knowledge relating to the relationship between the use and role of external labour and firm-level creative capital, we have generated empirical findings based on multiple case organizations that allow
comparisons between organizations with low and high firm-level creative capitals.

The main contributions of this chapter lie in exploring the relationship between external labour and firm-level creative capital. Firstly, the operationalization of firm-level creative capital has a high theoretical relevance as the existing literature lacks such an operationalization. This chapter suggests how to operationalize firm-level creative capital, providing the opportunity to identify firm-level creative capital and therefore the possibility to conduct further empirical research. Secondly, this chapter contributes by suggesting appropriate conditions for the use and role of external labour and how this influences firm-level creative capital. Lastly, in order to extend the existing literature, we empirically study firm-level creative capital and its relationship with external labour. This empirical study involved qualitative, semi-structured interviews with members of organizations with both high and low levels of creative capital, rather than a single organization as in Florida and Goodnight’s (2005) study.

3.2 Theoretical Background

*Creative Capital*

The terms creative capital and creative class were coined in the regional economic development literature (Florida, 2002). The ‘creative class’ can be seen as the holders of creative capital. The concept of creative capital is often used in the literature to explain regional economic growth (e.g. Batabyal & Nijkamp, 2010; Marlet & van Woerkens, 2007; Qian, 2013). Early critiques (e.g. Glaeser, 2005) noted the overlap with the concept of human capital and the distal measurements used to test the concept. Based on an in-depth discussion and explanation of the urban creative-capital literature, we will elaborate on the critical issues in extending the concept to the firm level.

In the creative-capital literature, it is argued that the creative class is the main force behind the economic growth and regional development of a city or region (Florida, 2003). Regions with a high proportion of creative
people generate more innovations and are argued to have a higher level of entrepreneurship, and to attract creative businesses (Boschma & Fritsch, 2009). As a result, it is concluded that cities and regions that want to be economically successful should concentrate their efforts on attracting members of the creative class (Batabyal & Nijkamp, 2010) such as writers, engineers, teachers, scientists, artists and musicians. Florida (2002, 2003) identified three critical factors, the 3Ts, which locations should possess in order to be creative and attract creative-class members: technology, talent and tolerance. Technology can be seen as a function of both innovation and technology concentration; talent is seen as people with at least a bachelor’s degree; and tolerance reflects openness, inclusiveness and diversity encompassing all ethnicities, races and walks of life (Florida, 2003). To become diverse, a city or region has to be open and possess low entry barriers for people with different and new ideas. It is then able to gain a creative advantage because it is able to attract people from a wide range of backgrounds (Boschma & Fritsch, 2009). Talented and creative people are considered increasingly mobile and able to opt to live in a region with a ‘people climate’ rather than a ‘business climate’. An area with a business climate uses conventional explanations in seeking growth, for example by offering low taxes or a rich supply of physical infrastructure (Boschma & Fritsch, 2009).

The apparent mobility of creative people has consequences for regions, but also brings challenges to organizations wanting to gain and use the KSAOs necessary to fulfill organizational tasks. Given that people are increasingly loyal to their tasks rather than to their firm (Collings, Scullion, & Dowling, 2009), firms face losing KSAOs. The concept of firm-level creative capital can help explain how firms can overcome difficulties in obtaining and using KSAOs. To date, there is only empirical evidence reported for the existence of creative capital in the regional economics literature (Boschma & Fritsch, 2009; Florida, 2002; Marlet & van Woerkens, 2007). For example, Boschma and Fritsch (2009) provide evidence for the claim of Florida (2002) that the presence of a creative class is affected by
tolerance and openness. The vast majority of empirical studies use distant measures for openness, with labels such as bohemian index, gay index, openness index and the melting pot index (e.g. Florida, 2002; Marlet & van Woerkens, 2007; Qian, 2013). We argue that these are not appropriate measures simply because the score does not reflect how tolerant and open-minded people truly are. Further, such indices will not apply at the organizational level. On this level, a closer operationalization of creative capital is needed to gain a deeper understanding of the presence of this concept in organizations. To our knowledge, there are very few articles available on firm-level creative capital. Notable contributions are by Florida and Goodnight (2005), who lay foundations for firm-level creative capital through a case study, and Veenendaal et al. (2014) who present a conceptual framework on the use of firm-level creative capital in the relationship between HRM and innovation. Based on the two papers, it could be argued that creative capital has similarities to the concepts of human and social capitals, which is indeed one of the main criticisms levelled at urban-level creative capital (e.g. Glaeser, 2005). We argue that creative capital does include some elements of human capital and social capital but more than that. Here, we refer to Veenendaal et al. (2014) who offer a more elaborate comparison of the three types of capital (human, social and creative). In line with Veenendaal et al. (2014), we argue that creative capital reflects a narrower set of KSAOs than human capital, and that creative capital will foster heterogeneous human capital given the flexible boundaries and network ties seen in this type of human capital. When it comes to social capital, we adopt the arguments for openness seen in the open innovation literature (Chesbrough, 2003). That is, in order to be successful in open innovation, employees and organizations need to share the same goals, have a common level of trust in terms of fairness and reliability, have high resource complementarity but weak network ties (Pullen, de Weerd-Nederhof, Groen, & Fisscher, 2012). In relating this to creative capital, it could be argued that organizations should pursue a bridging type of social capital with weak ties, resilient trust and common knowledge (Putnam,
2000). In order for new ideas and information to actually enter an organization, bridging social capital is needed to develop a relationship with a dissimilar group (Putnam, 2000). We argue that employees can only use bridging social capital if a certain level of trust and bonding social capital exists. This is in line with the findings of Pullen et al. (2012) who found that a shared objective and trust are important in stimulating open innovation. Alongside the structural and relational dimensions of social capital, the extent of an external focus in relationships is also important. Within the social capital literature, an internal focus tends to be emphasized. We argue that creative capital encompasses both internal and external relationships, but that the emphasis is on the ability to access knowledge and skills through external relationships.

Firm-level creative capital focuses on creative ability (Straatman et al., 2012). Creative ability at the individual level can be defined as an individual’s ‘skills or competencies that are relevant for creative performance’ (Choi, 2004: p. 198). It is about the abilities to generate new ideas or take a differentiating view towards problems (Choi, 2004). Not only the possession of creative capital is important, the ability of organizations to make use of the creativity of individuals, and thereby realize creative performance, also plays a crucial role. As such, creative ability is about the active use of individuals’ creativity. Active use of creativity is stimulated by expertise and motivation (Amabile, 1998). Amabile (1998) found that people are more creative when they are motivated by interest, by achieving satisfaction and by being challenged rather than by extrinsic motivators. Group creativity is influenced by the constitution of the group in terms of its diversity, by certain group characteristics, such as the size, shared identity and homogeneity, as well as by contextual influences (Woodman, Sawyer, & Griffin, 1993). This discussion, we would argue, justifies the claim that creative capital can be seen as a firm-level concept. This has led us to defining firm-level creative capital as: the aggregated creative organizational ability, which amounts to the organizational integration of the creativity of individuals as well as the creativity embedded in their
Firm-level creative capital and the role of external labour

relationships. Individual creativity is understood as the ability of employees to valuably combine previously unrelated concepts, knowledge, ideas or experience for the benefit of the organization.

External Labour

Firm-level creative capital is embedded within employees. Organizations could acquire firm-level creative capital by using or adding knowledge and skills geared towards higher creative abilities (Straatman et al., 2012). These added skills and knowledge could be in the form of employees with standard employment contracts or in flexible, external employees. ‘Standard’, or regular, employees are hired ‘on a full-time basis, under the employer’s supervision, and with the mutual expectation that employment will continue indefinitely’ (Way, Lepak, Fay, & Thacker, 2010: p. 128). External labour, or contingent labour, can be understood as all nonstandard labour contracts, including temporary agency workers, consultants, part-time employees, network partners and alliances. An increasingly competitive environment, globalization and technological developments have all resulted in organizations reducing their use of regular employees and increasingly using a non-standard external workforce (Bishop, Goldsby, & Neck, 2002; Davis-Blake, Broschak, & George, 2003; Lepak & Snell, 1999). Using external labour also has disadvantages that, from an organizational perspective, should be minimized to avoid a fall in employee commitment and an increased intention to leave the firm since this results in a loss of KSAOs. However, we would expect the use of external labour to lead to a more diverse set of KSAOs within organizations, which could stimulate innovation. The underlying reason for this creativity boost is that external labour facilitates fresh ideas, knowledge, attitudes and perspectives in terms of organizational codes of languages, beliefs and practices that were not previously available within the organizations (March, 1991; Storey, Quintas, Taylor, & Fowle, 2002). Nesheim et al. (2007) argue that external labour prevents an organization from becoming static as contingent employees enable the organization to monitor market trends and to transfer external
knowledge to the organization. In addition to this knowledge stimulation creating a competitive advantage, external labour also facilitates the transfer of public knowledge, such as industry best practices, into the firm (Matusik & Hill, 1998). In order to make full use of this diversity and aggregate the creativity when using external labour, we argue that it is vital for organizations to have a certain threshold level of bonding social capital plus a relatively high bridging social capital. Employees in organizations with a low level of bridging social capital might feel threatened by external employees and therefore be less willing to share their KSAOs. In firms with strong bonding social capital and socialization processes, the general assumption is that there will be a limited diversity among the employees. However, a regular inflow of external labour limits the socialization process, allowing new KSAOs to enter the organization and increase the firm-level creative capital. A certain level of trust in the form of bonding social capital is thus needed while also having a high degree of openness in the form of bridging social capital. This underpins the argument as to why the use of external labour facilitates creativity and innovation through an increased diversity of KSAOs within an organization. However, externalization of the workforce is not beneficial for all positions within an organization. Some authors, such as Lepak and Snell (1999), argue that the core employees of an organization should be developed and maintained internally using HR configurations focused on commitment, while the remaining non-core employees could be externalized. Others have challenged this view having found support for the argument that using external labour for core activities also offers benefits for organizations pursuing an innovation strategy (Nesheim et al., 2007). Our expectation is that the use of external labour, such as consultants or project-based labour, for core professional activities will especially influence firm-level creative capital. The increased diversity of KSAOs so provided, and needed to develop new product or processes, will lead to increased creativity by the core employees. External labour used in non-core activities might also increase the firm-level creative capital by enabling regular employees to contemplate their work through the eyes of
Firm-level creative capital and the role of external labour

these external workers, thereby stimulating creativity. Furthermore, firm-level creative capital can be mobilized by organizations that have a sufficient level of bonding social capital to generate trust within the firm and a high degree of bridging social capital to bring openness to the firm. Matusik and Hill (1998) found support for the view that an organization’s environmental context influences the benefits for creative capital of using external labour, including the positions in which it is used. They characterized this environmental context using two factors. The first factor is the extent of the competition initiated by cost pressures. The second is the extent of the dynamism within the environment as characterized by the rate of technological change. Based on these factors, they conceptualized that external labour is best suited to organizations operating in dynamic industries, where competitive pressures are intense and the leakage of company-specific knowledge will have a small impact on the organization.

When using external labour, organizations can either hire such employees directly or make use of a labour market intermediary (LMI). Increasingly, potential employees also rely on these brokers to find a suitable position (Ashford, George, & Blatt, 2007). Here, we draw on an extensive review of LMI research by Bonet, Cappelli, and Hamori (2013). They saw that LMIs, in mediating between organizations and employees, create a triangular relationship that differs from the traditional direct, bilateral relationship between workers and employers. Technological developments are often very evident in LMIs, for example in the increasing importance of online job boards and social media for recruitment. LMIs affect various employment outcomes including access to employment and the working behaviour of employees. Most LMIs are in the private sector and can be categorized based on the functions they carry out, which can include staffing, retention, development, adjustment and managing change.

LMIs can be grouped into information providers, matchmakers and administrators (Bonet et al., 2013). Information Providers are solely focused on introducing labour market parties to each other. These LMIs focus on obtaining and selling information regarding job applicants to organizations
and vice versa (Autor, 2009). Matchmakers expand the information provider role by extending the triangular relationship between individual, firm and LMI until the employment relationship starts. Matchmakers are responsible for more HR functions than Information Providers as they not only introduce applicants to an organization but also act as a first selection filter of candidates and may organize the actual placement (Bonet et al., 2013; Marchal, Mellet, & Rieucau, 2007). Administrator LMIs maintain the triangular relationship throughout the duration of the match by fulfilling various HR functions. Most Administrator LMIs, as with Matchmakers, are responsible for recruiting and selecting employees, but their responsibilities extend to further managing the employees once they are hired by supervising their day-to-day activities (Bonet et al., 2013). The LMI becomes the employer, in charge of most transactional administrative HR functions such as payroll and employment tax administration (Bidwell & Fernandez-Mateo, 2008). The use of Matchmaker or Administrator LMIs is expected to lead to higher wages as a better match between applicants and organizations is anticipated (Bonet et al., 2013). Administrator LMIs are also expected to influence labour outcomes in terms of employee commitment, work attitudes and working conditions (see Bonet et al., 2013).

Based on the above, it can be argued that the greater the interaction between an LMI and an organization, the better the LMI will know the specific KSAO requirements of future workers, and that this will result in a better match. We argue that labour market intermediaries fulfilling the Matchmaker or Administrator roles can have a large impact on an organization’s creative capital. The reason for this is that such LMIs are in a position to use their wide diverse applicant pool to match the needs and requirements of the organization in order to facilitate creative capital.

3.3 Methodology
We conducted our qualitative, exploratory study using a comparative multiple-case study design. The case study approach represents a suitable
design since this study builds on existing theory as a foundation for the research while also exploring further concepts. This approach allows for a replication design (Yin, 1994) where the cases are conducted as a series of independent interviews that can then be compared to confirm or reject conceptual propositions.

Selection of Respondents
We selected Dutch medium to large organizations in the manufacturing, design and engineering industries. These industries were chosen as we expected to find organizations with high creative capital and others with low creative capital within these sectors. Purposive sampling was used to select the case organizations; we assessed medium to large organizations operating in the selected industries in the east of the Netherlands, with which we had existing research contact, based on existing knowledge about the organizations and company documents (e.g. website, company profile, performance results) to see if they would fit with our understanding of high creative capital or low creative capital businesses. Eight organizations were selected based on the knowledge we had on their creative capital, and we split these organizations into two groups: with high and with low creative capitals respectively.

Table 3.1 presents the interview sample, some company information as well as the presumed classification of either high or low creative capital based on pre-interview data analysis. For reasons of anonymity, we identify the companies by letter and not by company name. As the table shows, we initially believed that three of the organizations had a high creative capital and five a low creative capital.
Data Analysis
The semi-structured interviews were carried out by a team of three researchers, and were held with either HR managers or management team members with HR responsibilities that were knowledgeable about process and product innovation within the company and had insights into how HRM is intended and actually implemented. Companies were briefed on the interview topics before the interviews took place. The interview data, in the form of full transcripts, were first analyzed by constructing individual cases. These cases were then compared with each other, allowing for replication logic (Yin, 1994), in order to derive a conceptual framework regarding the relationship between creative capital and external labour. Open coding was used to process the data. One researcher reviewed the transcription of each interview and labelled all quotes that were deemed of importance regarding the interview topics, leading to the formation of concepts based on the previously developed operationalization. Pattern coding was also used, with patterns being detected throughout the coding. This process amounts to a continuous comparison between the data and the operationalization. Based on the data analysis, a coding scheme for each organization was developed. The other two researchers then reviewed the transcribed interview, commented on the coding schemes and added further points they considered relevant. The cases were compared based on their coding schemes once the case building process was completed. This final analysis and cross-case comparison was conducted by the three researchers together.

Operationalization of Firm-Level Creative Capital
The existing literature did not offer a scale for measuring firm-level creative capital. Therefore, to operationalize firm-level creative capital, we explored the urban-level creative capital literature and translated the three aggregated dimensions identified to the organizational level. The three dimensions were creative organizational ability, creativity of employees, and organization and employee relationships. Within ‘creativity of employees’, or individual
<table>
<thead>
<tr>
<th>Company</th>
<th>Industry (interviewee)</th>
<th>Employees</th>
<th>Assumption and reasoning regarding creative capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Products for the metal-machining and the construction industries (HR manager)</td>
<td>45</td>
<td>High - Main activity is producing existing products but also a focus on the development of customized products for customers. Additionally, company documents outlined that the company won prizes for making use of the creativity of their employees.</td>
</tr>
<tr>
<td>B</td>
<td>Design and small-scale production related to care, cure and mobility (CEO)</td>
<td>43</td>
<td>High - Main activity is designing products. In this activity, people have to develop new ideas and concepts by combining existing ideas, knowledge and concepts, i.e. employees need to be creative.</td>
</tr>
<tr>
<td>C</td>
<td>Rubber products manufacturer (HR manager)</td>
<td>1800</td>
<td>Low - Main activity is to produce existing products. While the company aims to be innovative, the process is rather incremental. There is an R&amp;D department. It is unlikely that the production workers need to be creative. Strong ties within the company, very little outflow of employees, indicative of a strong bonding social capital. Most likely new hires are recruited from the available network.</td>
</tr>
<tr>
<td>D</td>
<td>Construction parts manufacturer (HR manager)</td>
<td>160</td>
<td>Low - Market is stable, as is the environment. Produce according to specifications, no need for creativity in terms of production. While aiming to produce innovative products, the majority of the projects are focused on existing products. Strong ties within the company, very little outflow of employees, so strong bonding social capital.</td>
</tr>
<tr>
<td>E</td>
<td>Garden furniture manufacturer (HR officer)</td>
<td>40</td>
<td>Low - Market is stable, as is the environment. Produce according to specifications, no need for creativity in terms of production.</td>
</tr>
<tr>
<td>F</td>
<td>Medical device manufacturer (HR manager)</td>
<td>64</td>
<td>High - Main activity is designing and developing products. In this activity, people have to develop new ideas and concepts by combining existing ideas, knowledge and concepts, in other words employees need to be creative. Strong external ties with stakeholders are required, hence need for bridging capital.</td>
</tr>
<tr>
<td>G</td>
<td>Manufacturer and supplier of industrial products (Commercial director)</td>
<td>200</td>
<td>Low - Market is stable, as is the environment. Focus on exploitation and product improvement. Produce according to specifications, no need for creativity in production.</td>
</tr>
<tr>
<td>H</td>
<td>Manufacturer of packaging (General manager)</td>
<td>72</td>
<td>Low - Market is decreasing as existing products are being replaced because of new technology. Creativity is not required of employees to produce the existing products. Company documents indicate very low staff turnover rates, indicative of a very strong bonding social capital culture.</td>
</tr>
</tbody>
</table>
creativity, we identified sub-dimensions of expertise, motivation and creative thinking skills. Employee relationships were subdivided into bonding, bridging, internal, external, weak and strong relationships.

A preliminary, firm-level, creative capital indicator was developed. We translated the operationalization of firm-level creative capital into two descriptions of an organization: one describing an organization with high firm-level creative capital, and the other an organization with low firm-level creative capital. These descriptions were intended as a starting point for the interviews and also served as an indicator to assess the firm-level creative capital of the case organizations. Both descriptions were presented to the interviewees, who were asked to explain which description best fitted their organization. The respondents were further asked to rate their organization’s fit to the descriptions on a scale ranging from very bad (1) to very good (5). The initial responses of the interviewees were checked by using follow-up questions and probing on the dimensions of firm-level creative capital. This was intended to extract findings on the extent of firm-level creative capital within the participating companies.

Operationalization of External Labour
In operationalizing external labour, we built on existing research. We identified two dimensions of external labour: the use of external labour and of labour market intermediaries. Interview items drawn from Matusik and Hill (1998) were used to determine the intensity of external labour use. However, not only identifying the use and strength of external labour is crucial, one also needs to know the reasons for using external labour as well as the effects this has on performance and creative capital. To further investigate these issues, the use of external labour in relation to the core activities of the case organizations was identified. Additionally, in order to determine the role of the intermediary, the chapter drew on the work of Bonet et al. (2013) by including questions regarding the functions carried out by labour market intermediaries.
3.4 Research findings

**Firm-Level Creative Capital**

The selection of companies was based on our expectations of their firm-level creative capital, discerned from information readily available through company documents. As outlined above, we analyzed the data collected through the interviews to more accurately assess a company’s creative capital. This analysis indicated that it was possible to identify creative capital at the organizational level, and that this capital was highly valued by the respondents. Table 3.2 presents the determined classification of firm-level creative capital for each company.

<table>
<thead>
<tr>
<th>Company</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expected Capital</strong></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Assessed Capital</strong></td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Our exploration of organizations’ creative capital indicated that companies can score high on some dimensions of creative capital but low on others, resulting in a somewhat medium level of creative capital. This helps explain why some organizations scored differently than we had anticipated prior to the interviews (see Table 3.2). We further compared the cases and positioned them relative to each other to group them into three categories of low, medium and high creative capital.

Companies B and F were both found to have high firm-level creative capital. Company B scored highly on all the dimensions of firm-level creative capital, while Company F did not use their external network as extensively as Company B. Further, while the strong internal bonding social capital and emotional closeness present at Company F creates trust to share ideas, this may also make it harder for new ideas to enter the organization from outside. In contrast, Company B was more focused on creating a climate that allowed new ideas to enter the organization. As the CEO of Company B sees it:
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We do not have the highest competences in every area. So if a project really has some challenging questions we would early on involve external resources with higher competences. We also know that people in the company feel motivated if they can work with people with higher competences as they then feel more secure.

We found Companies A, C, G and H to have medium levels of creative capital. First, although Company A used external bridging relationships, most of the relationships were based on fixed bonding relationships. Additionally, the creative ability of the organization was mostly on the managerial level. Together these factors led to Company A being seen as having medium creative capital. Company C, in comparison, actively made use of the creative ability of its employees and offered various opportunities for these employees to communicate ideas with rewards for good ideas. Additionally, the company has a strong, and loose, external network that is extensively used for idea generation. However, the company also has very tight bonding external relationships as well as a very strong internal bonding culture that makes it difficult for external ideas to enter the organization. Nonetheless, the high organizational creative ability and the existing network led us to categorize the company as having medium creative capital. Company H actively enhanced the creativity of its employees through the use of close relationships with other actors in the organization but, in comparison to Companies B and F, the external bridging relationships were very limited. This is reflected in the following quote by the general manager of Company H:

Since last year we have had one creative guy here because we want to move the business to different customers.

Company G showed similar results to Company H in terms of using the internal creativity of employees and the limited availability and use of an
external network. Companies G and H are both owned by international parent companies, but only Company H actively uses its internal group members to share ideas and stimulate the creative capital.

The final two companies, Companies D and E, we assessed as low in creative capital. The creative ability of Company D was low and its external relationships were mostly based on bonding relationships and not actively used for idea generation. Company E does not actively stimulate its employees’ creativity in any way and the interviewee explained this as follows:

I think the main reason is the management style. I think our management is not really into innovation. It is not in their minds and it is also not the focus at this moment. That’s why it is not actively stimulated.

Additionally, the external relationships are fixed and tight and not used for creativity stimulation. We argue that the company scores low on nearly every dimension of our definition of firm-level creative capital and should therefore be placed at the low end of firm-level creative capital.

Having grouped Companies D and E as low creative capital organizations, Companies A, C, G and H as medium creative capital organizations, and Companies B and F as high creative capital organizations, we could use these groupings in an attempt to detect patterns across cases in relation to the use and role of external labour.

External Labour in Organizations with Low Creative Capital
In exploring the role and use of external labour in Companies D and E, specific patterns could be detected. First, both companies had made limited use of external labour although Company D had now stopped in order to reduce costs. The interviewee of Company D explains this as follows:

In the past, during busy times we always had five or six temporary workers. However, at the beginning of 2013 we decided to no longer use external
employees. We are in a busy period right now, but we have educated employees from our other divisions to take over the job.

In the past, when Company D did use external labour, their role and use were very similar to that seen in Company E. The main reason for both organizations to use external labour was to provide numerical flexibility in managing capacities during high seasonal demands. A second commonality was that both companies tended to use external labour for non-core activities and were not trying to actively enhance the creativity of their regular employees by bringing in these external employees. Thirdly, both organizations explained that they operated in very competitive, but rather stable, markets that do not require high creativity, and therefore mostly used external labour for flexibility and capacity reasons. Both organizations claimed that they were focused on reducing costs and becoming a lean organization. As such, both the strength and the ways of using external labour were similar in Companies D and E.

Table 3.3: Role and use of external labour in low creative capital organizations.

<table>
<thead>
<tr>
<th></th>
<th>Company D</th>
<th>Company E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strength of use</strong></td>
<td>Used to be limited, now not used at all</td>
<td>Low and limited use</td>
</tr>
<tr>
<td><strong>Type of external labour used</strong></td>
<td>Used to be mostly temporary employees as well as some project-based employees on rare occasions, now none</td>
<td>Mostly temporary employees</td>
</tr>
<tr>
<td><strong>External labour for core or non-core functions</strong></td>
<td>Used to be mostly for non-core activities and on rare occasions for core activities or for activities with strategic importance, now none</td>
<td>Mostly used for non-core activities and warehouse activities. Very occasional use of other forms of external labour</td>
</tr>
<tr>
<td><strong>Reasons for using external labour</strong></td>
<td>Used to be for flexibility. Now not used to save costs</td>
<td>Seasonal flexibility, capacity reasons</td>
</tr>
<tr>
<td><strong>Role of LMI</strong></td>
<td>Formerly as Administrator, now none</td>
<td>Information Provider role (mostly in relation to government programmes)</td>
</tr>
</tbody>
</table>


further similarity between the companies is that both offer strong employee tenure and see a low employee turnover, leading to a very strong bonding capital between the employees. As the interviewees pointed out, it is therefore difficult for the KSAOs of external employees to enter the organization. This cross-comparison of Companies D and E is summarized in Table 3.3.

**External Labour in Organizations with Medium Creative Capital**

Similarities and patterns could also be detected among the organizations displaying medium levels of creative capital, namely Companies A, C, G and H. All four companies operate in competitive but rather stable markets. Additionally, similarities regarding the role of labour market intermediaries could be seen in all four companies, with intermediaries in the form of Matchmakers or Administrators being generally used. However, while Companies C and H used several intermediaries in attempting to ensure the best possible fit between an employee and the organization, Companies A and H worked more closely with specific intermediaries. Further differences were also visible in the use and role of external labour at Companies A and H compared to Companies C and G.

Companies A and H both made limited use of external labour with the main focus on creating numerical flexibility to cope with capacity fluctuations during peak operation times. As such, the main reasons that these companies use external labour is to save costs and increase flexibility. In contrast, Companies C and G use various forms of external labour for both core and non-core activities. Again, temporary labour is mostly used for non-core activities in order to cope with numerical flexibility, but contractual employees and consultants are also used for core activities in implementing projects of strategic value. This boosts the KSAOs available in the existing workforce, and enables the regular employees to enhance their knowledge and creativity by learning from the consultants and seeing new ways of working. Nevertheless, both Company C and Company G mainly use
Table 3.4: The role and use of external labour in medium creative capital organizations.

<table>
<thead>
<tr>
<th></th>
<th>Company A</th>
<th>Company C</th>
<th>Company H</th>
<th>Company G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strength of use</strong></td>
<td>Regular but limited use</td>
<td>Regular use</td>
<td>Used to be extensive, now still regular but rather limited</td>
<td>Regular use</td>
</tr>
<tr>
<td><strong>Type of external labour used</strong></td>
<td>Mostly temporary employees or contracted employees from companies in their network</td>
<td>Temporary employees, part-time employees, contract and project-based employees, consultants</td>
<td>Temporary employees and contract-based employees</td>
<td>Temporary employees, part-time employees, contract and project-based employees, consultants</td>
</tr>
<tr>
<td><strong>External labour for core or non-core functions</strong></td>
<td>Both for core and non-core activities</td>
<td>Both for core and non-core activities. Temporary employees mostly used for non-core activities and other forms of external labour for core activities. If used for core activities then in an advisory position to learn from or to test their fit before offering a standard contract</td>
<td>Mostly for non-core activities</td>
<td>Both for core and non-core activities. Temporary employees mostly used for non-core activities and other forms of external labour for core activities. If used for core activities then in an advisory position to learn from or to test their fit before offering a standard contract</td>
</tr>
<tr>
<td><strong>Reasons for using external labour</strong></td>
<td>Seasonal flexibility</td>
<td>Flexibility, cost saving, ensuring the quality of employees before offering a standard contract, acquiring lacking KSAOs, facilitating creativity</td>
<td>Seasonal flexibility and costs savings</td>
<td>Capacity reasons, flexibility, cost saving, ensuring the quality of employees before offering a standard contract, acquiring lacking KSAOs, facilitating creativity</td>
</tr>
<tr>
<td><strong>Role of LMI</strong></td>
<td>Matchmaker and Administrator roles</td>
<td>Matchmaker and Administrator roles</td>
<td>Matchmaker and Administrator roles</td>
<td>Matchmaker and Administrator roles</td>
</tr>
</tbody>
</table>
contract-based employment modes to test the person-organization fit before offering regular employment. Thus, in contrast to Companies A and H, Companies C and G use external labour for many reasons including saving costs and increasing flexibility, ensuring the person-organization fit of new standard employees and increasing the available KSAOs to improve the creativity of employees. While there are differences between the companies placed in the medium firm-level creative capital category, there are close similarities between the companies with below-average creative capital and those with above-average creative capital as Table 3.4 illustrates.

External Labour in Organizations with High Creative Capital
The two companies labelled as having high levels of creative capital were found to make different uses of external labour. Company B uses external labour across all positions in order to acquire knowledge quickly and to motivate regular employees to be creative. The CEO of Company B justified this as follows:

My experience is that you should scale up quickly to find the best competences because if the problem is not that big then you are soon safe, and if the problem is big then you have done the right scaling up at the right time.

Company F in comparison mainly uses external labour for capacity reasons in its non-core activities as it would take too much time and money to train external employees for core functions given the complex KSAOs needed. Instead, Company F strives to develop the required KSAOs internally. If Company F does use external labour for its core functions, this is in the form of contractual work with the intention of offering standard employment if a good fit is found. Company F operates in a highly competitive but stable market whereas Company B operates in a very dynamic and rapidly changing one. Company B stated that the benefits of using external labour outweigh the risks, such as knowledge leakage, as it is
crucial to acquire the needed KSAOs in a timely manner if they are to remain competitive. In contrast, Company F’s market is rather stable and slowly changing, and the company therefore can develop the required KSAOs internally. Market stability and innovation rates therefore offer plausible explanations for the differences in the use and role of external labour between Company B and Company F.

Finally, both Companies B and F prefer to work with detachment recruitment agencies sending employees out for projects, as these offer a better fit between the company and the external employees. Table 3.5 summarizes the findings on the role and use of external labour in organizations high in creative capital.

Table 3.5: Role and use of external labour in high creative capital organizations.

<table>
<thead>
<tr>
<th></th>
<th>Company B</th>
<th>Company F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strength of use</strong></td>
<td>Strong use</td>
<td>Regular but limited</td>
</tr>
<tr>
<td><strong>Type of external labour used</strong></td>
<td>Temporary employees, part-time employees, contractors, consultants</td>
<td>Temporary employees, contract-based employees</td>
</tr>
<tr>
<td><strong>External labour for core or non-core functions</strong></td>
<td>External labour used for both core and non-core activities</td>
<td>Mostly used for non-core activities. Only used for core activities in the form of contract-based employment with the intention of converting this to standard employment.</td>
</tr>
<tr>
<td><strong>Reasons for using external labour</strong></td>
<td>Rapid acquisition of needed KSAOs, creativity facilitation, motivation of regular employees, cost saving, capacity reasons</td>
<td>Capacity reasons, cost saving, testing fit of employees prior to offering standard employment</td>
</tr>
<tr>
<td><strong>Role of LMI</strong></td>
<td>Matchmaker and Administrator roles</td>
<td>Matchmaker and Administrator roles</td>
</tr>
</tbody>
</table>
Cross-Case Comparison of External Labour Use and Firm-Level Creative Capital

The findings related to the low, medium and high creative capital groups suggest that there are differences in how the companies in the different groups make use of external labour. Organizations low in creative capital mostly use external labour in the form of temporary employees for non-core functions for capacity and flexibility reasons. Companies high in creative capital also used external temporary labour for numerical flexibility and cost reasons, however, in addition they used external labour in the form of contracted-based and project-based employees and consultants in their core activities to enhance the diversity in their KSAOs, in turn increasing their creative capital.

Companies judged to be at the lower end of the medium creative capital range use external labour in much the same way as to the organizations low in creative capital, while those at the top end of this range use external labour in a similar way to organizations high in creative capital. However, even within the organizations high in creative capital, differences were seen with Company F using external labour less extensively than Company B. Whereas Company B used external labour whenever certain KSAOs were required for its core activities, Company F only used contract-based labour for its core activities as a precursor of full-time employment. Similar usages were found in the group of organizations with medium levels of creative capital, with those at the top end of the range using contract-based employees for core activities with the intention of later offering standard employment while striving to develop KSAOs internally. Of our case companies, only Company B operated in a truly dynamic, fast-changing environment and this explains why the speed of product development was vital for that company. This does not allow it the time to internally develop KSAOs if the need is urgent. This could explain the differences in the use and role of external labour in Company B compared to the other organizations with significant creative capital, and accords with arguments in the theoretical background section.
Finally, differences in the roles of labour market intermediaries were also found between the organizations with low and high levels of creative capital. While the low creative capital organizations mostly use intermediaries in the form of Information Providers, the organizations with higher creative capital used intermediaries in the form of Matchmakers and Administrators. A further distinction was that the higher creative capital organizations stated a preference for working with specialized intermediaries that knew their company well as this enabled a better person-organization match.

3.5 Discussion
Based on a literature review, we operationalized firm-level creative capital by identifying those dimensions that constitute the concept, namely the creativity of individuals, organizational creative ability and the relationships of employees.

Our case study shows that external labour can have a positive influence on the creative capital of an organization if the employment mode is such that it allows external KSAOs to enter the organization. The research findings indicate that the use of consultants and specialists can especially influence the creative capital of an organization and allow new and diverse KSAOs to enter. However, this may only be possible if the organization has a sufficient level of tolerance; that is, regular employees need to be open to these new KSAOs entering the organization and willing to learn from them. Firms that already have high levels of creative capital may benefit further from using external labour if they are operating in a dynamic, fast-changing market as it is then crucial to remain knowledgeable and innovative.

Our findings indicate that a certain level of trust and openness has to be present so that regular employees feel secure and are willing to learn from the external labour. While external labour can lead to increased diversity in the available KSAOs, this is not always the case. As already noted, the use of consultants and specialists especially influences the diversity of KSAOs,
whereas we saw that temporary employees used in non-core activities do not significantly influence the diversity of KSAOs. This indicates that, if organizations want to use external labour to increase the available KSAOs, it is important to be aware of the effects of different forms of external labour used in specific situations. In order to do so, using Matchmaker or Administrator labour market intermediaries, rather than Information Providers, was seen to be related to high levels of creative capital as these intermediaries deliver a better person-organization fit.

External labour can be used as a tool to increase the diversity of KSAOs within a company, which enhances the creative capital, although, as already noted, the use of external labour does not automatically enhance this diversity. As an illustration, Company H used external labour in the form of contract workers. However, these contract workers had previously been employed as temporary employees, allowing the company to assess the person-organization fit. Thus, the contract workers had already experienced a socialization process, increasing bonding social capital. Another possibility, as seen in Company A, is that companies might purposively hire external employees, if they are needed for capacity reasons, with the same KSAOs and backgrounds as their regular employees to ensure that they deliver the same quality work. If an organization is wanting to use external labour to enhance diversity, it is crucial to be aware of how external labour can increase the diversity of the workforce. Companies B and C both showed that external labour can lead to increased diversity in KSAOs, which in turn leads to higher creative capital. These organizations employed external labour with diverse and new KSAOs in order to learn from the external employees and integrate the new knowledge into the organization, in turn motivating their regular employees.

For a diversity of KSAOs to positively influence the creative capital of an organization, a certain degree of both bonding and bridging social capitals as well as openness are required. The interviewees from Companies B and C explained how they encouraged their employees to work together with external employees to learn from each other and to enhance the creative
Firm-level creative capital and the role of external labour

capital. In order for this to happen, both companies aimed to create an environment in which their regular employees felt motivated by the external employees rather than threatened and replaceable. However, Company H provided a contrasting situation. Here, while they accepted that using external employees could, in theory, enhance firm-level creative capital, they saw that external employees were unable to communicate ideas to the regular employees. This was because the latter had a strong bonding culture resulting in them being closed to the KSAOs held by the external employees. Here, the findings indicate that firms with high levels of creative capital are more open than ones with less creative capital.

We also explored the relationship between the use made of external labour, for core as against non-core activities, and creative capital. The findings show that low and high creative capital organizations make different uses of external labour. Organizations low in creative capital mostly used external labour in the form of temporary employees for non-core activities, whereas organizations with medium to high levels of creative capital also use external labour in their core activities. Those companies that used external labour in their core activities stressed that this use of external labour influenced their creative capital and that they were focused on making use of the diverse KSAOs made available. This enabled the knowledge held by these external workers to enter the organization and enhance the knowledge and creativity of their regular employees. As such, using external labour for core activities led to new ways of thinking and working, in turn stimulating the creative capital of these organizations. This is in line with Storey et al. (2002) who found that innovation and creativity benefit from external labour because organizations are able to continually access new ideas, attitudes and perspectives through short-term and project-based work arrangements. This prevents an organization from becoming stale. In general, we saw that external labour used in non-core activities was for capacity reasons and numerical flexibility, rather than with any aspiration to enhance the existing KSAOs. According to Bishop et al. (2002), this
Firm-level creative capital and the role of external labour

approach to numerical flexibility increases the psychological contract of regular employees who see the external employees as a buffer in times of economic turbulence. This was reflected in the research, with interviewees acknowledging that temporary workers are easier to lay off than regular employees.

We also saw that organizations high in creative capital mainly used consultants and specialists for specific projects and in advisory positions where it was not necessary to retain the KSAOs once the project or contract had ended. Further, Companies B, C and G explained that consultants fill advisory positions and that this allows regular employees to learn and to see certain issues from a new perspective, in turn enhancing the creativity of these employees and the creative capital of the organization. These findings indicate that the project-based employment of consultants and specialists for core activities has the potential to enhance the creative capital of organizations by enabling the use of more diverse KSAOs. As consultants and specialists tend to remain at an organization for only short periods, the socialization process is likely to be rather limited. This, as the interviewee from Company G explained, can assist external KSAOs to enter the organization since the new knowledge and ideas do not become drowned out by the existing company culture. However, such a socialization process might take place with contract workers where this form of employment is used to assess an employee’s fit and integrate them into the organization.

Of our case companies, only Company B operates in a truly dynamic market where it is crucial to constantly develop new products and services. The interviewee from Company B explained that, because of this dynamic market, the use of external labour can be the key to success as lacking competences and KSAOs, vital to the development of new products, can be brought into the organization. Given the short time frame to develop these products, Company B cannot develop the required KSAOs internally. The interviewee felt that the benefits of using external labour outweighed possible risks such as knowledge leakage. These findings are in line with Matusik and Hill (1998) who found support for the argument that external
labour is best suited to organizations operating in dynamic industries where competitive pressures are intense and any leakage of company-specific knowledge will have only a small impact on the organization. The reason for this is that the external environment of such organizations requires the constant renewal of knowledge and innovation to remain competitive (Matusik & Hill, 1998). Company F, like Company B, was an organization high in creative capital, but one operating in a rather stable market. As such, the use of external labour in core positions was not necessarily as crucial to the success of Company F as it was for Company B. Given that Company F’s products are more durable, and that incremental innovations with a short time to market are not as essential as with Company B, Company F has the time to develop necessary KSAOs internally. When Company F does require specific KSAOs and uses external labour in its core activities, this is mostly in the form of contracted employees who are hired with a view to permanent employment to keep these KSAOs within the company. A similar pattern was seen in Companies C and G, which were positioned at the high end of the medium creative scale and operate in rather stable but competitive environments.

Nearly all the organizations with medium and high levels of creative capital used labour market intermediaries in Matchmaker or Administrator roles in order to achieve a better fit between the KSAOs of external employees and the organization. Conversely, organizations low in creative capital either did not use intermediaries, or used them only in the form of an Information Provider. This indicates that the use and role of labour market intermediaries differ between organizations low in creative capital and those with medium and high levels of creative capital. Our study design did not seek causality explanations but focused on exploring possible relationships. As such, we cannot say if the different uses are caused by differences in creative capital or due to other circumstances.

Given out sample limitations, future research should develop a study design that allows our findings to be generalized to a larger population,
including a focus on specific distinguishing departments within organizations. Furthermore, the current study is based on one respondent per organization; an individual knowledgeable about HRM and innovation in the organization. Future research should include more respondents per organization, or even per department, to verify our findings.

Florida (2002) pointed out three conditions that are critical if areas are to stimulate creativity and attract the creative class: technology, talent and tolerance. Florida’s use of technology refers to innovation, talent to individuals with a bachelor’s degree or above and tolerance to attributes such as openness and inclusiveness. Our research indicates that these findings on urban creative capital also hold true on the organizational level. The research found that organizations high in firm-level creative capital satisfied these conditions. Companies B and F were both focused on designing and innovating medical devices (technology), employed highly qualified personnel (talent) as their core activities were rather complex and demonstrate a high degree of openness as employees are encouraged to network to enhance their KSAOs (tolerance). In particular, ‘tolerance’ seems to be important with both these companies actively focused on enabling external knowledge to enter the organization. Conversely, the organizations low in firm-level creative capital had very weak networks and did not focus on new KSAOs entering or becoming integrated within the organization. Thus, our findings indicate that Florida’s area-level conditions are applicable on the organizational level, and that the same conditions are vital if organizations are to have high levels of creative capital. We also found support for the view that external labour is used more in companies with high creative capital if they are operating in a dynamic environment. Based on the interview findings, it could be argued that companies operating in stable environments are more focused on incremental innovation, whereas those operating in dynamic environments focus more on radical innovation.
3.6 Conclusions
This study has extended the existing literature by conducting a multiple case study that cross compares organizations that have low and high levels of creative capital. As part of this, an operationalization of firm-level creative capital and its dimensions was developed and explored. A qualitative, multiple comparative case study was then conducted. The analyses showed that the concept of creative capital can be measured within individual organizations.

Organizations low in creative capital tend to use external labour, if at all, in the form of temporary employees for non-core functions for reasons of capacity matching and flexibility. In comparison, organizations high in creative capital also use external employees through contract and project-based formulas, and also as consultants and specialists, for core activities in order to boost the diversity of their KSAOs and increase their creative capital. Further, the findings indicate that the dynamism within an organization’s market environment affect the role and influence of external labour on firm-level creative capital.

Additionally, we saw that organizations low in creative capital tend to use labour market intermediaries only to provide information on potential external employees, whereas organizations high in creative capital used specialized labour market intermediaries to achieve a good match between the organization and the external employee in order to stimulate a growth in creative capital.

3.7 Acknowledgements
We would like to thank Jan Kees Looise and Tanya Bondarouk for the discussions and their suggestions made in an earlier stage of the underlying research project. Furthermore, we would like to thank Roy Noordhoek and Céleste van Zijp for their contributions on the research on firm-level creative capital.
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3.8 References


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Chapter 4

Perceptions of HRM and their effect on dimensions of innovative work behaviour: Evidence from a manufacturing firm

Abstract
Research has shown that employees’ innovative work behaviour is important for the competitive advantage of organizations. However, the question of how this innovative work behaviour can be stimulated remains unanswered. The purpose of this paper is to test empirically the effect of perceptions of four high-commitment HR practices on three dimensions of innovative work behaviour by production workers. Disentangling three dimensions of innovative work behaviour makes it conceptually possible to determine how perceived HRM can stimulate three different behavioural types linked to idea generation, idea championing, and idea application. The results of a survey among 328 workers in a Dutch manufacturing company show that four perceived HR practices (supportive supervision, training and development, information sharing, and compensation) have an effect on all three dimensions of innovative work behaviour. Overall, positively perceived supportive supervision was found to be the most beneficial practice for innovative work behaviour.

This chapter is based on:
Perceptions of HRM and their effect on dimensions of innovative work behaviour: Evidence from a manufacturing firm

4.1 Introduction

For several decades, individual innovative performance has been considered as one of the most important organizational drivers in dealing with rapid changes, such as globalization, and emerging new technologies. Research has shown that organizational innovation performance is enhanced by individual innovative performance, referred to from the behavioural perspective as innovative work behaviour (IWB) (e.g. De Jong & Den Hartog, 2007; Høyrup, 2010; Janssen, 2000; Scott & Bruce, 1994). We use the definition by Janssen (2000: p. 288) and view innovative work behaviour as “the behavior of employees to intentionally create, introduce and apply new ideas within a work role, group or organization, beneficial to performance”.

The existing literature has accumulated rich conceptual and empirical knowledge on a variety of factors influencing IWB, including the organizational climate (e.g. Scott & Bruce, 1994), job design (e.g. Farr, 1990), transformational leadership (e.g. Basu & Green, 1997), commitment (e.g. Thompson & Heron, 2006), trust (e.g. Carmeli & Spreitzer, 2009), problem-solving style (e.g. Scott & Bruce, 1994), and role expectations (e.g. Shalley & Gilson, 2004). Recently, scholars have started largely conceptual discussions about stimulating the innovation potential of “ordinary” workers and their participation in innovation, so-called employee-driven innovation (Høyrup, 2010; Kesting & Ulhøi, 2010), and claimed that, if properly supported, even “routine” workers can show strongly innovative behaviour (Evans & Waite, 2010) and that the innovative work behaviour can be made “visible, recognized, and exploited to the benefit of both the firm and its employees” (Kesting & Ulhøi, 2010: p. 66). This is particularly apparent in manufacturing firms, in which the need for innovation is high and production workers have the skills and knowledge required to contribute directly and strongly to organizational innovation performance (Høyrup, 2010). Several discrete managerial practices have been considered as drivers of innovative behaviour by employees, including rewards, decision structures, and time and resource support (Kesting & Ulhøi, 2010).
Surprisingly, few attempts have been made to evaluate empirically the impact of managerial support practices on IWB. Empirical research is scarce, and what is available does not reach beyond supporting the value of human resource management in general. Human resource (HR) practices have been found to play an important role in stimulating organizational innovation by enhancing the creativity of individual employees (e.g. Dul, Ceylan, & Jaspers, 2011; Mumford, 2000). For example, Jiang, Wang, and Zhao (2012) found that several HR practices affect employees’ creativity, such as hiring, selection, and rewards. However, the studies did not empirically test the particular effect of specific HR practices and generally maintained a conceptual focus (e.g. Galbraith, 1982; Gupta & Singhal, 1993; Kanter, 1988; Mumford, 2000; Shalley & Gilson, 2004).

At this point, we should clarify this paper’s position. We depart from the idea that it is people’s perceptions of organizational processes (here – human resources management practices) that form the basis of the formulation and interpretation of organizational issues (Hodgkinson, 1997). Organizational members’ perceptions of HR practices influence their actions and attitudes in response to changes in the HRM processes. Further, social cognitive research has shown that people act on the basis of their perceptions and interpretations, and in doing so they enact particular social realities through giving them meaning (Bartunek & Moch, 1994; Fyske & Taylor, 1991; Goodhew et al., 2005; Weick et al., 2005). Based on the way in which people perceptually filter external information, their attitudinal and behavioural responses to that information may differ, and the natural information processing mechanisms of individuals influence the way in which they perceive situations. Different studies have supported the notion that individuals bring different motivations (Locke & Latham, 1990), past experiences (Rousseau, 2001), demographic backgrounds (Cox, 1993), values (Meglino & Ravlin, 1998), personalities (Hough & Schneider, 1996), and attitudes (Brief, 1998), which all influence their ways of interpreting and reacting to organizational experiences.
Interpretations may include assumptions, knowledge, and expectations expressed symbolically through language, visual images, metaphors, and stories that represent subjective data, and they act as a tool to facilitate decision making, problem solving, and negotiating within the context of organizational intervention (Cossette & Audet, 1992). Perceptions and interpretations have been linked with cognitive frames, which in their turn have been shown to be related to managers’ performance (Jenkins & Johnson, 1997; Laukkanen, 1994), decision making (Axelrod, 1976), performance appraisal (Gioia, Donnellon, & Sims, 1989), strategic behaviour (Dutton & Jackson, 1987), strategy formulation (Hodgkinson & Johnson, 1994), exercise of power (Bartunek & Ringuest, 1989), leadership (Lord & Maher, 1991), and organizational performance (Thomas, Clark, & Gioia, 1993).

Some HR practices have been studied from the perceptual point of view. For example, within compensation it has been found that younger workers without children might hold more favourable opinions towards receiving minimal extra benefits but above-market pay levels, while older employees might view receiving comprehensive benefits more favourably (Milkovich & Newman, 1999). Judge and Cable (1997) concluded that individuals who rate highly in conscientiousness are more attracted to organizations with cultures characterized by a need for achievement. These differences in the personal valuation of benefits and cultures, developed through the goals and preferences of an individual, can lead to varying extents to which people are satisfied with, and react to, certain measures and messages within organizations. Guzzo and Noonan (1994) concluded that the very same set of HR practices can be perceived positively by some employees but not by others, depending on the level of perceived fit between those practices and employees’ individual values, personality, goals, and schematic expectations.

Therefore, the main contribution of this paper is to test empirically the effect of perceptions of specific HR practices on the innovative work behaviour of “ordinary” employees (Kesting & Ulhøi, 2001), specifically in
the manufacturing industry. We view IWB as consisting of the generation of ideas, including the identification of opportunities, and then the championing and application of these ideas (Janssen, 2000). This approach rests on the idea that IWB is more than idea generation – the creative process of individuals. This has been extensively studied (e.g. Dul et al., 2011; Shalley & Gilson, 2004), but how the generated ideas are implemented has been explored less. Although earlier research has identified multiple dimensions to innovative work behaviour, most studies have reported findings suggesting that innovative work behaviour is a one-dimensional variable based on a lack of distinctiveness between the proposed dimensions (De Jong & Den Hartog, 2010; Janssen, 2000; Kleysen & Street, 2001; Scott & Bruce, 1994). Nevertheless, we seek a multidimensional perspective on IWB: conceptually, we claim that, by considering innovative work behaviour as a multidimensional concept, research is likely to identify a more nuanced impact of perceived HR practices on the various dimensions of IWB. For example, employees who show behaviour associated with idea generation may not necessarily show high levels of championing behaviours. The question that remains is then how to support the best components of IWB (Kleysen & Street, 2001).

Following the logic above, the central question of this paper concerns the extent to which perceptions of HR practices stimulate innovative work behaviour. We first provide a theoretical explanation for, and build hypotheses on, the relationship between perceptions of HR practices and innovative work behaviour. After this, we describe the methods used to test the developed hypotheses. Finally, we present and discuss the results and the implications of our findings.

4.2 Theory and hypothesis development
Innovative work behaviour is defined as employee behaviour to create, introduce, and apply new ideas intentionally within a work role, a group, or
an organization that are beneficial to performance (Janssen, 2000: p. 288). As such, several innovation dimensions can be identified within the concept of innovative work behaviour (see Figure 4.1). It starts with the generation of ideas. While the terms idea generation and creativity are often used interchangeably, we opt for “idea generation” to stay close to the innovative work behaviour literature (De Jong & Den Hartog, 2007; Høyrup, 2010; Janssen, 2000; Scott & Bruce, 1994). Within this idea generation dimension, employees recognize problems and opportunities and seek new ideas as solutions. Mumford (2000: p. 316) described idea generation as “a free-flowing activity where application, implication, and consequences are identified and then shaped through refinement into a new idea or set of ideas”. The subsequent, second dimension is idea championing. Here, the idea is promoted throughout the organization to find support for further development. Finding support involves building coalitions of potential allies – individuals who provide the necessary power to move the idea into practice – by expressing enthusiasm and confidence about success, being persistent, and involving the right people (De Jong & Den Hartog, 2010;
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Galbraith, 1982; Janssen, 2000; Kanter, 1988). These could be managers, members of other departments, such as R&D, or immediate co-workers. Idea championing is all about finding support for the ideas generated and involving key organizational members in the ideas of employees. The aim of the third dimension, idea application, is to incorporate the ideas that were generated and promoted into the daily business (Kleysen & Street, 2001) and to realize those ideas that can be experienced and applied within the work role, group, or organization (Janssen, 2000; Kanter, 1988). The final two dimensions, idea championing and idea application, are often jointly labelled as implementation.

Previous research on innovative work behaviour has mainly considered it to be a single dimension consisting of multiple sets of behaviours (e.g. De Jong & Den Hartog, 2010; Janssen, 2000, 2004; Scott & Bruce, 1994). IWB as a single dimension can be seen as a container for several behavioural sets. These sets of behaviours correspond to our dimensions of idea generation, idea championing, and idea application. By conceptualizing IWB in terms of multiple sets of behaviours, a nuanced picture appears of individuals’ contributions to organizational outcomes. For example, the generation of ideas alone does not assure the implementation of those ideas, because new ideas may induce uncertainty, which could result in resistance to change (Baer, 2012; West, 2002). Further, the three dimensions (idea generation, idea championing, and idea application) require different types of work, different personal characteristics in employees, and different behaviours (De Jong & Den Hartog, 2010; Kleysen & Street, 2001; Scott & Bruce, 1994). As Scott and Bruce (1994: p. 582) argued, innovation is a dynamic process “characterized by discontinuous activities” rather than being made up of discrete dimensions.

Arguably, employees are likely to show behaviours corresponding to different combinations of the dimensions identified above (Scott & Bruce, 1994). In other words, individual employees on the work floor can behave in
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ways that correspond to all three dimensions or perhaps excel in one behaviour over the others.

**HR practices to stimulate innovative work behaviour**

For work floor employees, innovative work behaviours are discretionary in that they prioritize the behaviours prescribed for fulfilling their primary tasks. Discretionary behaviours can be elicited by HR practices geared towards achieving high commitment from employees or, as McClean and Collins (2011: p. 342) stated, “high commitment HR practices create a mutually beneficial environment whereby firms invest in their employees and induce them to reciprocate that investment by exerting higher levels of discretionary behaviors”. If the aim of HR practices within organizations is to increase employee commitment, then well-designed HR practices will send signals to employees through giving a strong perception of organizational support (Bowen & Ostroff, 2004). In line with social exchange theory, it is logical to assume that employees will reciprocate by giving something of value to the organization (Blau, 1964). If the organization’s signals are perceived as valuable to employees, they will be willing to reciprocate with a high level of commitment (Masterson, 2001). For organizations, employees’ discretionary behaviours are valuable, surpassing the prescribed behaviours that cover their day-to-day activities.

Taylor and Greve (2006) found that commitment is needed for idea generation, although they did not offer insights into the HR practices that would enhance commitment. In a study in Spanish manufacturing firms, Gonzalez-Alvarez and Nieto-Antolin (2007) found that high-commitment HR practices are positively related to innovation. In order to stimulate innovative work behaviour, it has been suggested that HR practices should focus on the individual level (Dul et al., 2011).

There is little agreement on a complete list of those HR practices that enhance high commitment (e.g. Delery & Doty, 1996; McClean & Collins, 2011), although Collins and Smith (2006: p. 544) suggested that high-commitment HR practices generally focus on “creating internal labour
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markets and assessing fit to the company”, employee motivation directed towards group and organizational performance indicators, establishing a long-term orientation, team building, and developing firm-specific knowledge. Although there is no consensus on a list of high-commitment HR practices, some practices are more associated with high commitment than others (Collins & Smith, 2006; Kwon, Bae, & Lawler, 2010). For this study, we have selected those HR practices that are considered to be “employee management activities” (Boselie, Dietz, & Boon, 2005) – practices that are commonly expected to support commitment and are relevant to production workers: supportive supervision (e.g. Arthur, 1994; Boselie, Hesselink, Paauwe, & van der Wiele, 2001; McClean & Collins, 2011; Wallace, 1995), training and development (e.g. Boselie et al., 2001, 2005; Gould-Williams & Davies, 2005; McClean & Collins, 2011; Way, 2002), information sharing (e.g. Boselie et al., 2001, 2005; Gould-Williams & Davies, 2005; Way, 2002), and compensation (e.g. Boselie et al., 2001, 2005; Gould-Williams & Davies, 2005; McClean & Collins, 2011; Way, 2002).

In several studies, appropriate recruitment and selection are reported as being essential for high levels of commitment (McClean & Collins, 2011). However, we have excluded this aspect from the set of HR practices in this study since recruitment tends to have a low priority within the manufacturing industry. Before the economic crisis, manufacturing firms were experiencing a tight labour market in the sense of there being a lack of skilled production workers, and the attention was focused on retaining workers rather than acquiring new employees (Blatter, Muehlemann, & Schenker, 2012; Hiltrop, 1996; Remery, Henkens, Schippers, & Ekmapper, 2003). Now, during the economic downturn, manufacturing firms are not seeking to recruit but rather to retain their current workers for after the crisis (Picchio & Van Ours, 2013).

High-commitment HR practices aim to motivate employees to deliver value through engaging in discretionary behaviours by “aligning their
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interests with those of the organizations and creating a mutually reinforcing high-investment employer-employee relationship” (Collins & Smith, 2006: p. 546). Different employees will have different interests and therefore variation is expected in experiences of HR practices and employee outcomes. We will focus on employees’ perceptions of HR practices, given that variations in these perceptions of HR practices, rather than the precise design and implementation of HR practices, will be likely to lead to variations in the (discretionary) behaviours shown (Wright & Nishii, 2006). In the remainder of this paper, when we talk about HR practices, we refer to employees’ perceptions of these HR practices.

Supervisory support

As HR practices are management practices that aim to increase employees’ knowledge, skills, abilities (KSAs), and motivation, as well as empowering these employees to leverage their KSAs to deliver value (Combs, Liu, Hall, & Kitchen, 2006), we consider the support given by supervisors to be HR practices. The role of supervisors is considered important in stimulating employees to perform and execute tasks that are in line with the organizational goals (Arthur, 1994; Kanter, 1988; Shalley & Gilson, 2004). If employees interpret their supervision as supportive, they feel encouraged to give something in return. Reciprocation towards the supervisor is beneficial in terms of producing behaviours that exceed the formal job description (Rhoades Shanock & Eisenberger, 2006).

In this respect, idea generation is likely to occur if supervisors are supportive (Amabile, Conti, Coon, Lazenby, & Herron, 1996; De Jong & Den Hartog, 2007; Kanter, 1988; Shalley & Gilson, 2004). For example, Frese, Teng, and Wijnen (1999) found that the more supervisors supported employees, the more ideas the latter contributed to their organization’s suggestion programmes. Supportive supervisors are those who show concern for employees’ feelings and needs, stimulate them to communicate their worries, and provide positive, largely informational feedback (Oldham &
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Cummings, 1996). As Basu and Green (1997) found in their study of 225 supervisor–employee dyads in a Fortune 500 firm, employees are more likely to generate, support, and apply ideas by engaging in unconventional behaviour if they are confident that they will not be penalized for doing so. By receiving support, employees feel stimulated to assert their ideas, take risks, and show innovative work behaviour (Basu & Green, 1997).

On this basis, we hypothesize:

\[ H1: \text{Employees who experience supportive supervision from their line manager will show behaviour associated with (1a) idea generation, (1b) idea championing, and (1c) idea application.} \]

Training and development

Training has a positive impact on the skills and knowledge of employees and on employee behaviour, employee motivation, and employee output (Way, 2002). Training designed to enhance creativity is found to be positively related to the level of employees’ idea generation (e.g. Basadur, Wakabayashi, & Graen, 1990; Scott, Leritz, & Mumford, 2004). For example, Scott et al. (2004) found in their meta-analysis of 70 studies, containing 4,210 participants in creativity training, a strong average effect size of this type of training with a Cohen’s delta of 0.68. Not only do specific training activities geared towards creativity and innovation contribute, but also the extent to which employees feel that they are given relevant opportunities to develop in their own job and career (Gupta & Singhal, 1993). As Amabile et al. (1996: p. 1161) put it, perceptions of the “adequacy of resources may affect people psychologically by leading to beliefs about the intrinsic value of the projects that they have undertaken”. In line with this, training and its availability are viewed as a resource, and the perceived opportunities for training affect employees’ levels of idea generation (Amabile et al., 1996). Training enhances employees’ sets of knowledge and skills. With an enhanced skill set, employees are more aware
of the various alternatives and opportunities and feel more secure in experimenting and trying out new things (Shalley & Gilson, 2004). By receiving relevant opportunities for training, employees are encouraged to come up with new ideas and to advance them further (Jiang et al., 2012; Shalley & Gilson, 2004). As Axtell et al. (2000) argued, opportunities to take on a wider, more skilled, and more autonomous role at work are important for generating ideas, rather than for implementing ideas. As such, we hypothesize the following:

\[ H2: \text{Employees who perceive that their organization facilitates training and development will show behaviour associated with idea generation.} \]

**Information sharing**

Goal setting in itself is found to have a positive impact on idea generation (Locke & Latham, 2002; Shalley, 1995). As such, employees need to be aware of what their organization wants to achieve, and this is governed by the extent to which it shares information. In order to generate ideas, employees should know what the organization is striving for and what it stands for (Shalley & Gilson, 2004). Information sharing is described in terms of employees’ perceptions of the extent to which they are informed about the organization’s overall goals and achievements, as well as its norms and values. Information sharing contributes to innovative work behaviour in two ways. First, if employees are made aware of what the company stands for and what its goals are, they know what to expect and what behaviour is expected of them. Second, by sharing information with them, employees gain self-worth and perceptions of importance to the company, which lead to reciprocation. It is likely that employees will reciprocate in terms of beneficial discretionary behaviour, engaging in behaviour that fits the mission and vision of the organization. This is in line with the change management literature, which suggests that receiving information about a change is beneficial in terms of the employees’ receptiveness towards the
change (Wanberg & Banas, 2000). Although there is little empirical evidence to support the idea that information sharing affects innovative work behaviours, several conceptual studies suggest this (e.g. Arad, Hanson, & Schneider, 1997; Hiltrop, 1996; Shalley & Gilson, 2004). Therefore, we propose the following hypothesis:

**H3: Employees who perceive their organization as sharing information will show behaviour associated with (3a) idea generation, (3b) idea championing, and (3c) idea application.**

**Compensation**

Jiang et al. (2012: p. 6) argued that employees’ rewards affect their “motivation to be creative, offer new ideas and be willing to experiment with new behaviors”. Some scholars have studied the effect of compensation on innovation by focusing on specific compensation systems, such as those geared towards incentivizing innovation (e.g. Jiang et al., 2012; Zhou, Zhang, & Montoro-Sanchez, 2011) or offering performance-based pay (e.g. Beugelsdijk, 2008). Although these systems result in employees experiencing financial incentives to behave according to the criteria underlying the system, such as creating new products, bringing in new ideas, or improving productivity, such systems also produce perverse effects. By considering whether employees feel fairly compensated, instead of looking at the type of compensation system that an organization has, we bypass these perverse effects. We argue, in line with the findings of Amabile, Hennessey, and Grossman (1986), that innovative work behaviour is promoted when employees feel freedom rather than when they feel pressured to undertake incentivized tasks for which their behaviours are controlled. Further, compensation is what organizations pay employees in exchange for their labour in which regular task-specific behaviours are demonstrated (Folger & Konovsky, 1989). Extra efforts or helpful behaviours are elicited by distributive justice (Masterson, 2001). Employees who perceive the
compensation as fair in terms of distributed justice consider it as a bonus to their “contracted-for reward” (Amabile et al., 1986, 1996). On this basis, we propose the following hypothesis:

\[ H4: \text{Employees who perceive their compensation to be fair will show more behaviour associated with (4a) idea generation, (4b) idea championing, and (4c) idea application.} \]

However, arguments can also be made for a competing hypothesis: if people are compensated fairly but see no possibility for growth, either pay- or career-wise, they are unlikely to feel a need to reciprocate towards the organization. Furthermore, employees who experience fair compensation may feel less inclined to be visible than employees who perceive a lack of distributive justice, who might therefore feel the need to demonstrate positive attitudes and behaviours towards the organization in order to gain a bonus or other reward (Folger, 1993). Rewards are considered to be detrimental to idea generation if tasks are designed too narrowly and leave little room for exploration and play (Amabile & Cheek, 1988; Eisenberger, Armeli, & Pretz, 1998).

Therefore, we can hypothesize the following:

\[ H4: \text{Employees who perceive their compensation to be fair will show less behaviour associated with (4d) idea generation, (4e) idea championing, and (4f) idea application.} \]

The hypothesized relationships are visualized in the research model shown in Figure 4.2.

### 4.3 Method

We collected data for our study in June–July 2011 within a Dutch manufacturing company employing about 1700 people, of whom 1100 worked in the production and engineering departments. The manufacturing
firm’s core product is not generally known for its innovativeness and has a fixed function. If innovations are to be expected, they will be process innovations, material innovations, or design innovations. In line with ideas from the employee-driven innovation concept, we targeted respondents who were production workers on the work floor. Although production workers did not have formal job tasks dedicated to innovation, they were able to show innovative work behaviour and thereby contribute directly to the innovative performance of the organization. Data were collected by means of a written questionnaire: 40 production supervisors were given 10 questionnaires each and asked to distribute them to 10 production workers.
whom they supervised. The employees received an internal communication (mail or oral presentation) from their line managers, and they were assured that their participation was voluntary. Anonymity of the responses was assured. The first author was present at the company to answer questions and clarify the procedure. Of these 400 production workers, 328 returned the questionnaire, giving a response rate of 82 per cent.

Measures

**HR practices**

We drew upon the measures of high-commitment HR practices proposed by Boselie et al. (2001) and measured each of them in terms of the perceptions of the extent to which a certain HR practice took place within the organization. In addition, items measuring supportive supervision were adapted from Yukl, Wall, and Lepsinger (1990). We used a five-point Likert scale, ranging from 1 = “totally disagree” to 5 = “totally agree”. We adapted perceptions of four HR practices: “compensation” (three items, e.g. “As far as I know our salaries are as high or even better than those of comparable organizations”), “training and development” (three items, e.g. “I get sufficient opportunities to attend skills training to improve my current position”), “information sharing” (four items, e.g. “I am well informed on the vision and mission of the company”), and “supportive supervision” (four items, for example “My supervisor supports me when I want to improve things”). All the scales were found to be reliable, with Cronbach’s alphas of 0.70 (compensation), 0.79 (perceived training and development), 0.82 (information sharing), and 0.85 (supportive supervision).

**Innovative work behaviour**

Innovative work behaviour was measured in terms of the extent to which employees perceive that they generate and introduce useful ideas (Dul et al.,
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2011). These authors argued that individual employees are best placed to rate their own innovative work behaviour because “they are aware of the subtle things they do in their jobs” and because others do not have full insight into the “thoughts and activities of other individuals” (Dul et al., 2011: p. 723). The three identified dimensions of innovative work behaviour are measured by adopting items from De Jong and Den Hartog (2010) and Kleysey and Street (2001). All the items were scored on a five-point Likert scale with possible answers ranging from 1 = “never” to 5 = “very often”. Six questions addressed idea generation – three items adopted from Kleysey and Street (2001) and three items from De Jong and Den Hartog (2010) – an example item being “Do you search out new working methods, techniques, or instruments?” Another two items concerned idea championing, adopted from De Jong and Den Hartog (2010), for example “Do you attempt to convince people to support an innovative idea?” The final three items on innovative work behaviour dealt with idea application, for which the items were also adopted from De Jong and Den Hartog (2010), including “Do you put effort into the development of new things?” The Cronbach’s alphas were between .72 and .95, indicating that the scales were reliable.

Control variables
The tenure, age, and education level of a workforce may reflect the characteristics of an organization and the way in which human and other resources are deployed, and they may influence IWB. Therefore, we included these variables as control variables to measure any effects. Tenure was measured as the number of years employed in the organization. Age was measured in the number of years at the point in time of filling in the questionnaire. The education level achieved was categorized (1 = primary school; 2 = secondary school; 3 = lower vocational education; 4 = intermediate vocational education; 5 = university).
Analyses

Before testing the hypotheses, we first performed analyses to examine the measurement errors. To minimize measurement errors in the form of common method variance, we carried out a Harman’s single-factor test. A principal component analysis with no rotation was conducted on all the items. The results of the analysis showed that no single factor dominated and the largest factor explained 25.6 per cent of the variance, allowing us to conclude that the data did not suffer from common method variance (Podsakoff & Organ, 1986). Multicollinearity issues were similarly ruled out as the correlations of the predictor variables were between 0.00 and 0.54, well below the threshold of 0.75 (Ashford & Tsui, 1991). The values of the variance inflation factor (VIF) associated with the predictors were between 1.23 and 1.87, again within acceptable limits (Hair, Black, Babin, & Anderson, 2010; O’Brien, 2007).

An exploratory factor analysis was performed on all the multiple-scale items to determine item retention (e.g. Kuvaas, 2008). Furthermore, a confirmatory factor analysis was carried out to determine whether the IWB dimensions are distinct from each other. Regression analysis was used to test the hypotheses.

4.4 Results

Principal component analysis with varimax rotation was performed on all the multiple-scale items to determine item retention (e.g. Kuvaas, 2008). This analysis showed, after dropping two items from the idea generation dimension because of low factor loadings, that the innovative work behaviour items loaded onto three factors. Aware that previous research had found a lack of distinctiveness between the IWB dimensions, we carried out a confirmatory factor analysis (e.g. De Jong & Den Hartog, 2010; Janssen, 2000; Kleysen & Street, 2001). First, we tested a model with nine items loading onto three factors that built on our theory section and on the exploratory factor analysis. The model was specified as a second-order CFA
model, with innovative work behaviour as the first-order factor. Next, we tested a model with the selected nine items loading onto a single factor. The analyses (see Table 4.1) indicated that the one-factor model was a bad fit, with the chi-square to degrees of freedom ratio above 5.0, the GFI, NFI, and CFI indices of fit all below 0.90, and an RMSEA above 0.08 (Hair et al., 2010). Conversely, the three-factor model achieved at least a good fit using all the criteria; the chi-square to degrees of freedom ratio was below 3.0, the GFI, NFI, and CFI indices of fit were all above 0.95, and the RMSEA was acceptable, below 0.08 (Hair et al., 2010). This analysis thus supports our decision to view innovative work behaviour as having three distinct dimensions.

Table 4.1: Fit indices for one- and three-factor models of IWB

<table>
<thead>
<tr>
<th>Model</th>
<th>$X^2/df$</th>
<th>GFI</th>
<th>CFI</th>
<th>NFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-factor model</td>
<td>7.897</td>
<td>0.802</td>
<td>0.828</td>
<td>0.809</td>
<td>0.181</td>
</tr>
<tr>
<td>Three-factor model</td>
<td>1.945</td>
<td>0.955</td>
<td>0.979</td>
<td>0.958</td>
<td>0.067</td>
</tr>
</tbody>
</table>

Table 4.2 provides an overview of the descriptive statistics, correlations, and Cronbach’s alphas. The means of the three dimensions of innovative work behaviour show that employees scored above neutral in terms of creative behaviour, but showed significantly lower scores on the implementation dimensions (paired samples T-test, p<0.01). Employees scored themselves below neutral on behaviours corresponding to the two implementation dimensions of idea championing and idea application. This significant difference confirms the view that individuals can demonstrate behaviour that corresponds much more to one dimension of innovative work behaviour, rather than being spread across all the dimensions. In this firm, production workers assessed themselves as idea generators rather than as implementers, champions, or appliers.
Table 4.2 Means, standard deviations, correlations, and Cronbach’s alphas

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tenure</td>
<td>13.17</td>
<td>10.49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>40.38</td>
<td>10.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Educational level</td>
<td>2.38</td>
<td>0.83</td>
<td>-0.17*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Supportive supervision</td>
<td>3.58</td>
<td>0.73</td>
<td>0.05</td>
<td>0.01</td>
<td>0.02</td>
<td>(0.84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Training &amp; develop.</td>
<td>3.57</td>
<td>0.79</td>
<td>-0.19**</td>
<td>-0.18**</td>
<td>0.03</td>
<td>0.43**</td>
<td>(0.80)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Information sharing</td>
<td>3.42</td>
<td>0.65</td>
<td>0.00</td>
<td>0.01</td>
<td>-0.01</td>
<td>0.32**</td>
<td>0.54**</td>
<td>(0.78)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Compensation</td>
<td>3.04</td>
<td>0.77</td>
<td>-0.10*</td>
<td>-0.11*</td>
<td>-0.00</td>
<td>0.16**</td>
<td>0.46**</td>
<td>0.28**</td>
<td>(0.70)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Idea generation</td>
<td>3.16</td>
<td>0.74</td>
<td>0.15**</td>
<td>0.08</td>
<td>0.05</td>
<td>0.30**</td>
<td>0.02</td>
<td>0.15**</td>
<td>-0.12*</td>
<td>(0.83)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Idea championing</td>
<td>2.59</td>
<td>1.04</td>
<td>0.21**</td>
<td>0.07</td>
<td>0.00</td>
<td>0.34**</td>
<td>0.04</td>
<td>0.14**</td>
<td>-0.03</td>
<td>0.63**</td>
<td>(0.88)</td>
<td></td>
</tr>
<tr>
<td>10. Idea application</td>
<td>2.71</td>
<td>1.03</td>
<td>0.14**</td>
<td>0.08</td>
<td>-0.01</td>
<td>0.30**</td>
<td>0.12*</td>
<td>0.20**</td>
<td>-0.05</td>
<td>0.58**</td>
<td>0.66**</td>
<td>(0.86)</td>
</tr>
</tbody>
</table>

N=328 (one-tailed test).
Cronbach’s alpha can be found in the brackets along the diagonal.
* Correlation is significant at p<0.05.
** Correlation is significant at p<0.01.
Receiving supportive supervision was positively correlated with all three innovative work behaviour dimensions (idea generation: \( r=0.30, \ p<0.01 \); idea championing: \( r=0.34, \ p<0.01 \); idea application: \( r=0.30, \ p<0.01 \)). Information sharing was also positively correlated with the three dimensions (\( r=0.15, \ p<0.01 \); \( r=0.14, \ p<0.01 \); and \( r=0.20, \ p<0.01 \), respectively). Training and development was positively correlated with the idea application dimension (\( r=0.12, \ p<0.05 \)) and compensation was negatively related to idea generation. The results of the hierarchical regression analyses are presented in Table 4.3. The control variables were entered first (models 1, 4, and 7). Secondly, the effects of the perceptions of HR practices on the IWB dimensions were entered but without the effect of the control variables (models 2, 5, and 8). Thirdly, the perceived HR practices were entered into the models with only the control variables (models 3, 6, and 9). Idea generation is the dependent variable for the first three models, idea championing is the dependent variable for models 4, 5, and 6, and idea application is presented in models 7, 8, and 9. As the table shows, the overall model fit of the models with only perceived HR practices is better than the overall model fit of the models with both the control variables and the perceived HR practices entered. Therefore, we draw conclusions from the models with only perceived HR practices entered (models 2, 5, and 8), although for reasons of completeness we show the results of the regression analyses of the models into which the control variables and the perceived HR practices were both entered (models 3, 6, and 9). We will report the results in order of the formulated hypotheses. Each hypothesis addresses a perceived HR practice, and we will discuss the perceived HR practices one by one.

Hypothesis 1 predicted a positive relationship between supportive supervision and three dimensions of IWB. Looking at model 2, we can see that supportive supervision has a direct and significant positive effect on idea generation (\( p<0.01 \)), supporting Hypothesis 1a. Model 5 shows that supportive supervision has a significant positive effect on idea championing (\( p<0.01 \)), supporting Hypothesis 1b. Supporting Hypothesis 1c, model 8
<table>
<thead>
<tr>
<th>Variables</th>
<th>Idea generation</th>
<th>Idea championing</th>
<th>Idea application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure</td>
<td>-.00</td>
<td>.01*</td>
<td>.00</td>
</tr>
<tr>
<td>Age</td>
<td>-.01**</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Education</td>
<td>.10*</td>
<td>.11**</td>
<td>.03</td>
</tr>
<tr>
<td>Supportive supervision</td>
<td>0.33***</td>
<td>0.25***</td>
<td>0.45***</td>
</tr>
<tr>
<td>Training &amp; development</td>
<td>-.14**</td>
<td>-.08</td>
<td></td>
</tr>
<tr>
<td>Information sharing</td>
<td>.18**</td>
<td>0.15*</td>
<td>0.12</td>
</tr>
<tr>
<td>Compensation</td>
<td>-.18***</td>
<td>-.16**</td>
<td>-.14*</td>
</tr>
<tr>
<td>R²</td>
<td>0.03</td>
<td>0.14</td>
<td>0.11</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.02</td>
<td>0.13</td>
<td>0.08</td>
</tr>
<tr>
<td>F</td>
<td>2.67**</td>
<td>12.69</td>
<td>4.31***</td>
</tr>
</tbody>
</table>

* p<0.1; ** p<0.05; *** p<0.01
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shows that supportive supervision is significantly related to idea application (p<0.01).

Hypothesis 2 predicted that training and development are positively related to idea generation. Model 2 suggests that training and development significantly affect idea generation; however, we found a negative effect, with significance at least at the p<0.05 level. As such, Hypothesis 2 is not supported (model 2).

Hypothesis 3 concerns the perceived HR practice of information sharing, predicting that information sharing is positively related to the three dimensions of IWB. Information sharing is found to have a significant effect on idea generation at the p<0.05 level (model 2), offering support to Hypothesis 3a. Information sharing was not found to be significantly related to idea championing in model 5; therefore, Hypothesis 3b is not supported. Furthermore, model 8 identified a significant positive effect on idea application (p<0.05), supporting Hypothesis 3c.

Next, we consider the role of compensation for Hypothesis 4. Model 2 found that this had a significant negative effect on idea generation (p<0.05). Thus, Hypothesis 4a was rejected and its competing hypothesis, 4d, was supported. Compensation was marginally significant at the p<0.10 level, negatively affecting idea championing. This offers the suggestion that perhaps Hypothesis 4b can be rejected and Hypothesis 4e supported. Compensation had a significant negative effect on idea application (p<0.01) (model 8). Thus, Hypothesis 4c is rejected and Hypothesis 4f supported.

4.5 Discussion and conclusions
The purpose of this research was to study how perceptions of certain human resource practices affect the three dimensions within innovative work behaviour: idea generation, idea championing, and idea application. Whereas most scholars, when studying innovative work behaviour, treat it conceptually as a single dimension (e.g. Janssen, 2000, 2004; Scott & Bruce,
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1994), we considered innovative work behaviour as multidimensional, identifying three separate dependent dimensions, and explored the effect that perceptions of HR practices have on these three dimensions. We found in our analysis that the three dimensions of innovative work behaviour were indeed separate factors, suggesting that these dimensions are distinct. Therefore, we would suggest that scholarly studies on innovative work behaviour make analytical distinctions between the three dimensions. For practitioners, this provides greater insight into steering the desired dimensions and emphasizing firm-specific aspects of innovative work behaviour. In our survey of a single organization, we found that the respondents scored significantly higher on idea generation than on idea championing and idea application, illustrating that individuals can engage in behaviour that is more closely related to one dimension rather than showing an overall propensity for innovative work behaviour. This finding is in line with scholars who have argued that employees are able to generate ideas by using their domain-specific knowledge and skills, which are acknowledged predictors of idea generation (e.g. Amabile et al., 1996; Perry-Smith, 2006; Shalley & Gilson, 2004; Woodman, Sawyer, & Griffin, 1993).

Our research supports the view that innovation processes are complex, entailing a necessary sequential order of ideas (Howell, Shea, & Higgins, 2005), and that more ideas are generated than supported throughout an organization. In this respect, Stevens and Burley (1997) found that only 300 out of 3,000 generated ideas moved beyond the idea generator’s desk. Given that ideas have to be generated before they can be championed, this suggests that idea generation should be found more within organizations than idea championing and idea application (Baer, 2012). Championing and applying ideas are about finding support and incorporating them into daily business, and these require more of idea champions and executors than appropriate behaviour. Howell and Higgins (1990) argued that champions gain support for ideas by advancing financial justifications, arguing that the expected steps are in the same direction as competitors, stressing the beneficial effects of the idea on customers’ perceptions of the organization, or linking the idea
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to key organizational values. This indicates that other skills and knowledge alongside those corresponding to idea championing are required.

The main contribution of this paper is that it has empirically tested the effect of perceived HR practices on three dimensions of innovative work behaviour by “ordinary employees”, i.e. production workers, in the manufacturing industry. Four HR practices were conceptually identified of which the perceptions were likely to affect the dimensions of innovative work behaviour: supportive supervision, training and development, information sharing, and compensation. Our findings suggest that behaviours corresponding to the various innovative work behaviour dimensions are fostered by different perceived HR practices. For all three dimensions, supportive supervision has been found to be the most beneficial in terms of innovative work behaviour. The practical implication is that supportive supervision cannot be excessive. However, organizations should be reluctant to provide too many training and development opportunities, especially if they are aiming to gain employees who generate ideas. Information sharing stimulates both idea generation and idea application, but does not boost the championing of ideas. If organizations want to improve their innovative work behaviour, they should be aware of the role that employees’ perceptions of fair compensation play. The more they perceive their compensation to be fair, the less they behave creatively, or champion and apply ideas. Contrary to what we had expected, training and development opportunities were found to have a negative effect on idea generation. The more employees perceive training and development opportunities, the less they show creative behaviour. A possible explanation for this is that employees who experience opportunities are “made too comfortable”, suppressing any urges to generate ideas (Shalley & Gilson, 2004). While employees need to have at least a certain minimum level of resources, such as training opportunities (e.g. Amabile et al., 1996), a lack of resources may stimulate idea generation (Csikszentmihalyi, 1997). It is therefore essential
that employees perceive that they have access to a reasonable level of the necessary resources (Drazin, Glynn, & Karanjian, 1999).

Our research and this paper respond to the call to study specific groups of employees, rather than the full workforce of organizations (e.g. Lepak & Snell, 1999, 2002). We found that production employees were able to show all three types of innovative work behaviour, but particularly idea generation. Production workers are thus able to contribute to organizational innovativeness. Not surprisingly, most such organizational innovations relate to process innovation since production workers have a more direct influence on the production process than on product specifications (Reichstein & Salter, 2006).

We now consider the implications of our research findings beyond the direct subject of the study. The research was carried out within a firm that could be considered as pursuing a “defender” strategy (Miles & Snow, 1984). The typical characteristics of a traditional defender-oriented company are that they have narrow and relatively stable product-market domains, they seldom need to make major adjustments to their technology, structure, or methods of operation, and they primarily devote their attention to improving the efficiency of their existing operations (Miles & Snow, 1984). Control-oriented HR practices support the business strategy of a defender, but are also found to hinder change and innovation (Arad et al., 1997). However, our study has shown that even “defender-oriented” organizations are able to encourage innovative work behaviour in their employees. We studied high-commitment HR practices and the effect of the perceptions of these HR practices on innovative work behaviours. Such HR practices aim to stimulate employees to use their discretion in performing and executing tasks so that they are in line with the organizational goals (Arthur, 1994). A question arises regarding the effect that control-oriented HR practices have on the various dimensions of innovative work behaviour. Future research would benefit from further exploration of this issue and could also provide more answers on how innovative work behaviour and its specific dimensions are
stimulated by HR practices in combination with other factors, such as the organizational climate.

A possible limitation of our study is that we used self-reported measures of the innovative work behaviours of employees. Although prior research has found strong correlations between self-reporting and supervisor reporting for innovative work behaviours (Axtell et al., 2000; Shalley, Gilson, & Blum, 2009), future research could include a comparison of self-reporting measures with the perceptions of supervisors of demonstrated behaviours. The understanding would benefit from finding out whether supervisors assess the innovative work behaviours of employees differently and, if so, what effect this has on organizational innovative performance. Any incongruence in the perceptions of supervisors and employees could challenge the anticipated HR practices and lead to a continuous “drift” in the exhibited innovative work behaviour.

Another limitation of this study is that we used cross-sectional data, questioning any implications of causal relationships. This issue has also arisen in other studies within this research field (e.g. Frese et al., 1999; Oldham & Cummings, 1996). A longitudinal research design is therefore recommended for future research since this would resolve the causality issue and enrich the understanding within the field of human resource practices and their effect on innovative work behaviour. Further, our data were collected from a single manufacturing firm and our results might therefore lack generalizability. However, studying one firm could also be a strength as certain characteristics will be common to all employees, such as the firm’s mission and vision, goals, climate, and product lines. Future research could consider a research design involving many organizations spread across different industries.

The results of this study have additional practical implications. The case organization involved was not very innovative in terms of introducing radically new products and, as such, may be representative of many firms. However, such organizations have instruments – HR practices – at their
disposal to encourage employees to behave innovatively in order to stimulate organizational innovativeness. Our study provides empirical evidence that organizations are able to send an HRM message to employees to elicit discretionary innovative work behaviours. By addressing dimensions of innovative work behaviour (idea generation, idea championing, and idea application), organizations will be able to identify idea creators, champions, and executors in their workforce and to identify which roles they lack. After recognizing the gaps within the organization, they will be able to acquire the lacking behaviours through HR practices. Our study did not set out to determine the appropriate design of HR practices, but rather to show that employee perceptions of HR practices matter. When designing HR practices, organizations should be aware that the message that these HR practices send should be clear and consistent but that, despite this, it could be perceived differently by employees. Customizing HR practices for specific employee groups would seem beneficial.

Supportive supervision was found to have the strongest effect on all three dimensions of innovative work behaviour. A sure way to improve innovative work behaviour by production workers is therefore to select and train supervisors such that they support employees in behaving innovatively. Further, organizations should be aware that perceptions of fairness in compensation can have a negative effect on employees’ innovative work behaviour. We would argue that there should be some balance in terms of compensation: employees should not be too dissatisfied with their compensation since they might then feel the need to leave the organization (Park, Ofori-Dankwa, & Bishop, 1994).

In our paper, we have argued that perceptions of HR practices have separate effects on three dimensions of innovative work behaviour (idea generation, idea championing, and idea application). The findings of our study support that overall argument and suggest that innovative work behaviour can be stimulated by the experienced presence of certain HR practices and by the experienced absence of others.
4.6 References
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HRM and Innovative Work Behaviour: The Moderating Effect of an Innovative Climate

Abstract
The purpose of this paper is to explore the effect HR practices have on the innovative work behaviour of individual workers and to examine the role that an innovative climate plays in this relationship. We hypothesize that employees will show greater innovative work behaviour (IWB) if they perceive the organizational climate to support innovation and perceive the presence of HR practices related to a compensation system, training and development, information sharing, and supportive supervision. Using data from 463 individuals in four manufacturing companies, the study tests the effects of employees’ perceptions of HR practices and of an innovative climate on innovative behaviours. We found that employee perceptions of a fair compensation system are negatively related to IWB, and that employee perceptions of information sharing and supportive supervision are positively related to IWB. An innovative climate moderates the effect of information sharing on IWB. It is clear that organizations can enhance their IWB by certain HR practices and the perception employees have of them. Managers can stimulate innovative behaviours by investing in information sharing, supportive supervision, and an innovative climate. Other implications are also discussed.

Keywords
Innovative work behaviour, perceived HR practices, innovative climate

This chapter is based on:
HRM and Innovative Work Behaviour: The Moderating Effect of an Innovative Climate

5.1 Introduction

In searching for ways that organizations can increase their innovative outcomes, the role of human resources and their management has achieved a more central place in the last decade (e.g. Shipton, West, Dawson, Birdi & Patterson, 2006; Beugelsdijk, 2008; De Winne & Sels, 2010). Most such studies focus on innovation at the organizational level, where HR practices or HR systems are found to affect innovative outcomes, albeit through mediating variables such as knowledge or intellectual capital (e.g. Chen & Huang, 2009; Cabello-Medina, López-Cabrales & Valle-Cabrera, 2011). The effect of HR practices on innovation at the individual level is relatively neglected (Yuan & Woodman, 2010).

Following from the observation that the basis of all innovations is good ideas that are then developed further (Amabile, Conti, Coon, Lazenby & Herron, 1996), individuals logically play a vital role in innovation because they are the holders and processors of ideas (Van de Ven, 1986). In order to gain an understanding of how individual employees can be motivated to utilize these good ideas for innovative outcomes, it is necessary to investigate what stimulates individual innovative behaviour (Scott & Bruce, 1994). Here, we study innovative work behaviour (IWB) as a conceptualization of individual innovation (e.g. Scott & Bruce, 1994; Janssen, 2005). IWB is defined as the behaviour of an individual to intentionally create, introduce, and apply new ideas, processes, or products (Janssen, 2000).

Organizations are able to provoke and stimulate desired behaviours by using HR practices that encourage specific attitudes and behaviours and discourage other undesired behaviours (Lepak, Marone & Takeuchi, 2004). Based on the ideas of social exchange theory (Blau, 1964), employees are viewed as perceiving HR practices as signals of the organization (Bowen & Ostroff, 2004; Dorenbosch, Van Engen, & Verhagen, 2005). If employees perceive the organization as providing value, they will feel obliged to reciprocate with something of value (Masterson, 2001) such as by helping the organization reach its goals (Stinglhamber & Vandenberghe, 2003). If
employees, through their perceptions of HR practices, conclude that innovative ideas are rewarded, and that the work environment is focused on generating and championing new ideas, they will reciprocate with innovative behaviour. This leads to the central question answered in this paper: to what extent do perceived HR practices stimulate IWB?

We investigate the effect of four individual HR practices on IWB, namely the compensation system, training and development, information sharing, and supportive supervision. The central idea is that employees who perceive that they are fairly compensated, are offered training and development programs, feel that information is shared with them, and perceive that their supervisor supports them will repay the organization with innovative behaviours.

It is always possible that employees will not perceive HR practices as they were intended because individuals employ different schemas in perceiving and interpreting HR-related information (Wright & Nishii, 2006). The messages that organizational members receive from the organization, about the importance and the type of behaviours that are expected, supported, and rewarded, are captured in the concept of organizational climate (Schneider & Reichers, 1983; Schneider, Salvaggio & Subirats, 2002). An organizational climate that is supportive of innovative behaviour is labelled an innovative climate. According to Schneider (1975), “climates serve as frames of reference for the attainment of congruity between individual behaviour and the organizational system’s practices and procedures” (Malik & Wilson, 1995: p. 203). Individuals form impressions of an organization’s practices through repeated experiences with these practices. Employees who perceive a work environment that is supportive of innovation, and HR practices that make them feel valued and invested in, will understand that they can reciprocate through innovative behaviour as this will help in achieving organizational objectives. On this basis, we argue that an innovative climate moderates the relationship between HR practices and IWB.
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This paper contributes to the literature by explaining how the innovative work behaviour of individual employees is affected by their perceptions of HR practices (e.g. Dorenbosch et al., 2005) and the innovative climate (e.g. Scott & Bruce, 1994; Malik & Wilson, 1995). Previously, the HRM - innovation link has been primarily studied in terms of organizational innovative outcomes, and this paper brings greater understanding of the relationship between HRM and individual innovation, and more specifically IWB. It also makes a major contribution by testing the moderating role of an innovative climate in the relationship between HRM and individual innovation outcomes. This responds to the call by Cabello-Medina et al. (2011), Wei, Liu, and Herndon (2011), and others for more knowledge and understanding of third variables in the relationship between HRM and innovation. A third contribution is in the way this paper measures the HR practices which affect IWB, namely through perceptions of HR practices. Whereas Bowen and Ostroff (2004) understand HRM purely as a process in which “employees share a common interpretation of what […] behaviours are expected and rewarded” (p. 204), we combine two understandings of HRM for our research: the process perspective on an innovative climate that supports innovative behaviour, and the content perspective in which we aim to identify those HR practices that allow employees to demonstrate innovative behaviour.

5.2 The effect of HRM on innovation

Three usages of innovation have been distinguished (Kimberly, 1981; Bantel & Jackson, 1989). The first is innovation as a result or an outcome, which involves the creation of a novel product, novel service, or even new ideas (Camelo-Ordaz, Fernández-Alles & Valle-Cabrera, 2008; Crossan & Apaydin, 2010). The second usage is innovation in terms of process (Crossan & Apaydin, 2010). Third, innovation can, depending on the level of analysis, be seen as an attribute of an actor. This could be an attribute of an organization, as in an innovative organization, or of individuals. The three
identified uses of innovation are compatible (Bantel & Jackson, 1989). Our study focuses on behaviour as an outcome on the individual level, namely innovative work behaviour. This refers to an innovation that is dependent on an employee’s intentional effort to provide beneficial novel outcomes at work (Janssen, 2000). At the same time, IWB is considered as a process-oriented innovation in which several stages can be distinguished. Previous studies have used either two stages, such as creativity-orientation and implementation-orientation (Dorenbosch et al., 2005), a more detailed three-stage approach (e.g. Scott & Bruce, 1994), or even four stages (De Jong & Den Hartog, 2010). We reflect the full spectrum of innovation by elaborating all four identified stages, but treat IWB as a one-dimensional construct (Scott & Bruce, 1994; Janssen, 2000; Kleysen & Street, 2001).

The first stage within IWB is the exploration of opportunities, and the second is the generation of ideas. These first two stages concern the initiation of an innovation. The initial phase of an innovation process starts with an opportunity, and the opportunity exploration stage entails identifying and grasping that opportunity (e.g. Kanter, 1988; Kleysen & Street, 2001). Idea generation aims to generate concepts that lead to improvement (De Jong & Den Hartog, 2010). Since employee creativity is needed to generate new ideas (Yuan & Woodman, 2010), it has added value in the idea generation phase. However, while creativity is defined as the “production of novel and useful ideas in any domain” (Amabile et al., 1996: p. 1155), IWB is much broader as it also contains the implementation of these novel ideas on the market through two additional stages: championing and application. In the championing stage, the idea is promoted throughout the organization in order to find support for the idea to be developed further. The application stage enables the ideas that were generated and promoted to become incorporated within ‘business as usual’ (Kleysen & Street, 2001). All four stages require different characteristics from employees. IWB is rarely expected of employees, and tends to be regarded as a discretionary behaviour (Janssen, 2000). Only prescribed behaviours, and thus not IWB, are formally rewarded.
by the compensation system (Janssen, 2000; Ramamoorthy, Flood, Slattery & Sardessai, 2005). Although previous research has established the importance of IWB for the sustainable competitive advantage of organizations (e.g. Van de Ven, 1986; Kanter, 1988; West & Farr, 1990), it remains necessary to improve our understanding of how employees can be stimulated to show IWB (Janssen, 2000). Based on the belief that “people, not products, are an innovative company’s major assets” (Gupta & Singhal, 1993: p. 41), and that it is employees who frame the innovative capacity of an organization through their intelligence, imagination, and creativity (Gupta & Singhal, 1993; Mumford, 2000), it is argued that certain HR policies and practices can identify, develop, evaluate, and reward innovative behaviour (Martell & Carroll, 1995; Jiménez-Jiménez & Sanz-Valle, 2008).

Here, rather than adopt a systems approach, we study the effect of individual HR practices on IWB. Combining the HR practices in systems loses information on why individuals behave in a certain way. Although, we recognize that different organizations can implement the same HR practice in multiple ways without affecting the innovative outcomes of this practice, we do not study HR systems because we want to gain more understanding of the way employees perceive HR practices and how these HR practices affect IWB.

Based on the norm of reciprocity, which is central to social exchange theory (Homans, 1958; Blau, 1964), employees trade their effort and dedication in generating and implementing new ideas for tangible incentives such as pay and fringe benefits, access to training and development programs, and socio-emotional benefits such as support, caring, and information sharing (Rhoades Shanock & Eisenberger, 2006). If organizations send out signals of commitment toward employees, these employees will reciprocate with higher levels of discretionary behaviours such as IWB (Wright & Nishii, 2006; McClean & Collins, 2011). In line with this, we argue that individually perceived HR practices geared toward high commitment will affect IWB. We focus on HR practices that are commonly used in the high-commitment HRM literature such as the
compensation system, training and development, information-sharing, and supportive supervision (e.g. Arthur, 1994; Boselie, Hesselink, Paauwe & Van der Wiele, 2001; Way, 2002; Gould-Williams & Davies, 2005; McClean & Collins, 2011) and their individual effects on IWB.

Compensation system

It is acknowledged that certain compensation systems affect organizational performance (Boselie, Dietz & Boon, 2005; Faems, Sels, De Winne & Maes, 2005). However, the effect of the compensation system on innovation is somewhat ambiguous. Contingent pay and performance-based pay both appear to contribute to innovation (e.g. Shipton et al., 2006; Beugelsdijk, 2008). We have seen that innovation is characterized by a compensation system that recognizes and equitably rewards excellent performance (Abbey & Dickson, 1983), and we would expect that recognizing and rewarding performance also to stimulate innovative work behaviours. From Chandler, Keller, and Lyon (2000) we know that a compensation system can have a significant impact on innovative behaviour, both because it can be a tool to increase such behaviour and because it can discourage other behaviours by only rewarding innovative behaviours. An effective compensation system to encourage such behaviours needs to consider goals, feedback, an emphasis on individual responsibility, and results-based incentives (Hornsby, Kuratko & Zahra, 2002). According to Folger and Konovsky (1989), the amount of compensation that employees receive and the type of reward system do not affect innovation outcomes, rather innovation increases when employees perceive the system as fair. Whether employees perceive compensation as fair depends on its relative rather than its absolute level. Comparing one’s contribution and compensation to those of others can lead to a perception of fairness known as distributive justice (Adams, 1965; Masterson, 2001).

Social exchange theory argues that when employees’ efforts are fairly rewarded, employees are willing to reciprocate with innovative behaviour.
that goes beyond contractually determined job achievements (Janssen, 2000). Conversely, when employees perceive their work to be under-rewarded by the organization, they tend to limit their IWB (Janssen, 2000). According to Amabile et al. (1996), receiving extra compensation, such as a bonus, beyond the compensation established for the work employees are hired to do, will encourage individual employee outcomes. On this basis, our first hypothesis is formulated as follows:

H1: Employees who perceive the compensation system of their organization as fair will show high levels of innovative work behaviour.

Training and development
Organizations can enhance their human capital through training and development practices. Behavioural theories have shown that training can enhance certain behaviours and discourage others by removing the stimuli for those behaviours (Skinner, 1974). Training enables the development of necessary capabilities (Lado & Wilson, 1994) and ensures that employees have the basic skills to perform effectively (Keep, 1999). Employees need such capabilities and skills to be critical and to come up with constructive ideas for change.

Providing training and development will signal that the organization considers its employees to be valuable and is willing to invest in them (Tremblay, Cloutier, Simard, Chênevert & Vandenberghe, 2010). Employees will determine whether the opportunities to participate in training or to develop themselves are satisfactory. As Benson, Finegold, and Mohrman (2004: p. 326) suggest, employees “respond to development opportunities with positive attitudes toward the company that offers the development”. These positive attitudes will result in behaviour that is valuable for both the organization and for the employee. When employees perceive training and development opportunities as helpful and valuable, they feel better prepared for developing new ideas. Gist (1989) offers evidence for this by showing
that participants who took part in training composed of cognitive modeling, with practice and reinforcement, outperformed others on measures of divergence in ideas generated and innovative problem-solving. Shipton et al. (2006) showed that, compared to other HR practices, training had the greatest effect on product innovation and on innovation in technical systems. Therefore, we conclude that training will also enhance IWB, leading to our second hypothesis:

H2: Employees who perceive their organization as facilitating training and development will show higher levels of innovative work behaviour.

Information sharing

Sharing innovation-related information within and between companies is beneficial because (1) it may induce improvements by others; (2) it might lead to an advantageous standard; (3) it signals low rivalry conditions; and (4) it leads to expectations of reciprocity and reputation effects (Franke & Shah, 2003) delivering collective rather than individual inventions (Allen, 1984). An open system of information sharing has been found to be beneficial for innovation, especially when it is supported and stimulated by top management (Camelo-Ordaz et al., 2008; Qin, Smyrnios & Deng, 2012). Hu, Horng, and Sun (2009) found that knowledge sharing has a significant positive effect on employee service innovation behaviour. According to Vera and Crossan (2005), open information sharing is a critical aspect of participation in innovation processes (West, 1990) because the risks of engaging in creative and spontaneous processes of improvisation are too high if teams feel they lack up-to-date information.

Research shows that organizations not communicating their goals and not encouraging employees to share information can lead to negative outcomes because employees perceive this as procedurally unfair (Way, 2002; Bowen & Ostroff, 2004). Sharing information allows an increase in perceived trust,
support, and fairness (McElroy, 2001). This particularly stimulates the support of an idea in the championing stage, although it also encourages the initiation stage (Qin et al., 2012). If employees feel that their organization trusts them, supports them, and treats them fairly they may feel the need to reciprocate (McElroy, 2001) through innovative behaviour. Therefore, the third hypothesis is as follows:

**H3:** Employees who perceive their organization as sharing information will show high levels of innovative work behaviour.

**Supportive supervision**

Supportive supervision is the support employees perceive from their direct supervisor. It can be understood as an HR practice (Boselie et al., 2001) and as a leadership behaviour (Stinglhamber & Vandenberghe, 2003; Ng & Sorensen, 2008). Boselie et al. (2001) identify supervisor support as one of five high-commitment HR practices and understand it as the employees’ perceptions that they get performance feedback from their supervisors on a regular basis. In line with the aim of high-commitment HR practices, employees will feel encouraged to work hard to achieve the organization’s goals if supervision is experienced as supportive. Supportive supervision can also be understood as a leadership behaviour, e.g. as perceived supervisor support (PSS) (Eisenberger, Stinglhamber, Vandenberghe, Sucharski & Rhoades, 2002). Employees experiencing supportive supervision feel obliged to reciprocate by helping their line manager to attain business unit goals (Rhoades Shanock & Eisenberger, 2006). Reciprocation toward the line manager therefore helps to increase in-role performance, and it can also lead to behaviours beyond the formal job description (Rhoades Shanock & Eisenberger, 2006). Parker, Williams, and Turner (2006) found that supportive supervision is correlated with proactive work behaviour and change orientation. Basu and Green (1997) found that employees who were supported by their leaders were more likely to be innovative.
De Jong and Den Hartog (2007) presented various leader behaviours that influence employees’ innovative behaviour. They found that line managers should provide employees with challenging tasks, provide time and money to implement ideas, show appreciation for innovative performance, or stimulate open and transparent communication. IWB will only be stimulated if employees see possibilities for their generated ideas to have a chance of successful implementation. The support employees perceive from their supervisor for their ideas leads to an acknowledgement and stimulation of the perceived success of IWB.

On this basis, the fourth hypothesis is formulated as:

H4: Employees who perceive supportive supervision from their line manager will show high levels of innovative work behaviour.

5.3 Innovative climate as moderator in relationship between HR practices and IWB

The effect that perceived HR practices have on individual innovative behaviour depends on an individual’s perceptions of the work environment (James & Jones, 1976). Individuals tend to interpret situations in ways that are psychologically meaningful to them (James, Hater, Gent & Bruni, 1978; Jones & James, 1979; James, James & Ashe, 1990) and this involves idiosyncratic interpretations, generalizations, and inferences (James & Sells, 1981). According to James and Sells (1981: p. 276), “the environment that an individual ‘knows’ is a product of cognitive constructions, reflecting various forms of filtering, abstraction, generalization, and interpretation”. The result of this process of filtering and interpreting is a psychological climate.

Climate was originally thought to be a generic concept, embodying several dimensions of organizational practices that drive toward positive experiences of employees at their workplace (Schneider, Ehrhart & Macey,
2011). However, because people encounter various events, practices, and procedures in organizations, Schneider and Reichers (1983) call for climates ‘for something’ and conclude that “to speak of organizational climate per se, without attaching a referent is meaningless” (p. 21). Thus, a more specific approach is needed that focuses on “criterion-oriented climates” (Jones & James, 1979: p. 203), such as a climate for innovation (Scott & Bruce, 1994; Anderson & West, 1998; Schneider et al., 2011). An innovative climate supports the initiation and development of new ideas, recognizes individual creativity, and is characterized by individual autonomy and ownership (Siegel & Kaemmerer, 1978).

According to the contingency theory of strategic human resource management (Schuler & Jackson, 1987), an innovation strategy should foster the implementation of HR practices that focus on innovation. This means that perceptions of HR practices need to be aligned with employees’ interpretations of an innovative work climate if they are to guarantee innovative behaviour. Consequently, Shadur, Kienzle, and Rodwell (1999) believe that it is necessary to match the climate with the practices being implemented.

Employees’ perceptions that HR practices can create benefits for the organization and for the individual may be influenced by positive feelings that are generated through a perceived supportive climate. Based on arguments of social exchange theory, an innovative climate would convey to individual employees the message that IWB is an organizationally valued behaviour through which employees can effectively repay the firm. It shows employees that they are supposed to be innovative rather than productive or service-oriented. Such an innovative climate is therefore likely to enhance the effect that HR practices have on IWB by creating an atmosphere of creativity and risk-taking. For example, supportive supervision by line managers will result in more innovative behaviour if individuals also perceive an innovative climate in which “initiatives can be taken without fear of reprisal and ridicule in case of failure” (Ekvall, 1996: p. 107) and have sufficient autonomy (Siegel & Kaemmerer, 1978). In this case,
employees will not only perceive the supervisor as supportive but also the organization because it encourages and rewards employees to be innovative. Earlier, we argued that employees might sense a need to repay the organization for its investments in training and development by developing innovative ideas and bringing them to the market. This effect will be stronger if employees perceive the work environment as appreciating and stimulating participation in training programs and as offering employees time and resources to develop themselves.

The more that employees perceive a climate as supportive of innovation, the stronger the effect will be of employees’ perceptions of HR practices on innovative behaviour. This leads to our final hypothesis:

H5: An innovative climate moderates the relationship between perceived HR practices and IWB, such that the positive relationship between perceived HR practices and IWB will be stronger when the organizational climate is perceived as supportive of innovation.

Figure 5.1 presents all the hypothesized relationships in a model.

5.4 Methods

Data collection and sample
Data for this study were collected in four manufacturing companies between May 2010 (pilot study) and July 2011. We limited the geographical scope by selecting companies in the eastern part of the Netherlands. This region is characterized by agricultural and manufacturing industries. Eighteen percent of the region’s workforce is employed in manufacturing, compared to 15 percent nationally. With a traditional emphasis on labour-intensive industries, including textiles, the region has experienced competition from firms in Eastern Europe, Africa, and Southeast Asia.
Data were collected by means of a written questionnaire. In total, we distributed 585 questionnaires containing 65 variables to employees in the production departments of the four companies. The targeted respondent was a shop-floor production worker. A total of 463 questionnaires were returned. The overall response rate was 79.1 percent, ranging from 21.1 to 100 percent for the individual firms.

We selected production workers in manufacturing companies because such workers are generally not dedicated to achieving innovative outcomes. R&D departments and their staff have prescribed tasks aiming for innovation, as do knowledge workers in the service industry because of customized approaches toward delivered services (Den Hartog, 2000). By selecting production workers, we should avoid any effect of dedicated innovation tasks and attention.

Identified employees received an internal communication (by mail or orally) from their line managers stressing the importance of the questionnaire. Employees were assured that participation was voluntary and
anonymity was guaranteed. In all the companies, a member of the research team was present to answer any questions. This option was only taken up by respondents seeking minor clarifications of the procedure.

Measures

HR practices

In assessing HR practices, we drew on the high-commitment HR practices constructs of Boselie et al. (2001). In addition, items for supportive supervision were adapted from Yukl, Wall, and Lepsinger (1990). We used a five-point Likert scale, ranging from 1 = ‘totally disagree’ to 5 = ‘fully agree’. The perceptions of four HR practices were measured: fairness of the compensation system (three items, e.g. “I am not being underpaid for my work”); training and development (three items, e.g. “I am well prepared for my work because of the training I received from my business unit”); information sharing (four items, e.g. “I am well informed on the vision and mission of the company”); and supportive supervision (four items, e.g. “My direct leader is someone you can count on, even when you initiate something unsuccessfully”). These scales were found to be reliable, with Cronbach’s alphas of .70 (perceived compensation system), .80 (perceived training and development), .81 (information sharing), and .85 (supportive supervision).

Innovative climate

To measure the innovative climate, we adopted the “support for innovation (climate)” scale of Malik and Wilson (1995). This was based on five items, originally developed by Siegel and Kaemmerer (1978) for support of creativity on a five-point Likert scale ranging from 1 = ‘totally disagree’ to 5 = ‘fully agree’. An example item is “People in this organization are always
searching for fresh, new ways of looking at problems”. The scale was found to be reliable with a Cronbach’s alpha of .83.

**IWB**

Innovative work behaviour was measured using eleven items adapted from Kleysen and Street (2001) and from De Jong and Den Hartog (2010). All items were scored on a five-point Likert scale, with possible answers ranging from 1 = ‘never’ to 5 = ‘very often’. Each of the four dimensions of IWB outlined earlier was addressed. Three questions, adopted from Kleysen and Street (2001), concerned opportunity exploration, for example, “Do you pay attention to non-routine issues in your work, department, organization, or the market place?” For idea generation, three items from De Jong and Den Hartog (2010) were adopted and used, for example, “Do you generate original solutions to problems?” Two items, also adopted from De Jong and Den Hartog (2010), addressed championing: for example, “Do you attempt to convince people to support an innovative idea?” The final three IWB items dealt with idea application, with items again adopted from De Jong and Den Hartog (2010), for example, “Do you put effort into the development of new things?” The measurement of IWB was found to be an additive scale consisting of the items of the four dimensions (De Jong & Den Hartog, 2010). The Cronbach’s alpha for the overall scale was .91, indicating the scale as reliable.

**Control variables**

Tenure, age, and education level could influence IWB as they may be reflected in different characteristics of organizations and the way human resources are deployed. Therefore, we included these characteristics as control variables to measure potential effects. Tenure is measured as the number of years employed, which was categorized in the questionnaire. Age was also categorized (1 = ‘younger than 29’; 2 = ‘aged between 30 and 39’;
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3 = ‘aged between 40 and 49’; 4 = ‘aged between 50 and 59’; and 5 = ‘60 years and older’). Both aspects were categorized to boost anonymity: employees were more likely to fully complete the questionnaire if they could indicate categories for tenure and age rather than give exact, possibly unique, details. We also used categories of education level achieved (1 = primary school; 2 = secondary school; 3 = lower vocational education; 4 = intermediate vocational education; 5 = university). Finally, we controlled for the employing company using a dummy variable.

Data analysis
Given that the data were self-reported and collected at a single point in time through a single questionnaire, common method bias could be present causing systematic measurement error. To check for this, we first conducted a Harman’s single factor test to uncover any presence of common method variance. A principal component analysis with no rotation was conducted on all items. This resulted in the expected six factors with an eigenvalue greater than 1.0 and a total explained variance of 61.9 percent. The largest factor explained 25.5 percent of the variance. Since no factor contributed more than half of the explained variance, no general factor is apparent (Podsakoff & Organ, 1986). However, this technique has been criticized (Podsakoff, MacKenzie, Lee & Podsakoff, 2003) and so we confirmed these conclusions using confirmatory factor analysis. We carried out an unmeasured latent methods factor analysis (Podsakoff et al., 2003; Williams, Cote & Buckley, 1989), tested a model with a common latent factor, and then compared the results with those from a model without the common latent factor. This comparison indicated a method variance of 9.6%, well below the 25% method variance observed by Williams et al. (1989). On this basis, we conclude that common method bias is not a major issue.

We had conceptualized IWB as one-dimensional, with four innovation stages addressed in a single construct, rather than as a four-dimensional
construct. We carried out a confirmatory factor analysis to determine if this was true, and tested two competing models (Hair, Black, Babin & Anderson, 2010). First, we tested a second-order four-factor model, with the items loading on to the proposed innovation stages. Next, we tested a model with the eleven items loading on to a single factor. For an acceptable fit, CFI should be greater than .90, RMSEA should be less than .08, and GFI should be greater than .90 (Hair et al., 2010). The results for the four-factor model showed an acceptable fit in terms of CFI (.951) and GFI (.940) but the value of RMSEA (.087) was not below the threshold. The one-factor model had a better fit (CFI = .961; RMSEA = .079; GFI = .947). Therefore, we concluded that IWB is indeed one-dimensional. Confirmatory factor analysis also determined that the four HR practices were indeed distinctive from each other (second-order four-factor model: CFI = .941; RMSEA = .066; GFI = .938).

5.5 Results
The means, standard deviations, Cronbach’s alpha coefficients, and correlations for the variables of this study are presented in Table 5.1. Multicollinearity can be ruled out as the maximum correlation between the independent variables is .54, well under the threshold of .90 (Janssen, 2000). Further, the Variance Inflation Factor (VIF) values associated with the predictors are within acceptable limits at between 1.16 and 1.97 (O’Brien, 2007; Hair et al., 2010).

The average scores for the HR practices indicate that employees experience the fairness of their compensation system as below neutral, whereas the other three HR practices are all above neutral. The innovative climate was also assessed as above neutral on average. All the significant correlations were positive in line with our hypotheses.
Table 5.1: Means, standard deviations, and correlations.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Compensation system</td>
<td>2.95</td>
<td>.69</td>
<td>-.02</td>
<td>.12</td>
<td>.21</td>
<td>.26</td>
<td>.00</td>
<td>(.91)</td>
</tr>
<tr>
<td>2. Training &amp; development</td>
<td>3.48</td>
<td>.77</td>
<td>.39</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Information sharing</td>
<td>3.38</td>
<td>.67</td>
<td>.25</td>
<td>***</td>
<td>.54</td>
<td>***</td>
<td></td>
<td>(.81)</td>
</tr>
<tr>
<td>4. Supportive supervision</td>
<td>3.61</td>
<td>.72</td>
<td>.14</td>
<td>***</td>
<td>.38</td>
<td>***</td>
<td>.36</td>
<td>***</td>
</tr>
<tr>
<td>5. Innovative climate</td>
<td>3.58</td>
<td>.61</td>
<td>.29</td>
<td>***</td>
<td>.50</td>
<td>***</td>
<td>.49</td>
<td>***</td>
</tr>
<tr>
<td>6. Innovative work behaviour</td>
<td>2.99</td>
<td>.73</td>
<td>-.02</td>
<td>.12</td>
<td>.21</td>
<td>.26</td>
<td>.00</td>
<td></td>
</tr>
</tbody>
</table>

N=463 (two-tailed test). Alphas are given in parentheses.

** Correlation is significant at p < .05
*** Correlation is significant at p < .01

The results of the regression analyses are shown in Table 5.2. Model 1 includes the control variables and model 2 includes the direct effects of perceived HR practices on IWB in order to test the first four hypotheses that address this aspect. As model 2 shows, three of the (perceived) HR practices are significant: the compensation system (β = -.13, p < .05), information sharing (β = .22, p < .01), and supportive supervision (β = .23, p < .01). However, the effect of the perceived compensation system is negative, contrary to what was hypothesized and, therefore, Hypothesis 1 is rejected.

As training and development did not have a significant effect, Hypothesis 2 is not supported. Given the significant and positive effects of information sharing and supportive supervision, Hypotheses 3 and 4 are supported, respectively suggesting that perceived information sharing and perceived supportive supervision are significantly related to IWB.

In order to test Hypothesis 5, that an innovative climate moderates the relationship between perceived HR practices and IWB, several steps were taken (Aiken & West, 1991). Firstly, all the predictor variables were centered to increase the interpretability of the interactions (Aiken & West, 1991). Model 3 includes the interaction effects and the analysis shows a marginally significant moderating effect of innovative climate on the relationship between training and development and IWB (β = -.17, p < .10)
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Table 5.2: Results of regression analysis, with innovative work behaviour as the dependent variable.

<table>
<thead>
<tr>
<th>Innovative Work Behaviour</th>
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</thead>
<tbody>
<tr>
<td>B</td>
</tr>
</tbody>
</table>

**Step 1: Control variables**
- Tenure: .05 .04 .03
- Age: -.04 -.02 -.02
- Education: .05 .02 .02
- Company 1: -.03 -.14 -.11
- Company 2: .28** .23* .26**
- Company 3: .34** .37*** .37***

**Step 2: Perceived HR practices**
- Compensation system: -.13** -.10
- Training & development: .05 .05
- Information sharing: .22*** .28***
- Supportive supervision: .23*** .25***

**Innovative climate**
- -.16* -.19**

Comp. system * Innovative climate: -.05
Training. & development * Innovative climate: -.17*
Information sharing * Innovative climate: .28**
Supportive supervision * Innovative climate: .08

\[ \Delta R^2 \]  .05** .12*** .03**
F  2.55** 4.97*** 4.52***
R^2  .05  .17  .20
Adjusted R^2  .03  .13  .16

Notes: * p < .1; ** p < .05; *** p < .01

plus a significant moderating effect of innovative climate on the relationship between information sharing and IWB (β = .28, p < .05). Although we had hypothesized that innovative climate would enhance the relationships between all the considered HR practices and IWB, we only found a significant positive effect for the interaction term of information sharing and innovative climate. The interaction term of training and development and innovative climate has a negative effect on IWB. As shown in Table 5.2, there were no significant moderation effects of innovative climate on the
other two perceived HR practices and IWB. To interpret the significant interaction effects, we plotted the patterns of these interactions in Figure 5.2a and Figure 5.2b, and conducted simple slope tests following Aiken and West’s (1991) approach. Figure 5.2a depicts the interaction plot for the moderating role of innovative climate in the relationship between perceived training and development and IWB, Figure 5.2b similarly shows the interaction effect between perceived information sharing and innovative climate on IWB. Figure 5.2a shows that, with a low innovative climate, the relationship between perceived training and development and IWB is marginally significant (t = 1.671), while in a highly innovative climate this relationship is slightly negative (t = -.519) but not significant. The second plot (Figure 5.2b) indicates that, in a highly innovative climate, the

Figure 5.2a: Interaction plot of the moderation effect of innovative climate on the relationship between training & development and IWB
hypothesized positive relationship between perceived information sharing and IWB exists (t = 3.967). In a low innovative climate, the relationship is slightly positive (t = 1.202) but not significant. Hypothesis 5 was formulated to reflect a positive moderating effect of an innovative climate, which is supported for perceived information sharing but not supported for perceived training and development.

5.6 Discussion
The purpose of this study was to explore the effect that perceptions of HR practices have on the innovative work behaviour of individual workers, and to examine the role of an innovative climate in this relationship. In so doing, we answer the call of Yuan and Woodman (2010) for greater understanding of the effects that HR practices have on individuals’ innovation by showing direct effects of three perceived HR practices on IWB. This shows that, even in a non-R&D environment, HR practices affect the innovative behaviours of employees. Our findings therefore support the results of Dorenbosch et al. (2005) who tested the effect of a perceived high-commitment work system
on IWB. However, going beyond their findings, we were able to demonstrate that certain individual HR practices affect IWB, namely the compensation system (negative effect), information sharing, and supportive supervision (both positive). That is, employees who perceive their organization as sharing information with them and feel supported repay the organization with innovative behaviour. The effect of information sharing on IWB is even stronger if employees experience an innovative climate. This highlights the interaction between, and the importance of using, both the process and the content perspectives on HRM (Bowen & Ostroff, 2004).

Employees who perceive the organization as sharing information with them and the supervision as supportive show greater IWB than employees who do not. Evidence in earlier studies suggested that knowledge sharing (Hu et al., 2009) and open information sharing (Vera & Crossan, 2005) would facilitate innovative behaviours, and we have now found evidence that, as Qin et al. (2012) predicted, information sharing also has positive effects on IWB. We offer strong support for the hypothesis and results of Basu and Green (1997), who predicted that subordinates who are supported by their line managers would show innovative behaviours. Both results highlight the important role of line managers on all levels in encouraging employees to become innovative (Basadur, 2004; De Jong & Den Hartog, 2007; Hornsby et al. 2002). Line managers need to share the necessary information with employees to allow them to be creative and innovative, but they also need to support and recognize employees’ initiatives and innovative efforts in trying something new or different. As such, mistakes should not be punished by immediate leaders but rather seen as a learning opportunity in order to create a positive and safe atmosphere that encourages openness and risk taking (De Jong & Den Hartog, 2007). Line managers also have an important role in creating an innovative climate in their work unit (Scott & Bruce, 1994).

We hypothesized that the relationship between perceived compensation system and IWB would be a positive one: we expected that if employees
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perceive their compensation system as fair that they would exhibit more innovative behaviour. However, we found a significant negative relationship. An explanation for this could be that those employees who perceive their compensation system as fair exhibit less IWB because they do not feel the need to be visible. In a situation perceived as lacking distributive justice in the compensation system, employees might feel the need to demonstrate positive attitudes and behaviours toward the organization in order to gain a bonus or some other performance-based reward. Ramamoorthy et al. (2005) had already shown that distributive justice does not directly lead to IWB. Given our findings, it seems that in order to behave innovatively, employees need to perceive a form of distributive injustice. Perceiving a potential for “incorrect” assessment in determining benefits could inspire innovative behaviour (Folger, 1993). An alternative explanation, based on the work of Hornsby et al. (2002), could be that a compensation system needs to consider goals, offer feedback, emphasize individual responsibility, and provide results-based incentives if it is to generate innovative behaviours. Maybe the employees in our sampled production companies did not perceive such a system, or experienced fixed compensation no matter how they behaved, and thus did not display more innovative behaviours. However, we should also acknowledge that our measurement had limitations. There were 66 missing values for this construct (14.3 percent), and the researchers who collected the data overheard several employees commenting that they would give this a low value. It might be that employees felt a need to give artificially low scores because, using the terminology of social exchange theory, they believe that their perceived reward, in the sense of fairly rewarded efforts, does not outweigh the perceived costs (Homans, 1958). They might be afraid that, if they assessed the compensation system as fair, management would argue that they were satisfied with their compensation, especially given the management interest in the results of the study. Employees could have been giving a signal to management that they wanted higher financial rewards, even if they already felt the compensation system was fair.
An innovative climate moderated the relationships between information sharing and IWB, as well as between training and development and IWB. In an innovative climate, employees’ perceptions that information is shared might become stronger because information and knowledge is necessarily shared for the greater goal of innovation (Hu et al., 2009; Vera & Crossan, 2005). They understand that they can reciprocate the openness of the organization in sharing information with employees who display innovative behaviours. We did not see any effect on IWB of perceiving training and development opportunities as being facilitated. This offers support to the view that only specific training programs can stimulate innovative behaviour: that training methods need to combine cognitive modeling with practice and reinforcement to positively influence innovative behaviour (Gist, 1989). Employees in our sample seemed not to have experienced such training programs but only general ones that do not train employees in creative thinking (Basadur, Graen & Scandura, 1986) or in problem solving (Scott, Leritz & Mumford, 2004). In an innovative business environment, those training programs that aim to train necessary capabilities need to be specified (Lado & Wilson, 1994). Furthermore, those training programs aiming at training basic skills to perform effectively (Keep, 1999) need to be given an innovative goal. Therefore, we call on HR managers to define the competences and skills that need to be addressed in training programs to stimulate innovative behaviours in production organizations, and then to develop such training programs. Our results showed, even when employees perceive an innovative climate, that general training programs can have a negative effect on innovative behaviours. In such situations, employees’ perceptions of training and development opportunities may contradict the innovative climate and lead them to behave less innovatively.

The results show that an innovative climate is significantly and negatively related to IWB, contrary to our theoretical reasoning for a positive relationship. A possible explanation could be that innovation programs, initiated by companies to fulfill their innovation needs, may
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generate new ways of working, and employees who utilize these programs may be negatively affected if the innovative climate still stimulates the former ways of working (Perlow, 1995; Kossek, Colquitt & Noe, 2001). We did not test whether there was a distinction in the organizations between new and old ways of working due to innovation programs, but it is a plausible explanation that warrants further study. Another possible explanation is suggested by the failure to find a moderating effect between supportive supervision and IWB, hinting at an inconsistent climate. An inconsistent climate, such as one that is conductive to innovation but with close supervision, could easily be found in manufacturing companies and have a negative effect on performance (Pritchard & Karasick, 1973). Various authors, including Scott and Bruce (1994), have provided empirical support for the climate (especially an innovative climate) affecting innovative behaviours. We carried out an additional analysis (not included here but available upon request) that indicated that an innovative climate had a significant negative effect on implementation-oriented work behaviour, but not on creativity-oriented work behaviour (see Dorenbosch et al., 2005). In an innovative climate, people are rewarded and encouraged to be creative, to take risks, to look for solutions, and to adapt to changes (Malik & Wilson, 1995). While such behaviours should lead to problem recognition and idea generation, they might be counterproductive in the implementation stage. Implementation-oriented work behaviours require people to show effort and result-oriented attitudes (De Jong & Den Hartog, 2010) in order to seek sponsorship and build a coalition of supporters for their innovative ideas (Scott & Bruce, 1994). A different climate might be needed to encourage these work behaviours, one in which people feel supported for what they have created rather than being challenged to come up with new solutions.

5.7 Conclusions, limitations, and practical implications
One limitation of this research is the reliance on cross-sectional data. Further research could address this by adopting a longitudinal research design.
Further, we believe it would be valuable for future research to explore how supervisors assess their subordinates in terms of IWB and compare this to self-reported IWB. By gathering this additional data on the IWB of employees, the danger of common method bias could also be avoided. In our study, all the measures were self-reported and collected at a single moment in time by a single respondent. Nevertheless, by conducting a Harman’s single factor analysis and an unmeasured latent methods factor analysis, we were able to show that common method bias was unlikely to be a problem.

As noted earlier, our measurement of fairness of the compensation system seems to have some flaws. The relatively large number of missing values for the items of this construct, and the signals respondents gave when they completed the survey, hint at a motivated non-response and response bias, the latter leading to an underestimation of perceived fairness.

We end by drawing some practical implications. Innovative work behaviour can be enhanced by HR practices and the perceptions that employees have of them. This is good news for managers, as it demonstrates that discretionary and extra role behaviours, such as innovative behaviour, can be enhanced by information sharing and supportive supervision but reduced by a perceived fairness in the compensation system. Although we reflected on which forms of compensation systems had this unwanted effect, we need to know more about the specifics of compensation systems that have negative effects on IWB and maybe there are other forms that would even encourage it. Employees interpret actual HR practices and HR policies as they are implemented by their managers (Wright & Nishii, 2006). Our findings suggest that these implementers of HRM play an important role in the level of IWB. Wright and Nishii (2006) suggest that communication could be the link between actual and perceived HR practices. In line with this, we see that open communication regarding the company’s strategy, the expectations the company has of its employees, and the way managers provide support for innovation all contribute to IWB.
In studying the relationship between HR practices and IWB as described above, there is the danger of giving the impression that increased IWB is always good for organizations. However, innovative work behaviour is not seen in all countries and all cultures as desirable. We would not claim that our results are valid globally in terms of IWB, but rather that employees reciprocate value offered the organization with something of value for the organization. In other scenarios, this value could be found in other behaviours such as obedience. Clearly in a manufacturing company, where employees should be contributing to producing goods according to specifications, there is no need to have a workforce that behaves in a fully innovative manner. Rather, we would expect an inverse U-shaped relationship. This raises two points. First, we conducted our study in manufacturing companies, which imposes certain conditions in terms of innovative behaviour. Every employee knows that some elements of the production process are fixed, such as quality or safety specifications. They would have been aware of this when completing our questionnaire on IWB. Second, taking a closer look at the data on IWB, it is clear that production workers score themselves more highly for the creativity stage, which consists of idea exploration and idea generation, than the implementation stage, consisting of championing and application. More in-depth research could help understand how different HR practices relate to different innovative behaviours. Nevertheless, we believe that we have provided valuable management information concerning which HR practices foster innovative work behaviour by employees and how this could be further strengthened by investing in an innovative climate.

5.8 References


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Chapter 6

Discussion
Discussion

6.1 Introduction
This research examined the role of HRM in the enhancement of innovation at the organizational and individual level. First, we developed a conceptual framework for studying hypothetically how organizations might enhance their innovation performance using HRM. Here, where we introduced the concept of creative capital as an enabler of explorative forms of innovation. Second, we explored qualitatively firm-level creative capital and the role external labour plays in enhancing firm-level creative capital. Then, we turned our research focus onto innovation at the individual level and examined to what extent individuals’ perceptions of HR practices affect different dimensions of innovative work behaviour. In our final empirical study, we analyzed the effect of perceived HR practices on innovative work behaviour as a whole, as well as the role of innovative climate in this relationship.

In this chapter we discuss the theoretical and practical implications of the preceding chapters and draw our overall conclusions. Table 6.1 presents the main findings per chapter.

6.2 Main findings in integration
We developed a conceptual framework to explore, integrate and advance understanding on the relationship between HRM and innovation in which we introduced the concept of creative capital. We are convinced that the concept of creative capital that builds on regional economic development literature offers a better explanation of organizational innovation performance. We argue that it is important for organizations to look beyond their organizational boundaries to boost their innovation performance. Conventional literature is based mostly on two theoretical approaches to explain innovation performance: human capital; and, social capital theories. Both approaches suggest that human capital becomes homogeneous over time. While both theories have contributed assertively to the knowledge and
### Table 6.1: Main findings of the preceding chapters

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Main findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affecting innovation through HRM: the role of creative capital</strong></td>
<td>We developed a conceptual framework in which we introduced the concept of creative capital to overcome limitations of current theoretical approaches linking HRM to innovation. Two main paths were distinguished, each leading to a specific form of innovation: either exploitation or exploration. The ‘exploitative path’ proposes that exploitation follows from a homogeneously composed human capital pool through social capital. An ‘explorative path’ includes propositions that exploration follows from a heterogeneously composed human capital pool via creative capital. Exploitation is proposed to be affected positively by HR practices that are focused towards internalizing employment, whereas exploration is proposed to be affected positively by HR practices geared towards externalizing employment. HRM will be more effective in enhancing innovation if organizations have different HR practices for different groups of individuals.</td>
</tr>
<tr>
<td><strong>Firm-level creative capital and the role of external labour</strong></td>
<td>Creative capital was identified at the organizational level, after providing an operationalization of firm-level creative capital. The multiple case study research has found that organizations which are low in creative capital tend to use external labour, in the form of temporary employees for non-core functions; whereas organizations which are high in creative capital use external employees through contract and project-based formulas, and consultants and specialists, for core activities in order to boost the diversity of their knowledge and skills and to increase their creative capital. Further, the findings indicated that more use is made of external labour in highly creative capital organizations when they are operating in dynamic environments. We found differences in the use and role of labour market intermediaries between organizations low in creative capital compared with those with medium and high levels of creative capital.</td>
</tr>
<tr>
<td><strong>Perceptions of HRM and their effect on dimensions of innovative work behaviour: Evidence from a manufacturing firm</strong></td>
<td>We found that innovative work behaviour (IWB) has three distinct dimensions, not only conceptually, but also empirically, namely: idea generation including opportunity exploration; idea championing; and, idea application. The results show that four HR practices (supportive supervision; training and development; information sharing; and, compensation) have an effect on at least one dimension of IWB (idea generation; idea championing; and, idea application). Overall, supportive supervision was found to be the most beneficial for IWB.</td>
</tr>
<tr>
<td><strong>HRM and Innovative Work Behaviour: The moderating effect of an innovative climate</strong></td>
<td>IWB results to be affected negatively by how employees perceive the compensation system and affected positively by how employees perceive information-sharing and supportive supervision. An innovative climate moderates the effect of information-sharing and supportive supervision on IWB. It became clear that organizations can enhance their IWB by HR practices and the perception employees have of them. Managers, supervisors and HR professionals should put more emphasis on this.</td>
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</tbody>
</table>
Development of Human Resources they do ignore some organizational dynamics. For example, in the longer term, employees who do not share the attributes of the organization may leave (Schneider, Goldstein & Smith, 1995). The creative capital approach overcomes limitations of the human and social capital theoretical approaches linking HRM to innovation and gives insights into the use of heterogeneous composed human capital and its role in enhancing a more explorative form of innovation.

By distinguishing between two types of innovation processes - exploitative innovation and explorative innovation - we developed a framework with two main paths. The ‘exploitative path’ proposes that exploitation follows a homogeneously composed human capital through social capital. An ‘explorative path’ proposes to explain exploration through a heterogeneously composed human capital via creative capital. We argue that HRM should be more effective in enhancing innovation performance if organizations have different HR practices for different groups of individuals. Exploitation is likely to be positively affected by HR practices that are focused towards internalizing employment. HR practices geared towards externalizing employment are expected to enhance exploration of organizations.

Having acknowledged that the concept of firm-level creative capital is not tested yet, in the second study, we conducted a multiple case study to identify firm-level creative capital and examine the role of external labour in enhancing creative capital.

We make the concept operational by conceptualizing firm-level creative capital in dimensions of creativity of individuals, organizational creative ability and the relationships of employees. Our multiple case study showed that external labour has a positive influence on the firm-level creative capital, if externally available knowledge, skills, abilities and other characteristics (KSAOs) are able to enter the organization. We found indications that a certain threshold level of trust and openness to new KSAOs entering the organization has to be present so that regular employees feel secure and are willing to learn from the external labour. From our data
we could not establish what the threshold level of trust and openness is exactly, just that, as expected, there needs to be a balance between trust and openness.

Specifically, our empirical research has shown that organizations that score high in creative capital mainly used consultants and specialists for specific projects and in advisory positions where it was not necessary to retain the KSAOs once the project or contract had ended. Project-based employment of consultants and specialists for core activities has the potential to enhance the creative capital of organizations by enabling the use of more diverse KSAOs. The socialization process is likely to be limited as consultants and specialists tend to remain at an organization for only short periods. This can assist external KSAOs to enter the organization since the new knowledge and ideas do not become drowned out by the existing company culture. However, such a socialization process might take place with contract workers where this form of employment is used to assess an employee’s fit and integrate them into the organization.

Organizations that score low in creative capital mostly used external labour in the form of temporary employees for non-core activities; whereas organizations with medium to high levels of creative capital also use external labour in their core activities. Using external labour in core activities influenced organizations’ creative capital and their focus on making use of the diverse KSAOs made available. The external labour force enhanced the knowledge and creativity of their regular employees. This led to new ways of thinking and working which, in turn, stimulated the creative capital. In general, we saw that external labour used in non-core activities was for capacity reasons and numerical flexibility, rather than with any aspiration to enhance the existing KSAOs.

Organizations that need to get work done or for specific KSAOs can use labour market intermediaries as entities that mediate between the organization’s need and potential individual workers by shaping how workers are matched to organizations; how tasks are performed; and, how
conflicts are resolved (Author, 2009; Bonet, Cappelli & Hamori, 2013). The use and role of labour market intermediaries differ between organizations low in creative capital and those with medium and high levels of creative capital. Nearly all the organizations with medium and high levels of creative capital used labour market intermediaries in ‘Matchmaker’ or ‘Administrator roles’ (Bonet et al., 2013) to achieve a better fit between the KSAOs of external employees and the organization. Conversely, organizations low in creative capital either did not use intermediaries, or else used them only in the form of an ‘Information Provider’ (Bonet et al., 2013).

Prior research at the regional level found three conditions were critical to stimulate creativity and attract the creative class: technology; talent; and, tolerance (Florida, 2002). Our findings indicated that these three conditions can be applicable on the organizational level as well. The same conditions are vital if organizations are to have high levels of creative capital. We also found support for the view that external labour is used more by companies with high creative capital if they are operating in a dynamic, fast-changing environment, as it is then crucial to remain knowledgeable and innovative.

So far in this section we have discussed HRM from a macro-perspective. The main characteristic of macro HRM research is that the organization is the level of analysis, and it focuses on “assessing variance across organizations and then accounting for that variance in some way” (Wright & Boswell, 2002: p. 249). Variance across individuals is often ignored. On the other hand, micro HRM research explores the impact of HR practices on individuals to identify and account for variance across individuals (Wright & Boswell, 2002). A potential problem with macro-level explanations, according to Molina-Azorin (2014), is that “there are likely to be many alternative lower level explanations of macro-level behaviour that cannot be rejected with macro-analysis alone” (p. 104). Furthermore, macro HRM research, by assuming invariability in HR practices across large groups of jobs within organizations, appears to miss out on the need for job-specific HR practices (Wright & Boswell, 2002). This leads us to address micro-HRM research as well. In this dissertation we combine the two HRM
research streams, albeit not empirically test the combination. By combining the macro- and micro-HRM research perspective, we are able to explain innovation performance better, as they are complementary to each other. We will continue to discuss the micro-HRM perspective in our study of how HR practices influence innovative work behaviour of individual employees.

Our studies into innovation as an individual level concept explore empirically the extent to which perceptions of certain HR practices affect the three specific dimensions within innovative work behaviour already mentioned: idea generation; idea championing; and, idea application. Four HR practices were examined: supportive supervision; training and development; information sharing; and, compensation. For all three dimensions of innovative work behaviour, supportive supervision was found to be the most beneficial for innovative work behaviour. Training and development opportunities, however, were negatively associated with idea generation. Information sharing stimulated both idea generation and idea application, but did not boost the championing of ideas. Furthermore, if employees perceived more fairness towards the compensation they received, they behaved less creatively or championed and applied ideas less.

Prior research conceptualized innovative work behaviour as being multidimensional. Yet, we found little to none empirical studies measuring innovative work behaviour that way. Our analysis showed the three conceptualized dimensions as distinct, separate factors, providing more insights in the different behaviours associated with the three dimensions of innovative work behaviour. Respondents in our single organization survey scored significantly higher on idea generation than on idea championing and idea application; illustrating that individuals can engage in behaviour that is more closely related to one dimension, rather than showing an overall propensity for innovative work behaviour.

In line with micro-HRM research, which typically focuses on studying individuals within particular jobs (Wright & Boswell, 2002), we studied the role of HRM perception of a specific group of employees; more specifically
production workers in a manufacturing firm. Production workers were found to show all three types of innovative work behaviour and, particularly, idea generation. The distinctiveness of the three types of innovative work behaviour found implies that organizations can benefit from recognizing and using behaviours associated with either idea generation, or idea championing or idea application, depending on their organizational innovation goals. One individual employee does not possess necessarily all three innovative work behaviours at a certain moment, but organizations can recruit and train their work staff aligned with the organizational innovation goals. Our findings suggest that an organization’s quest for innovation can be driven by employees.

Our last reported study explored the effect of perceived HR practices on the innovative work behaviour (as a single concept) and the role of an innovative climate in this relationship. By doing so, we showed direct effects of three out of the four perceived HR practices on innovative work behaviour studied: the compensation system (negative effect); information sharing; and, supportive supervision (both positive). This means that employees who perceive their organization as sharing information with them and feel supported by their supervisor repay the organization with innovative behaviour. These results are in line with the results from the previous section and as reported in the fourth chapter. The results highlight the important role of line managers on all levels in encouraging employees to become innovative. Line managers need to share the necessary information with employees to allow them to be creative and innovative, but they also need to support and recognize employees’ initiatives and innovative efforts in trying something new or different.

We did not see any effect on innovative work behaviour of perceived training and development opportunities as being facilitated. This offers support to the view that only specific training programs can stimulate innovative behaviour and that training methods need to combine cognitive modelling with practice and reinforcement to influence innovative behaviour.
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positively. Again, these results are in line with the results from the previous section.

An innovative climate moderated the relationships between information sharing and innovative work behaviour, as well as between training and development and innovative work behaviour. The effect of information sharing on innovative work behaviour is even stronger if employees experience an innovative climate. Even when employees perceive an innovative climate, we found that general training programmes can have a negative effect on innovative behaviours. In such situations, employees’ perceptions of training and development opportunities may contradict the innovative climate and lead them to behave less innovatively.

6.3 Theoretical and empirical contributions
On the basis of the main findings of four studies several theoretical and empirical implications emerged. We structure them around the five challenges used in our first introduction chapter.

Challenge 1: Role of HRM in enhancing innovation
The first challenge was that the field of HRM is missing an explanation of the role of HRM in enhancing innovation. Although research on the influence of HRM on organizational innovation performance has seen a rise during the past decade, there is still a need for more understanding and explanations about how HRM can enhance innovation performance of organizations, and the role HRM has on how individual employees’ contribute to innovation. We have added to the literature by introducing the concept of creative capital at the firm-level. To date, creative capital is used in the regional economic development literature to explain how regions can enhance their innovation performance. We are able to overcome some of the limitations of current theoretical approaches linking HRM to innovation performance by transferring the concept to the organizational level,. Human and social capital theories often are used to explain organizational
innovation performance. However, these fail to explain fully how organizations gain new information and KSAOs in order to be innovative. Introducing the concept of firm-level creative capital lets us understand better why and how organizations with low social capital can be highly innovative, contrary to existing literature (e.g. Zheng, 2010).

We argue that innovation can be enhanced by differentiating HRM more in line with needs of specific groups of employees or jobs. Using different HR practices for different groups of individuals fits the general call to personalize and customize HRM (Paauwe, 2009; Lepak et al., 2006; Wright & Boswell, 2002; Lepak & Snell, 1999), and adds to HRM-innovation literature, given the current literature’s focus on either the full organization or specific teams, such as R&D departments (e.g. Camelo-Ordaz et al., 2011; Ángel & Sánchez, 2009).

HRM literature is largely focused inward, looking at how employees can be managed within the boundaries of an organization. However, organizations can benefit if HRM goes beyond the boundaries of organizations and the current definitions of employment relations. With the latter we mean that traditionally external stakeholders that lack an employment relationship with a firm are not considered as a target for an organization’s HR practices. If HRM extends its scope from employees to individuals holding KSAOs that create value for an organization, independent of the contractual form of employment with the organization, the organization might be able to increase the organizational knowledge inflow. Then, external labour will have more benefits for organizations than just in terms of numerical flexibility and cost reduction. In line with this, using HR instruments enables organizations to influence their innovation performance, not only by playing a role in innovation dedicated work positions, such as R&D department positions, but also for “ordinary employees” (Kesting & Ulhøi, 2010). This is referred to as employee-driven innovation. This is defined as the “generation and implementation of significant new ideas, products, and processes originating from a single employee or the joint efforts of two or more employees who are not assigned
to this task” (Kesting & Ulhoi, 2010: p. 66). Production workers show innovative work behaviours which contribute to innovative performance of teams and/ or organizations (Bondarouk, Meijerink & Veenendaal, 2013).

**Challenge 2: Empirical testing of firm-level creative capital**

The second challenge recognized that the concept of firm-level creative capital has not been tested yet. An empirical challenge is to be able to explain the role of external labour for enhancing creative capital empirically. Our efforts are of theoretical relevance as the existing literature does not provide any insight into operational firm-level creative capital. We identified creative capital at the firm level; although some complexities are found in terms of where to put the boundary between low- and high-scores of firm-level creative capital.

This dissertation begins the journey to test empirically the concept of firm-level creative capital and, in the process, brings more empirical evidence and understanding. Our qualitative exploration of firm-level creative capital suggests we can use our ideas around the operationalization of firm-level creative capital to identify the existence of creative capital in organizations. We see this as having three dimensions; creativity of individuals; organizational creative ability; and, the relationship of employees. These make it possible to identify creative capital at the organizational level, although the initial thought of a distinction in low and high creative capital was found to be inadequate. The difference between low-creative capital organizations and high-creative capital organizations is not clear-cut. For this qualitative study we introduced an intermediary creative capital category. The findings of the study provide a starting point for further research on firm-level creative capital, leading towards making the concept of firm-level creative capital measurable in the form of a questionnaire.

In addition to the insights into creative capital and its existence in organizations, we studied the way firm-level creative capital can be
enhanced. As we conceptualized in the second chapter, we propose that external labour, as HRM instrument available to organizations, can influence firm-level creative capital. Our study explored the role of external labour in low creative capital organizations and high creative capital organizations. We found differences in use and role of external labour between low and high scoring organizations in creative capital. Organizations high in creative capital used external labour more for core activities, in non-standard employment relationships, such as project-based contracts or consultants.

The first two challenges concern the macro level of firm-level creative capital. Our efforts in studying firm-level creative capital opens up new possibilities for interdisciplinary research. Regional economic development literature continues to study what innovation can bring regions in term of economic development. Yet, these often ignore the role of individuals and HRM. Recently, creative class is a popular concept within regional economic development literature as coined by Florida (2002) as a holder of creative capital; bringing in the potential role of individuals. We want to argue that using only creative class, without exploring and studying creative capital, leaves out too much of potential valuable explanations as to how firms and regions can become more innovative. The role of individuals and attracting and retaining these individuals for regions could use an HRM perspective to bring knowledge about attracting, selecting, developing and retaining individuals to create value for regions (Guidetti & Mazzanti, 2007). We suggest the possibilities for an interdisciplinary research stream should be explored further. These can examine how the insights of regional economic development literature and HRM literature can be combined and address the question as to how these disciplines could bring more understanding to the innovation management field using the concept of creative capital.
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Challenge 3: Multi-dimensionality of innovative work behaviour

The third challenge is about the difference in concepts and measurement of innovative work behaviour. Prior research shows multi-dimensional concepts of innovative work behaviour with each dimension requiring different behaviours and characteristics, yet measures it as a one-dimensional construct. Also, the effect of HRM on these separate dimensions was unclear. Perhaps our main contribution in addressing this challenge is that individual employees can have completely different contributions to organizational innovations. Our findings support the view that innovation processes at the individual level are complex (as alike for organizational innovation); entailing a necessary sequential order of ideas (Howell, Shea & Higgins, 2005) and where more ideas are generated than supported throughout an organization (Stevens & Burley, 1997; Baer, 2012). Innovative work behaviour is more than idea generation – it is the creative process of individuals. For ideas to become innovations if these are defined as successful implemented ideas (Amabile et al., 1996), each generated idea should be applied eventually in the organization (or team).

We viewed innovative work behaviour as consisting of three dimensions; idea generation including opportunity identification; idea championing; and, idea application (Janssen, 2000). The dimensions represent the individual innovation process. The multi-dimensionality of innovative work behaviour is based on behaviour of individuals; whereas for teams and organizations innovation is based on the aggregate and complementarities of individuals behaviours. Individuals can show behaviours of each dimension separately, and for a team or organization to be successful in innovations, a balance should exist where all dimensions are available to the entity. That does not mean that all dimensions should be available equally, given idea generation will be more present than idea implementation (Baer, 2012); employees can contribute to organizational innovations in their own way; even completely different contributions when compared to their colleagues. The distinction and differences found between idea generation and idea implementation
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implies differences in behaviours of employees within one organization. Employees appear to show more behaviour and, thus, have KSAOs (Ployhart & Moliterno, 2011) associated to idea generation than behaviour associated to idea implementation. If organizations feel the need to innovate in a more explorative manner, they have the possibility to make changes to their pool of KSAOs. At this point, firm-level creative capital comes into play. Furthermore, explorative innovation, as mentioned before, requires implementation of the generated ideas. Organizations should have some level of behaviour associated to idea championing and idea application to their disposal. They need to address how the ideas of individual employees can best be facilitated and implemented.

Challenge 4: The effect of employees’ perceptions of HRM on their IWB

The fourth challenge is that it is unclear what the effect of employees’ perceptions of HRM is on their individual innovation performance, operationalized as innovative work behaviour. This lack of clarity complicates the organization’s HRM- and innovation management. We view HRM from a process view, rather than from a content view, by considering employees’ perceptions of HR practices. So, instead of studying the individual practices intended to achieve an innovation related objective (Bowen & Ostroff, 2004), we focus on the way HR practices send out “signals to employees that allow them to understand the desired and appropriate responses and form a collective sense of what is expected” (Bowen & Ostroff, 2004: p. 204) to enhance innovation performance. Prior research on the HRM-innovation link focused mainly on the content of HRM practices (e.g. Shipton et al., 2006; Beugelsdijk, 2008; Jiang, Wang & Zhao, 2012). We argue that the process view is more suitable building on the social exchange theory. The very same set of HR practices can be perceived positively by some employees, but not by others, depends on the level of perceived fit between those practices and employees’ individual values, personality, goals, and schematic expectations (Guzzo & Noonan, 1994). Their responses may differ depending on how individuals assess an
organization’s HR practices or HR system perceptually; if they value an HR practice or HR system, they reciprocate with behaviours valuable to the organization such as innovative work behaviours; if they are negative towards it, they are more likely to reciprocate with behaviours that are negative for the organization.

Challenge 5: Interventions in HRM-innovation relationship

The final challenge was the lack of understanding of mechanisms influencing the relationship between HRM and innovation. We add to this by studying the role of innovative climate as moderator in this relationship. Our findings, that innovative climate enhanced the relationship between information sharing and innovative work behaviour and decreased the relationship between training and development and innovative work behaviour were not in full accord with our expectations. We had hypothesized that innovative climate would enhance the relationships between all the HR practices considered and innovative work behaviour. The effect of information sharing on innovative work behaviour is even stronger if employees experience an innovative climate. In an innovative climate, employees’ perceptions that information is shared might become stronger because information and knowledge is shared necessarily for the greater goal of innovation (Hu, Horng & Sun, 2009; Vera & Crossan, 2005). They understand that they can reciprocate the openness of the organization in sharing information with employees who display innovative behaviours. Even when employees perceive an innovative climate, we found that general training programmes can have a negative effect on innovative behaviour. In such situations, employees’ perceptions of training and development opportunities may contradict the innovative climate and lead them to behave less innovatively. This offers support to the view that only specific training programmes can stimulate innovative behaviour: that training methods need to combine cognitive modelling with practice and reinforcement to influence innovative behaviour positively (Brown, 2005). Employees in our sample
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seemed to have not experienced such training programmes, but only general ones that did not train employees in creative thinking (Basadur, Graen & Scandura, 1986) or in problem solving (Scott, Leritz & Mumford, 2004). In an innovative business environment, those training programmes that aim to train necessary capabilities need to be specified (Lado & Wilson, 1994). Furthermore, those training programmes aiming at training basic skills to perform effectively (Keep, 1999) need to be given an innovative goal. Therefore, we call on HR managers to define the competences and skills that need to be addressed in training programmes to stimulate innovative behaviour in production organizations and then to develop such training programmes.

An inconsistent climate, such as one that is conductive to innovation, but with close supervision, could be found easily in manufacturing companies and have a negative effect on performance (Pritchard & Karasick, 1973). Various authors, including Scott and Bruce (1994), have provided empirical support for the climate (especially an innovative climate) affecting innovative behaviour. We carried out an additional analysis (not included in this dissertation, but available upon request) that indicated that an innovative climate had a significant negative effect on implementation-oriented work behaviour, but not on creativity-oriented work behaviour (see Dorenbosch, Van Engen & Verhagen, 2005). In an innovative climate, people are rewarded and encouraged to be creative, to take risks, to look for solutions, and to adapt to changes (Malik & Wilson, 1995). While such behaviours should lead to problem recognition and idea generation, they might be counterproductive in the implementation stage. Implementation-oriented work behaviour require people to show effort and result-oriented attitudes (De Jong & Den Hartog, 2010) in order to seek sponsorship and build a coalition of supporters for their innovative ideas (Scott & Bruce, 1994). A different climate might be needed to encourage these work behaviours; one in which people feel supported for what they have created, rather than being challenged to come up with new solutions.
Synthesis
The two chapters addressing firm-level creative capital are in line with the organizational level as represented in Figure 6.1. We mentioned in our introduction to this dissertation that we did not carry out a multilevel analysis. However, we use the diagram shown in Figure 6.1 as a framework for study of the role of HRM in enhancing innovation at both the micro (individual) and macro (organizational) level. HRM is implemented at the organizational level, whereas organizational members’ perception of HR practices at the individual level influences their actions and attitudes in response to changes in the HRM processes. We brought the individual employee into the equation of innovation performance by focusing on employees’ innovative work behaviour and studying how employees’ perceptions of HR practices influence this behaviour (two chapters addressing innovative work behaviour). This dissertation reflects and addresses calls for more workforce differentiation and integration of micro- and macro-domains of HRM and innovation (Molina-Azorín, 2014; Huselid & Becker, 2011; Wright & Boswell, 2002). We looked at the influence of HRM from the macro-and micro-perspective within one research field, innovation management. By doing so, we provide a more complete picture of the role of HRM in enhancing innovation performance.

We found significant effects of perceptions of HR practices on employees’ innovative work behaviour. If employees perceive the compensation system to be fair, they showed less behaviour associated with idea generation, idea championing, and idea application, as well as with the full construct of innovative work behaviour. If employees experience supportive supervision, they will show more behaviour associated with all three innovative work behaviour dimensions, whereas employees that perceive their organization as sharing information show more behaviour associated with idea generation and idea application. Both perceived information sharing and perceived supportive supervision are found also to
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**Figure 6.1:** Organizational- and individual-level research model of this dissertation.

be related significantly to the one-dimensional construct of innovative work behaviour. Experienced training and development opportunities were found to be related negatively and significantly to innovative work behaviour, but not significantly associated to the behaviour associated with the separate dimensions of IWB. An innovative climate was found to be moderating the relationship between perceived HR practices and innovative work behaviour in such a way that the positive relationship between perceived HR practices and innovative work behaviour will be stronger when the organizational climate is perceived as being supportive of innovation. All our findings suggested that employees’ innovative work behaviour can be influenced by how they perceive implemented HR practices and this is in line with social exchange theory. Furthermore, the organizational climate, in terms of support towards innovation, is affecting the relationship between perceptions of HRM and innovative work behaviour.

### 6.4 Limitations and future research

We acknowledged that this study has limitations as already dealt with in some form within the separate studies presented in chapter 2 to 5, and/or in the propositions for future research. This section will address some overall limitations and future research recommendations.
We see the samples chosen for our empirical data gathering as limiting. We chose to collect data from Dutch manufacturing firms. This might imply some generalizability issues as some could argue that we cannot generalize towards other countries or industries. However, for two studies we theorized that the perceptions of HR practices would lead to discretionary and extra role behaviour of employees. Both types of behaviour are geared towards being beneficial to the organization which, in Dutch manufacturing firms, is likely to be innovative work behaviour. Innovative work behaviour is not seen in all contexts as desirable. As our theoretical models were not context-bounded, we would not claim that our results are valid globally in terms of IWB, but rather that employees reciprocate value and offered the organization something of value. In other scenarios, this value could be found in other behaviour, such as obedience.

In designing the research as we did, a possible limitation is that increased innovative work behaviour is always considered as good for organizations. There are plenty of indications that innovative work behaviour also has negative impacts for individuals or the organization, such as potential conflicts between innovative employees and their (not so innovative) colleagues or turnover intention within the organization (Shih & Susanto, 2011). Clearly in a manufacturing company, where employees should be contributing to producing goods according to specifications, there is not always a need to have a workforce that behaves in a fully innovative manner. Rather, we would expect an inverse U-shaped relationship. This raises two points: First, we conducted our study in manufacturing companies. This imposes certain conditions in terms of innovative behaviour. Every employee knows that some elements of the production process are fixed, such as the quality or safety specifications. They would have been aware of this when completing our questionnaire on IWB. Second, taking a closer look at the data on innovative work behaviour, it is clear that production workers score themselves more highly for the creativity stage, which consists of opportunity exploration and idea generation, rather than the
implementation stage, which consists of championing and application. More in-depth research could help understand how different HR practices relate to different innovative behaviours. Also, future research should explore how organizations can balance their behaviours associated with idea generation, idea championing and idea application in such a way that organizational innovation performance can be optimized. Our findings show differences in availability of individual’s behaviours associated to the three dimensions of innovative work behaviour. However, we could not examine what it means at the organizational level. Nevertheless, we believe that we have provided valuable management information concerning which HR practices foster innovative work behaviour by employees and how this could be strengthened further by investing in an innovative climate.

A possible limitation of the quantitative sections of our study is that we used self-reported measures of the innovative work behaviours of employees. Although prior research has found strong correlations between self-reporting and supervisor reporting for innovative work behaviours (Axtell et al., 2000; Shalley, Gilson, & Blum, 2009), future research could include a comparison of self-reporting measures with the perceptions of supervisors of demonstrated behaviours. The understanding would benefit from finding out whether supervisors assess the innovative work behaviours of employees differently and, if so, what affect this has on organizational innovative performance. Any incongruence in the perceptions of supervisors and employees could challenge the anticipated HR practices and lead to a continuous “drift” in the exhibited innovative work behaviour.

Furthermore, we noted issues with the measurement of fairness of the compensation system for the perceived HR practices. The relatively large number of missing values for the items of this construct, and the signals respondents gave when they completed the survey, hint at a motivated non-response and response bias; the latter leading to an under-estimation of perceived fairness. In addition, some HR practices we chose are not popular in HRM literature. Supportive supervision and information sharing are considered by some HRM scholars as the odd man out; although several
scholars acknowledged both to be HR instruments (e.g. De Leede & Looise, 2005; Shalley & Gilson, 2004). So, we recommend further research to study the role of extra HR practices on innovative performance at both the individual and organizational level and to adjust the compensation system measure.

The results show that an innovative climate is related significantly and negatively to innovative work behaviour. This is contrary to our theoretical reasoning for a positive relationship. A possible explanation could be that innovation programmes, initiated by companies to fulfil their innovation needs, may generate new ways of working, and employees who utilize these programmes may be affected negatively if the innovative climate still stimulates the former ways of working (Perlow, 1995; Kossek, Colquitt & Noe, 2001). Another explanation could reside in the construct of innovative work behaviour. Because this construct entails the full process of innovation and, therefore, a diverse set of behaviour, measurements could lead to ambiguous results. This phenomenon could be prevented by measuring innovative work behaviour as the separate dimensions as we did in the fourth chapter. Future research should focus, therefore, on the separate dimensions of innovative work behaviour. We did not test whether there was a distinction in the organizations between new and old ways of working due to innovation programmes, but it is a plausible explanation that warrants further study. This further study is addressed in a research proposal where three researchers are needed to work on ‘innovating HRM for employee-driven innovation’ (Bondarouk, Meijerink & Veenendaal, 2013). The research aims to study the role of innovation in HRM policies and practices in organizations in enhancing employee-driven innovations. This further research builds on this dissertation and will provide more knowledge and understanding by studying employee-driven innovation specifically, and taking the service industry and public sector, instead of manufacturing industry, as the focal point of interest. Furthermore, it adds by focusing on innovating HRM policies and practices. Perhaps the most valuable
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contribution could lie in the multi-level approach which aims to provide empirical evidence and support for the multi-level propositions which links the individual, or micro, and organizational, or macro, level of innovation performance with HRM (see Figure 6.1).

Research agenda for firm-level creative capital

We presented a conceptual framework in chapter 2 and provided empirical qualitative evidence that firm-level creative capital exists. We now include suggestions as to where to target future research to bring further knowledge. As this dissertation entails two of the first papers where creative capital is analyzed on the level of the organization, there is a lack of theory about the nature of this concept and the ways in which HRM can contribute. One suggestion for future research would be to build on the literature from the regional economics research field where the idea of creative capital was introduced. Furthermore, we suggest integrating network and social capital theory more thoroughly. We propose more empirical research to gain further understanding of creative capital starting with a qualitative study on the HRM characteristics of high scoring firm-level creative capital organizations. Such an extra qualitative study would be beneficial for exploring the role of HRM for creative capital and, in combination with the study of chapter 3, would give a more broad understanding of the concept of creative capital. The study design of our qualitative study (chapter 3) did not seek causality explanations, but focused on exploring possible relationships. As such, we cannot say if the different uses are caused by differences in creative capital, or are due to other circumstances. Therefore, we recommend testing the conceptual framework presented in chapter 2 in a quantitative manner. Further, such a study could provide additional insights into the contextual factors that play a role in the proposed relationships.

Finally, we suggest exploring further the possibilities for interdisciplinary research to combine the insights of regional economic development literature and HRM literature and addressing the question as to how these disciplines could increase our understanding of the innovation management field using
the concept of creative capital. The role of creative capital would enrich our understanding of innovation performance and how to enhance innovation performance; while HRM can bring more understanding in how to attract, select, develop and retain KSAOs and creative capital in regions for stimulating innovation performance at the regional level.

6.5 Practical implications
There are some practical implications alongside the theoretical contributions. Our study indicates that managers need to understand the linkages between HR practices and the various types of capital and innovation and to be aware of the choices for innovation at both the individual and organizational level. The framework we have provided gives guidelines on how organizations can manage innovation by considering the type of innovation process required and by making strategic choices on how to design and develop the human capital available. Many organizations often are unaware that HRM can be deployed for innovation purposes. Managers and, thus, organization, should look for regular inflows and outflows of knowledge and skills to gain new ideas and information. Organizations can achieve this by engaging an external workforce in their business activities. For example, they can hire temporary consultants; exchange employees with partner organizations; or, invite external members to join innovation projects. In addition, collaborations with stakeholders, such as suppliers and consumers could bring new KSAOs into the organization. Utilizing the possibilities of HR practices designed to externalize employment and/ or focus on external labour, as well as HR practices designed for standard employment arrangements, applies not only to recruitment practices and training, but also to other HR practices, such as performance appraisal, compensation, supportive supervision, and information sharing. Organizations that want to enhance their innovation performance should, instead of focusing on innovation-dedicated professionals, such as R&D-workers, develop and
implement innovation-stimulating HR practices customized towards groups of ‘ordinary workers’ – those not responsible for innovation related tasks.

Organizations should not exclude external labour with diverse and new KSAOs to learn from the external employees and should integrate the new knowledge into the organization; in turn, motivating their regular employees. The use of external labour and increased KSAO-diversity would lead to enhanced creative capital. It is important for organizations to be aware of the effects of different forms of external labour used in specific situations. Using Matchmaker or Administrator labour market intermediaries, rather than Information Providers, was seen to be related to high levels of creative capital, as these intermediaries deliver a better person-organization fit.

The creative capital approach is especially useful for organizations lacking stable networks, or when resources are only available to a limited extent. Since the maintenance of strong ties requires time and effort, we assume that limited resources force organizations to develop weak, rather than strong network ties (Granovetter, 1973). The concept of creative capital explains how organizations can still benefit from these loose ties.

Organizations can use HR practices to encourage employees to behave innovatively to stimulate organizational innovativeness. Our study provides empirical evidence that organizations are able to send an HRM message to employees to elicit discretionary innovative work behaviour. By addressing the three dimensions of innovative work behaviour (idea generation, idea championing, and idea application), organizations will be able to identify idea creators, champions, and executors in their workforce and to identify which roles they lack. Recognizing these gaps means they can acquire the behaviour they lack through HR practices.

Our study did not set out to determine the appropriate design of HR practices, but rather to show that employee perceptions of HR practices matter. Employees interpret actual HR practices and HR policies as they are implemented by their managers (Wright & Nishii, 2006). These implementers of HRM play an important role in the level of innovative work behaviour. Wright and Nishii (2006) suggested that communication could be
the link between actual and perceived HR practices. In line with this, we see that open communication with regard to the company’s strategy, the expectations the company has of its employees, and the way managers provide support for innovation, all contribute to innovative work behaviour. When designing HR practices, organizations should be aware that the message that these HR practices send should be clear and consistent but that, despite this, it could be perceived differently by employees. Customizing HR practices for specific employee groups would seem beneficial. HR practices then would be designed and implemented differently for R&D workers compared with production floor workers or for the financial department employees.

Supportive supervision was found to have the strongest effect on dimensions of innovative work behaviour. A sure way to improve innovative work behaviour by production workers, therefore, is to select and train supervisors such that they support employees in behaving innovatively. Also, organizations should be aware that perceptions of fairness in compensation can have a negative effect on employees’ innovative work behaviour. If organizations want to improve their innovative work behaviour, they should be aware of the role that employees’ perceptions of fair compensation play. The more they perceive their compensation to be fair, the less they behave creatively, or champion and apply ideas. We would argue that there should be some balance in terms of compensation: employees should not be too dissatisfied with their compensation, since they might then feel the need to leave the organization (Park, Ofori-Dankwa, & Bishop, 1994). Organizations should be reluctant to provide too many training and development opportunities, especially if they aim to gain employees who generate ideas. The more employees perceive training and development opportunities, the less they show creative behaviour. A possible explanation for this is that employees who experience opportunities are “made too comfortable” and suppress any urges to generate ideas (Shalley & Gilson, 2004). Employees need a certain minimum level of resources, such
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as training opportunities (e.g. Amabile et al., 1996), whilst a lack of resources may stimulate idea generation (Csikszentmihalyi, 1997). Therefore, it is essential that employees perceive that they have access to a reasonable level of the necessary resources (Drazin, Glynn, & Karanjian, 1999). Information sharing stimulates both idea generation and idea application, but does not boost the championing of ideas.

6.6 Conclusion
This dissertation researched the role of HRM in enhancing innovation at the organizational and individual levels. At the organizational level, we introduced the concept of firm-level creative capital. Firm-level creative capital will provide more understanding of the way explorative forms of innovation can be enabled. External labour helps organizations to enlarge the extent of available firm-level creative capital. This, in turn, enhances exploration. Several perceived HR practices were found to be associated with individuals’ innovative work behaviour, which is necessary for enhancing organizational level innovation performance. Creative capital is about bringing new knowledge, skills, abilities and other characteristics (KSAOs) of individuals into the organization. Our research has shown that organizations are able to enhance their innovation performance by enabling individuals (that create value for their organization, such as employees, consultants, or suppliers’ employees) to show innovative work behaviour which can be stimulated by opening the borders of the organization for new KSAOs.

6.7 References
Discussion


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Introductie
Innovatie is zonder twijfel van groot belang voor organisaties om op lange termijn te overleven. Over innovatie wordt veel geschreven, onder andere in jaarverslagen en missies en visies van organisaties. Er wordt ook veel onderzoek naar gedaan. Voor de maakindustrie in Oost-Nederland geldt dat de internationale concurrentie lagere kostprijzen kan hanteren en dat er geconcurreerd moet en kan worden op andere gronden dan prijs, zoals op kwaliteit en innovativiteit.

Onderzoek naar innovatie kan onderverdeeld worden in meerdere benaderingen. Eén benadering onderzoekt wat innovatie is en probeert innovatie te begrijpen. Een andere benadering kijkt naar hoe innovatie beïnvloed kan worden. De beïnvloedingsfactoren die in de literatuur gevonden worden behelzen bijvoorbeeld leiderschapskenmerken, strategie van de organisatie, organisatieklimaat, organisatiegrootte, organisatiekenmerken en individu-kenmerken. Binnen deze laatste benadering valt ook de rol van Human Resource Management (HRM) bij het vergroten van het innovatief vermogen van organisaties; dit heeft de laatste jaren wel meer aandacht gekregen, maar er is nog veel onduidelijk als het gaat om de relatie tussen HRM en innovatie. Dit proefschrift richt zich op deze relatie en identificeert en bestudeert onderliggende mechanismen. De centrale vraag van dit onderzoek luidt als volgt:

Wat is de rol van HRM bij het stimuleren van innovatie op zowel het organisatie- als individueel niveau?

Om te komen tot beantwoording van deze vraag presenteren we in dit proefschrift een conceptuele bijdrage en studies met een kwalitatief en kwantitatief onderzoeksontwerp. Het eerste gedeelte van het proefschrift behandelt innovatie op organisatie niveau (hoofdstuk 2 en 3), waarbij het
concept van ‘creative capital’ wordt geïntroduceerd als verklaring voor de werking van HRM op innovatie. Het tweede gedeelte van dit proefschrift bekijkt innovatie vanuit een werknemersperspectief en zoomt in op het innovatief werkgedrag van medewerkers en welk effect gepercipieerde HR praktijken op dit gedrag hebben (hoofdstuk 4 en 5). Hieronder geven we per hoofdstuk een korte samenvatting van de aparte hoofdstukken.

**Hoofdstuk 2**
In dit hoofdstuk ontwikkelen we een conceptueel raamwerk, dat inzicht geeft in de relatie tussen HRM en innovatie. In dit raamwerk introduceren we het concept creative capital om aan te tonen hoe organisaties hun innovatievermogen kunnen vergroten door het managen van ‘human resources’. De tot nu toe meest gebruikte theoretische verklaringen voor de werking van de relatie tussen HRM en innovatie zijn de human capital en social capital theorieën. Deze twee theorieën zijn niet voldoende om een aantal recente ontwikkelingen, zoals in de arbeidsmarkt en de manier waarop we naar innovatie gekeken wordt, te verklaren. Creative capital levert een toevoeging op deze theorieën. De ontwikkelingen in de arbeidsmarkt behelzen de verandering van loyaliteit van werknemers en werkgevers. Zowel werknemers als werkgevers zijn minder georiënteerd op een levenslange arbeidsrelatie. Een ontwikkeling is dat de loyaliteit van werknemers richting de werkgever en organisatie verandert naar loyaliteit richting taken en expertise. Wanneer we kijken naar de recente wereldwijde economische crisis en de forse hoeveelheid reorganisaties en ontslagrondes kunnen we vaststellen dat de loyaliteit van organisaties richting werknemers ook grenzen heeft. De ontwikkelingen rondom innovatie management gaan vooral over een meer open innovatie model, waarbij organisaties open staan voor samenwerking met anderen om te komen tot innovaties. Deze ontwikkelingen liggen aan de basis voor het gebruik van creative capital. Creative capital wordt in dit hoofdstuk gezien als de veelheid aan voor de organisatie aanwezige en beschikbare kennis en vaardigheden, zowel binnen als buiten de organisatiegrenzen, om waarde te creëren voor de
kernactiviteiten. Het ontwikkelde raamwerk laat zien dat wij uitgaan van padafhankelijkheid in de relatie tussen HRM en innovatie. We komen tot proposities waarbij we enerzijds verwachten dat meer homogeen samengesteld human capital leidt tot exploitatieve innovaties en anderzijds meer heterogeen samengesteld human capital leidt tot exploratieve innovaties. Vervolgens stellen we dat social capital mediërend is tussen homogeen samengesteld human capital en exploitatie en creative capital mediërend is tussen heterogeen samengesteld human capital en exploratie. In de volgende set van proposities stellen we dat enerzijds het gebruik van HR praktijken ontwikkeld voor werknemers met een standaard arbeidsrelatie met de organisatie leidt tot een verhoging van de homogeniteit van het human capital, terwijl anderzijds het gebruik van HR praktijken ontworpen om arbeid buiten de organisatie te organiseren de heterogeniteit van het human capital verhoogt.

**Hoofdstuk 3**

In dit hoofdstuk staat creative capital nogmaals centraal. Het concept is ontstaan in het onderzoeksveld van geografische economie om op regionaal niveau innovatieprestaties te verklaren, maar voor zover wij weten is het niet eerder op organisatienniveau toegepast en empirisch vastgesteld of het aanwezig is. Dit hoofdstuk presenteert een empirische studie naar de mogelijke identificeerbaarheid van creative capital op het organisatienniveau en daarnaast wordt de rol van externe arbeid in het vergroten van creative capital op het organisatienniveau onderzocht. In dit hoofdstuk wordt creative capital gezien als het geaggregeerde creatieve vermogen van de organisatie, wat de organisationele uitvoering inhoudt om zowel de creativiteit van individuen te integreren als de creativiteit ingebed in de relaties van deze individuen met anderen. We hebben een kwalitatief onderzoek uitgevoerd, waarbij we interviews hebben afgenomen met acht managers die kennis hebben van HR implementatie en het gebruik van creativiteit in hun organisaties. We hebben een operationalisatie ontwikkeld voor creative
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capital en we hebben de aanwezigheid van creative capital waargenomen in organisaties. Het gebruik van externe arbeid en de rol die externe werkers innemen, zoals de rol van consultant, projectmedewerker of specialist, zijn belangrijke aspecten in het vergroten van creative capital. We hebben ook ondersteuning gevonden voor de aanname dat er verschil is in het gebruik van arbeidsmarkt intermediairs bij het inschakelen van externe arbeid tussen organisaties met een lage mate van creative capital en organisaties met een hoge mate van creative capital. Organisaties met hoge mate van creative capital maken meer gebruik van arbeidsmarkt intermediairs die meer gericht zijn op ‘matchmaking’ en ‘administration’ (bijvoorbeeld detachmentsbureaus en payrollbureaus). Onze bevindingen laten verder zien dat er meer gebruik gemaakt wordt van externe arbeid in organisaties met een hoge mate van creative capital als zij actief zijn in een dynamische markt. Organisaties kunnen hun innovatiedoelstellingen verbeteren door gebruik te maken van hun beschikbare creative capital. Dit kan door externe arbeid in te schakelen om benodigde kennis en vaardigheden binnen de organisatie te krijgen en te houden.

Hoofdstuk 4
Vanaf dit hoofdstuk kijken we naar de rol van de individuele medewerker in het innovatieproces. Hoewel innovaties vaak ontstaan vanuit een samenwerking tussen verschillende mensen is de rol van een individuele medewerker hierin van belang. We kijken dan specifiek naar het innovatief werkgedrag van medewerkers. In de literatuur is er toenemende aandacht voor de rol van de individuele medewerker en hun innovatief werkgedrag, maar het is onderbelicht gebleven hoe dit gedrag te stimuleren valt. Dit hoofdstuk presenteert een empirisch onderzoek naar in welke mate vier gepercipieerde ‘high-commitment’ HR praktijken (ondersteunende supervisie, training en ontwikkeling, informatie delen en compensatie systemen) een effect hebben op drie aparte dimensies van innovatief werkgedrag van productiemedewerkers. Het conceptueel opdelen van innovatief werkgedrag in drie aparte dimensies maakt het mogelijk om de
invloed van gepercipieerd HRM te bepalen op drie verschillende gedragingen gekoppeld aan de innovatiefases van ideegeneratie, ideeondersteuning (championing) en ideetoepassing. De resultaten van de uitgezette vragenlijst onder 328 werknemers binnen een Nederlands productiebedrijf laten zien dat de vier gepercipieerde HR praktijken een direct effect hebben op alle drie dimensies van innovatief werkgedrag (ideegeneratie, ideeondersteuning en ideetoepassing). Positief ervaren ondersteunende supervisie heeft het grootste effect op het innovatief werkgedrag en op elk van de drie onderliggende dimensies.

**Hoofdstuk 5**

Ook dit hoofdstuk bekijkt innovatief werkgedrag, maar nu als geheel construct. In dit hoofdstuk bespreken we een studie waarin we onderzocht hebben in hoeverre gepercipieerde HR praktijken van invloed zijn op het innovatief werkgedrag van individuele productiedeuren en welke rol een innovatief werkklimaat speelt. De algemene hypothese is dat medewerkers een grotere mate van innovatief werkgedrag vertonen als zij een werkklimaat ervaren waarin innovatie ondersteund wordt en de aanwezigheid voelen van vier gepercipieerde HR praktijken, namelijk aangaande compensatie systemen, training en ontwikkeling, informatie delen en ondersteunende supervisie. De resultaten van dit onderzoek zijn gebaseerd op antwoorden op een vragenlijst van 463 respondenten werkzaam in vier productiebedrijven. We hebben gevonden dat de percepties aangaande een eerlijk compensatie systeem negatief gerelateerd zijn aan innovatief werkgedrag en dat percepties aangaande informatie delen en ondersteunende supervisie positief gerelateerd zijn aan innovatief werkgedrag. Een innovatief werkklimaat modereert de relatie tussen informatie delen en innovatief werkgedrag. In het algemeen wordt uit het onderzoek duidelijk dat organisaties innovatief werkgedrag kunnen stimuleren door de juiste afstemming en communicatie van HR praktijken richting medewerkers. Managers hebben hierin ook een belangrijke rol, door
te investeren in informatie delen, ondersteunende supervisie en een innovatief werkklimaat.

**Synthese**
De vier studies gerapporteerde in de hier boven vermelde vier hoofdstukken zijn niet alleen losstaande studies, maar komen samen in de constatering dat innovatie beïnvloed kan worden door HRM. Op organisatieniveau brengt creative capital nieuwe inzichten, door focus te leggen op de openheid van organisaties zodat kennis en kunde de organisatie in kan stromen om innovatief te zijn. Dit is niet alleen conceptueel vastgelegd, maar nu ook empirisch bepaald: er zijn verschillen zichtbaar in organisaties met een lage mate van creative capital en een hoge mate van creative capital. Creative capital kan vergroot worden door gebruik te maken van externe arbeid, en dan vooral op een zodanige wijze dat externe kennis en kunde de organisatie kan binnenkomen. Hierbij moet gedacht worden aan tijdelijke opdrachten om kennis te kunnen gebruiken voor een bepaald probleem of project, consultants en specialisten. De innovatieprestaties van organisaties zijn tevens te stimuleren door de innovatieprestaties van individuele medewerkers te vergroten. We zijn binnen ons onderzoek uitgegaan van HRM als boodschap vanuit de organisatie, die geïnterpreteerd wordt door medewerkers. Als medewerkers ervaren dat de organisatie informatie deelt en dat hun supervisors de medewerker ondersteunt in innovatief gedrag komt dit ten goede aan een vergroting van het innovatief werkdruk van medewerkers gelieerd aan ideegeneratie en ideetoepassing. Voor ondersteunende supervisie geldt dit ook voor ideeondersteuning. Wanneer medewerkers ervaren dat het compensatie systeem een eerlijk systeem is zullen zij echter minder innovatief werkdruk vertonen, wat voor alle drie innovatiedimensies geldt. Ook training en ontwikkeling is negatief gerelateerd aan innovatief werkdruk gelieerd aan ideegeneratie. Een innovatief werkklimaat zorgt er voor dat het verband tussen informatie delen en innovatief werkdruk nog sterker wordt.
In dit proefschrift bekijken we de relatie tussen HRM en innovatie zowel vanuit een micro perspectief (individuele medewerkers) als een macro perspectief (organisaties). Door de combinatie van deze twee perspectieven kunnen we een meer compleet beeld geven van de relatie. We hebben geen multi-level analyse uitgevoerd, gezien restricties binnen het onderzoek, maar zo’n analyse is wel een aanbeveling voor vervolgonderzoek. Daarnaast kunnen we concluderen dat het gebruik van creative capital nieuwe inzichten oplevert voor organisaties, maar dat er nog steeds vragen overblijven als het gaat om dit concept. Graag zouden we aanbevelen om meer inzicht te verkrijgen in creative capital, door onder andere aan de hand van de operationalisatie in hoofdstuk 3 kwantitatief te bepalen in hoeverre creative capital bijdraagt aan innovatieprestaties en of dit een lineair verband is of andersoortig.

**Boodschap van het proefschrift**

Organisaties kunnen innovatieprestaties verbeteren door Human Resource Management toe te passen, deels via gebruik van HR praktijken toegespitst op groepen medewerkers in plaats van ‘one-size-fits-all’ en deels via een goede afstemming van het HR beleid op de medewerkers. Creative capital is daarnaast een bruikbaar en nuttig concept op het organisatieniveau om inzicht te krijgen in de relatie tussen HRM en innovatie.
Samenvatting (Summary in Dutch)
Dankwoord

“When the ideas are coming, I don’t stop until the ideas stop because that train doesn’t come along all the time.” (Dr. Dre, in LA Times)

Vanaf het moment dat ik op de campus ging wonen, in het huis ‘Kampf 47’ (hoe toepasselijk voor een proefschrift: ‘gevecht’), werd ik door mijn huisgenoten veelal aangesproken met ‘dr. Dré’. Toen was ik nog niet aan het overwegen om deze naam ook officieel te krijgen. Jaren later, toen mijn eerste promotor Jan Kees Looise vroeg of ik een promotieplaats binnen het project ‘Competenties voor Innovatie’ (CvI) wilde overwegen, kwam de gedachte toch naar boven dat ik het wel een mooie bijkomstigheid zou vinden om ook officieel dr. Dré te kunnen worden. Na een reis met diverse mogelijkheden om mezelf te ontwikkelen op vele vlakken, ben ik blij en trots om dit proefschrift op te leveren. Het onderwerp van mijn proefschrift, ‘HRM en innovatie’, bevat ook het omgaan met ideeën. Dit, gecombineerd met het proces van promoveren, maakt voor mij de uitspraak van Dr. Dre (de rapper dus) zoals hierboven staat erg toepasselijk. Ideeën moet je koesteren en met zorg behandelen om te kunnen laten bloeien tot bijvoorbeeld innovaties of een proefschrift.

“Like all great travellers, I have seen more than I remember, and remember more than I have seen.” Benjamin Disraeli

Deze spreuik van Benjamin Disraeli zag ik tijdens mijn promotietraject staan op een gebouw, toen ik met Stefanie een weekend doorbracht in Amsterdam. Het paste precies bij hoe ik me op dat moment voelde tijdens ‘mijn reis’. Wat ik mij nu in ieder geval herinner en graag op terugkijk zijn de mensen waar ik steun aan heb gehad. Hoewel promoveren een solistische bezigheid is, doe je het niet alleen. Ik wil dan ook nu gebruik maken van de gelegenheid om veel mensen te danken.

Mijn eerste dank gaat uit naar Jan Kees Looise, mijn eerste promotor die mij gevraagd heeft om deze promotieplaats te overwegen. Jan Kees, die
Dankwoord

vraag kwam op het juiste moment en voelde aan als een enorme steun en waardering. Tijdens het traject heb ik veel vrijheid van je gekregen, bijvoorbeeld om door te gaan met het wat vage concept van creative capital, ondanks de ondervonden lastigheden. Dat waardeer ik zeer en daar wil ik je graag voor danken. Daarnaast was het CvI project een erg mooie constructie om onderzoek in te doen. Onder jouw voorzitterschap is het project succesvol afgerond en met als uitkomst nu dan ook drie proefschriften. Dank ook voor je leiding aan dit project en de samenwerking. Ik heb veel van geleerd van onze samenwerking!

Op het moment dat ik het in mijn promotietraject wat lastiger vond worden qua motivatie, kwam Tanya Bondarouk in beeld in een begeleidende rol als tweede promotor. Tanya, ik ben je zeer dankbaar voor onze gesprekken, je positieve insteek en de mogelijkheden die je mij bood. Meer dan eens heb je een belangrijke rol gespeeld om in tijden van mentale dieptepunten weer omhoog te kunnen kijken. Je motiveringstactieken varieerden van een e-mail met een positieve tekst uitvergroot op mijn monitor hangen tot luisteren en schrijfsessies. Ik waardeer je belangstelling in mij en je inspiratievolle werkwijze!

Vanaf de start van mijn promotietraject was Martijn van Velzen mijn ‘dagelijks begeleider’. Martijn, voordat ik begon zei je tegen mij dat als ik alles al zou weten over het onderwerp ik bij mijn aanstelling mijn bul zou ontvangen, dus ik moest vooral twijfelen, fouten maken, ontwikkelen en leren om uiteindelijk de bul te verdienen. Dan kom ik daar nu wel voor in aanmerking! Veel dank voor onze goede gesprekken, discussies en ideeën, niet alleen over creative capital of werk. Jouw enthousiasme voor creative capital was aanstekelijk en ik denk dat we, na langdurig alle facetten te hebben onderzocht, besproken, beschreven en herschreven, er goed aan gedaan hebben om het te gebruiken. Nadat je wegging bij de UT hebben we contact gehouden en ik koester de ontmoetingen in Oirschot en Utrecht.

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dit artikel, ben ik overtuigd dat we het gepubliceerd gaan krijgen. Naast dit artikel hebben we natuurlijk ook fijn samengewerkt in het vak ‘HRM, Innovation & Entrepreneurship’. In dit vak liet je me de ‘ins en outs’ zien van het doceren van een volledig vak. Uiteraard kan ik niet vergeten om je enthousiasme in de groep te vermelden. We hebben leuke activiteiten meegemaakt met veel gezelligheid!

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Dankwoord

Het was een boeiend proces met een mooie conferentiepaper als resultaat. Tamara Oukes, bedankt voor je grote inzet bij het verzamelen van veel data. Je grondige werkwijze heeft prachtige resultaten opgeleverd. Marina Kearney, thank you for all your work and insights into creative capital and external labour. This resulted in our published paper! Ook Roy Noordhoek en Céleste van Zijp, dank voor jullie enorme bijdrage aan het verzamelen van data over een lastig concept. Verder wil ik de volgende studenten bedanken voor hun inzet bij het verzamelen van data voor mijn proefschrift: Jeske Eenink, Marinjo Happen, Durk Kingma, Teun Wesselink.

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André Veenendaal
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Over de auteur

André Veenendaal is geboren in Groningen en opgegroeid in Hoogezand-Sappemeer. Hij studeerde eerst in Groningen Werktuigbouwkunde aan de Hanzehogeschool. Daarna vertrok hij naar Enschede om Technische Bedrijfswetenschappen te studeren aan de Universiteit Twente. Tijdens deze studie heeft hij zich extra-curriculair beziggehouden met de aanbiedende kant van het onderwijsproces, onder andere via klachtencommissies, de opleidingscommissie en studentassistenten schappen op het gebied van onderwijsmanagement. Na deze studie is hij via werkzaamheden voor onderwijs-accreditaties opleidingscoördinator geworden voor de opleidingen BSc Bedrijfswetenschappen en MSc Business Administration aan de Universiteit Twente. Na dit een aantal jaren gedaan te hebben deed de kans zich voor om, in de vorm van een promotieonderzoek, zich te verdiepen in de rol van Human Resource Management (HRM) in het vergroten van innovatieprestaties van MKB-organisaties. Tijdens dit onderzoek was hij tevens docent en heeft studenten begeleid bij bedrijfswetenschappelijke afstudeeropdrachten.

Momenteel is André opnieuw opleidingscoördinator voor de MSc opleiding Business Administration aan de Universiteit Twente, waarbij hij ook projecten uitvoert die de BSc opleiding IBA en MSc opleiding Business Administration overstijgen, zoals kwaliteitszorg-activiteiten in het kader van opleidingsaccreditaties.
Over de auteur