Master Thesis

The influence of a perceived innovation-focused HRM system on employees' innovative work behavior and the moderating effect of line manager behavior

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Management Summary

In today's business, organizations rely not only on innovation in order to compete effectively, but also on employee's competences and skills and therefore on the implementation of the "right" HRM practices by line managers. The importance of HRM in regard to innovation is emphasized in recent literature as HRM is seen as antecedent of innovation. In order for organization to be innovative, they rely on employees' creativity, capabilities and resources.
In line with this, the following research focuses on the impact of a newly developed innovation-focused HRM system on employees' innovative work behavior and the moderating role of line manager behavior. The innovation-focused HRM system covers HRM practices such as Recruitment and Selection, Training and Development, Teamwork and Job design, Performance Management and Compensation with the focus on innovation as ultimate goal which distinguish it form traditional HRM systems.

The research instrument conducted in this research is a questionnaire. In total, 13 respondents operating at a public organization in the Netherlands participated in this research. By means of correlation and regression analysis, it is shown that the results obtained from analysis are not consistent with the literature due to methodological barriers. However, this research can be seen a pilot study allowing for a preliminary analysis which need to be conducted with a larger sample to obtain accurate results.

To finish, line mangers are able to get insight into their role as implementer and designer of HRM systems and get acquainted with the aspects that lead to a positive relationship with their employees' which ultimately influence employees' innovative work behavior and the overall firm performance.

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Chapter 1

Introduction

1.1 Research Motives

Nowadays, innovation is increasingly gathering strength in the business world in order to be able to compete effectively. Besides, research on Human Resource Management (HRM) and innovation has increased in the HRM literature in the last decades. For instance, literature argues that HRM is an antecedent of innovation and highlights the fact that innovation resides in its employee's competences and motivation (Gupta & Singhal 1993; Jiménez-Jiménez & Sanz-Valle, 2008). Following central theories, such as the Resource-based view (RBV) or Human Capital (HC) theory, it becomes obvious that the involvement of employees in innovation is vital. According to both theories, organizations are depended on employees' capabilities and resources in order to be able to innovate and to gain sustainable competitive advantage (Barney, 1991; Kusunoki et al., 1998; Barney & Wright, 1998; Hitt et al., 2001). Therefore, companies will benefit from the resources of their employees if these resources are regarded as valuable, inimitable, rare and non-substitutable (Dunford et al., 2001). In line with this, resources are not only referring to tangible resources, but in fact human resources and therefore employees and their human capital (knowledge, skills and abilities or KSAs). Additionally, it is argued that not the possession of resources is valuable, but to a greater degree how employees efficiently use these resources in order to drive innovative activities (Foss et al., 2008).

Notably, most idea improvements (80%) are caused by employees during day-to-day work rather than by innovative activities (Getz & Robinson, 2003; Imran et al., 2010). This is why organizations are relying on employees' innovative work behavior in order to be innovative (Cooke & Saini, 2010; Jiménez-Jiménez & Sanz-Valle, 2013). In similar fashion, the literature on employees' innovative work behavior assumes that employees

define and develop their own individual expertise in order to be involved in the development of the firm (Sundbo, 1999). In order to succeed by the development of innovation, it is necessary that suitable HRM practices are designed aiming at motivating and retaining employees who ensure the effective functioning of the firm (Tan & Nasurdin, 2011). Since innovations are creative ideas developed and implemented by teams or individuals, it follows that effective systems need to be developed supporting employee actions and improving environmental performance through innovative solutions created by employees (Amabile et al., 1996). Furthermore, designing HRM practices is seen as a factor predetermining innovative behavior (Laursen & Foss, 2003; Shipton et al., 2006; Farr & Tran, 2008). Nonetheless, HRM practices differ from firm to firm and from country to another. This is why HR managers are expected to select those practices that enhance the firm's competitive advantage (Jiménez-Jiménez & Sanz-Valle, 2008).

The present literature stresses that a single type of HRM practice and its influence on a firm's performance is not adequate to examine. The reason for this statement is the claim that single HRM practices do not operate on their own but are interrelated to each other. Consequently, the effect of individual HR practices on innovation might be inhibited by practices that are not considered when testing the effect as empirically found by various authors (e.g. Peck, 1994; Laursen, 2002; Laursen & Foss, 2003). Instead, "bundles" of HR practices (or HRM system) have to be analyzed since *„HR practices are more conducive to innovation when adopted - not in isolation but as a system of mutually reinforcing practices"* (Laursen, 2002, pp. 141-142).

In the past, literature identifies several traditional HRM systems consisting of configurations of HRM practices such as the commitment-based HR systems (Lepak et al., 2006; Boselie, 2010; McClean & Collins, 2011), control-based HR systems (Lepak et al., 2006), high involvement HR systems (Lepak et al., 2006) and high performance work systems (Combs et al., 2006; Lepak et al., 2006). These traditional HRM systems are putting focus on a common goal: control, high commitment, high involvement and high performance. Nevertheless, scholars face the challenge of selecting HRM practices aiming at supporting the innovation performance, such as Martell and Carroll in 1995 and Zhou, Hong and Liu recently in 2013. To illustrate, it is found that traditional practices within these systems are negatively related to innovation (Michie & Sheehan,

2003). For this reason, a unique HRM system will be developed consisting of six HRM practices focusing on innovation as one goal and emphasizing on the aspects that influences employees' innovative work behavior as another goal. Thereby, it differs from traditional HRM systems that do not consider these aspects, but rather put focus on general practices without elaborating on the impact these practices might have on employees' behavior and attitudes.

To continue, it is claimed that the perceptions of HRM practices influence employees' attitudes and actions and have an impact on employees' innovative work behavior (Chang, 2005; Kinnie et al., 2005; Purcell & Hutchinson, 2007; Edgar & Geare, 2014). Consequently, employees are unlikely to show innovative behavior if HRM practices are not perceived as supportive to innovative behavior. Surely, there are different ways in which employees perceive a HRM system that is discussed in literature. In this paper, the focus is on the utility of HRM practices aiming at considering the role HRM practices paly in impacting employees' performance and ultimately their innovative work behavior.

Nonetheless, the perception of HRM practices is strongly dependent on how policies are put into practice (Stoker et al., 2001; De Jong & Den Hartog, 2007). Line managers are seen as implementer of HRM practices and policies as they are in daily and direct contact with their employees (Bos-Nehles et al., 2013). Further, line manager do not only take the role as implementer of HRM practices, but are faced with the responsibility to understand how employees interpret and respond to the implemented HRM system (Alfes et al., 2013). In line with this, the social exchange theory, and more specifically the leader-member exchange (LMX) theory, suggest that line manager and employees share a relationship in which line manager behavior affect employees' engagement in innovative work behavior.

1.2 Research Goals and Research Question

Currently, only limited research is present on how line manager behavior influences the HRM system-Innovative work behavior relationship. Rather, most literature focuses on line manager behavior's effect on innovative work behavior, but do not take into account the role of line managers' design of perceived innovation-focused HRM system in order

to influence employees' innovative work behavior. In this paper, line manager behavior is referring to the application of the leader-member exchange theory (LMX) with the consideration of two different leadership styles that are seen important for the relationship. Additionally, it is interesting to explore whether line manager behavior and an innovation-focused HRM system are dependent on each other in order to influence employees' innovative work behavior or whether they should be regarded as substitutes, which is an aspect that is not considered in literature to my knowledge. In other words, is a bad relationship between line managers and employees able to be substituted by a well-implemented innovation-focused HRM system or vice versa? Or is the relationship and the implementation of an innovation-focused HRM system dependent on each other?

On the whole, the research goal is to explain the **effect of the perception of HRM practices on employees' innovative behavior**, especially the effect of a **perceived innovation-focused HRM system**, and examining how **line manager behavior** moderates this relationship. The central research question is as follows:

How does line manager behavior influence the effect of an innovation-focused HRM system on employees' innovative work behavior?

In order to answer the central research question and to get an in-depth understanding of the topic, a few sub-questions need to be answered in the first place:

1. What is innovative work behavior?
2. What HRM practices does an innovation-focused HRM system constitute of and how do they relate to each other?
3. To what extent does the perception of an innovation-focused HR system influence employees' innovative work behavior?
4. What is the role of line manager behavior in regard to employees innovative work behavior?
5. To what extent does the relationship between line managers and employees affect employees' innovative work behavior?

1.3 Relevance of the Research

1.3.1 Scientific Relevance

Since innovation has increased in the HRM literature in the last decades, the proposed study contributes to existing literature of the HRM-Innovation link by investigating the effect of an innovation-focused HRM system on employees' innovative work behavior. There is a lack of existing knowledge in regard to HRM systems that specially focus on innovation. Rather, existing literature puts emphasis on traditional HRM systems, such as the commitment-based HR system, performance-based HR system, control-based HR system and high involvement HR system (Combs et al., 2006; Lepak et al., 2006; Boselie, 2010; McClean & Collins, 2011). In line with this, a unique HRM system will be developed consisting of HRM practices that foster innovation, which has been not implemented by researchers yet. Furthermore, it is claimed that line managers are seen as implementer of HRM who are able to shape how employees perceive HRM practices. Nonetheless, due to my knowledge existing literature has not been investigated how line manager behavior is moderating the relationship between the perception of an innovation-focused HRM system and employees' innovative work behavior. Additionally, most literature is focusing on the leader-membership exchange (LMX) theory in regard to line manager behavior. This paper is not only focusing on the LMX theory, but also on leadership styles that will have an impact on the relationship between line manager and employees and ultimately employees' innovative work behavior.

1.3.2 Practical Relevance

First of all, this study demonstrates the vital role of line managers in regard to HRM in general and the role it plays in regard to the perception of HRM practices by its employees. The aim is to highlight the room for improvement in regard to the design and implementation of HRM practices which has an effect on employees' innovative behavior and therefore the overall firm's performance. In line with this, line managers operating in the HR domain are able to recognize the importance of the design of HRM practices and are able to improve the implementation of certain HRM practices, which will be moderating the innovative behavior of their employees. In other words, line managers are able to gain insight into how employees perceive HRM practices. Finally,

this study demonstrates the relationship between line managers and their subordinates (employees). In regard to this, line managers as well as employees, are able to improve their relationship by creating a high quality relationship as the LMX theory suggests.

1.4 Thesis Outline

The following thesis consists of 5 chapters. This chapter started with an introductory part dealing with the research problem, goal and research question. It further discussed the relevance of this study. *Chapter 2* is presenting the theoretical framework by conducting a literature review that encompasses definitions of variables and hypotheses development. The aim of this chapter is to discuss in-depth the relationship between an innovation-focused HRM system and employees' innovative work behavior and what role line manager behavior plays in regard to this relationship. In other words, it will be discussed how employees' perceive an innovation-focused HRM system that has an effect on their innovative work behavior and how line manager behavior shapes the link between a perceived innovation-focused HRM system and employees' innovative work behavior.

In *chapter 3*, the purpose is to illustrate the methodology of this research by demonstrating the sample, measurements and data collection method used for this study as well as the way in which the obtained data will be analyzed. *Chapter 4* is presenting the findings of the study. Lastly, *chapter 5* concludes all chapters with a discussion and gives recommendation for future research as well as limitation of the study.

Chapter 2

Literature Review and Hypotheses Development

In order to get an in-depth understanding of the topic, the following literature review clarifies the answers to the sub-questions mentioned in the previous part.

2.1 Innovative work behavior

In order to define the concept of *innovative work behavior*, a first step requires a comprehension of related concepts such as "*innovation*" and "*creativity*" since the relationship between these concepts (innovative work behavior, innovation, creativity) is still seen as blurred in the available literature.

2.1.1 Innovation defined

To start with, the current literature provides various definitions of innovation. For instance, Tidd and Bessant (2009) define innovation as "*the process of turning opportunities into new ideas and of putting these into widely used practice*" (p. 15) whereas Rogers (2003) define innovation as "*an idea, practice, or object that is perceived as new by an individual or other unit of adoption*" (p. 12). In order to maintain competitiveness, innovation is a vital component of business conduct and strategy. Changing consumer tastes and technological advances of other firms highlight the need for product innovations while process innovations can lower costs and increase efficiency; accordingly successful innovations support improving business performance (Clausen & Loew, 2009; Tidd & Bessant, 2010).

Since innovation is studied across various disciplines, research on innovation can be divided into two types of innovation studies, namely object-based and subject-based innovation studies. On the one hand, object-based studies deals with innovation itself including defining what innovation is, the development of new products as well as

explaining the pattern of diffusion. On the other hand, subject-based studies covers the actors that play an important role in the innovation process and how these actors can innovate in a effective and efficient way (Archibugi & Sirilli, 2001). In line with this, De Jong & Vermeulen (2005) include five levels of subject-based innovation research, in particular industries, countries, organizations, groups and individuals. As the focus is on innovative work behavior, this research will address the individual level that considers creative performance, proactive behaviors including innovative work behavior and antecedents of individual innovation as vital feature of innovation.

2.1.2 Innovative work behavior

Various researchers describe the definition of innovative work behavior as a way of application and implementation of new ideas, products or processes achieved through individuals' behavior (De Jong & Den Hartog, 2010; Kleysen & Street, 2001; Krause, 2004; Feldman & Lam, 2010). According to De Jong and Den Hartog (2007) innovative behavior is defined as "*behavior directed towards the initiation and application (within a work role, group or organization) of new, useful ideas, processes products or procedures*" (p.43). This definition highlights the fact that innovative behaviors can be divided into two phases, namely idea generation and implementation phase (Janssen, 2000; Hammond et al., 2011). In line with this, the authors included idea exploration and idea championing as well since they are seen as important dimensions of innovative work behavior (De Jong & Den Hartog, 2010). Likewise, innovation work behavior is defined as "*the intentional creation, introduction and application of new ideas within a work role, group or organization, in order to benefit role performance, the group or the organization*" (Janssen, 2000, p.288) and suggests three stages that innovation behavior consists of, namely idea generation, idea promotion and idea realization.

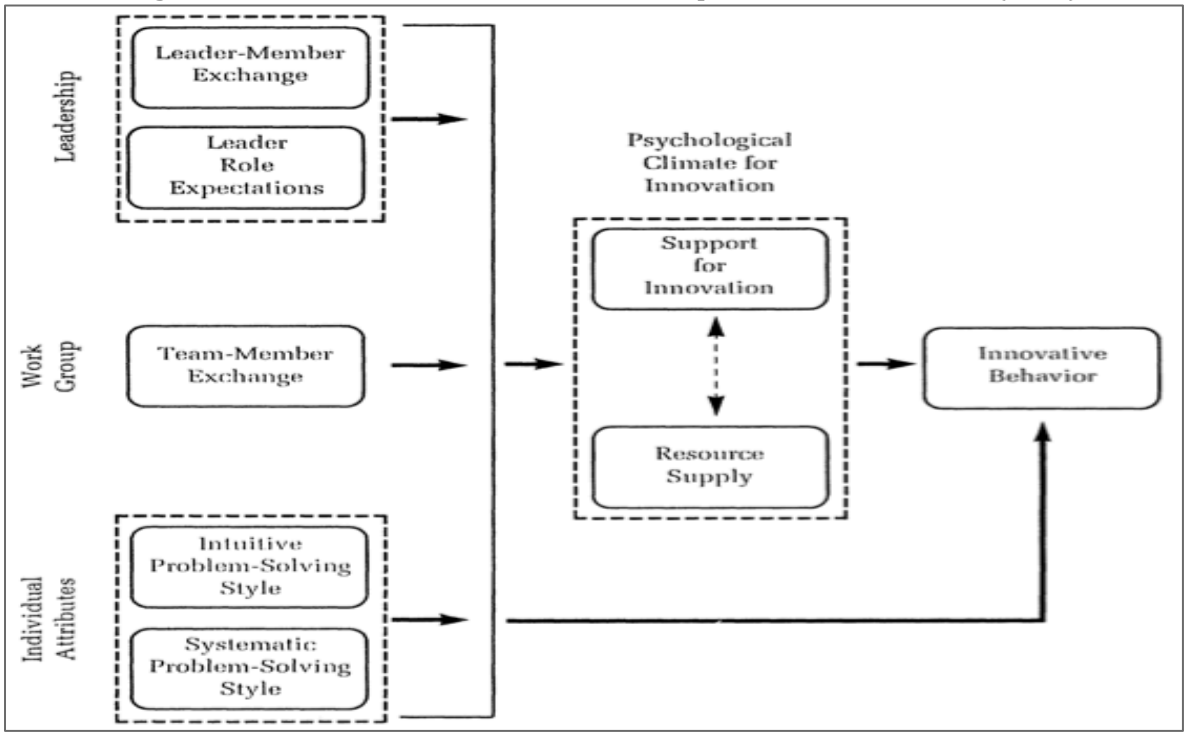
Drawing on Kanter (1988), the authors Scott and Bruce (1994) see innovation as a multistage process that incorporates three stages as well: (1) idea generation; (2) coalition building and (3) implementation. The first stage includes recognition of ideas and solutions. During the next stage, the individual seeks sponsorship for his/her ideas. Finally, the last stage covers the completion of ideas by developing models or prototypes of the innovations. The reason why it is seen as a multistage process is due to the fact that innovation behavior consists of diverse activities and behaviors at each stage.

Moreover, individuals are incorporated in any combination of these stages since innovation is characterized by discontinuous activities.

In regard to these stages, Scott and Bruce have developed a model of innovative work behavior including four interacting systems (*individual, leader, work group and climate for innovation*) that are seen as the outcome of individual innovative behavior (see Figure 1).

In line with the innovative behavior model, the construct of employee innovative behavior recognizes employees as "*self-responsible people who define and develop their own individual expertise and who are supposed to be involved in the development of the firm in which they are employed*" (Sundbo, 1999, p. 109). Consequently, employees are engaged in innovative behaviors in order to develop and modify ideas that would otherwise not be developed (Ramamoorthy et al., 2005). Finally, innovative behavior is often regarded as employees' actions that are not directly acknowledged by formal rewards or written in contracts (Janssen, 2000). Hence, employees' innovative work behavior depends heavily on their interactions with others, for example with team members and line managers (Yukl, 2002; De Jong & Den Hartog, 2007), which is consistent with the work group interaction system (Scott & Bruce, 1994). In line with this, this paper will discuss the leader interacting system more in detail later in this paper.

Figure 1: Innovative work behavior model adopted from Scott & Bruce (1994)



2.1.3 Innovation work behavior compared to creativity

As already discussed, innovation deals with newness and turning new ideas into practice, which requires individuals to be creative in order to explore new innovations. Although, individuals need to show certain innovative behavior during this process, creativity differs from innovation and innovative behavior. To start with, creativity is defined as the "*production of novel, appropriate ideas in any realm of human activity, from science, to the arts, to education, to business, to everyday life*" (Amabile, 1997, p.40). On the other hand, innovation is "*the successful implementation of creative ideas within an organization*" (Amabile, 1996, p.1). Nevertheless, creativity is seen as the first step in innovation where novel ideas – ideas that have not been done before - are developed which are appropriate to the problems and opportunities presented (Amabile, 1997). In line with the diverse stages of innovative work behavior that have been discussed earlier, creativity can be classified into the idea implementation stage. Consequently, creativity precedes innovation since ideas are first generated and then implemented and is seen a vital component which helps recognizing performance gaps and generating ideas right at the beginning of the innovation process (West, 2002). To finish, creativity differs from innovative work behavior since it is not expected to result in innovative output compared to innovative work behavior (De Jong & Den Hartog, 2008).

2.2 Innovation-focused HRM system

2.2.1 HRM practices defined

According to Delery and Doty (1996), HRM practices are composed of the implementation of policies and practices to ensure that a firm's human capital leads to the achievement of its business objectives. HRM practices differ from firm to firm and from country to another. This is why HR managers are expected to select those practices that enhance the firm's competitive advantage (Jiménez-Jiménez & Sanz-Valle, 2008).
In regard to innovation, Laursen (2002) and Laursen and Foss (2003) point out the aspect of the positive impact HRM practices has on innovation performance for the following reasons: first, HRM practices lead to decentralization. In this way, the utilization and discovery of local knowledge is allowed. Second, teams brought together are able to share knowledge and skills that existed separately prior to the introduction

of teams resulting in process as well as product improvements. Third, rewarding employees for minor process improvement will increase incremental innovation. Finally, job-rotation allows engineers to understand technological problems faced by colleagues. Further, it is pointed out that HRM practices are important for idea generation and that unique and firm-specific knowledge is needed in order to maintain competitive advantage (Lepak & Snell, 2002; Bledow et al., 2009; Lopez et al., 2009). Additionally, Jiménez-Jiménez and Sanz-Valle (2008) claim that innovation *resides in its employee's competences and motivation* (p.1208). In order to succeed by developing innovation, it is vital that HR managers design HRM practices aiming at motivating and retaining employees who ensure the effective functioning of the firm (Tan & Nasurdin, 2011; Hsieh et al., 2011).

A distinction can be made between collaborative HRM practices and knowledge HRM practices. Collaborative HRM practices put emphasis on team orientation, training activities, team-based appraisal and compensation whereas knowledge-based HRM practices focus on the selection of best people in terms of their capabilities (Lopez-Cabralez et al., 2009). Another distinction can be made between different types of HRM practices, in particular *intended*, *actual* and *perceived* HRM practices. Intended HRM practices represent formal policies dictated by the HR department in regard to HRM practices that are implemented for a certain job (Sparrow, 2010). Actual HRM practices are those HR practices that are actually implemented due to the fact that not all intended HRM practices are accomplished (Sparrow, 2010). Perceived HRM practices represent employees' perceptions of HR practices (Kinnie et al., 2005). For example, employees might perceive that there is no reward for performance which give rise to employees' reaction to practices they perceive to be managed. How employees perceive HRM practices differs from employee to employee since each individual experience HRM practices in a different way. Furthermore, employees' perception can take various types. On the one hand, employees' attitudes and performance can be shaped by employees' motives or attributions they make about the question why management uses certain HRM practices. This type of perception is called HR attribution (Nishii et al., 2008).
On the other hand, literature stresses the importance of the utility of HRM practices as another type of employees' perception. In other words, employees perceive HRM practices in accordance to the extent to which employees consider them to play an important role in influencing their performance and ultimately their behaviors and

attitudes (Purcell & Hutchinson, 2007; Edgar & Geare, 2014). All in all, Chang (2005) highlights the importance to study the perception of HRM practices in order to comprehend employees' behavior.

For the purpose of this paper, the latter type (utility of HRM practices) will be taking into consideration in order to explain employees' response to the perception of HRM practices that are viewed as a "personalized" commitment to them (Hannah & Iverson, 2004, p. 339). In this case, employees' response will be employees' innovative work behavior. Thus, the aim is to explain how employees' innovative work behavior is affected by the application of perceived HRM practices, especially the perceptions of an innovation-focused HRM system. Additionally, it is claimed that employees' perception of practices is shaped by the relationship with managers. Since this paper is taking into consideration the relationship between employees and their supervisors, it seems that the focus of perceived HRM practices is appropriate.

Nonetheless, literature stresses that a single type of HRM practice and its influence on a firm's performance is not adequate to examine. The reason for this statement is the assertion that single HRM practices do not operate on their own but rather are interrelated to each other (Bowen & Ostroff, 2004; Cunha, 2004). This statement is consistent with the configurational model which asserts that specific combinations of HRM practices exist depending on the organizational contexts in order to determine the most effective that leads to higher business performance (Meyer et al., 1993; MacDuffie, 1995; Delery & Doty, 1996). In other words, the configurational model implies that there is a fit between a HRM system and the overall firm strategy leading to higher firm performance. In line with this, a distinction can be made between two different types of fit in the HRM literature. On the one hand, an internal fit (or horizontal fit) deals with individual HRM practices that are coherently arranged in order to support each other. These arrangements are called "bundles", "systems" or "clusters" (MacDuffie, 1995; Delery & Doty, 1996). On the other hand, an external fit (or vertical fit) aligns between different HRM practices in regard to the organizational context, e.g. organizational strategy (Becker & Gerhardt, 1996; Delery, 1998).

To continue, the effect of individual HRM practices on innovation might be inhibited by practices that are not considered when testing the effect as empirically found by various authors (Peck, 1994; Laursen, 2002; Laursen & Foss, 2003). Instead, bundles of HR practices (or HRM system) have to be analyzed since „*HRM practices are more conducive*

to innovation when adopted - not in isolation but as a system of mutually reinforcing practices" (Laursen, 2002, pp. 141-142). In regard to the internal fit, various effects are possible. For example, an *additive effect* occurs if two HRM activities on the same level result in the sum of the separate effects of each individual HRM activity (Kepes & Delery, 2007, p. 393) whereas a *synergistic effect* is possible if HRM practices are mutually dependent on each other. Various authors argue that the synergy among HRM practices enhances the overall firm performance compared to the sum of individually implemented practices (Delery & Doty, 1996; Guerrero & Barraud-Didier, 2004; Michie & Sheehan, 2005). Similarly, it is affirmed that HRM practices reinforce each other "*at their maximum level to ensure the utmost HRM system effectiveness*" (Saeed, 2011, p 8612). In other words, HRM practices are seen as equivalent in the HRM system making them reinforcing and complementing each other leading to the effect of a HRM system which is seen as 2+2=5 (Delery & Doty, 1996). Furthermore, not only synergy will be created, but also the reciprocal interdependence among HRM practices will be exploited (Chadwick, 2010).

Therefore, the *synergistic effect* will be taken into account by looking at bundles of HR practices rather than looking solely on combination of specific HRM practices and their possible effects. In line with this, a unique HR system consisting of various HRM practices will be developed that will be discussed in the following section.

2.2.2 Different types of HRM systems

In the past, literature identifies several traditional HRM systems consisting of configurations of HRM practices such as the commitment-based HR system (Lepak et al., 2006; Boselie, 2010; McClean & Collins, 2011), control-based HR systems (Lepak et al., 2006), high involvement HR systems (Lepak et al., 2006) and high performance work systems (Combs et al., 2006; Lepak et al., 2006). Commitment-based HR systems are characterized by managers operating as facilitators rather than supervisors (Walton, 1985). Commitment is seen as the employees' bond with the goals of the organization. In contrast, control-based HR systems ensure that employees work in compliance with specified rules with managers operating as supervisors. Furthermore, this type of HRM system is characterized by fixed jobs aiming at reducing labor costs and improving efficiency (Walton, 1985; Arthur, 1994). Further, high involvement HR systems

encourage employees to control their work and thus increase their involvement in the company (Wood & De Menezes, 1998; Whitener, 2001) whereas high performance work systems (HPWS) enhance employee retention (Guthrie, 2001) and focus on three areas: (1) employee skills, (2) motivation and (3) empowerment (Wright & Boswell, 2002; Snape & Redman, 2010). These traditional HRM systems are putting focus on control, high commitment, high involvement and high performance, but neglect the aspects that influence employees' innovative work behavior as well as the innovation performance (Martell & Carroll, 1995; Michie & Sheehan, 2003). Consequently, a unique HRM system will be developed which will be innovation-oriented and which pays attention to the aspects that influence employees' innovative work behavior.

2.2.3 Developing a perceived innovation-focused HR system

As aforementioned, a unique HRM system will be developed in this study consisting of perceived HRM practices that will foster innovation.

On the one hand, according to Lau and Ngo (2004), there are three sets of HR practices that support an innovation-focused HRM system. These sets are: (1) **training-focused** (2) **team development** and (3) **performance-based reward**.
HRM practices that are training-focused aim at enhancing skills and invest in human capital (Ledford et al., 1995). Consequently, employees are trained in order to expand and/or enhance their skills and knowledge leading to new product developments (Lopez-Cabralez et al., 2009). Several scholars have studied the effect of training. For example, Leede et al. found in 2002 that high-performing organizations spend a lot of time on training and development and put emphasis on communication and team skills. Team skills are vital because the utilization of teams is essential in order to enhance the innovation performance since innovation is seen as too complex to be developed and achieved by a single individual (Jiménez & Sanz-Valle, 2008). Moreover, Valle et al. (2000) found out in their study that the achievement of organizational effectiveness is dependent on HR training that is congruent with the firm strategy. Lastly, since training-focused HRM practices achieve competitive advantage by developing the necessary human resources (De Saa-Perez & Garcia-Falcon, 2002), which is in consistency with the

human capital theory, Lau and Ngo (2004) claim that training-focused HRM practices should be linked to innovation performance.

Team development deals with team-based activities that are developed and carried out (Ledford et al., 1995). According to Beer and Eisenstat (2000) critical dimensions in teams with an innovation expectation exist, namely team cooperation, conflict resolution and communication. As already stated, innovation is too complex and is dependent on diverse skills and knowledge that team members possess. Therefore, it is important that these members are able to communicate and cooperate with each other in order to share the skills and knowledge. Consequently "*teamwork plays an important part in eliciting innovation*" (Lau & Ngo, 2004, p.690).

Performance-based reward focuses on rewarding employees based on their contributions and outcomes achieved (Ledford et al., 1995). Learning behaviors of employees that are achieved through the development of appropriate competencies (e.g. with the help of training activities) are rewarded if employees are able to improve their performance. As a consequence, the reward of learning behavior sustains competitiveness (Lau & Ngo, 2004). In regard to innovation, it is argued that HR systems that include pay-for-performance support innovation (Searle & Ball, 2003). This is true as most innovation-oriented companies are focusing on the design of various compensation packages in order to reward employee involvement as found by Ledford et al. in 1995. Therefore, performance-based reward is seen as a significant compensation tool (Feldman, 1996). To continue, appraisal mechanisms are seen as part of performance-based reward systems that helps coping with uncertain and multidisciplinary innovation process (Chen & Huang, 2009). Those appraisal systems provide employees with valuable feedback from supervisors, for example line mangers, as well as from team members (Jiménez-Jiménez & Sanz-Valle, 2008). The aforementioned sets are interrelated to each other and thus dependent on each other (McDonough, 2000). Therefore, HRM practices involved in these sets have a synergistic effect as discussed earlier.

On the other hand, Lepak et al. (2006) assume that an HRM system has to "*operate by influencing (1) employee knowledge, skills and abilities, (2) employee motivation and effort, and (3) opportunities for employees to contribute*" (p. 217) and hence follows the principles of the AMO model presented by Bailey in 1993 and which is further developed by Appelbaum et al. in 2000. The AMO model proposes that employee

performance can be improved through the contribution of HRM practices by developing employees' abilities (A), motivation (M) and opportunity (O) in order to use their skills and be motivated (Hutchinson, 2013).

Ability consists of HRM practices that ensure that employees have the appropriate skills and knowledge in order to undertake their jobs. HRM practices, such as training and development and recruitment and selection enhance the ability of employees (Jiménez & Sanz-Valle, 2005; Paauwe & Boselie, 2005; Shipton et al., 2005). First of all, firms ensure that capable employees are recruited and selected in order to hire them. Secondly, training is provided for workers to enhance their skills and knowledge base leading to better work performance (Huselid, 1995; Appelbaum et al., 2000; Savaneviciene & Stankeviciute, 2011).

Motivation is distinguished between three types: extrinsic, intrinsic and mutual trust (Appelbaum et al., 2000). Extrinsic factors include incentive pay schemes, individual performance pay or group-based performance pay. Intrinsic motivation is the extent to which employees are satisfied with the job they need to do. Finally, creating an atmosphere of trust between the firm and employees encourages motivation. If employees are given trust, they will be motivated in performing their job and will less likely leave their job. Therefore, motivation can be enhanced through HRM practices such as compensation, performance management, teamwork, and job rotation (Ortega, 2001; Paauwe & Boselie, 2005, Wright & Kehoe, 2008).

Opportunity is characterized by employees' involvement in the decision-making process (Appelbaum et al., 2000). This can be achieved through a higher level of autonomy (Wood & Wall, 2007). In other words, employees are given freedom to decide how they are going to perform their jobs, for example through self-managed teams. Furthermore, opportunity is enhanced though performance management which means that employees are also given the opportunity to review their team members by giving feedback or through the suggestions of measures that will be applied and the way to evaluate them (Boselie, 2010). Hence, HRM practices enhancing the opportunity component of the AMO model are job design and rotation, teamwork and performance management.

Although, the AMO model is putting emphasis on the overall firm performance, it can be also applied to innovation as an ultimate goal. Different HRM practices can be selected in regard to the three components:

Ability (A) includes practices such as:
- *Recruitment and selection* to ensure that capable employees are recruited
- *Training and development* in order to enhance employees' knowledge, skills, abilities and giving them the opportunity to extend their competencies (Hutchinson, 2013)
Motivation (M) includes practices such as:
- *Performance Management* by giving developmental feedback, performance reviews or appraisal to emphasize employee learning as well as motivate employees to reach (organizational) goals
- *Compensation* to provide incentives for new ideas and to reward employees intrinsically (e.g. interesting work) and extrinsically (e.g. financial)
- *Job Rotation* as a way to motivate key employees who would become bored of performing the same tasks and hence motivates employees to deal with new challenges (Ortega, 2001).
- *Teamwork* by sharing knowledge and skills in order to come up with frequently new ideas resulting in innovations or new product developments
Opportunity (O) includes practices such as:
- *Teamwork* by communicating freely with team members which give them the opportunity to perform tasks better and improve their work
- *Job design and rotation* by providing opportunities to improve employees' capabilities and skills, increasing productivity and improving quality of work (Casad, 2012). Additionally, autonomy is giving employees the opportunity to perform jobs that empower them to make decisions
- *Performance management* by given the opportunity to review team members (e.g. giving feedback) and through the suggestions of measures that will be used and evaluated (Boselie, 2010)

It should be noted that there are a couple of HRM practices that might influence multiple components. For example, teamwork is assumed to influence Opportunity **(O)** and Motivation **(M)**. This supports the statement that "*HR practices can be bundled to enhance ability, motivation and opportunity*" (Boselie, 2010, p. 134). For instance, if an employee is motivated and has the ability to perform well, but has no empowerment to

make decisions, the performance is likely to be inhibited (Hutchinson, 2013).

In regard to both aforementioned perspectives, the following HRM practices are selected for the development of an innovation-focused HRM system: Recruitment and Selection; Teamwork; Training and Development; Job Rotation and Design; Compensation and lastly Performance Management.

2.2.4 Perceptions of an innovation-focused HRM system on employees' innovative work behavior

The effectiveness of HRM practices and their effect on innovative work behavior is determined by the perception of practices by employees (Chang, 2005; Den Hartog, et al., 2012; Takeuchi & Takeuchi, 2013). Employees are unlikely to show innovative behavior if HRM practices are not perceived as supportive to innovative behavior. This section discusses how the selected HRM practices influence employees' innovative work behavior and how HRM practices are interrelated to each other.

Recruitment and Selection

In order to develop innovations, it is necessary to select and recruit talented people that are continuously generating new ideas to come up with new products or processes (Chen & Huang, 2009; Jiang et al., 2012). As stated by Chen and Huang in 2009, "*through effective staffing employees become important sources of new ideas in the firm's innovative process*" (p. 106). In regard to innovation, organizations need employees who take risks and who are able to deal with uncertainty and ambiguity (Chen & Huang, 2009). Therefore, it is crucial to develop an effective staffing system helping firms to select competent and qualified workforce with appropriate skills and attitudes. In addition, selecting employees is not only based on replacing employees that left, but also to select those that are able to perform at a high level (Ballantyne, 2009). Recruiting and selecting the most qualified employees will ensure positive firm performance (French & Sally, 2010) and will likely lead to the successful implementation and generation of ideas, which is required in order to show innovative behavior.

Likewise, organizations need to select those employees who "*can integrate effectively for development of knowledge management capacity*" (Chen & Huang, 2009, p. 107). This is essential in order to combine knowledge possessed from various sources and

stimulating innovative idea generation leading to innovative behavior (Martinsons, 1995; Scarbrough, 2003).

Teamwork

Employees' innovative work behavior depends heavily on their interactions with others, for example team members (Yukl, 2002; De Jong & Den Hartog, 2007). Teamwork is seen as a critical success factor in developing innovations (Cooper, 1993; Eisenhardt & Tabrizi 1995; Gemuenden & Lechler, 1997). In line with this, the literature stresses the importance of cross-functional teams in regard to innovation as it brings different knowledge together through the sharing of ideas from team members operating in different areas (Laursen & Foss, 2003; Lau & Ngo, 2004). It is vital to benefit from cross-functional teams as innovation is seen as a complex process that requires different skills in order to come up with various ideas leading to better results (Laursen & Foss, 2003). How well teams collaborate with each other is important in order to develop successful innovative projects as found out in the study of Hoegl and Gemuenden in 2001. This is the reason why the authors have developed a construct of the collaboration in teams (teamwork), called Teamwork Quality (TWQ) consisting of six facets, i.e. coordination, communication, balance of member contributions, effort, mutual support and cohesion.
In regard to *communication*, it is argued that teams that communicate with each other will be able to work innovative (Jiang et al., 2012) and therefore will likely show an innovative behavior. *Balance of member contribution* ensures that every member is able to contribute his/her knowledge to the team (Hackman, 1987). This is very important for teams with innovative tasks consisting of team members from different functions (e.g. R&D, Marketing etc.), which need to balance the contributions with respect to each member's knowledge (Hoegl & Gemuenden, 2001). *Coordination* means that the teams "*develop and agree upon a common task-related goal structure that has sufficiently clear sub goals for each team member, free of gaps and overlaps*" (Hoegl & Gemuenden, 2001, p. 437). This is of importance during the implementation phase of the innovative behavior construct where various ideas and skills from different functions are needed to achieve high effectiveness and efficiency, since innovative tasks are complex and dynamic. Nonetheless, as stated before cross-functional teams consists of team members from different areas who work differently, so that it is important to first synchronize individual efforts leading to an efficient and goal-oriented implementation phase (Frimpong & Agyemang, 2010) and ultimately innovative behavior. *Effort* is whether

team members exert all efforts to the tasks (Hoegl & Gemuenden, 2001). It is claimed that the exertion of effort on common task is influencing the success of innovative projects (Hackman, 1987). Notably, effort can be important in the idea generation and implementation phase where each individual exert his/hers effort to the team's tasks leading to successful idea generation and implementation.
Mutual support and *cohesion* will not be considered since they both only have a slight relationship to innovative behavior. All in all, the Teamwork Quality (TWQ) needs to be high in order that teamwork contributes to innovative behavior.

Summarizing the discussion above, it can be concluded that teamwork is depending on employees possessing the right skills and knowledge that is depended on recruiting and selecting skilled and knowledgeable employees in order to benefit from teamwork. Furthermore, teamwork also depends on job design and rotation as well as performance management.

Training and Development

Nowadays, customers are consistently demanding new products or features and customized designs. This is the reason why organizations are looking for employees who are able to cope with changing customer demands and rapid technological changes by employing those employees that constantly come up with creative ideas. Therefore, training and development is dependent on the outcomes of recruitment and selection, that means recruiting and selecting those employees that will benefit from the training and development activities within the organization. As stated by Delaney and Huselid (1996), employees will benefit from training programs if it is matched with a "*rigorous selection system that identifies the employees most likely to benefit from training*" (p.952).
Training employees enhance their knowledge, skills and abilities (KSAs) leading to an expansion and/or enhancement of their skills and knowledge and ultimately to creative ideas (Lopez-Cabralez et al., 2009; Nguyen et al., 2010). Nonetheless, it is claimed that solely training investment (e.g. financial support for education) does not guarantee innovation performance (Sung & Choi, 2014). But rather training needs to instigate utilization of knowledge among employees in order to increase innovation (Kang et al., 2007). In line with this, learning is seen as an integral process that generates innovations (Laursen & Foss, 2003). A distinction is made between three levels of learning practices in regard to training and development: *organizational learning*

practices, *individual learning practices* and *interpersonal learning practices*. Organizational learning practices create an overarching environment that encourage employees to engage in cross-functional teams, knowledge-sharing systems or suggestion programs in order to resolve organizational problems that need to be solved instantly (Sung & Choi, 2014). Likewise, knowledge sharing across various functions is facilitated which advance employees to absorb different and relevant knowledge leading to enhanced organizational innovation (Di Milia & Birdi, 2010). Individual learning practices, such as self-learning or individual-task related projects encourage employees to participate in corporate training or educational programs in order that employees become learning-oriented. Simultaneously, it urges them "*to actively pursue diverse information and knowledge needed to better perform their tasks*" (Sung & Choi, 2014, p.397) which enhance innovation by expanding their knowledge base. Finally, interpersonal learning practices provide an opportunity for employees to communicate across different departments (e.g. cross functional teams) enabling mutual learning and idea generation through knowledge sharing (López et al., 2006; Noe et al., 2010).

On the one hand, organizational learning enables employees to participate in the innovation process and stimulate innovative behavior by recognizing idea generation as work responsibility (Shipton et al., 2005).

In contrast, individual learning does not facilitate idea generation but rather is seen as the basis for innovation (Shipton et al., 2006). On the other hand, interpersonal learning stimulates innovative behavior by improving employees' creativity skills (Allani et al., 2003). On the other hand, it stimulates the implementation phase of the innovative behavior construct through horizontal communication. By stimulating a feedback culture, employees are able to increase the likelihood of successful application of innovation during this phase (Allani et al., 2003).

To sum, training and development is not only dependent on recruiting and selecting the "right" people but also on feedback and appraisals resulting from performance systems as well as teamwork as discussed above.

Performance Management

Performance management focuses on the measurement and stimulation of employee performance in order to improve the overall firm performance (Den Hartog et al., 2004). There are several types of performance management, however the most used form is the

appraisal mechanism by conducting interviews between employees and their line manager (Boselie & Paauwe, 2004). The application of appraisal mechanism ensure that employees receive valuable feedback from line managers or even team members which helps coping with the uncertain and multidisciplinary innovation process (Jiménez-Jiménez & Sanz-Valle, 2008; Chen & Huang, 2009). Therefore, formal appraisal mechanisms need to be provided in order to measure innovation behaviors (Brockbank, 1999). Moreover, frequently evaluating and guiding employees increases the firm performance and in this context innovative behavior (DeNisi, 2000). Especially, the evaluation of innovations is seen as important in the implementation phase (Janssen, 2000; De Jong & Den Hartog, 2007). Likewise, performance management tools ensure that employees work efficiently, which is required in the implementation phase of innovative behavior (De Jong & Den Hartog, 2007).
Nonetheless, performance management does not have a direct impact on employees' skills and expertise, but rather stimulates employees motivation (intrinsic motivation) by being challenged with goals and setting innovative objectives (Jiang et al., 2012).

In sum, performance management is depending on teamwork and job design. As already stated, the application of appraisal mechanism ensures that employees receive valuable feedback from team members. Additionally, it is claimed that employees play an important role in the design of performance management systems as it need to focuses on "what employees want" (Boselie, 2010, p.182). In line with this, employees need to be given the autonomy and freedom to be part of the design of performance system.

Compensation

Compensation is based on reward system including intrinsic (e.g. interesting work) and extrinsic (e.g. financial incentives) rewards (Gupta & Singhal, 1993). On the one hand, Zhou, Zang and Monotoro-Sanchez' study reveals that extrinsic reward has a positive impact on innovative behavior. Nevertheless, an "*excessive extrinsic incentives will deviate or erode the intrinsic motivation of employees towards creativity and will reduce their innovative behaviors*" (Zhou et al., 2011, p.88). On the other hand, intrinsic reward will motivate employees to generate ideas and is seen essential for the implementation phase of innovation in order to stimulate innovative behavior (Peterson & Luthans, 2006; Markova & Ford, 2011). Obviously, rewarding employees according to the quality of ideas is seen more effective than rewarding them based on the quantity of ideas

(Bohnet & Oberholzer-Gee, 2002). Therefore, rewarding does not have to include only money or financial incentives. According to Gupta and Singhal (1993), it is vital that reward systems are granting freedom for creativity and autonomy, which is in line with teamwork and job design & rotation.

To continue, performance-based reward is seen as critical compensation tool in innovation (Feldman, 1996). This is true as most innovation-oriented companies are focusing on the design of various compensation packages in order to reward employee involvement as found by Ledford et al. in 1995 but also to attract the most skilled employees (Jiménez-Jiménez & Sanz-Valle, 2008) which is important during the idea generation phase. Additionally, rewarding employees will likely result in innovation performance through innovative behavior perceived due to the perception of an innovation-focused HR system that includes performance-based rewards (Park et al., 2003). In line with this, it is obvious that performance management plays also an important role in compensation and should be seen as two HRM practices that are reinforcing each other.

Job Design and Job Rotation

In order to contribute to organizational performance, it is very important that employees are participating in the decision making process in order to implement their ideas. In line with this, employees need to be given the autonomy for implementing innovations and improving the idea implementation phase of the innovative behavior construct (Hammond et al., 2011). This can be achieved when employees feel supported in the implementation of their innovative ideas and when supervisors are open-minded for new ideas (Klein & Sorra, 1996; Jiang et al., 2012). It is claimed that teams that are given a high degree of autonomy over project decisions will increase information sharing (Hoegl & Parboteeah, 2006). This in turn will lead to idea generations resulting in innovative behavior showed by employees.

Furthermore, Laursen and Foss (2003) highlight the importance of the discovery and utilization of local knowledge achieved through decentralized decision-making. For example, employees who are not given autonomy or are not empowered, even though they possess the required skills and knowledge, will not able to improve idea implementation and thus will less likely showing an innovative behavior. As stated by Krause (2004), "*the generation and testing of ideas are promoted most by influence exerted through the granting of degrees of freedom and autonomy, followed by support for*

innovation and by openness in the decision-making process" (p.98). In brief, employees need to be given enough freedom to choose own projects, so that they become motivated to generate ideas and showing an innovative behavior.

To continue, job rotation allows employees to perform more than one task, which will enhance the coordination between the tasks (Laursen, 2002). Employees working jointly on all tasks will increase the share of knowledge and information and the adjustment of tasks without a centralized unit (Itoh, 1994). Furthermore, "*employees who rotate accumulate more human capital because they are exposed to a wider range of experiences. The more an employee moves, the more he learns*" (Eriksson & Ortega, 2006, p. 654). On the whole, it is notable that autonomy and job rotation both facilitate the idea generation and improves the idea implementation phase (Hammond et al., 2011), which is leading ultimately to increased innovative behavior.

To finish, job design is synergizing with performance management as it is found that feedback resulting from performance management as well as job autonomy is positively affecting employees' work outcomes (Bakker et al., 2004; Schaufeli & Bakker, 2004).

Following the configurational model and the argumentation discussed above, the following hypothesis can be developed:

H1: An innovation-focused HRM system consisting of the following HR practices a) Recruitment and Selection, b) Teamwork, c) Training and Development, d) Performance Management, e) Compensation and f) Job Rotation and Design will positively affect employees' innovative work behavior.

2.3 The moderating effect of line manager behavior on employees' innovative work behavior

2.3.1 Role of line manager

In the last decades, the involvement of line manager in Human Resource Management has been pointed out in the literature (Guest, 1987; Storey, 1992; Guest & King, 2001; Brewster & Larsen, 2002). Notably, the role of line managers is becoming more important in recent years due to the enlargement of HR work devoted to them. No more is the line manager only responsible for operational supervision, but rather the role shifted towards leadership and strategic business management (Storey, 1992). Furthermore, line managers have gained more authority and responsibilities; simultaneously they are burden with many HR activities. For instance, line managers' main responsibility is to implement HRM practices designed by HR professionals. In similar fashion, it is claimed that line managers act as "*agents in implementing HRM practices to understanding how employees interpret and respond to their employer's HRM system"* (Alfes et al., p.841). Moreover, line managers are not only seen as HR practices implementers but also as contributors to an organization's strategic direction, for example innovation for the following reasons. Firstly, line managers in daily and direct contact with their employees (Storey, 1992; Guest, 1997; Larsen & Brewster, 2003; Bos-Nehles et al., 2013). Secondly, line managers are able to react to local issues or questions appropriately and quickly, as they are operating with the people they manage. Alongside, they are able to increase the motivation and control of employees.

Notably, the relationship between employees and their line manager as implementer of HRM practices seems to play an important role. How line manager behaves in regard to the implementation and design of HRM practices will have a significant impact on employees innovative behavior as the decision made by line managers is seen as "*a major antecedent of employee attitudes and behaviors*" (Sanders et al., 2010, p.60). Especially in terms of innovative attempts made by employees, it is claimed that the relationship between the employee and its supervisor represents an important aspect in influencing employees' beliefs and behaviors (Yuan & Woodman, 2010). In regard to this perspective, it is therefore of importance to explain the relationship between line

managers and their employees in order to understand how line manager behavior can moderate the perception of HRM practices by employees which will in turn affect their innovative work behavior.

2.3.2 Role of line manager behavior on employees' innovative work behavior

Having discussed the role the line manager plays in regard to HRM, this section investigates the link between line manger's behavior and employees' innovative work behavior.

A first step requires an understanding of what line manager behavior represents. In the past, three types of leader behavior that differentiate between effective and ineffective leaders have been identified, namely task-oriented behavior, relationship-oriented behavior and participative leadership (Likert, 1967). The latter type was of importance in order to be an effective leader through the use of participative decision procedures (Likert, 1967). Moreover, researches recommend that leaders need to be both people- and task-oriented in order to be effective leaders, called "high-high leaders" (Blake & Mouton, 1982). However, in the 1980s until now the interested shifted towards "leadership". Notably, researchers started to focus on what leaders do (behavioral style) and not on whom they are (traits). Leadership is defined as "*behavior of an individual directing the activities of a group toward a shared goal*" (Hemphill & Coons, 1957, p. 7). In similar fashion, De Jong & Den Hartog (2007) define leadership as "*the process of influencing others to guide, structure and facilitate activities and relationships in a group or organization towards some kind of desired outcome" (p.34).* In line with this, it was chosen to take into consideration two different leadership styles that are likely play a vital role in regard to employees' innovative behavior, namely transformational and participative leadership. It should be noted that these leadership styles are seen as supporter for the main measure of line manager behavior, the LMX theory, which will be discussed more in-depth in the next section. The reason why it was chosen to use these leadership styles as supporter for the LMX theory is due to the fact that these leadership styles incorporate dimensions that are needed for the supervisor-employee relationship.

On the one hand, transformational leadership can be classified into four distinct dimensions according to Den Hartog: (1) Inspiration, (2) Charisma, (3) Intellectual stimulation and (4) Individual consideration. Inspiration means that leaders act as models for their subordinates whereas charisma covers the provision of vision and increases optimism. Intellectual stimulation means that leaders elicit challenging new ideas stimulating rethinking old ways. Finally, individual consideration covers mentoring and coaching subordinates through the continuous provision of feedback (Den Hartog, 1997). Transformational leadership is seen to have a positive influence on employees' innovative behavior as transformational leaders encourage employees to look at problems in new ways and helps them to enhance their creativity. Additionally, it encourages the exploration of new ways of doing things and therefore aims at abandoning old ways of life (Den Hartog, 1997; Krause, 2004). Empirical test revealed that there is a positive impact of transformational leadership on work related to innovative outcomes (e.g. Waldman & Atwater, 1992; Keller, 2006).

On the other hand, participative leadership comprises the use of participative decision procedures that helps determining the extent to which subordinates can influence leaders' decisions (Yukl, 2002). Participative leaders ask employees for suggestions and consult with them before taking decisions. This form of participative leadership is consultation. Furthermore, it is necessary that leaders and employees communicate with each other in order to discuss ideas and take them into consideration in order to derive to decisions that have to be made (Emery, 1995; Yukl, 2002). This form of participative leadership is called joint decision-making as the decision is made together with employees. Another form of participative leadership is delegation. In other words, leaders give employees autonomy to design and guide their own tasks (Yukl, 2002). Participative leadership positively affects employees' innovative behavior as it is seen as antecedent of individual innovation (Rickards & Moger, 2006). It is empirically found that this type of leadership triggers the idea generation and implementation phase of innovative behavior for the following reason. Participative leaders that take into account the consultation and delegation form of participative leadership will encourage employees to feel a sense of ownership by giving them authority to take own decisions and activities as well as through joint decision-making (Axtell et al., 2000).

In regard to the leadership styles discussed above, the following hypothesis can be developed:

H2: Line manager behavior will positively affect employees' innovative work behavior

2.3.2 Moderating effect of line manager behavior

The social exchange theory is an appropriate theory to understand the relationship between line managers and their subordinated and more specifically the connection between the perception of HRM practices and its impact on employees innovative behavior (Blau, 1965; Gould-Williams & Davies, 2005). HR practices "*initiate positive exchange relationships especially when managers are able to provide evidence of consideration and concern for needs of the individual worker*" (Gould-Williams, 2007, p. 1630). Employees see HRM practices as a personalized commitment to them, which is reciprocated to the firm with positive employee behavior and attitudes as a consequence of this positive exchange relationship (Hannah & Iverson, 2004). If employees are satisfied with HRM practices, this will lead to employee commitment and involvement and ultimately better business results. This is supported by the study of Kinnie, Hutchinson and Purcell in 2005 founding a positive relationship between affective commitment of employees and the satisfaction of HRM practices.

The major approach used to study the leader-subordinate relationship and thus the moderating effect of line manager behavior on innovative work behavior is the leader-membership exchange (LMX) theory (Graen & Scandura, 1987; Graen & Uhl-Bien, 1995; Liden et al., 2004). LMX theory focuses on the social exchange relationship between line managers and their subordinates, and proposes that the quality of this relationship will have an impact on employees' performance, satisfaction or commitment (Yukl, 2002).
A distinction can be made between **high quality relationships** (highly open communication, high support, and high autonomy of subordinates) and **low quality relationships** (limited formalized transactional exchange, limited support and limited autonomy (Graen & Uhl-Bien, 1995; Uhl-Bien et al., 2000). Nevertheless, the quality of the relationship depends on three variables: trust, respect and obligation. Trust reflects that "*individuals are willing to confide in the other, acknowledge weaknesses, and delegate*

because they believe the other will not act opportunistically" (Uhl-Bien et al., 2000, p.158). From the point of view of the employee, perceived lack of line manager behavior support or commitment will hinder the reach of the transformational partnership stage and shows lack of respect. Likewise, the transition will fail if line manager perceive that the subordinate is unable to fulfill his/hers tasks demonstrating a low level of mutual respect between both parties. Finally, as the quality of LMX increases and subordinates are provided with more support and resources in their tasks, career development is enhanced which leads to obligations for the subordinates to reciprocate this positive contributions. One example is that the subordinates perform more effectively leading to a high level of job involvement by fulfilling their obligations (Chen, 2007). To sum, the distinction of the quality of LMX can be helpful in measuring the variation in line manager's behavior since it is claimed that respect, trust and obligation are influenced by line managers' behavior (Uhl-Bien et al., 2000). In other words, if line managers change their behavior it will lead to a change of the perception of HRM practices by employees and will have in turn a significant impact on their innovative behavior.

2.3.2.1 Impact of line manager behavior on an innovation-focused HRM system

Having discussed the role of line manager in regard to the implementation of HR practices, this section will explain the variation of line manager behavior through the concept of LMX. In regard to this, line managers' influence on the innovation-focused HR system with the HRM practices included will be taken into account.

Teamwork

As stated earlier, the Teamwork Quality (TWQ) is an appropriate construct that describes the collaboration of teams in regard to facets such as communication, mutual support or coordination aiming at the development of successful innovative projects (Hoegl & Gemuenden, 2001). Since employees' innovative behavior depends heavily on their interactions with others, for example interactions with line managers (Yukl, 2002; De Jong & Den Hartog, 2007), it is therefore assumed that line managers moderate the effect of teamwork on innovative behavior as they supervise and interact with the team. Thus, this section will describe how line manager behavior affects employees' innovative behavior in regard to the TQW construct and the LMX theory.

Certainly, the coordination among team members is influenced by line manager's behavior for the following reasons. The role of the team leader, in this case the line manager, is to coordinate and solve problems among team members (Clark & Fujimoto, 1991). In the article written by Aronson, Reilly and Lynn about Leader behaviors fostering teamwork, a team or project leader is described as "*one of the forces that pull a project team together to ensure unified effort among team members. Such a leader is an integrator because he or she is able to motivate a team for collective action"* (Aronson et al., 2006, p. 225). Moreover, an effective team leader stimulates the talents and creativity of employees, which is needed during the idea generation phase of the innovative behavior construct. Nevertheless, team members will adhere to the task allocation if line managers create an environment of trust (Jassawalla & Saahittal, 2002). Trust is an important factor in regard to the LMX theory that enhances the quality of relationship among employees and line managers. Accordingly, it is crucial for stimulating employees' innovative behavior, as employees need to be trusted by line managers in order to reciprocate (Blau, 1964). Additionally, if line managers are not trusted to be capable to structure and allocate tasks across team members due to low level of LMX, it follows that TWQ will be low as well which decreases the effect of teamwork on innovative behavior. Rather, line managers should be able to build a trusting relationship (high level of LMX) leading to greater knowledge sharing through an open communication that is essential for the idea generation phase of the innovation process (Conway & Steward, 2009).

Further, line manger need to be aware that increased supervision and monitoring lead to a decrease of innovative behavior (Byron et al., 2010). This can happen in regard to the balance of team member contribution and teamwork effort where line manager need to intervene by monitoring the contributions of each member. For instance, if team members feel that others have lower effort than others, teamwork as a whole might be perceived as unfair. Consequently, employees' innovative behavior will be hampered through the unfairness of line managers (Janssen, 2004). This in turn, lead to the fact that employees will have less trust resulting in a low LMX.

To sum, it is obvious that teamwork has an impact on employees innovative behavior if line manager behavior is taken into account. As described, line manager should strive for a high level of LMX, which will increases the Teamwork Quality (TWQ) and ultimately the innovative behavior of employees.

Performance Management

It is necessary to consider the LMX relationship in regard to performance management since performance management is an integrated process whereby line managers and employees work together to measure results and set expectations in order to improve employees' performance and ultimately to affect the organizational success in a positive way (Mondy et al., 2002).

To start with, supervisors are responsible for putting performance management into practice, which will have an impact on employees' perception, motivation and trust (Den Hartog et al., 2004). Most notably, the line manager is seen as important implementer of performance management. As stated by Den Hartog, Boselie and Paauwe (2004), an "*HR department can develop (or buy in) sophisticated Performance Management tools. However, whether these really sort effect depends on the appropriate enactment by line managers*" (p. 563). In line with this, line managers' skills and fairness in using performance management tool, such as appraisal interviews will determine the tools' effectiveness in regard to employees' performance and commitment (Gratton & Truss, 2003). For instance, providing developmental feedback on performance will not only enhance employees' motivation due to feelings of competence, but also facilitate intrinsic motivation (Charbonneau et al., 2001). According to Deci (1972), employees' motivation can be increased through goal-oriented feedback provided by a capable supervisor leading to innovative behavior.

Nonetheless, employees' will appreciate line manager's feedback or appraisals if they perceive the line manager as knowledgeable and competent. This can be achieved if a high level of trust and respect is present in the relationship between both parties. Likewise, a high level of trust and respect indicate that employees are willing to share information with line managers facilitating idea generations and ultimately employees' innovative behavior.

To sum, it is obvious that the role of line managers in regard to performance management is of importance as it facilitates employees' innovative behavior. Nevertheless, it should be noted that innovative behavior is maintained if the leader-subordinate relationship is high.

Recruitment & Selection

As already described, it is of importance to select and recruit talented people that are continuously generating new ideas and come up with new products or processes (Chen & Huang, 2009; Jiang et al., 2012) needed in the development of innovations. Nevertheless, the existing literature has not investigated the effect of the leader-subordinate relationship on recruiting and selection yet. Rather, the available literature explains the effect of recruitment and selection in regard to innovation and ultimately employees' innovation behavior.

The reason why individual are recruited and selected is because talented and qualified workforce is needed to ensure positive firm performance (Ballantyne, 2009; French & Sally, 2010). Furthermore, in regard to innovation, organizations need employees who take risks and who are able to deal with uncertainty and ambiguity (Chen & Huang, 2009) that is likely leading to the successful implementation and generation of ideas, required in order to show innovative behavior. It can be assumed that a high level of respect and trust between line managers and employees will lead to the fact that employees will feel trusted by line managers to be competent and qualified to perform the job. In turn, employees reciprocate this positive relationship by sharing their skills and knowledge, which is essential to show an innovative behavior and which ultimately benefit the company.

Training and Development

The leader-subordinate relationship can have a significant influence on training and development and its outcomes. For instance, it is argued that a high LMX leads to an increased level of trust, performance and empowerment, which are seen as vital dimensions of training (Kang & Stewart, 2007). In case of a high level of trust, employees will feel empowered and motivated (Kang & Stewart, 2007). In addition, it is empirically found that a high LMX relationship positively affects training motivation and training effectiveness. Therefore, an "*individual who has a good relationship with his or her supervisor (which enhances communication of organizationally relevant and important information) stands a much better chance of benefiting from the training, which will lead to positive outcomes, both for the individual and the organization*" (Scanduto et al., 2008, p. 166). Likewise, employees feel that they need to reciprocate to the positive social exchange relationship with their line managers by transferring learned skills through training and "*utilize their skills in situations other than the ones they were trained for*"

(Scanduto et al., 2008, p. 161). One way to transfer skills that are learned through training is by the provision of feedback from the supervisor that is given after the training. This is supported by Scaduto, Lindsay and Chiaburu in 2008, founding a positive correlation of feedback with skill transfer. In addition, the authors claim that subordinates reciprocate relationships through discretionary behaviors, in this case innovative behavior, and found out that employees will not only be motivated to maintain their learned skills (training maintenance), but they will try to generalize the skills to new situations (training generalization) as well. This is especially needed during the idea implementation and idea generation phase of the innovative behavior construct.

Finally, it is claimed that the path to performance that is desired by leaders is training (House & Dressler, 1974) which increases employees' outcome expectancy if both – line managers and employees – are able to agree on viewing training as a contributor to desired performance. Nonetheless, it can be only achieved if both parties share a good LMX relationship (Scanduto et al., 2008).

All in all, it is obvious that line managers and employees are able to increase the effect of training and development (with an increase of training effectiveness and motivation) on employees' innovative behavior through a positive (high) level of subordinate-leader relationship

Job Rotation and Design

As already described, employees who are given job autonomy will likely implement innovations and improve the idea implementation phase of the innovative behavior construct (Hammond et al., 2011). Nonetheless, to which degree employees are given autonomy is dependent on their supervisor (line manager). In other words, the quality relationship has an impact on the decisions made by employees as found by Scandura, Graen and Novak in 1986. Thus, if LMX is high (low), employees perceive their influence on decisions as high (low). Job autonomy is important as it allows employees to try new combinations of work procedures (Wang & Cheng, 2010). If employees are given increased job autonomy, they will be able to "*break out of a routine and to find the best solution along the way*" (Volmer et al., 2012, p. 458). Therefore, jobs should be designed in such a way that employees are having various opportunities in order to develop new ideas and ultimately to show innovative behavior. According to Volmer, Spurk and

Niessen (2012), employees who have a good relationship (high LMX) with their line managers but less job autonomy will unlikely show creative work involvement. This is true as employees are limited in ability to make new working procedures that allows them contributing to innovative ideas which will in turn decrease employees' innovative work behavior.
In order to understand the effect of the LMX relationship more clearly and the impact it has on job design and rotation, it is essential to have a look at the variables that constitute LMX (trust, respect and obligation). Starting with trust, it is claimed that a high level of trust is needed in order that employees do not act opportunistically and therefore abuse the power given to them by their line managers (Uhl-Bien et al., 2000). If line managers lack trust about their subordinates, it can be assumed that employees will not be able to make own decisions which leads to a decrease in motivation (especially intrinsic motivation). Consequently, if intrinsic motivation is eroded it will as a result reduce employees' innovative behaviors (Zhou et al., 2011).

Line manager perceiving that the subordinate is unable to fulfill his/hers tasks, demonstrates a low level of mutual respect between both parties. In case of a low level of mutual respect, it can be assumed that line managers will perceive their employees as incapable of making own decisions and hence employees will not be given job autonomy. By implication, employees will have less freedom in carrying responsibilities, which decrease the intrinsic motivation to perform the task and show an innovative behavior. On the contrary, employees will be motivated to work creatively and develop new ideas if job autonomy is high as they feel responsible for their tasks (Parker & Sprigg, 1999) and are therefore more likely to implement and generate ideas which are elements of the innovation behavior construct.
Finally, a low level of obligation reflects each party's social independence. In line with this, the line manager is reluctant to delegate responsibilities to employees. Rather, a high level of obligation is needed indicating that the employee is obligated to reciprocate to positive contributions, in this case innovative behavior.

To sum, to which degree employees are given autonomy is dependent on their relationship with line managers. If the LMX relationship is high, employees are more likely to show an innovative behavior through the impact of line managers on job design and rotation.

Compensation/Reward

Reward ensures that people are motivated in order to work as expected (Guest, 2002). Especially, intrinsic reward will motivate employees to generate ideas and is seen essential for the implementation phase of innovation. (Peterson & Luthans, 2006; Markova & Ford, 2011). Likewise, compensation schemes and intrinsic motivation in conjunction with another are essential for the implementation phase of innovation and thus stimulate innovative behavior (Zhou et al., 2011). Nonetheless, the degree to which intrinsic motivation occurs is dependent on employees' relationship with their leader (Blau, 1999; Luo, 1999). If the relationship between line manager and employees is low, intrinsic motivation will be decreased as a result of low level of trust, respect and obligation. However, if the LMX relationship is high, it is found that employees will respond more innovatively when their efforts are fairly rewarded by line managers (Janssen, 2000).

Rewarding mechanisms, such as non-monetary incentives (e.g. recognition and appreciation) are in control of line managers as they initiate these mechanisms. As stated by Sajuyigbe, Bosede and Adeyemi (2013), "*take recognition as their feelings of value and appreciation and as a result it boosts up morale of employee which ultimately increases productivity of organizations"* (p. 29). Moreover, job performance is determined by these mechanisms and is positively associated with intrinsic motivation (Danish & Usman, 2010; Markova & Ford, 2011). In regard to a low level of trust, Markova and Ford (2011) claim that employees will unlikely take risks if they do not feel encouraged while receiving non-monetary mechanisms due to the fact that they might feel anxious that mistakes will be "punished". But, innovation depends on employees who take risks yielding to innovative behavior if both parties are able to achieve a high level of trust, respect and obligation (high LMX). Rather, it is vital that employees perceive their line managers as knowledgeable so that they value appreciation by line managers resulting in an increased intrinsic motivation.

In sum, the influence of compensation/rewards on employees' innovative behavior is facilitated if line managers and subordinates show high LMX and thus a strong quality relationship with a high level of trust, respect and obligation.

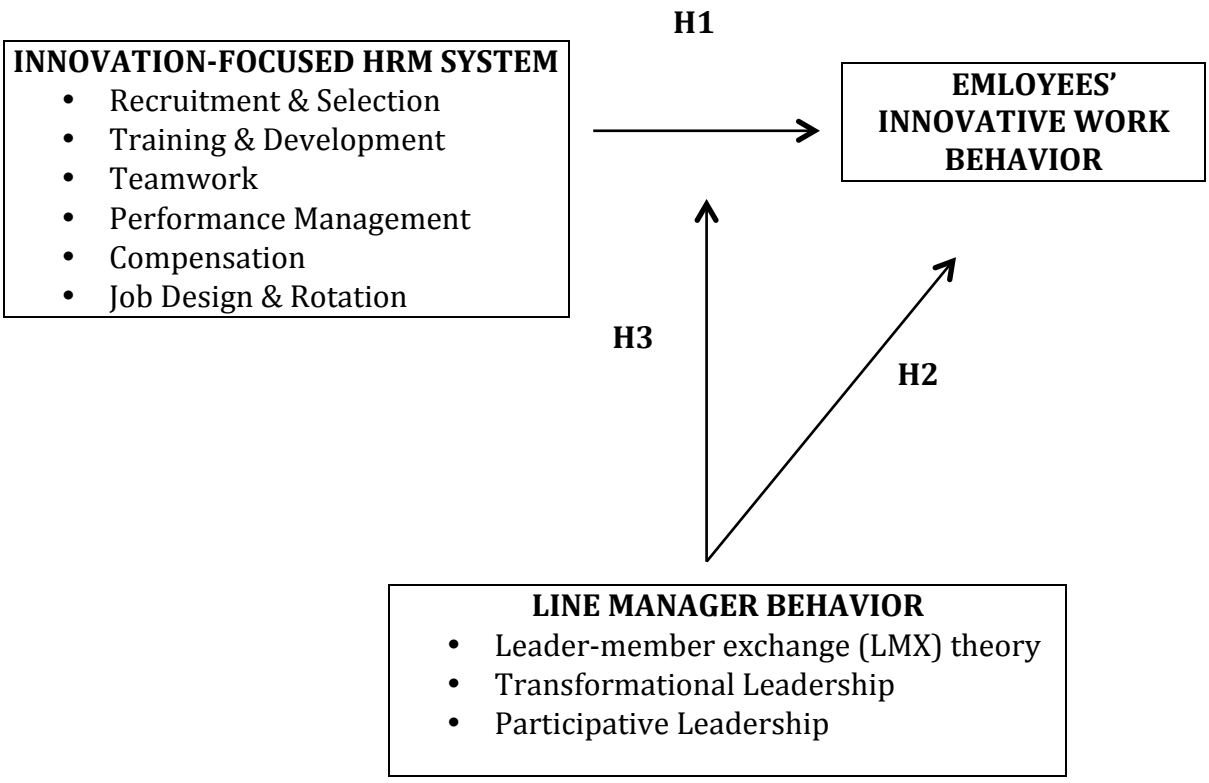
Based on the above argumentation, the following hypotheses are developed:

H3: Line manager behavior moderates the relationship between an innovation-focused HR system and employees' innovative work behavior

H3a: A high quality relationship between supervisor and subordinate will positively influence the effect of an innovation-focused HR system on employees' innovative work behavior

H3b: A low quality relationship between supervisor and subordinate will negatively influence the effect of an innovation-focused HR system on employees' innovative work behavior

2.4 Research Model



Chapter 3

Methodology

3.1 Sample and Data collection

In order to investigate the proposed study, the sample consists of 13 employees and line managers operating in a Dutch public organization. On the one hand, employees are asked to take part in this study since the aim is to explore how employees perceive an innovation-focused HRM system that has an impact on their innovation behavior. On the other hand, the participation of line managers is vital in order to describe the quality relationship between line managers and their subordinates that has an impact on employees' innovation behavior as well.

The data collection method used for this study is a questionnaire consisting of questions and statements. In line with this, data is collected by (1) asking questions and (2) by asking employees to agree or disagree with statements (Babbie, 2010). Attention is paid to the format and layout of the questionnaire which are part of constructing quality questionnaires according to Swisher (1980). A cover letter was attached to the questionnaire highlighting the objectives of this research and ensuring anonymity and confidentiality (see Appendix A). The reason for the use of this particular data collection method is due to the fact that questionnaires are good tools in gathering information about individuals' behavior, attitudes and beliefs (Patton, 2005; Axinn & Pearce, 2006; Bryman & Bell, 2011). Since the study is investigating employees' innovative behavior as well as the moderating role of line manager behavior, the use of this method is thus appropriate. Both, questions and statements are ranked on a 5-point Likert scale ranging for example from "strongly agree" to "strongly disagree". Likert-type scales are commonly used to measure the attitudes of respondents by asking questions or confronting them with statements they need to react to. The question or statement can be either aimed at discovering an evaluation of a certain topic, the degree of agreement or disagreement with a certain statement, or the frequency of experiences (Busch,

1993). Answers such as “yes/no” or “I do not know” are not added in order to avoid obtaining missing values, which impair the validity of results (Peyre et al., 2011).
Finally, questions and statements used for this study are made clear and understandable to the employees in order to ensure better results (Covert, 1984).

3.2 Measurements

3.2.1 Innovation-focused HRM system

It was decided to adapt the measure of Peters’ (2014) who developed an entirely new measuring tool based on hypotheses and theories, since there is no measuring instrument found in the literature in regard to perceived innovation-focused HRM system. The measurement scale is composed of six dimensions (HRM practices), each consisting of different quantity of items. The dimensions are as follows: **Recruitment and Selection** (6 items), **Training and Development** (7 items), **Performance Management** (5 items), **Compensation** (3 items), **Teamwork** (3 items) and **Job Design and Rotation** (8 items). The items are ranked on a 5-point Likert scale ranging from “strongly disagree = 1” to “strongly agree = 5”.

An example of the Recruitment and Selection item include “In our company, people are thoroughly assessed before they are recruited“ or “High education is an important recruitment criterion in our company“, which is consistent with the statement that recruiting and selecting the most qualified employees will ensure positive firm performance, and will likely lead to the successful implementation and generation of ideas, which is required in order to show innovative work behavior.
Training and Development includes for instance “I get developmental feedback on a regular basis“. An example of Performance Management is amongst others “Performance assessment grants me valuable feedback”, corresponding the theoretical statement that stimulating a feedback culture enables employees to increase the likelihood of successful application of innovation during the implementation phase. Compensation includes “Our Company offers attractive compensation packages including Performance-Based Pay and profit-sharing.“ The conversion of Teamwork includes the item “In our company, teams consist of representatives from a wide array of

specialties“. Lastly, examples for Job Design and Rotation are for instance “I feel my job is challenging and often varies from a daily routine“ or “I feel involved in decision-making that affects my work“, which is in line with the statement that employees need to be given autonomy for implementing innovations and improving the idea implementation phase of the innovative behavior construct. The complete list of items can be found in Appendix A.

3.2.2 Innovative Work Behavior

With regard to employees’ innovative behavior, two central papers will be adopted in order to measure the construct, namely the measure of De Jong and Den Hartog (2010) and the measure of Kleysen and Street (2001), both ranked on a 5-point scale ranging from “Never = 1” to “Always = 5”. The reason why these papers are adopted is due to the fact that both papers incorporate measurements of key authors that have been studied the concept of innovative work behavior such as Scott and Bruce (1994) and Janssen (2000). In total, 15 items were chosen to measure after removing those items that are identical. In addition, four dimensions used in the study of De Jong and Den Hartog will be adopted. The dimensions are idea generation, idea exploration, idea championing and idea implementation.

Idea generation was measured with 2 items from Kleysen and Street ‘s study as well as 2 items from De Jong and Den Hartog’s study. Examples are “How often do you generate ideas or solutions to address problems?” and “How often do you search out new working methods, techniques or instruments?”

Idea exploration includes 3 items from Kleysen and Street and one item added from De Jong and Den Hartog. A possible question was “How often do you recognize opportunities to make a positive difference in your work, department, organization or with customers?”

Idea championing was measured using 2 items from Kleysen and Street and 2 items from De Jong and Den Hartog. “How often do you make important organizational members enthusiastic for innovative ideas?” was a question used for this dimension.

Lastly, *idea implementation* included 2 items adopted from De Jong and Den Hartog and one item added from Kleysen and Street. An example is "How often do you contribute the implementation of new ideas?"

3.2.3 Line Manager Behavior

One the one hand, it was decided to measure the leader-member exchange theory (LMX) adopted from Graen and Uhl-Bien (1995), which can be assessed from both perspectives – the supervisor perspective and the subordinate perspective. The measurement consists of 7 items rated on a Likert scale. An example of LMX measurement is " How would you characterize your working relationship with your leader (your member)?" rated on a 5-point scale (1=extremely ineffective to 5=extremely effective) or "I have enough confidence in my leader that I would defend and justify his/ her decision if he/she were not present to do so (your member would)?" (1=strongly disagree to 5=strongly agree).
On the other hand, the study of De Jong and Den Hartog (2007) will be adopted as it focuses on those leader behaviors that are related to innovative behavior. In line with this, six leader behaviors were chosen that are likely to influence employees' innovative work behavior with regard to two different leadership styles (transformational and participative leadership). The six behaviors are as follows: **Inspiration**, **Intellectual stimulation**, **Charisma**, **Individual consideration**, **Delegation** and **Consulting**. An example of a statement included "My leader lets me influence decisions about long term plans and directions" rated on 5-point scale (1=totally disagree to 5=totally agree).

To sum, a combination of both studies was decided to measure as it allows us to not only focus on the quality relationship between line managers and employees but also take into consideration the different aspects that have an impact on the relationship, for example autonomy (delegation) or support (consulting). The first four behaviors are related to the transformational leadership style whereas the last two behaviors refer to the participative leadership style (see table 1).

Table 1 – Leader behaviors and the associated leadership styles (De Jong & Den Hartog, 2007, p. 49):

LEADERSHIP STYLE	LEADER BEHAVIOR	EXPLANATION
Transformational	Inspiration**	Being an example of innovative behavior, exploring opportunities, generating ideas
	Intellectual stimulation*	Teasing subordinates directly to come up with ideas
	Charisma*	Communicating an explicit vision on the role an preferred types of innovation
	Individual consideration**	Checking up on people (ensuring effectiveness and efficiency); ensuring feedback on concepts
Participative	Consulting**	Checking with people before initiating changes that may affect them
	Delegation**	Giving employees sufficient autonomy to determine how to do a job

*Related to idea generation

**Related to idea generation and implementation

3.2.4 Control variables

One the one hand, several authors claim that level of education and tenure (office period) are related to innovative behavior (West & Anderson, 1996; Baer et al., 2003). On the other hand, it is claimed that innovative activities are influenced by the firm's size, profitability and age (Jiang et al., 2012). This is why these variables (level of education, tenure, firm size, firm age, firm profitability) will be included as control variables in order to clarify the relationship that will be tested. Furthermore, it will be asked whether innovation is part of the company's strategy in order to find out whether an innovation-focused HRM system is operated or not.

To finish, it was decided to include general questions as well, for example about the gender or age of the employee.

3.3 Analysis

In order to analyze the collected data, different steps are required to follow. These steps will be discussed in sequence.

3.3.1 Reliability and Validity

To start with, reliability demonstrates the internal consistency or repeatability of a questionnaire (Jack & Clarke 1998). In order to test the reliability of the developed questionnaire, Cronbach's Alpha was computed which determine whether constituent items are showing good internal consistency. In line with this, a Cronbach's alpha value of 0.70 and above is recommended in order that the values are satisfactory (Nunnally, 1978; Bryman & Cramer 2002).

Validity demonstrates whether the questionnaire is measuring what it intents to (Bryman & Cramer, 2002). In line with this, the statistical technique called Factor Analysis will be used in order to ensure that the questions are related to the constructs that will be measured using the SPSS software. More specifically, an exploratory factor analysis will be applied as it is seen as more appropriate than CFA (Confirmatory factor analysis) according to Kelloway (1995). Factors will be defined using principal component extraction as well as varimax rotation. Additionally, factors containing eigenvalues greater than 1 will be extracted and the Kaiser-Meyer-Olkin (KMO) measure as well as Bartlett's test for sphericity will be considered in regard to the sampling adequacy. According to Kaiser and Rice (1974), the following index for the KMO measure is developed:

In the .90s—marvelous
In the .80s—meritorious
In the .70s—middling
In the .60s—mediocre
In the .50s—miserable
Below .50 —unacceptable

3.3.2 Hypotheses Testing

To start with, a correlation analysis will be conducted in order to determine whether, how and to what degree variables are related to each other. More specifically, a correlation analysis will be used indicating the relationships proposed in Hypothesis 1 and 2. Thus, the aim is to test whether a relationship exists and how strong or significant this relationship is. In line with this, two correlation coefficients are widely used to analyze the correlations, namely Pearson's correlation coefficient and Spearman's correlation coefficient. In this paper, the latter correlation coefficient will be applied as it used when data is not normally distributed and if variables are ordinal (Field, 2013). Since Likert scales are used in this research belonging to ordinal scales, it is therefore appropriate to use this type of correlation coefficient. Moreover, a distinction is made between a one-tailed or two-tailed test. If the hypothesis is directional it is recommended to use one-tailed test while a two-tailed test is used if the hypothesis is not directional. Since Hypothesis 1 and 2 both show a direction, it was chosen to apply a one-tail test.

Further, it was chosen to use a regression analysis that allows clarifying the relationship between variables more explicitly compared to the correlation analysis. On the one hand, a simple regression analysis is used in order to test the linear relationship in regard to Hypotheses 1 and 2. On the other hand, a multiple regression analysis is used in order to test the moderating effect of line manager behavior. It is claimed that this statistical technique is appropriate to use when testing a moderator effect due to the flexible options it provides (Cohen et al., 2003; Frazier et al., 2004; Fairchild & MacKinnon, 2009). Multiple regression analysis allows testing the interactions between different predictors simultaneously (Field, 2009). The regression equation to form the moderation model is as follows:

$$\boldsymbol{Y} = \boldsymbol{i}_5 + \beta_1 \boldsymbol{X} + \beta_2 \boldsymbol{Z} + \beta_3 \boldsymbol{XZ} + \boldsymbol{e}_5$$

Where β_1 is the coefficient relating the independent variable, X, to the outcome, Y, when Z = 0, β_2 is the coefficient relating the moderator variable, Z, to the outcome when X =

0, i_5 the intercept in the equation, and e_5 is the residual in the equation (Fairchild & MacKinnon, 2009, p. 90).

In order to interpret and understand the outcomes, attention need to be paid to various values existing in the regression analysis. First of all, there are b-values (also called "regression coefficient") for both predictors and the constant representing the changing outcome after a change in the predictors (Field, 2009). According to Frazier, Tix and Barron (2004), interpreting the b-values "*representing the relations between the predictor and the outcome variable and between the moderator and the outcome variable is unique in multiple regression models examining moderator effects. That is, such relations are interpreted as "conditional" effects at the value of 0 for the other variables included in the model and not as "main effects*" (p. 121). In line with this, it is vital to realize the meaning of the coefficient value. For instance, a value of 0 means "*a unit change in the predictor results in no change in the predicted value of the outcome*" (Field, 2009, p. 204).

Second, values of multiple R and R squared (R^2) are provided in the regression analysis applying ANOVA, which have an important meaning. Multiple R represents the correlation between observed and predicted values of the outcome by the multiple regression model (Field, 2009). In order to represent a large correlation, multiple R need to contain large values, with value of 1 representing the model that perfectly predicts the observed data (Field, 2009). It follows that R^2 represent the percentage of variance in the dependent variable explained by the predictors (Field, 2009).

Lastly, the F-ratio is considered which represents the ratio of how good a model is when compared to a situation where the model is bad. Ideally, the F-ratio should be greater than 1 (Field, 2009).

Chapter 4

Results

4.1 Descriptive statistics

The proposed study relies on a small sample consisting of 13 participants operating at a public organization in the Netherlands. Table 2 summarizes the main characteristics of the sample. To start with, the data reveal a very strong majority of male respondents who represents 76,9% out of 100%. None of the respondents is at a lower age than 20. Rather, participants' age range from 31 to 65 with the highest age group of 41-50 (38,5%) followed by age groups 31-40 and 51-65 representing both 30,8%. The reason why no participant is younger than 20, could be supported by respondents' duration of work at their particular organization. Looking at Table 2, it is remarkable that none of the respondents have been working for less than 5 years. The majority has been working for more than 10 years (53,8%) followed by 46,2% that has been even working for 5 to 10 years. Since the majority of respondents have been working for a longer period at the organization, it might explain why the participants' age is more likely to show a higher number. Having a look at the type of education, it shows that 61,5% accomplished a vocational education (in Dutch LBO, LTS, MBO).
To finish, only 3 out of 13 respondents have a supervisor role, representing only 23,1% of the respondents.

Table 2 – Sample characteristics

Variable		***%***	***Frequency***
Gender	Male	76,9	10
	Female	23,1	3
Age	31-40	30,8	4
	41-50	38,5	5
	51-65	30,8	4
Education	Lower *	7,7	1
	Vocational**	61,5	8
	Higher professional***	15,4	2

	University	15,4	2
Work Period	5-10 years	46,2	6
	> 10 years	53,8	7
Supervisor role	Yes	23,1	3
	No	76,9	10
Work Area	Assistant	7,7	1
	Coordinator	7,7	1
	Leader	23,1	3
	Employee DIV	15,4	2
	Secretary	15,4	2
	Driver	15,4	2
	SRV	7,7	1
	HWT	7,7	1

*Dutch: VMBO
**Dutch: LBO, LTS, MBO
*** Dutch: HBO, HTS

4.2 Factor Analysis and Cronbach's Alpha Test

Innovation-focused HRM System

The application of an explanatory factor analysis (EFA) for the construct innovation-focused HRM system demonstrated the following. First of all, the correlation matrix is not positive definite following that both the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity did not appear. This is due to the fact that two or more variables are highly correlated (multicollinearity). Another possible reason could be the very small sample size of 13 respondents that plays an important role in factor analysis (Hair et al., 1998; Field, 2005). In order to alter the correlation matrix into a positive matrix, unwanted correlations (values above .9) were spotted and removed by looking down columns of correlations as suggested by Dennis Child (2006). As a consequence, five items were removed (marked with * in the list of items in Appendix A). Second, the EFA illustrated a 4-factor solution meaning that four factors have eigenvalues greater than 1. The extracted factors are as follows: (1) Recruitment and Selection (6 items), (2) Performance Management and Compensation (6 items), (3) Training and Development (7 items) and (4) Teamwork and Job Design and rotation (8 items). Teamwork and Job Design and Rotation lead to one single factor. As mentioned in Chapter 2, teams and more specifically cross-functional teams, play an important role in regard to job design for innovation since knowledge will be brought together yielding to better results (Laursen & Foss, 2003; Lau & Ngo, 2004). Third, the Kaiser-Meyer-Olkin measure is .606

while Bartlett's test of sphericity is significant at p < 0,005. Although the KMO value is acceptable as it is above 0.5, it is still seen as *mediocore* according to Kaiser (1974). However, Bartlett's test is significant and Cronbach's Alpha shows a value of 0.89, which are both suitable.

Finally, communalities for the HRM system are all above 0.5, which is the threshold value (Field, 2005). Appendix D shows the KMO and Bartlett's test of sphericity, the communalities, and component matrix with the explained variance as well as the scree plot.

Innovative work behavior

The explanatory factor analysis (EFA) conducted for innovative work behavior revealed a 2-factor solution explained in combination 74,97% of the variance rather than the hypothesized model based on 4 dimensions (idea generation, idea exploration, idea championing and idea implementation). Factor 1 is labeled *adoption stage* containing eight items from the dimensions idea generation, idea exploration, idea championing. Cronbach's Alpha for this factor is 0.94. Factor 2 contains three items from the idea implementation dimension and is therefore named as *implementation stage*. Cronbach's Alpha is 0.72.

4 items were removed, as they did not lead to high results. These items are marked with * in the list of items in Appendix A. The KMO (.654) is acceptable and can be seen as *mediocore* (Kaiser, 1974). In addition, Bartlett's test shows p < .000 meaning there are correlations in the data set that are appropriate for factor analysis. The KMO and Bartlett's test of sphericity, the communalities, component matrix with the explained variance are illustrated in Appendix E.

LMX

The explanatory factor analysis (EFA) conducted for LMX demonstrated a 3-factor solution with three factors having an eigenvalue higher than 1 explained in combination 77,65% of the variance. In other words, the analysis did not lead to a proper analysis since LMX contains only one factor. There is no specific explanation why the analysis revealed a 3-factor solution. Furthermore, the KMO of .391 is not acceptable as it is below the cut-off value of 0.5 (Kaiser, 1974). Probably, the small sample size is not able to reflect the structure of a single factor in a proper way. Nonetheless, Bartlett's test of sphericity shows a significant value (significant at .000) meaning there are correlations

in the data set that are appropriate for factor analysis. Furthermore, Cronbach's Alpha is 0.83 revealing acceptable reliability and communalities are all above 0.5. This is why the construct of LMX will still be used in this study. Appendix F shows the KMO and Bartlett's test of sphericity as well as the component matrix of the construct LMX.

Leadership Styles

For the different leadership styles an explanatory factor analysis (EFA) was conducted as well. The analysis revealed a 2-factor solution with two factors having an eigenvalue higher than 1. In combination, they explain a total variance of 81,21%. The extracted dimensions are transformation leadership style (12 items) and participative leadership style (4 items). 7 items were removed, as they did not lead to high results. These items are marked with * in the list of items in Appendix A. The KMO of .586 ($p < .000$) is acceptable, however it is seen as *miserable* since values above 0.7 are seen more appropriate in explanatory factor analysis (Kaiser, 1974). Nevertheless, Cronbach's Alpha is 0.87 for transformation leadership and 0.85 for participative leadership demonstrating acceptable and strong reliability. KMO and Bartlett's test of sphericity are illustrated in Appendix F.

4.3 Hypotheses Testing

4.3.1 Correlation analysis

As already described in the previous chapter, a correlation analysis will be applied in order to determine whether variables are related to each other and therefore to test whether a relationship exists and how strong or significant this relationship is. Table 3 illustrates the mean values, standard deviations and the correlation coefficients for the innovation-focused HRM system, the single HRM practices, and employees' innovative work behavior (IWB adoption and IWB Implementation) as well as line manager behavior (LMX and leadership styles).

To start with, it is notable that most HRM practices are positively and significantly related to each other, for example Performance Management, Compensation and Training & Development ($r = .814$, 1-tailed, $p<0.01$) or Teamwork, Job Design & Rotation and Training & Development ($r = .620$, 1-tailed, $p<0.05$) highlighting the internal fit

among individual HRM practices, which is a reason for the adoption of bundles of HRM practices and thus an HRM system. Furthermore, it is in compliance with the statement that single HRM practices are not adequate to examine as single HRM practices do not operate on their own but are rather interrelated to each other (Bowen & Osthoff, 2004; Cunha, 2004). In addition, the correlation analysis confirms the synergistic effect of HRM practices and demonstrates the interdependence of HRM practices. As an example, training and development is interrelated to performance management and compensation ($r = .814$, 1-tailed, $p<0.01$) meaning that employees are benefiting from training and development activities because of the adequate performance management system provided in the organization. It can be therefore assumed that employees are provided with feedback and appraisals, which help them to engage in training and development activities in a profiting way.

However, it is interesting to notice that an innovation-focused HRM system is neutrally rated on average. Thus, it is not clear whether employees perceive the HRM system or not. Looking more in detail at the single HRM practices, it is remarkable that Recruitment and Selection and Teamwork & Job Design and Rotation show higher mean values (3.46 and 3.08) compared to Training and Development and Performance Management & Compensation (mean is 2.6 mutually). In this case, it can be observed that employees at Brandweer are more aware of the first two HRM practices. If the mean values show values above 3.5, a more detailed explanation could be given about employees perception of the HRM system.

To continue, employees innovative work behavior is showing high mean values of 3.78 for IWB Adoption and 3.62 for IWB Implementation whereas line manager behavior demonstrates rather a neutrally value of 3.38 for LMX. Leadership styles highlight mean values of 3.31 for participative leadership and 3.19 for transformational leadership that are also neutrally rated by employees.

Looking at the correlation matrix, it is noticeable that not all variables are significantly related to each other. On the one hand, there is a positive relationship between most HRM practices and the adoption phase of employees' innovative work behavior, however at a non-significant level. For example, Recruitment and Selection and IWB adoption ($r = .272$, 1-tailed); Training and Development and IWB adoption ($r = .106$, 1-tailed) or Teamwork and Job Design & Job Rotation and IWB adoption ($r = .119$, 1-tailed). However, all values show a weak strength of correlation.

On the other hand, negative correlations are shown between implementation related innovative work behavior and all HRM practices, except for recruitment and selection. Looking at the HRM system, neither IWB Adoption nor IWB Implementation demonstrate a positive and significant relationship, but rather a negative relationship. A possible explanation is that employees show different innovative behavior in regard to certain HRM practices. In short, there is no positive link between the HRM system and IWB adoption(r= -.057, 1-tailed) as well as IWB implementation (r= -.210, 1-tailed). Furthermore, non-significant relationships are found between LMX and HRM system. However, moderated positive relationships are found with single HRM practices. For example, Training and Development (r= .482, 1-tailed), Performance Management and Compensation (r= .531, 1-tailed). In addition, a moderate positive relationship is found for the HRM system (r= .536, 1-tailed). These results are consistent with the theory presented in Chapter 2. On the one hand, it is claimed that a high LMX relationship positively affects training effectiveness and motivation, which was also empirically found by Kang and Stewart in 2007. On the other hand, Janssen (2000) highlights the fact that employees will respond more innovatively when their efforts are fairly rewarded by line managers and therefore if the LMX relationship is high.

To continue, Hypothesis 2 is predicating a positive relationship between line manager behavior and employees' IWB. In regard to the LMX theory, the predicted relationship is not supported by the correlation analysis. On the contrary, a negative relationship is found between LMX and IWB adoption(r= -.251, 1-tailed) as well as IWB implementation (r= -.222, 1-tailed). In regard to leadership style, a positive and significant relationship is found between the participative leadership style and adoption related innovative work behavior (r= .601, 1-tailed, $p<0.05$). A moderate positive relationship is found for the implementation related innovative work behavior, however at a non-significant level (r= .408, 1-tailed). These results are not surprisingly as it is empirically found that participative leadership triggers the idea generation phase of IWB (in this case IWB adoption) as well as the implementation phase (Axtell et al., 2000).
Finally, the transformational leadership style shows rather a weak positive relationship with both phases of innovative work behavior.

To conclude, expected relationships are not supported in correlation analysis. Nevertheless, correlation analysis only gives information about the strength and direction of the relationship; it does not indicate whether variable X is predicting the outcome variable Y. Likewise, a third variable (or multiple variables) might influence the relationship which is not considered in correlation analysis. Consequently, the next step is the performance of regression analysis.

Table 3 - Mean, Standard Deviation and Spearman's Correlation Coefficient

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1 HRM system	3.00	0.91	1									
2 RS	3.46	0.51	-.176	1								
3 TD	2.62	1.12	.814**	-.171	1							
4 PM & CS	2.65	0.80	.855**	-.185	814**	1						
5 TW & JDR	3.08	0.87	.876**	-.265	.620*	.804**	1					
6 IWB Adoption	3.73	0.81	-.057	.272	.106	-.060	.119	1				
7 IWB Implementation	3.62	0.87	-.210	.334	-.164	-.267	-.012	.612*	1			
8 LMX	3.38	0.68	.536	-.014	.482	.531	.361	-.251	-.222	1		
9 Participative Leadership Style	3.31	0.83	.055	.513	.138	-.014	.078	.601*	.408	.289	1	
10 Transformational Leadership Style	3.19	0.90	.405	.284	.574*	.417	.241	.163	.049	.750**	.693**	1

*Correlation is significant at the 0.05 level (1-tailed)
** Correlation is significant at the 0.01 level (1-tailed)

4.3.2 Regression Analysis

As stated before, a regression analysis will be implemented in order to imply whether variable X is predicting the outcome variable Y. More in detail, it will be tested whether an innovation-focused HRM system and line manager behavior have an impact on employees' innovative work behavior. Further, a multiple regression analysis enables us to test a moderator effect, which is vital for the third hypothesis. As presented in Tables 4 and 5, three regression models are used: (1) without control variables, (2) with control variables and (3) with the moderator effect. Employees' innovative work behavior (IWB) is tested separately (IWB adoption and IWB implementation).

To start with, it is noticeably that values of R^2 are mostly high for both IWB phases especially when control variables are included. For instance, model 2 represents 84.8 % of the variance in IWB adoption whereas 69.7% are accounted for IWB implementation. With the exclusion of control variables, model 2 explains 59.0 % of the variance in IWB adoption whereas only 29.9% of the variance is accounted for IWB implementation. It is also remarkable that the adjusted R^2 values are sometimes far from the values of R^2. In regard to the interaction term in model 3, values of R^2 for both IWB phases are close to 1, which is appropriate.

Looking at Table 4, it can be concluded that an innovation-focused HRM system does not affect the adoption related IWB of employees. The addition of control variables does not seem to have an impact on the relationship, which shows also no significance. The results for IWB implementation also indicate a non-significant relationship with even negative values compared to IWB adoption. The formulated Hypothesis 1 is therefore rejected.

The second hypothesis claims that line manager behavior have a positive impact on employees' innovative work behavior. Rather, a negative but non-significant relationship is found between the LMX theory and each IWB phase. In other words, the relationship between a line manager and its subordinates will not have an impact on how employees' apply and implement new ideas, products or processes.
For the different leadership styles, there are also no significant results showing that participative or transformational leaders impact employees' innovative work behavior in a positive way. That means that line managers who encourage employees to take own decisions and activities will not trigger employees' innovative behavior as hypothesized. Also for this hypothesis, control variables such as gender, age or education do not seem playing a role. Hence, there is no statistically proof for the acceptance of the second hypothesis.

Continuing with the last hypothesis, Hypothesis 3, it is claimed that line manager behavior moderates the relationship between an innovation-focused HRM system and employees' innovative work behavior. In other words, a high (low) quality relationship between supervisors and subordinates will positively (negatively) influence the effect of

the HRM system on the IWB of employees. For both IWB phases, a positive and relatively high beta value is represented in model 3, however at a non-significant level. It is also observable that for this model a high F-ratio is found. Ideally, the F-ratio should be greater than 1 (Field, 2009). The F-ratio in regard to IWB adoption is 3.110 and in regard to IWB implementation 5.012. Even though, both F-ratio values are greater than 1, it is not able to predict the model as the value shows no significance. In sum, the generally formulated Hypothesis 3 is not confirmed as well.

In general, no hypothesis can be confirmed due to non-significant results achieved through the implementation of regression analysis that will be discussed more in detail in the next chapter.

Table 4 – Regression Analysis for IWB Adoption

	Model 1	**Model 2**	**Model 3**
HRM system	.194	.253	-.236
LMX	-.654	-.893	-.216
Participative Leadership	.766	.110	.500
Transformational Leadership	-.052	.853	.006
Gender		-.140	-.533
Age		.616	.093
Education		-.092	-.209
Work Period		-.254	.345
HRM*LMX			.781
R^2	.590	.848	.903
Adj. R^2	.385	.543	.613
F	2.880	2.781	3.110

*P < 0.05
** P < 0.01

Table 5 – Regression Analysis for IWB Implementation

	Model 1	Model 2	Model 3
HRM system	-.043	-.256	-.459
LMX	-.327	-.783	-.011
Participative Leadership	.615	-.015	.860
Transformational Leadership	-.142	.891	-.321
Gender		.871	.895
Age		.673	-.500
Education		-.137	-.398
Work Period		-.601	.386
HRM*LMX			.888
R^2	.299	.697	.938
Adj. R^2	-.052	.491	.715
F	.853	1.151	5.012

*P < 0.05
** P < 0.01

Chapter 5

Discussion and conclusion

5.1 Discussion

The purpose of the study is to explain the effect of the perception of HRM practices on employees' innovative behavior, especially the effect of a perceived innovation-focused HRM system, and examining how line manager behavior moderates this relationship. In line with this, several sub-questions were developed in order to answer the following research question: *How does line manager behavior influence the effect of an innovation-focused HRM system on employees' innovative work behavior?*

1. What is innovative work behavior?
2. What HRM practices does an innovation-focused HRM system constitute of and how do they relate to each other?
3. To what extent does the perception of an innovation-focused HRM system influence employees' innovative work behavior?
4. What is the role of line manager behavior in regard to employees innovative work behavior?
5. To what extent does the relationship between line manager and employees affects employees' innovative work behavior?

Starting with the first sub-question, it was answered by means of a literature review. Innovative work behavior was defined by combining two central definitions leading to the following explanation: Innovative work behavior is seen as behavior directed towards the intentional creation, introduction and application of new and useful ideas, processes, products or procedures within a work role, group or organization (Janssen, 2000; De Jong & Den Hartog, 2007). Accordingly, four stages were determined that innovative work behavior constitute of, namely *idea generation*, *idea exploration*, *idea championing* and *idea implementation*. After conducting a factor analysis, employees'

innovative work behavior was divided into two groups: (1) IWB Adoption consisting of idea generation, idea exploration, idea championing and (2) IWB Implementation consisting of idea implementation.

The second sub-question's aim was to adapt a new created HRM system considering employees' perceptions of the respective HRM practices used and with the purpose to fit innovation as ultimate goal, rather than using traditional HRM systems that put a central focus on control, involvement or commitment without looking at the aspects that are influencing employees' innovative work behavior. It was claimed that the synergistic effect among HRM practices enhances the overall firm performance compared to the sum of individually implemented practices and ultimately employees' innovative work behavior (Delery & Doty, 1996; Guerrero & Barraud-Didier, 2004; Michie & Sheehan, 2005). This assumption was confirmed as the correlation analysis shows that the HRM practices are indeed dependent and internally related on each other. This is not surprisingly since the effect of individual HRM practices on innovation might be inhibited by other HRM practices that are not considered (Peck, 1994; Laursen, 2002; Laursen & Foss, 2003). Instead, bundles of HRM practices need to be applied since „*HRM practices are more conducive to innovation when adopted - not in isolation but as a system of mutually reinforcing practices"* (Laursen, 2002, pp. 141-142).

Continuing, the remaining sub-questions were related to the respective hypotheses developed for each question that have been answered by the use of a correlation as well as a regression analysis. The results obtained from both, the correlation analysis and regression analysis, are not consistent with literature and the hypotheses developed for this paper.

Starting with the first hypothesis, it was claimed that an innovation-focused HRM system consisting of six HRM practices (Recruitment and Selection; Teamwork; Training and Development; Performance Management; Compensation; Job Design and Rotation) is positively affecting employees' innovative work behavior. The factor analysis revealed a 4-factor solution so that Performance Management and Compensation as well as Teamwork and Job design lead to one single factor. This is reasonable referring to the AMO model discussed in Chapter 2 that makes clear the importance of the interrelation of HRM practices.

The hypothesis was nonetheless rejected since no significant results were found. There are possible explanations for this outcome. First, lack of communication among employees might be a difficulty faced at Brandweer that impede employees' innovative work behavior which is heavily depending on interactions among team members (Yukl, 2002; De Jong & Den Hartog, 2007). Second, several authors emphasis the importance of job autonomy that needs to be given to employees through the participation in decision-making processes in order to facilitate both idea generation and idea implementation (Laursen & Foss, 2003; Krause, 2004; Hoegl & Parboteeah, 2006; Hammond et al., 2011). However, one can argue that employees operating at Brandweer are not giving enough freedom to work independently. Third, lack of a feedback culture is a possible reason why employees are not able to increase the likelihood of successful application (Allani et al., 2003). Continuing, it is remarkable that Training and Development and Performance Management & Compensation showed a lower mean value compared to Recruitment and Selection and Teamwork & Job design and Rotation, which highlights the fact that employees do not feel that their knowledge and skills are enhanced through training and learning. Likewise, learning facilitates knowledge sharing across functions when engaging in cross-functional teams. A stated before, lack of communication and interactions among members at Brandweer could be a possible difficulty faced that hinder employees to enhance their competencies and creative skills and therefore expanding and sharing their knowledge in order to enable idea generations and therefore stimulating innovative behavior (Shipton et al., 2005). Possibly, there are HRM practices that might have a negative effect on employees' innovative work behavior. For example, rewarding employees through incentives could restrain employees' creativity if employees' focus is on the reward instead of generating and implementing ideas. Additionally, it is found that an innovation-focused HRM system is neutrally rated on average. Hence, the question rises whether employees actually perceive the innovation-focused HRM system or not. As a matter of fact, each individual perceive HRM practices in a different way and through various lenses (Nishii et al., 2008). In this paper, the focus was on the utility of HRM practices as one type of employees' perceptions because the aim was to test how employees' innovative work behavior is affected by HRM practices that are present at the organization and the importance these practices play in impacting the work performance. Providing that, employees' might perceive HRM practices by asking why management uses certain HRM practices which is fitting the attribution type of perception since this paper is paying attention to line manager as

implementer and designer of the HRM system. For future research, it is therefore recommended to pay attention to the reason why HRM practices are actually used. Moreover, there are aspects that have an impact on the employees' perceptions that are not considered in this paper. For example, the organizational climate, that is the organizational strategies and processes, is one aspect that influences employees' perceptions (Rostami et al., 2012). Still, as the HRM system is a new developed system, it may need a few modifications that will be discussed subsequently.

The next hypothesis related to the forth sub-question of this paper focuses on the effect of line manager behavior on employee' innovative work behavior. It was hypothesized that line manager behavior positively affect employees' innovative behavior, for example line managers who possess characteristics of a transformational leader encourage employees to look at problems in new ways and help them enhancing their creativity that ultimately influence their innovative work behavior in a positive way (Den Hartog, 1997; Krause, 2004). By the same token, line managers possessing participative leadership encourage employees to join the decision-making process and to feel a sense of ownership. It is empirically found by Rickards and Moger in 2006 that the latter type of line manager triggers the idea generation and implementation phase. Indeed, the correlation analysis revealed a significant and positive relationship between a participative line manager and adoption related innovative work behavior. Thus, line managers who fail to communicate with their employees to discuss ideas and take them into considerations will affect employees' innovative work behavior in a negative way. Rather, it is vital that line managers give employees autonomy in order to design and guide their own tasks which ultimately results in employees' innovative work behavior. Surprisingly, the predicted positive relationship between the LMX theory and employees' innovative work behavior is not supported, neither by the correlation analysis nor by the regression analysis. On the contrary, a negative relationship is found between LMX and IWB adoption as well as IWB implementation for the following reason. The exploratory factor analysis conducted for LMX revealed a 3-factor solution and did not lead to a proper analysis since LMX contains only one factor. In other words, the relatively small sample size is not able to reflect the structure of a single factor in a proper way.

Finally, the last sub-question and therefore Hypothesis 3 questions whether line manager behavior moderates the relationship between an innovation-focused HRM system and employees' innovative work behavior. In like manner, it was assumed that line manager behavior and an innovation-focused HRM system jointly affect employees' innovative work behavior and should be regarded as complementing each other rather than substituting each other. The reason for this assumption is due to the fact that literature stresses the importance of the interdependence of both variables. For example, the LMX relationship needs to be high in order that employees show an innovative work behavior through the impact of line managers on job design and rotation (Zhou et al., 2011). Another example is the impact of compensation/rewards on employees' innovative behavior that is only facilitated if there is a strong quality relationship with a high level of trust, respect and obligation (Markova & Ford, 2011).
Unfortunately, no statistically evidence was found for this hypothesis. This poses the questions whether line managers are implementing the HRM system in an effective way and whether they are aware of the quality relationship with their subordinates. Certainly, line manager behavior plays an important role in regard to coordination among employees. In other words, line managers need to solve problems among team members and stimulate employees' talents and creativity, especially during the idea generation phase (Clark & Fujimoto, 1991; Yukl, 2002; Aronson et al., 2006).
Moreover, it is not confirmed that line manager behavior and the HRM system are complementing each other. One reason is that "*poorly designed or inadequate policies can be 'rescued' by good management behavior in much the same way as 'good' HR practices can be negated by poor FLM (first line manager) behavior or weak leadership"* (Purcell and Hutchinson, 2007, p.4). Simply said, line manager behavior and HRM systems are rather seen as substitutes.
Finally, similarly to Hypothesis 2, the exploratory factor analysis did not lead to a proper analysis due to the relatively small sample size so that neither the correlation nor the regression analysis revealed the predicted results.

One last point for discussion is the fact that employees who answered the questions are operating at different work areas. For instance, it is assumed that a driver is not engaging in the decision-making process and interactions among line managers and teams so that he or she is not able to share knowledge and competencies during the diverse phases of innovative behavior and therefore stimulating employees' innovative

work behavior. Consequently, this is an additional reason why the HRM system is only neutrally rated on average.

5.2 Limitations and Future Research

This study is not without limitations and weaknesses that need to be considered. The first limitation is regard to the sample size of the study consisting of 13 participants that is a relatively small sample size leading to severe consequences on the results that are obtained from this study. (Hair et al., 1998; Field, 2005). Moreover, only 3 out of the 13 participants have a leader role. Since it is the line manager who is the main implementer of HRM practices, the number of 3 leader only is not enough to ascertain whether line manager behavior is affecting employees' innovative work behavior in a positive way or whether line manager behavior can be seen as a moderator. This is a central reason why the analysis did not lead to the expected results.

The second limitation is based on the generalization of findings that need to be treated carefully. The participants are all operating at one public organization in the Netherlands, which cannot be generalized to all employees and line managers. For future research, it is therefore recommended to increase the sample size through the participation of diverse enterprises and its employees and line managers operating at different company sizes and industries. Also, it is favorable to choose companies that focus on innovation as part of their overall strategy since this study emphasizes on an innovation-focused HRM system. In line with this, it is also possible to acknowledge how much innovation do play a role in the implementation of an HRM system and its effect on employees' innovative work behavior.

Another limitation is the use of the Leader-Member Exchange (LMX) theory that has its weaknesses. Although the LMX theory emphasis the importance of leadership, communication and relationships between a leader (line manger) and its subordinates, it does not take into account leader's characteristics that may affect the relationship between both parties. As stated by Conger and Kanungo (1987), leaders' personality characteristics influence their own behavior, which may have an effect on the relationship and ultimately on employees' innovative work behavior. Certainly,

personality traits have a significant impact on strategic decisions made and on the adoption of particular HRM practices in order to develop innovation (Lefebvre, 1992). For future research, it is therefore recommended to take into consideration leaders' personality characteristics. A possibility is to use the Big 5 traits model that allows the description of various traits in terms of five basic dimensions: *Agreeableness*, *Conscientiousness*, *Emotional Stability*, *Openness* and finally *Extraversion* (McCrae, 1990; Lefebvre, 1992; Saucier, 1994; Judge et al., 1999).

A final limitation is based on the innovation-focused HRM system used in this paper, which is a new system developed by Peters in 2015. It is advised to repeat the measurement instrument in order increase validity and if possible to add more items based on theories and literature. Furthermore, it is interesting to know the aspects that lead actually to the perceptions of an innovation-focused HRM system. In other words, what are the antecedents of employees' perception of an innovation-focused HRM? As mentioned in the discussion, organizational climate was stated as one reason why employees perceive differently. Surely, there are other aspects that have an impact on employees' perception, such as individuals' personality, values or goals (Guzzo & Noonan, 1994). If these questions are answered through comprehensive literature reviews and empirical researches, it would be possible to explore more in-depth the relationship between HRM systems and employees' innovative work behavior as well as the role that line manager plays in shifting this relationship.

5.3 Implications

5.3.1 Scientific Relevance

Theoretically, this paper contributes to existing literature of the HRM-innovation link by investigating the effect of an innovation-focused HRM system on employees' innovative work behavior. The available literature lacks of existing knowledge in regard to HRM systems that pays attention to innovation. Thus, this paper contributes to literature by focusing on a unique HRM system that is newly developed consisting of HR practices that foster innovation. In regard to line manager behavior, most literature is focusing on the leader-membership exchange (LMX) theory. However, this study adds to existing

literature the importance of leadership styles that will have an impact on the relationship between line manager and employees and ultimately employees' innovative work behavior.

5.3.2 Practical Relevance

The following study demonstrates room for improvement that is beneficial for employees as well as for line managers. On the one hand, line managers are able to acknowledge whether the design and implementation of certain HRM practices are perceived by their employees or not.

On the other hand, employees themselves are able to realize whether the HRM system applied by line managers are actually leading to innovative work behavior. For instance, if there is lack of communication or feedback culture and job autonomy, employees will not feel that they are stimulating the innovative work behavior. In line with this, line managers will also be able to think about possibilities in order to solve the problems that occur in regard to the HRM practices that are implemented.

5.4 Conclusion

To conclude, the following study contributes to existing literature of the HRM-innovation link and investigates the effect of a newly developed HR system (innovation-focused HRM system) on employees' innovative behavior. Moreover, it focuses on the role that line managers' play in regard to the aforementioned relationship. The results obtained from analysis are not consistent with the literature due to methodological barriers. However, this research can be seen a pilot study that allows to conduct a preliminary analysis that need to be executed more in detail with a larger sample in order to obtain more accurate results.

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Appendix A

List of items

Training & Development	I get developmental feedback on a regular basis
	Our company offers or grants time to attend trainings regarding my profession.
	Our company offers or grants time to attend trainings regarding communication and team work
	I think the training offered by our company is valuable
	Our company offers career opportunities and individual career paths to high performers.
	Career opportunities are closely linked to our Performance Management system (if present)
	Mandatory training is assigned based on our Performance Management system (if present).
Recruitment & Selection	In our company, many different recruitment sources are used
	In our company, people are thoroughly assessed before they are recruited.
	Team compatibility is an important recruitment criterion in our company.
	High education is an important recruitment criterion in our company
	Flexibility is an important recruitment criterion in our company
	Capability and willingness to learn are important recruitment criteria in our company
Performance Management & Compensation	In our company there is a formal assessment and performance management system
	My performance assessment is also based on subjective indicators, such as creativity, flexibility and risk-taking
	My performance assessment orients itself towards specific goals that were formulated in collaboration with my supervisor.
	Performance assessment grants me valuable feedback.
	I perceive performance management as being valuable, fair and balanced
	Our company offers attractive compensation packages including Performance-Based Pay and profit sharing.
	In our company, rewards, promotions and awards are based on assessment and Performance Management
	Our company appropriately balances pay raises and rewards for creative performers and non-

	performers.
Teamwork and Job Design & Rotation	In our company, teams consist of representatives from a wide array of specialties.
	Teams have an identifiable leader.
	In our company, high levels of communication play an important role within teams
	I feel autonomous and in control of my job.
	I feel my job has significance for projects and for the company as a whole.
	I feel my job is challenging and often varies from a daily routine.
	My job involves doing identifiable and complete pieces of work from beginning to end.
	Our company attaches a lot of value to employee participation.
	I have the opportunity and autonomy to pursue my own ideas.
	Our company attaches a lot of value to information sharing and communication.
	I feel encouraged to participate and critically think about our company's products and processes.
	Presenting a new idea is relatively easy and uncomplicated.
	I feel involved in decision-making that affects my work.

* item removed from analysis as a result of EFA

Appendix B

Cover Letter

Geachte heer/mevrouw,

Graag willen wij u uitnodigen om deel te nemen aan een onderzoek naar het innovatief gedrag van werknemers binnen Brandweer Nederland. Wij willen hierin weten in hoeverre leiderschap en HRM-activiteiten, zoals opleiding en ontwikkeling, performance management of beloningen, innovatief gedrag kunnen bevorderen. Dit onderzoek wordt uitgevoerd door de Universiteit Twente. Wilt u weten hoe innovatief u op dit moment bent? Vul dan de vragenlijst in.

Er wordt steeds meer van medewerkers op de werkvloer gevraagd. Brandweer Nederland wil een innovatief bedrijf zijn. Maar hoe innovatief is Brandweer Nederland en zijn leidinggevende erin innovatief gedrag te stimuleren en innovaties te creëren?

Wij willen u vragen de bijgevoegde vragenlijst volledig in te vullen en bij mevrouw Meerenburgh of de heer Borninkhof in te leveren. Het invullen van de vragenlijst zal ca. 10 minuten in beslag nemen.

De door u ingevulde gegevens zullen vertrouwelijk worden behandeld. Alle vragenlijsten komen bij de Universiteit Twente terecht en worden door het onderzoeksteam geanalyseerd. De resultaten van de vragenlijsten worden anoniem aan de organisatie gerapporteerd.

Bij vragen kunt u terecht bij Koen Nijenhuis onder 06-15256215.

Wij willen u bij voorbaat hartelijk danken voor uw medewerking aan dit onderzoek.

Rayan Hasso
Koen Nijenhuis
Dr. Anna Bos-Nehles

Appendix C

Questionnaire (Dutch version)

Algemene vragen

1. Wat is uw geslacht? Gelieve aan te geven.
☐ Man
☐ Vrouw

2. Wat is uw leeftijd? Gelieve aan te geven.
☐ <20
☐ 21-30
☐ 31-40
☐ 41 -50
☐ 51-65
☐ >65

3. Vermeld het hoogste behaalde onderwijsniveau.
☐ Basisschool
☐ Middelbare school (VMBO)
☐ Beroepsonderwijs (LBO, LTS, MBO)
☐ Hoger beroepsonderwijs (HBO, HTS)
☐ Universiteit

4. Hoe lang bent uw al werkzaam in het bedrijf?
☐ <1 jaar
☐ 1 to 5 jaar
☐ 5 to 10 jaar
☐ >10 jaar

5. Heeft u een leidinggevende functie?
☐ Ja
☐ Nee

In welke functie bent u werkzaam?

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6. HRM-Beleid

Onderstaande stellingen gaan over uw waarnemingen betreffend het HRM-beleid in uw bedrijf. Kunt u a.u.b. aangeven of u het eens of oneens bent met de stellingen?

Werving en Selectie	**1-Zeer mee oneens**	**2-Mee oneens**	**3-Neutraal**	**4 – Mee eens**	**5-Zeer mee eens**
In ons bedrijf, worden er vele verschillende manieren van werving gebruikt.	☐	☐	☐	☐	☐
Sollicitanten worden grondig geëvalueerd voordat ze aangenomen worden.	☐	☐	☐	☐	☐
Team compatibiliteit is een belangrijk wervingscriterium voor ons bedrijf.	☐	☐	☐	☐	☐
Hoge opleiding is een belangrijk wervingscriterium voor ons bedrijf.	☐	☐	☐	☐	☐
Flexibiliteit is een belangrijk wervingscriterium voor ons bedrijf.	☐	☐	☐	☐	☐
Het vermogen en de bereidheid om te leren zijn belangrijke wervingscriteria voor ons bedrijf.	☐	☐	☐	☐	☐

Training en Ontwikkeling	**1- Zeer mee oneens**	**2-Mee oneens**	**3-Neutraal**	**4 – Mee eens**	**5-Zeer mee eens**
Ik ontvang regelmatig feedback over mijn persoonlijke ontwikkeling en	☐	☐	☐	☐	☐

prestaties.					
Ons bedrijf biedt interne trainingen over mijn vakgebied, of stelt tijd beschikbaar om een dergelijk training of bijscholing extern te volgen.	☐	☐	☐	☐	☐
Ons bedrijf biedt interne trainingen over communicatie en teamwerk, of stelt tijd beschikbaar om een dergelijk training of bijscholing extern te volgen.	☐	☐	☐	☐	☐
Volgens mij zijn de door het bedrijf aangeboden trainingen waardevol.	☐	☐	☐	☐	☐
Ons bedrijf biedt carrière-mogelijkheden en individuele loopbaantrajecten aan voor werknemers met hoge prestaties.	☐	☐	☐	☐	☐
Carrièremogelijk-heden zijn nauw verbonden met ons prestatiemanagement systeem (indien aanwezig).	☐	☐	☐	☐	☐
Verplichte trainingen of bijscholingen zijn gebaseerd op ons prestatiemanagement systeem (indien aanwezig).	☐	☐	☐	☐	☐

Performance Management	**1-Zeer mee oneens**	**2-Mee oneens**	**3-Neutraal**	**4 – Mee eens**	**5-Zeer mee eens**
Ons bedrijf maakt gebruik van een formeel beoordelings- en prestatie management systeem.	☐	☐	☐	☐	☐
De beoordeling van mijn prestatie is ook gebaseerd op subjectieve indicatoren zoals creativiteit, flexibiliteit en het nemen van risico.	☐	☐	☐	☐	☐
De beoordeling van mijn prestatie richt zich op het behalen van specifieke doelen, die geformuleerd werden in samenwerking met mijn supervisor.	☐	☐	☐	☐	☐
De beoordeling van mijn prestatie geeft me waardevolle feedback.	☐	☐	☐	☐	☐
Ik ervaar prestatiebeoordeling als fair en evenwichtig.	☐	☐	☐	☐	☐

Compensatie	**1-Zeer mee oneens**	**2-Mee oneens**	**3-Neutraal**	**4 – Mee eens**	**5-Zeer mee eens**
Ons bedrijf biedt aantrekkelijke beloningspakketten aan, waaronder prestatiebeloning en winstdeling.	☐	☐	☐	☐	☐
Beloningen, promoties en gunningen zijn gebaseerd op prestatiebeoordeling	☐	☐	☐	☐	☐
Binnen ons bedrijf zijn de gegeven salarisverhogingen en beloningen fair en even- wichtig tussen creatieve en niet-creatieve medewerkers.	☐	☐	☐	☐	☐

Teamwerk	**1- Zeer mee oneens**	**2-Mee oneens**	**3-Neutraal**	**4 – Mee eens**	**5- Zeer mee eens**
Teams binnen ons bedrijf bestaan uit vertegen-woordigers uit een breed spectrum van functies.	☐	☐	☐	☐	☐
Teams hebben een identificeerbare leider.	☐	☐	☐	☐	☐
Een hoog communicatieniveau speelt een belangrijke rol in het teamwerk van ons bedrijf.	☐	☐	☐	☐	☐

Job Design & Rotation	**1- Zeer mee oneens**	**2-Mee oneens**	**3- Neutraal**	**4 – Mee eens**	**5- Zeer mee eens**
Mijn functie is belangrijk voor bepaalde projecten en voor het bedrijf als geheel.	☐	☐	☐	☐	☐
Mijn baan is uitdagend en is vaak geen dagelijkse routine.	☐	☐	☐	☐	☐
In mijn functie ben ik bezig met herkenbare en complete werkstukken van begin tot eind.	☐	☐	☐	☐	☐
Ik voel me zelfstandig en heb controle over mijn werk.	☐	☐	☐	☐	☐
Ons bedrijf hecht veel waarde aan inspraak van werknemers.	☐	☐	☐	☐	☐
Ik heb de mogelijkheid en zelfstandigheid om mijn eigen ideeën te vervolgen en te gebruiken in mijn werk.	☐	☐	☐	☐	☐
Ik voel me aangemoedigd om mee te praten en kritisch na te denken over de producten en processen van ons bedrijf.	☐	☐	☐	☐	☐
Ik voel me betrokken bij de besluitvorming die mijn werk beïnvloed.	☐	☐	☐	☐	☐

7. Innovatief werkgedrag

Onderstaande vragen gaan over uw innovatief werkgedrag. Geef a.u.b. een antwoord op de volgende vragen: Hoe vaak....

Innovatieve werkgedrag	**1- Nooit**	**2-heel soms**	**3- Zelden**	**4 – af en toe**	**5- Zeer Vaak**
…gaat u opzoek naar nieuwe werkwijzen, technieken of instrumenten?	☐	☐	☐	☐	☐
… bedenkt u nieuwe benaderingen om taken uit te voeren?	☐	☐	☐	☐	☐
… bedenkt u ideeën of oplossingen om problemen aan te pakken?	☐	☐	☐	☐	☐
… definieert u problemen in breder zin om meer inzicht in de probleem te verkrijgen?	☐	☐	☐	☐	☐
… vraagt uzelf weleens af hoe dingen verbeterd kunnen worden?	☐	☐	☐	☐	☐
… kijkt u naar de mogelijkheden om een bestaande proces, technologie, product, dienst of werkrelatie te verbeteren?	☐	☐	☐	☐	☐
… herkent u kansen om een positief verschil te maken in uw werk, afdeling, organisatie of met uw klanten?	☐	☐	☐	☐	☐
…geeft u aandacht aan niet-routinematige kwesties in u werk, afdeling, organisatie of markt?	☐	☐	☐	☐	☐

… maakt u uw leidinggevende of collega's enthousiast over innovatieve ideeën?	☐	☐	☐	☐	☐
… probeert u mensen te overtuigen om een innovatief idee te ondersteunen?	☐	☐	☐	☐	☐
…ondersteunt u ideeën, zodat ze een kans hebben om te worden geïmplementeerd?	☐	☐	☐	☐	☐
… neemt u het risico om nieuwe ideeën te ondersteunen?	☐	☐	☐	☐	☐
… introduceert u systematische innovatieve ideeën in het praktijk?	☐	☐	☐	☐	☐
… helpt u bij het implementeren van nieuwe ideeën?	☐	☐	☐	☐	☐
… implementeert u veranderingen die gunstig lijken te zijn?	☐	☐	☐	☐	☐

8. Relatie met uw leidinggevende en collega's

In dit deel van de vragenlijst vragen wij u naar uw mening over de relatie met uw leidinggevende. Wilt u aangeven in hoeverre u het met de volgende stellingen eens bent?

	1-Zeer mee oneens	**2- Mee oneens**	**3- Neutraal**	**4 – Mee eens**	**5-Zeer mee eens**
Mijn leidinggevende is bereid om de invloed/bevoegdheid die hij/zij als leidinggevende heeft in te zetten om mij te helpen problemen in mijn werk op te lossen.	☐	☐	☐	☐	☐
Ik kan erop rekenen dat mijn leidinggevende mij zal steunen als dat nodig is, ook al levert dit misschien problemen voor hem/haar op.	☐	☐	☐	☐	☐
Mijn leidinggevende begrijpt mijn behoeften en problemen op het werk.	☐	☐	☐	☐	☐
Mijn leidinggevende erkent mijn capaciteiten.	☐	☐	☐	☐	☐
Mijn leidinggevende heeft vertrouwen in mij, zodat hij/zij mijn beslissingen zal verdedigen als ik afwezig ben.	☐	☐	☐	☐	☐
Doorgaans weet ik hoe tevreden mijn leidinggevende is met mijn prestaties op het werk.	☐	☐	☐	☐	☐
Mijn werkrelatie met mijn leidinggevende is effectief.	☐	☐	☐	☐	☐
De mate waarin mijn leidinggevende mij heeft aangemoedigd om mijn carrière verder te ontwikkelen (bijv. nastreven van een promotie binnen of buiten Brandweer Nederland) is hoog.	☐	☐	☐	☐	☐
De mate waarin mijn directe collega's mij hebben	☐	☐	☐	☐	☐

aangemoedigd om mijn carrière verder te ontwikkelen is hoog.					
De mate waarin een persoon buiten Brandweer Nederland mij heeft aangemoedigd om mijn carrière verder te brengen is hoog.	☐	☐	☐	☐	☐

9. Leiderschapsstijl

Mijn leidinggevende...

	1- Helemaal mee oneens	**2- Mee oneens**	**3- Neuteraal**	**4 – Mee eens**	**5-Helemaal mee eens**
…vraagt zich openlijk af hoe dingen beter zouden kunnen	☐	☐	☐	☐	☐
…experimenteert met nieuwe manieren om dingen te doen.	☐	☐	☐	☐	☐
…stelt nieuwe werkwijzen, technieken of instrumenten voor.	☐	☐	☐	☐	☐
…overtuigt anderen van de toegevoegde waarde van een vernieuwend idee.	☐	☐	☐	☐	☐
…daagt mij uit om problemen op een andere manier te bekijken.	☐	☐	☐	☐	☐
…laat mij nadenken over de manier waarop ik mijn werk doe.	☐	☐	☐	☐	☐
…heeft ideeën waardoor ik mijn manier van werken opnieuw overweeg.	☐	☐	☐	☐	☐

…stimuleert mij om de kwaliteit van eigen werk te beoordelen.	☐	☐	☐	☐	☐
…draagt een visie uit over de waarde van innovatie in mijn bedrijf.	☐	☐	☐	☐	☐
... schetst een opwindend beeld van wat vernieuwing ons kan brengen.	☐	☐	☐	☐	☐
... maakt duidelijk waar wij als bedrijf naartoe zouden moeten.	☐	☐	☐	☐	☐
... schenkt expliciete aandacht aan innovatie en de rol daarvan voor de toekomst.	☐	☐	☐	☐	☐
... controleert regelmatig de voortgang en de kwaliteit van mijn werk.	☐	☐	☐	☐	☐
... let goed op of mijn doelstellingen wel gehaald worden.	☐	☐	☐	☐	☐
... vestigt de aandacht op fouten die ik maak.	☐	☐	☐	☐	☐
... let op of mijn prestaties goed genoeg zijn.	☐	☐	☐	☐	☐
... vraagt naar mijn mening.	☐	☐	☐	☐	☐
... raadpleegt mij bij belangrijke veranderingen.	☐	☐	☐	☐	☐
... laat mij meepraten over langetermijnplanning.	☐	☐	☐	☐	☐
... houdt rekening met mijn suggesties.	☐	☐	☐	☐	☐

... laat mij zelf beslissen hoe ik mijn werk aanpak.	☐	☐	☐	☐	☐
... laat me onafhankelijk en vrij te werk gaan.	☐	☐	☐	☐	☐
... geeft mij zeggenschap over de indeling van mijn tijd.	☐	☐	☐	☐	☐

Mocht u nog vragen en/of opmerkingen hebben, dan horen wij dat graag.

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Hartelijk bedankt voor uw deelname!

Appendix D

Factor analysis output for HRM system

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.606
Bartlett's Test of Sphericity	Approx. Chi-Square	59.938
	df	21
	Sig.	.000

Communalities

	Initial	Extraction
In our company, many different recruitment sources are used	1.000	.924
In our company, people are thoroughly assessed before they are recruited	1.000	.900
Team compatibility is an important recruitment criterion in our company	1.000	.982
High education is an important recruitment criterion in our company	1.000	.942
I feel my job has significance for projects and for the company as a whole.	1.000	.984
I feel my job is challenging and often varies from a daily routine	1.000	.863
My job involves doing identifiable and complete pieces of work from beginning to end	1.000	.946
I feel autonomous and in control of my job	1.000	.970

Our company attaches a lot of value to employee participation	1.000	.996
I have the opportunity and autonomy to pursue my own ideas	1.000	.973
I feel encouraged to participate and critically think about our company's products and processes	1.000	.968
Flexibility is an important recruitment criterion in our company	1.000	.985
I feel involved in decision-making that affects my work	1.000	.975
Capability and willingness to learn are important recruitment criteria in our company	1.000	.947
I get developmental feedback on a regular basis.	1.000	.960
Our company offers or grants time to attend trainings regarding my profession	1.000	.972
Our company offers or grants time to attend trainings regarding communication and teamwork	1.000	.896
I think the training offered by our company is valuable	1.000	.931
Our company offers career opportunities and individual career paths to high performers	1.000	.972
Career opportunities are closely linked to our Performance Management system (if present)	1.000	.974

Mandatory training is assigned based on our Performance Management system (if present).	1.000	.969
In our company there is a formal assessment and performance management system	1.000	.938
My performance assessment is also based on subjective indicators, such as creativity, flexibility and risk- taking	1.000	.974
My performance assessment orients itself towards specific goals that were formulated in collaboration with my supervisor	1.000	.985
Performance assessment grants me valuable feedback	1.000	.869
I perceive performance management as being valuable, fair and balanced	1.000	.981
Our company offers attractive compensation packages including Performance-Based Pay and profit-sharing	1.000	.931
In our company, rewards, promotions and awards are based on assessment and Performance Management	1.000	.903
Our company appropriately balances pay raises and rewards for creative performers and non- performers	1.000	.951

In our company, teams consist of representatives from a wide array of specialties	1.000	.992
Teams have an identifiable leader	1.000	.938
In our company, high levels of communication play an important role within teams	1.000	.943

Extraction Method: Principal Component Analysis.

Appendix E

Factor analysis output for IWB

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.654
Bartlett's Test of Sphericity	Approx. Chi-Square	122.919
	df	55
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.974	63.400	63.400	6.974	63.400	63.400	5.536	50.331	50.331
2	1.274	11.578	74.978	1.274	11.578	74.978	2.711	24.646	74.978
3	.934	8.491	83.469						
4	.762	6.927	90.396						
5	.445	4.043	94.439						
6	.290	2.633	97.072						
7	.174	1.578	98.650						
8	.079	.721	99.371						
9	.044	.404	99.775						
10	.013	.119	99.893						
11	.012	.107	100.000						

Extraction Method: Principal Component Analysis.

Communalities

	Initial	Extraction
generate ideas or solutions to address problems	1.000	.633
wonder how things can be improved	1.000	.857
look for opportunities to improve an existing process, technology, product, service or work relationship	1.000	.790
make important organizational members enthusiastic for innovative ideas	1.000	.914
attempt to convince people to support an innovative idea	1.000	.762
push ideas forward so that they have a chance to become implemented	1.000	.829
take the risk to support new ideas	1.000	.593
systematically introduce innovative ideas into work practices	1.000	.456
contribute the implementation of new ideas	1.000	.764
implement changes that seem to be beneficial	1.000	.838
recognize opportunities to make a positive difference in your work, department, organization or with customers	1.000	.812

Extraction Method: Principal Component Analysis.

Rotated Component Matrix

	Component	
	1	2
wonder how things can be improved	.923	.076
look for opportunities to improve an existing process, technology, product, service or work relationship	.878	.136
attempt to convince people to support an innovative idea	.847	.211
push ideas forward so that they have a chance to become implemented	.825	.385
recognize opportunities to make a positive difference in your work, department, organization or with customers	.792	.429
generate ideas or solutions to address problems	.775	.180
make important organizational members enthusiastic for innovative ideas	.770	.567
take the risk to support new ideas	.643	.424
contribute the implementation of new ideas	.305	.819
implement changes that seem to be beneficial	.435	.805
systematically introduce innovative ideas into work practices	.001	.675

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

Appendix F

Factor analysis output for LMX and Leadership Styles

Output for LMX

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.391
Bartlett's Test of Sphericity	Approx. Chi-Square	73.273
	df	45
	Sig.	.005

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.791	47.907	47.907	4.791	47.907	47.907	3.632	36.319	36.319
2	1.630	16.297	64.204	1.630	16.297	64.204	2.653	26.530	62.849
3	1.345	13.451	77.655	1.345	13.451	77.655	1.481	14.806	77.655
4	.859	8.594	86.249						
5	.536	5.355	91.604						
6	.318	3.179	94.783						
7	.265	2.647	97.430						
8	.150	1.499	98.929						
9	.092	.916	99.845						
10	.016	.155	100.000						

Extraction Method: Principal Component Analysis.

KMO and Bartlett's Test for Leadership styles

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.586
Bartlett's Test of Sphericity	Approx. Chi-Square	29.841
	df	15
	Sig.	.013