Innovative work behaviour in a formalized organization

How HR processes stimulate employees' innovative work behaviour

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Management summary

As innovation performance is important for all organizations in order to keep up with their competitors, research about innovative work behaviour gives important insights in how organizations can improve their innovation performance as innovative work behaviour is seen as an important driver for organizations' innovation performance. Innovative work behaviour will be described in this research as "all employee behaviors related to the generation of an idea, support for the idea and implementation of the idea" (Janssen, 2000; Kleysen & Street, 2001; De Jong & Den Hartog, 2010). Formalized organizations, that most likely focus on efficiency, can experience difficulties in stimulating innovative work behaviour as they are most likely use a HR system that increase efficiency but at the same time impedes innovative work behaviour. This research focuses on how HR processes stimulate innovative work behaviour in a formalized organization. A formalized organization can be characterized by "the proportion of codified jobs and the range of variation that is tolerated within the rules defining the jobs" (Hall, Johnson & Haas, 1967).

During this research the following proposition is created which should explain how innovative work behaviour would be stimulated in a formalized organization:

Proposition: when employees in formalized organizations engage in extensive communication, knowledge-sharing and/or communications other than direct operational aspects during the co-production of HR processes, productivity-based HR practices will result in commitment-based HR processes that stimulate commitment and as a result affects innovative work behaviour.

In order to find out how HR processes stimulate innovative work behaviour, an exploratory research was conducted. A case study was used as research method and interviews with employees were held in order to find out to what extent they engage in innovative work behaviour, which HR processes stimulate innovative work behaviour and to find out how these HR processes stimulate innovative work behaviour.

The results of this research can be summarized in a revised proposition:

Proposition: job rotation, teamwork, stimulation of input/advice, participation in decision-making and providing responsibilities stimulate innovative work behaviour in a formalized organization because it leads to increased knowledge-sharing, extensive communication and involvement among employees which are stimulating factors for employees' IWB.

The abovementioned processes seemed to take place during daily work processes even though these processes did not result from implemented practices by the organization. Formalized organizations could implement these stimulating processes as HR practices so all employees within the organization can be stimulated to participate in innovative work behaviour. This means that formalized organizations can use a combination of productivity-based HR practices and commitment-based HR practices (i.e. teamwork, job rotation, stimulation of input/advice, participation in decision-making and providing responsibilities) in their HR system because formalized organizations can then focus on efficiency while simultaneously focus on innovative work behaviour.

This study contributes to literature because it provides new insights in the strategic HRM research. Strategic HRM research mainly focused on HR practices as the lowest level of the HR system but this research showed that HR processes are most closely related to employees' behaviors and can deviate from implemented HR practices. Strategic HRM research should therefore focus more on HR processes when studying the effect of HRM on individual outcomes. Further, this research provides insights in how innovative work behaviour takes places in a formalized organization as it turned out that besides implemented HR practices, there were stimulating commitment-based processes that affected innovative work behaviour. This means that formalized organizations can implement productivity-based in combination with commitment-based practices in order to achieve multiple goals. It thereby rejects the vision that a HR system should be designed to achieve only one organizational goal. Further research should focus on quantitative research that examine the relationships between the found processes and innovative work behaviour. Furthermore, future research in other formalized organizations is needed so other processes that stimulate innovative work behaviour can be found.

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1. Introduction

The fact that innovation is a necessary condition for companies to survive in the turbulent environment nowadays has turned into a widely accepted phenomenon (Janssen, 2004; Yuan & Woodman, 2010). Organizations need to be able to continuously innovate their products, services and processes in order to obtain competitive advantage (De Jong & Den Hartog, 2010). For some organizations it might be difficult to be innovative. Especially formalized organizations might find difficulties in being innovative as their procedures and rules may impede creativity and innovation (Pierce & Delbecq, 1977; Jansen, Van Den Bosch & Volberda, 2006). A formalized organization can be characterized by the proportion of codified jobs and the range of variation that is tolerated within the rules defining the jobs (Hall, Johnson & Haas, 1967). However, innovation is still important for these kind of organizations because in the organizational environment nowadays, organizations are facing a greater demand to engage in innovative behaviors in order to create and improve their products or services to stay competitive (Ramamoorthy, Flood, Slattery & Sardessai, 2005). This means that formalized organizations also need to be innovative and improve their products or services in order to keep up with their competitors.

Research is recently showing that especially employees' innovative work behaviour (IWB) is an important driver for the innovation performance of the organization (Janssen, 2000; De Jong & Den Hartog, 2007). It is assumed that every employee, despite their function in the organization, has the potential to be innovative and can contribute to the organizations' innovation performance (Høyrup, 2010). As employees' innovative work behaviour is an individual behaviour, HRM might play an important role in stimulating innovative work behaviour as HRM affects employees' behaviour and contributes to employees' skills, knowledge, abilities, motivation and opportunities to contribute (Lepak, Liao, Chung & Harden, 2006; Seeck & Diehl, 2016).

In strategic HRM research, it is acknowledged that a HRM system operates at three levels of analysis: the organizational level, team level and individual level (Jiang, Takeuchi & Lepak, 2013; Banks & Kepes, 2015). Empirical studies about strategic HRM often focused at HRM at the organizational- or team level and mostly focused on managers' opinions about the use of HR systems in organizations (Wright & Nishii, 2007; Seeck & Diehl, 2016). However, research is recently showing that employees might experience HR systems differently from what is implemented by their manager (Nishii, Lepak & Schneider, 2008; Liao, Toya, Lepak, & Hong,

2009). As this research will focus on how HRM affects employees' innovative work behaviour (i.e. behaviour at the individual level) this research will contribute to the strategic HRM research by focusing on the individual level of analysis in order to get a better understanding about how a HR affects employees' innovative work behaviour.

Besides the fact that a HR system operates at multiple organizational levels, studies are recently acknowledging that the HR system itself is a multi-dimensional construct which consists of a number of levels (Wright & Nishii, 2007; Boxall & Macky, 2009; Jiang, Lepak, Han, Hong, Kim & Winkler, 2012). Most of the studies mention HR policies, HR practices and HR processes as different levels of the HRM system (Monks & McMackin, 2001; Banks & Kepes, 2015). To date, most researchers only focused on the effect of HR practices on innovative work behaviour while little attention has been paid at the other levels of the HR system.

Especially, little attention is paid at HR processes (Wright & Nishii, 2007; Monks, Kelly, Conway, Flood, Truss & Hannon, 2013) which refers to "detailed explanations of how the HR practices are executed" (Monks et al., 2013, p. 381). Banks and Kepes (2015) mention that "it is through HR processes that human capital resources and other individual- and unit-level phenomena related to motivation and opportunities as well as individual- and unit-level outcomes should be directly affected" (p. 7). Therefore, more attention should be paid at HR processes in order to get a better understanding of how HRM affects individual outcomes, in this case innovative work behaviour. Therefore, this research will focus on HR processes and their effect on innovative working behaviour in order to get a better understanding of how HRM affects innovative work behaviour.

Lastly, in most of the research, the HRM – IWB relationship was measured in organizations in which innovative work behaviour was already present among employees or in which organizations were already using an innovation strategy (De Winne & Sels, 2010). Little research has been conducted in formalized organizations where no innovative work behaviour is expected. However, as pointed out before, this does not mean that innovative work behaviour is not important for formalized organizations. Some studies have already pointed out that innovative work behaviour does take place in formalized organizations (Axtell, Holman, Unsworth, Wall, Waterson & Harrington, 2000; Ramamoorthy et al., 2005; Veenendaal & Bondarouk, 2015).

Although it is known that innovative work behaviour takes places in a formalized organization, little is known about *how* innovative work behaviour takes place which is important for getting a better understanding about how innovative work behaviour works in this type of organization. To date, researchers have started to find out that employees may interpret and respond to HR practices differently than was intended by the organization (Bowen & Ostroff, 2004; Jiang et al., 2013) and this might explain why employees show innovative work behaviour in formalized organizations as different interpretations and behaviors then lead to different outcomes, in this case innovative work behaviour.

In order to get a better understanding of how HRM affects employees' innovative work behaviour in a formalized organization, this research tries to close the abovementioned research gaps by answering the following research question:

How do HR processes stimulate employees' innovative work behaviour in a formalized organization?

2. Theoretical framework

2.1 Innovative work behaviour

Research is showing that employees' innovative work behaviour is a crucial aspect for organizations' innovation performance and is necessary for the long term survival of an organization (West & Farr, 1989; Janssen, 2000). Innovative work behaviour is defined differently by multiple researchers. For example, Janssen (2000) defined innovative work behaviour as "employee behaviour to create, introduce and apply new ideas intentionally within a work-role, group or organization that are beneficial to performance" (p. 288). Further, De Jong and Den Hartog (2010) described innovative work behaviour as "a broad set of behaviors related to the generation of ideas, creating support for them and helping their implementation" (p. 23). Lastly, Kleysen and Street (2001) define innovative work behaviour as "all individual actions directed at the generation, introduction and or application of beneficial novelty at any organizational level" (p. 285).

As the above definitions show, innovative work behaviour is not only about the generation of new ideas but also about introducing this idea and the implementation of this idea. Therefore, it can be said that innovative work behaviour is a multi-dimensional construct, which is also acknowledged by other researchers (Janssen, 2000; De Jong & Den Hartog, 2007; Veenendaal & Bondarouk, 2015). However, there is some disagreement about the amount of levels innovative work behaviour consists of. De Jong and Den Hartog (2007) for example describe innovative work behaviour as a two-dimensional construct which consists of idea generation and idea application. Further, Janssen (2000) described innovative work behaviour as a multidimensional construct which includes idea generation, idea promotion and idea realization. Lastly, Kleysen and Street (2001) concluded that innovative work behaviour consists of opportunity exploration, generativity, formative investigation, championing and application.

For this research, innovative work behaviour will be defined as all employee behaviors related to the generation of an idea, support for the idea and implementation of the idea (Janssen, 2000; Kleysen & Street, 2001; De Jong & Den Hartog, 2010). The reason to choose three dimensions in this definition is that these three dimensions include all aspects used by other researchers and within this definition a clear distinction is made between the different dimensions. Further, a three-dimensional construct is often used in other studies and empirical evidence about this

construct with more than three levels is lacking (Kleysen & Street, 2001). The three different levels of innovative work behaviour will be discussed below.

2.1.1. Idea generation

Idea generation is by many researchers seen as the first stage of innovative work behaviour (Kanter, 1988; Janssen, 2000; De Jong & Den hartog, 2007; Veenendaal & Bondarouk, 2015). Idea generation is concerned with behaviors related to the exploration and generation of new ideas in order to solve problems or to improve performance (De Jong & Den Hartog, 2010). These new ideas could be related to generating beneficial change for people, products, processes and services (Kleysen & Street, 2001). So it can be said that idea generation is concerned with improving performance and beneficial change for people, products, processes or services by creating new or better ways to perform certain tasks of processes. Employees can generate ideas by engaging in behaviors to explore opportunities, identify performance gaps or produce solutions for problems (De Jong & Den Hartog, 2007). Creativity can be seen as a part of idea generation as creativity is most evident in recognizing performance gaps and the generation of ideas in response to a perceived need for innovation (West, 2002).

2.1.2. Idea promotion

After idea generation, idea promotion is the next phase in innovative work behaviour. In general, idea promotion refers to finding support for the generated idea (Janssen, 2000). Veenendaal and Bondarouk (2015) mention that in this phase "the idea is promoted throughout the organization to find support for further development" (p. 141). Engaging in social activities to find sponsors and support for the idea are crucial aspects of idea promotion. The expression of enthusiasms and confidence about the success of the innovation and involving the right people are activities that take place in this phase (Galbraith, 1982; De Jong & Den Hartog, 2010). People that could be involved in this phase are managers, colleagues from the same department or colleagues from other departments, like the R&D department.

2.1.3. Idea implementation

The last phase of innovative work behaviour is idea implementation. After an idea is generated and promoted, the idea should be implemented in a prototype or model that can be applied within a work-role, a group or total organization (Kanter, 1988, Janssen, 2000). Simple ideas can often be realized by the involved workers while more complex ideas often requires more teamwork and specific knowledge and competences to realize the idea (Kanter, 1988).

2.2 The HR system

Previous studies have focused on the effect of individual HR practices as well as a bundle of HR practices on innovative work behaviour (Laursen & Foss, 2003; De Winne & Sels, 2010; Veenendaal & Bondarouk, 2015). Results showed that the effect of the implementation of a bundle of HR practices lead to higher levels of innovative work behaviour than the implementation of single HR practices (Laursen & Foss, 2003; Shipton, West, Dawson, Birdi & Patterson, 2006; Zhou, Hong & Liu, 2013). When integrating complementary HR practices, the effect on innovative work behaviour will be stronger because HR practices will reinforce each other when implemented in the right way. A bundle of complementary HR practices is called a HR system. A HR system can be defined as "interconnected HR activities designed to ensure that employees have a broad range of superior skills and abilities, which are utilized to achieve the organization's goals" (Snape & Redman, 2010, p. 4). In the context of this study, a HR system will be described as interconnected HR activities to ensure that employees have a broad range of skills and abilities in order to engage in innovative work behaviour.

Most of the research that has focused on the effect of a HR system on innovative work behaviour only focused on HR practices (Laursen & Foss, 2003; Shipton et al., 2006; De Winne & Sels, 2010; Veenendaal & Bondarouk, 2015). However, research is recently showing that the HR system is a multi-dimensional construct that consists of different levels and affect outcomes on employee-levels as well as on organizational-levels (Nishii, lepak & Schneider, 2008; Boxall, Ang & Bartram, 2011; Jiang et al., 2012). The most commonly used dimensions within the HR system are HR policies, HR practices and HR processes (Monks & McMackin, 2001; Banks & Kepes, 2015). However, researchers are also starting to mention the HR philosophy as a component of the HR system (Monks et al., 2013; Banks & Kepes, 2015).

As this study will focus on how HRM affects innovative work behaviour, an outcome at the individual level, the HR philosophy and HR policies will not be included in this research as these dimensions are less closely related to outcomes at the individual level and are therefore less likely to affect employees' innovative work behaviour (Jiang et al., 2013; Banks & Kepes, 2015). Therefore, the focus of this research will be on HR practices and HR processes in order to get a better understanding about how these practices and processes might contribute to employees' innovative work behaviour in a formalized organization.

2.2.1. Types of HR systems

Research has pointed out that organizations can use different types of HR systems in order to achieve their organizational goal. As Bowen and Ostroff (2004) mentioned, "the content of the HR system should be largely driven by the strategic goals and values of the organization." (p. 206). Researchers first suggested that organizations can use either a control-oriented or commitment-oriented HR system based on the strategic goals of the organization (Arthur, 1994; Wood & de Menezes, 1998; Lepak et al., 2006). Later, researchers started to acknowledge multiple HR systems organizations can use to achieve their strategic goals. For example, Lepak et al. (2006) mention control, high-commitment, high-involvement and high-performance HR systems as commonly used conceptualizations of the HR system. Further, Lepak and Snell (2002) describe four HR systems in their research: commitment-based, productivity-based, compliance-based and collaborative-based that can be used for different employment modes within an organization.

2.2.2. HR system that stimulates innovative work behaviour

Especially HR systems that focus on high commitment seem to have a positive effect on employees' innovative work behaviour as commitment is needed for innovative work behaviour (Taylor & Greeve, 2006; Zhou et al., 2013; Veenendaal & Bondarouk, 2015). By using a high-commitment HR system "high-commitment HR practices create a mutually beneficial environment whereby firms invest in their employees and induce them to reciprocate that investment" (McClean & Collins, 2011, p.342). So, high investments in employees result in committed employees who feel they need to give some value back to the organization, for example by showing innovative work behaviour. Commitment among employees can be created by strong organizational support and also internal development tend to be the key to achieve commitment among employees (Lepak & Snell, 2002).

Commitment has an effect on multiple stages of innovative work behaviour because commitment leads to more motivation for idea generation but also for idea promotion (Monks et al., 2013). Commitment is needed in order for employees to create new ideas but once they have generated an idea, they should also be motivated and committed enough to share this idea and if needed to implement this idea. Commitment is therefore needed for all three stages of innovative work behaviour because when employees for example generated an idea but are not motivated or committed enough to share or implement this idea, then innovative work behaviour would not take place as they only generated an idea. Organizational support is also

seen as an important aspect of a high-commitment HR system (Lepak & Snell, 2002; Veenendaal & Bondarouk, 2015). Organizational support stimulates idea generation but also idea promotion and idea implementation because support will lead to more confidence and more stimulation to generate, share and implement ideas (Basu & Green, 1997) as was also found by Veenendaal and Bondarouk (2015). It can therefore be said that a high-commitment HR system is likely to affect all three stages of innovative work behaviour.

2.2.3. HR systems in formalized organizations

In formalized organizations, formalization refers to the reliance upon written documentation in the organization that relate to procedures, job descriptions, regulations and policy manuals (Daft, Murphy & Willmott, 2007). A formalized organization can be characterized by the proportion of codified jobs and the range of variation that is tolerated within the rules defining the jobs (Hall et al., 1967). The higher the proportion of codified jobs and the less range of variation allowed, the more formalized the organization is. Formalization includes "statements of procedures, rules and roles which deal with decision seeking, conveying of decisions and conveying information including feedback" (Hall et al., 1967, p. 906). Organizations that contain characteristics of a formalized organization (e.g. focus on rules, regulations and procedures) tend to focus on efficiency as performance indicator (Berson, Oreg & Dvir, 2008). In such organizations, performance is enhanced through rules, procedures and clearly defined structures that highlight consistency and predictability (Wallach, 1983). The main benefit of formalized organizations is that this type of organization is able to manage efficiency as formalized organizations support constitutional order and thereby assist employees in performing their tasks more efficiently (Berson et al., 2008).

Therefore, in formalized organizations it is mostly likely that the strategic objective is to focus on efficiency which was also mentioned by Lepak et al. (2006). This means that a productivity-based HR system will most probably be used by formalized organizations as the goal of a productivity-based HR system is to improve efficiency and is therefore most suitable to use for organizations that focus on efficiency (Arthur, 1994; Lepak et al., 2006).

Features of a productivity-based HR system are well-defined jobs, centralized decision making, lower skill demands, little training and less independence (Guthrie, 2001; Lepak et al., 2006). As a result, employees are more likely to be replaceable, which is also referred to as job-based employment by Lepak and Snell (2002). They mention that with job-based employment

"participation is likely to be limited to the boundaries of their job" (Lepak & Snell, 2002, p. 522). To conclude, besides doing their job, no extra role behaviour like innovative behaviour is expected.

Research has pointed out that using a high-productivity HR system might result in negative employee outcomes. Monks et al. (2013) for example found that high-productivity practices lead to high levels of stress and workload among employees as focus is only on output and efficiency. Due to this pressured work environment there would be no opportunity for idea generation meaning that high-productivity practices are likely to impede innovative work behaviour, especially idea generation. High-productivity HR practices are also likely to cause frustration and dissatisfaction among employees as no career opportunities are provided and because they might feel dissatisfied with their monotonous work which impedes extra role behaviors like innovative work behaviour (Monks et al., 2013). Further, communication and knowledge-sharing within high-productivity HR processes tend to only focus on the operational aspect of the job meaning that no other communications than job-related communications are expected and appreciated (Monks et al., 2013) which is therefore also likely to impede idea promotion and idea implementation as this is seen as a waste of time.

2.2.4. Conclusion HR systems

To conclude, the features of a productivity-based HR system are the opposite of the features of a high-commitment HR system (Arthur, 1994; Guthrie, 2001). So while a high-commitment HR system may stimulate innovative work behaviour among employees, a productivity-based HR system is likely to impede innovative work behaviour. For example, while providing employees with autonomy in order to increase commitment and innovative work behaviour is likely to be used within a high-commitment HR system (Lepak et al., 2006; Høyrup, 2010; Veenendaal & Bondarouk, 2015), a high-productivity HR system is characterized by standardized jobs with less autonomy and freedom, which impedes innovative work behaviour (Lepak & Snell, 2002). Further, in a high-commitment HR system the focus is on the individuals' learning and development (Lepak & Snell, 2002) while in a productivity-based HR system, the focus is on efficiency and output while little attention is paid to the individual (Lepak & Snell, 2002).

During this research, both high-commitment HR practices and processes as well as productivity-based HR practices and processes will serve as a background to find out how innovative work behaviour takes place in a formalized organization because high-commitment HR systems are most likely to stimulate innovative work behaviour while productivity-based HR systems are most likely to be used in formalized organizations.

Now the two most relevant HR systems for this research are discussed, the HR practices and HR processes that are most likely used within high-commitment HR systems and high-productivity HR systems will be discussed below.

2.3. HR practices

HR practices are derived from HR policies and identify "broad HR activities and techniques to ensure the actual implementation of the HR policies" (Monks et al., 2013, p. 381). HR practices are defined by Lepak et al. (2006) as "specific organizational actions designed to achieve some specific outcomes" (p. 221). To date, it is widely believed that HR practices should be designed to affect employees' abilities, motivation and opportunities to contribute (AMO framework) in order to achieve organizational goals (Lepak et al., 2006; Jiang et al., 2013). As there are many different kinds of HR practices, a selection of HR practices will be used for this research. Training practices, performance appraisal practices, reward practices and job design practices will be used and discussed below as these practices are often used by other researchers (Lepak & Snell, 2002; Lepak et al., 2006; Monks et al., 2013) and affect the abilities, motivation and opportunities to contribute.

2.3.1. HR practices in high-commitment HR systems

In high-commitment HR systems, training practices characterize comprehensive training practices which are continuous and require extensive investments of time and money (Lepak & Snell, 2002). These training practices place priority on the stimulation of employees' learning, personal development and the development of firm-specific skills. Further, reward practices that are likely to be used include an extensive benefits package, employee stock ownership programs and provide incentives for new ideas (Lepak & Snell, 2002). Veenendaal and Bondarouk (2015) argue that "innovative work behaviour is promoted when employees feel fairly treated, given that in such a stage employees feel a strong sense of belonging and identification with their organization and the accompanying higher commitment to the organization" (p. 146). Performance appraisal practices used within a high-commitment HR

system emphasize employee learning and developmental feedback from their manager (Lepak & Snell, 2002).

Lastly, regarding job design, autonomy is seen as an important job design practice and is also important in stimulating innovative work behaviour (Lepak et al., 2006; Høyrup, 2010; Veenendaal & Bondarouk, 2015). Job autonomy allows for more freedom and responsibilities which increases employee commitment and innovative work behaviour. Besides autonomy, other job design practices like job rotation, job enrichment, job enlargement and teamwork are commonly used within a high-commitment HR system. (Lepak & Snell, 2002; Lepak et al., 2006; Folkestad & Gonzalez, 2010). Job enlargement and job enrichment allow for more freedom and responsibilities in one's job which is likely to increase innovative work behaviour. Further, when using job rotation and teamwork, employees will be involved with other people and other tasks which is likely to increase idea generation but also gives the opportunity to find support for a generated idea.

2.3.2. HR practices in high-productivity HR systems

In productivity-based HR systems, training practices are most likely to be job-related and will focus on improving current job performance, job experiences and seek to increase short-term productivity (Lepak & Snell, 2002). Little attention is likely to be paid at extra-role behaviors and personal development when trainings are provided. Reward practices are based on a straight salary, on the market wage and are designed to ensure equity with pears (Lepak & Snell, 2002). Employees are only rewarded and appraised by output and behaviors expected by the organization. No extra role behaviors, like innovative work behaviour, is likely to be rewarded. Further, performance appraisal practices in a productivity-based HR system most likely focus on objective, quantifiable results, assess the quantity of output and measure productivity and efficiency (Lepak & Snell, 2002). Lastly, jobs are standardized and prescribed (Lepak & Snell, 2002). This means that employees know how to perform their tasks. Their job is only focused on achieving productivity and efficiency. Further, their jobs are by definition not narrowly defined which means that employees have a certain amount of freedom in how they perform their job, although this freedom is limited to certain boundaries (Lepak & Snell, 2002).

To conclude when comparing high-commitment HR practices with high-productivity HR practices, it can be said that high-commitment practices emphasize employee learning and development which means attention is paid at the individual instead of measurable organizational output. On the other hand, productivity-based HR practices emphasize efficiency and productivity and focus on outcomes rather than the individual. Less attention is likely to be paid at employee well-being and development.

2.4. HR processes

The implementation of HR practices result in HR processes, which are at the lowest level of the HR system and refer to "detailed explanations of how the HR practices are executed (Kepes & Delery, 2007, p. 390). HR processes are most likely to affect employees' behaviors and attitudes as HR processes are the most closely related to the individuals (Kepes & Delery, 2007). For example, for a performance appraisal HR practice, the HR processes will reflect all the activities, communications and processes that occur within for example an appraisal talk.

Most studies assumed that managers and supervisors are responsible for how employees interpret HR practices and that only managers or supervisors play an important role within the implementation of the HR practices (Bos-Nehles, Van Riemsdijk & Looise 2013; Kuvaas, Dysvik & Buch, 2014). However, employees are also part of the implementation of HR practices as employees think, react and make choices that help fulfill their needs (Meijerink, Bondarouk & Lepak, 2016). This means that employees are active consumers of HR practices and therefore are co-producers during HR processes (Meijerink et al., 2016). Employees can become co-producers through their actions and behaviors during HR processes (Meijerink et al., 2016). Co-production is defined by Meijerink et al. (2016) as "the customer's participation in the development of a value proposition" (p. 223). When adjusting this definition to the context of this research, co-production can be defined as employees' participation during the implementation of HR practices.

The actions employees perform during the co-production of HR processes can be referred to employees' agency behaviour as agency imply action (Giddens, 1994). Agency is the capacity of human beings to make choices and to impose these choices on the world by certain behaviors (Seeck & Parzefall, 2008). This means that employees are able to behave in a certain way and thereby exercise some sort of power which can influence a process, in this case the HR process. Giddens (1994) further mention that agency is always present but people should have the ability

and choice to behave in a certain way. Because employees can influence the way HR practices are executed by HR processes, it is important to not only focus on HR practices but also on HR processes as these processes can be affected by employees' agency behaviour. The HR processes that are most likely take place in high-commitment HR systems and productivity-based HR systems will be discussed below.

2.4.1. HR processes in high-commitment HR systems

As high-commitment HR practices emphasize employee learning and development in order to increase commitment, it is likely that employees are getting individual attention during the HR processes. For example, training might be personalized, meaning that every employee will receive the training needed to develop their necessary skills and knowledge. Further, reward and performance appraisal practices include developmental feedback and focus on employee learning which means focus is on the individual instead of organizational output. Monks et al. (2013) found that HR processes within a high-commitment HR system include engaging employees and letting them understand why they receive certain trainings and why they receive feedback and rewards for something. Intensive communication and knowledge-sharing between the implementer and employee is likely to occur during which the employee can ask questions and come up with suggestions and comments (Monks et al., 2013). As a result, during the HR processes of a high-commitment HR system, employees' agency behaviour will most likely focus on extensive communication, interaction and knowledge-sharing about issues other than direct operational aspects.

2.4.2. HR processes in high-productivity HR systems

In productivity-based HR systems, focus is more likely to be on efficiency and output. For example, within the execution of training practices to improve productivity, it is likely that general trainings are provided to every employee and attention will be paid at making sure the training has its intended effect instead of making sure employees understand why certain trainings are provided in order to get them committed. Further, performance appraisal and reward practices are aimed at output and not on employees' development and learning meaning that little personal attention is likely to be provided during performance appraisal practices. As Monks et al. (2013) found, communication and knowledge-sharing within HR processes in productivity-based HR systems emphasize operational aspects whereas communications in the form of suggestions or new ideas is tended to be ignored. This means that during HR processes

of a productivity-based HR system, communication and input is likely to only focus on the operational aspects.

To conclude, it can be said that both the implementer (e.g. manager or supervisor) and employees affect HR processes because of the co-production of implementer and employee. When employees influence the way HR practices are executed through HR processes, they make use of their agency behaviour and this agency behaviour. Agency behaviour during commitment-based processes is likely to consist of extensive communication and knowledge-sharing and also concern communication other than direct job-related aspects. Agency behaviour during productivity-based processes are most likely characterized by only operational communication and focus on increasing the effect of the HR practices.

2.5. Innovative work behaviour in a formalized organization

As pointed out before, formalized organizations most likely use a productivity-based HR system because this type of HR system is mostly in line with the strategy of a formalized organization (Bowen & Ostroff, 2004; Lepak et al., 2006). This productivity-based HR system will then result in productivity-based HR practices and processes which, in contrast to high-commitment HR practices and processes, are likely to impede innovative work behaviour. However, the implementation of HR practices through HR processes is influenced by the implementer of HR practices as well as employees themselves which is called co-production (Meijerink et al., 2016). During the co-production of HR processes, employees use their agency behaviour to act in a certain way and show specific behaviors which affects how HR processes are executed and thereby affect employee outcomes.

However, agency behaviour during productivity-based HR processes is different than agency behaviour during commitment-based HR processes. Commitment-based HR processes are characterized by extensive communication and knowledge-sharing during which the employee has a substantial role so employees will get more committed to the organization. Also communication other than direct job-related aspects is likely to occur. On the other hand, productivity-based HR processes are characterized by operational communication and knowledge-sharing with the aim to increase productivity and efficiency (Monks et al., 2013). Little input and less extensive communication is likely to take place. Further, communication concerns only job-related aspects as discussing other topics is seen as a waste of time.

However, when employees engage in agency behaviour, they have the choice and ability to behave in a certain way as employees think, react and make choices fulfill their needs (Giddens, 1984). This means that employees might use their agency behaviour to show behaviors that are more in line with commitment-based HR processes instead of productivity-based HR processes meaning that HR processes will then become more commitment-based. Employees can for example ask questions and provide feedback about less direct operational aspects and thereby engage in more extensive communication and knowledge-sharing which are processes that are more in line with commitment-based HR processes. Below will be discussed how agency behaviour would work during HR processes so that productivity-based HR processes can result in commitment-based HR processes that affect innovative work behaviour.

When looking at training, general and job-based trainings are provided within a formalized organization during which the processes are likely to focus on increasing efficiency and output. However, employees might use their agency behaviour to affect the processes that occur during the execution of trainings. For example, they might ask questions and give feedback so more extensive communication and knowledge-sharing takes place concerning other topics than was intended. This also might suggest new ideas or improvements so innovative work behaviour is stimulated. Extensive communication and knowledge-sharing are aspects that are mentioned to affect employees' commitment by Monks et al. (2013) meaning that employees might feel more committed during trainings because of their agency behaviour and are therefore more likely to show innovative work behaviour resulted from training they receive.

Performance appraisal practices are most likely to focus on direct measurable output while little personal attention or developmental feedback is provided during productivity-based processes. However, when employees for example receive feedback about making a mistake that effected efficiency or output, employees might ask their supervisor for tips in order to prevent this mistake the next time so they actually learn something from the made mistake. The same counts for the appraisal talk, which is likely to focus on performance in the first place. However, during the appraisal talk employees might use their agency behaviour to discuss some personal issues or might have personal development questions meaning that the appraisal talk might lend more towards a personal conversation during which personal attention and development become important subjects. As feedback then becomes more developmental and appraisal talks becomes more personal due to employees' agency behaviour, commitment among employees is likely to increase which as a result stimulates innovative work behaviour.

Furthermore, reward practices are based on a market-based wage and no extra rewards are likely to be provided for extra role behaviors according to productivity-based practices. However, during HR processes it might be possible that extra role behaviors like innovative work behaviour is rewarded. Although it might not be possible for employees to show agency behaviour regarding the provision of extra rewards, employees might reward each other with little presents or their supervisor might hand out some small rewards for employees who did something extra. The provision of extra rewards might then stimulate employees to engage more in innovative work behaviour but might also let them feel more appreciated and supported resulting in more innovative work behaviour as they feel they need to give some value back.

Lastly, job design practices based on a high-productivity HR system are standardized while little autonomy, involvement and participation in decision-making is likely to be provided. However, during employees' daily work, employees might act in a way that allows for more autonomy or participation in decision-making meaning that productivity-based job design practices result in more commitment-based job design processes. Furthermore, employees might rotate their job or volunteer in extra tasks resulting in job rotation and job enlargement which allow them to feel more involved so innovative work behaviour is more likely to be stimulated.

To conclude, productivity-based HR practices might not always lead to productivity-based HR processes because employees are co-producers of HR processes during which they make use of agency behaviour. Their agency behaviour allows them to make choices to act in a certain way in order to fulfill their needs. Employees' agency behaviour might consist of extensive communication processes, knowledge-sharing and communications other than direct operational aspects which increases commitment among employees and as a result affect employees' innovative work behaviour (Lepak and Snell, 2002; Monks et al., 2013). Therefore, the following proposition is made for this research:

Proposition: when employees in formalized organizations engage in extensive communication, knowledge-sharing and/or communications other than direct operational aspects during the co-production of HR processes, productivity-based HR practices will result in commitment-based HR processes that stimulate commitment and as a result affects innovative work behaviour.

3. Method

3.1. Research design: case study

In order to identify how HR processes contribute to employees' innovative work behaviour in a formalized organization, a case study was conducted within an organization that is a typical example of a formalized organization. A case study allows for a new and better understanding of the issues studied (Baarda, Bakker, Fischer, Julsing, Peters, van der Velden & de Goede, 2013) and would therefore be suitable for explorative research, as is the case with this research. A case study can be defined as "an exploration of a bounded system, bounded by time and place, or a case (or multiple cases) over time through detailed, in-depth data collection of information rich in context" (Creswell, 1998 p. 61; Beverland & Lindgreen, 2010). Further, case studies enable researchers to get deeper insights about processes in and around organizations (Bizzi & Langley, 2012; Langley, Smallman, Tsoukas & Van de Ven, 2013). Therefore, a case study is a suitable research design when studying process questions and would be the most appropriate to use for this research.

For this research, a single case study has been used in order to get a complete overview of the phenomena and processes within this organization. Reason to use a single case study is that the selected case is seen as an extreme case meaning that the organization is that large, complex and strongly formalized that if innovative work behaviour will be found in such organization, it is likely that innovative work behaviour will also be found in other formalized organizations (Flyvbjerg, 2006). When purposively selecting an extreme case, a single case study would be legitimate to use (Flyvbjerg, 2006).

3.2. Case selection

The case used for this research is purposively selected as this organization is a typical formalized organization. A formalized organization is characterized by the proportion of codified jobs and the range of variation that is tolerated within the rules defining the jobs (Hall et al., 1967). The higher the proportion of codified jobs and the less range of variation allowed, the more formalized the organization is. Some of the indicators created by Hall et al. (1967) that can be used to assess whether an organization is formalized are used to assess whether the selected case can be considered as a formalized organization. The used indicators are:

1. The degree to which the positions in the organization are concretely defined.

2. The degree to which the authority structure is formalized.

3. The number of written rules and policies.

The organization selected for this research meets all three criteria. First of all, positions of employees working in the organization are concretely defined meaning that employees know exactly how they should perform their tasks because there are standard protocols for each task. This means that there is hardly any possibility for employees to perform their tasks otherwise. Furthermore, the authority structure within the organization is formalized meaning that there are specific persons in the organization who make decisions and have responsibilities (e.g. clinical chemists and supervisors). Lastly, there are many procedures and policies for all the tasks employees perform. There are 'employee books' and 'quality books' in which all processes and procedures are outlined. As this organization can be characterized by its codified rules, procedures and defined jobs, it matches the description of a formalized organization (Hall et al., 1967) and was therefore suitable to use for this research.

3.3. Data sources

3.3.1. HR practices

In order to obtain data about what kind of HR practices are implemented within the organization and to find out what their goal is, data needed to be obtained about implemented HR practices. As HR practices are designed by the HR department, it would be most suitable to ask the HR department about HR practices as employees or other receivers of HR practices may experience HR practices differently than was intended by the organization (Conway & Monks, 2008; Snape & Redman, 2010). Therefore, the HR manager was used as a data source in order to measures HR practices. However, the choice has been made to also ask employees about the implemented HR practices in order to find out whether employees' perceptions about HR practices differ from the intention of the HR department and because employees' perceptions are most likely to affect behavioural outcomes on the individual level (Banks & Kepes, 2015). Therefore, the HR manager and employees were used in order to obtain information about HR practices.

3.3.2. HR processes

When implementing HR processes, both the implementer of the HR practice as well as the employee is involved in this process (Meijerink et al., 2016). Because there are different HR practices it is also likely that there are different implementers of these HR practices, even external implementers when trainings are provided for example. Because the focus of this research is on employees' innovative work behaviour, the choice has been made to use only

employees as data source for HR processes as this would be the most suitable when studying phenomena at the individual level (Wright & Nishii, 2007).

3.3.3. Innovative work behaviour

Most of the studies that measured innovative work behaviour used managers or employees as data source (De Jong & Den Hartog, 2010). As the assessment of innovative work behaviour is, much like many forms of subjective performance appraisal, highly susceptible to different interpretations, the assessment of innovative work behaviour might vary across different raters (Janssen, 2000). It would therefore be best if different data sources were used to measure innovative work behaviour as only asking employees by self-reflection might not provide the most objective results. However, interest of this study is how HR processes are contributing to employees' innovative work behaviour meaning that focus is on employees' perceptions and the relation between processes and IWB which means that employees would be the most suitable data source to use for this research. In more studies only one data source was used to measure innovative work behaviour (Janssen, 2000; Laursen & Foss, 2003). Therefore using only employees as unit of analysis was seen as a legitimate way to collect data about innovative work behaviour.

3.4. Data collection method

As this research has a qualitative nature and tried to get deeper insights in HR processes, interviews were the most suitable data collection method for studying HR processes. Data collected by interviews can provide insights in the world, opinions, thoughts and feelings of people (Downs & Adrian, 2004). Further, interviews allow for an understanding of what people feel and think, which is important when trying to understand certain processes (Baarda et al., 2013). Interviews were also used in another research about HR processes (Monks et al., 2013) and was therefore seen as the best way to collect data about HR processes.

Further, interviews were also used as data collection method for HR practices. Interviews were chosen because the goal was to obtain data about which HR practices are implemented but information was also needed about how these HR practices were designed and information was needed about the goal of these HR practices. Because deeper insights about HR practices needed to be obtained, interviews were used as interviews allow for deeper insights and explanations about the issues studied (Downs & Adrian, 2004).

Lastly, interviews with employees were also used to measure innovative work behaviour. Interviews with employees were performed in order to get deeper insights in how and why employees engage or do not engage in innovative work behaviour. Interviews were only held with employees as they could best describe their motives to engage in innovative work behaviour. Furthermore, as goal of this research is to find out how processes might contribute to innovative work behaviour, interviews would be the most suitable to use because of the deeper insights and processes that needed to be studied.

For this research, semi-structured interviews were conducted to measure HR processes, HR practices and innovative work behaviour. A semi-structured interview is a combination between unstructured and highly structured interviews and it combines specific questions with open-ended questions (Whiting, 2008). The use of semi-structured interviews allows for information necessary to answer the research question but also leave space for free input from participants which may lead to additional valuable information. When using semi-structured interviews, there will be questions about the most important subjects but the order of the questions is not fixed (Baarda et al., 2013). This gives the researcher more freedom while conducting the interview and certain questions can be asked at a later moment if this is more appropriate. An overview of the constructs, data sources and data collection method used for this research can be found in table 1.

Construct	Data sources	Data collection method
Innovative work behaviour	Employees	Interview
HR practices	HR manager/employees	Interview
HR processes	Employees	Interview

Table 1. Overview of data sources and data collection methods for the measured constructs.

3.5. Operationalization of the constructs
3.5.1. Operationalization HR practices and HR processes
Interview questions were created in order to find out which HR practices were implemented by the organization and why certain HR practices were implemented (i.e. the goal of implemented HR practices). Monks et al. (2013) also used interview questions as a way to collect data about HR practices. Therefore, items for this research were based on the items used by Monks et al. (2013). An overview of the items used by Monks et al. (2013) that formed a basis to measure HR practices can be found in table 2. Questions were asked about job design, training,

performance appraisal and reward practices. An overview of all the question used to measure HR practices for the HR managers as well as for employees can be found in appendices three and four.

HR practices		Specific organizational actions designed to achieve some specific outcomes.
Questions	Based on Monks et al. (2013)	• What do you see as the most important HR practices in achieving the firm's strategy?
		• Can you please tell me about the way in which the HR practices in the organization were designed? - Training, learning and development - Performance management - Reward management - Job design
		• What types of employee behaviors are you trying to encourage with these practices?
		• How and why are new HR practices introduced into the firm? Where do they come from and how are they integrated into the existing HR system?

Table 2. Questions used to measure HR practices

To date, little research has been conducted about HR processes which means that there are not many measurement scales available to measure HR processes. Monks et al. (2013) conducted empirical research about HR processes so therefore interview items from Monks et al. (2013) were used as an inspiration for the interview items for this research. The interview questions used for this research can be found in table 3.

HR processes		Detailed explanations of how the HRM practices are executed.
Questions	Based on Monks et al. (2013)	• Since joining the organisation, what education, training and development have you engaged in?
		• What goals do you think are tried to achieve with these education and training practices?
		• How were these education and training practices conducted?
		• How would you describe your role when you received education/training practices?
		• How is your performance managed?
		• How often do you receive performance appraisals?
		• What do you think the goal is of performance appraisals?
		• How are these performance appraisals conducted?
		• How would you describe your role during these performance appraisals?
		• How are you rewarded for your performance?
		• For what behaviors are you rewarded?
		• What do you think the goal is of the reward management in this organization?
		• How would you describe your job design?
		• What proportion of your work you think is:
		- Routine
		- Non-routine
		• How would you describe the amount of freedom you have in performing your job?

Table 3. Questions used to measure HR processes

As can be seen in table 2 and 3, general questions were purposively asked for HR practices and HR processes. So for example, it was asked 'what kind of trainings have you engaged in since joining the organization'? By asking such general questions, respondents could answer these question based on own experiences instead of being forced to think and answer questions about

specific trainings. This means that no distinction between productivity-based and commitment-based trainings was made beforehand. However, when asking such general questions, answers provided by the respondents needed to be categorized in commitment-based practices and processes or in productivity-based practices and processes. Therefore a scheme with keywords was created which could be used for the analysis of answers given for HR practices and processes. The keywords for HR practices are based on research of Lepak and Snell (2002) and keywords for HR processes are based on research of Monks et al. (2013). The created scheme can be found in table 4.

	Productivity-based	Commitment-based
Training practices	Job-based	Comprehensive training
	Increasing productivity	Stimulation employee learning
	Increasing short-term performance	Stimulation development
	General skills	Firm-specific skills
Performance appraisal practices	Focus on objective results	Developmental feedback
	Assess output and results	Personal attention
	Productivity and efficiency	
Reward practices	Market-based wage	Extensive benefits package
	No extra-role rewards	Incentives for new ideas
Job design practices	Standardized jobs	Autonomy
	Little autonomy	Job rotation
	Centralized decision-making	Job enlargement
		Teamwork
		Participation in decision-making
		Involvement
HR processes	Operational communication	Extensive communication
	Operational knowledge-sharing	Extensive knowledge-sharing
	One-sided communication	Interaction
	Little input employees	Appreciation for ideas/suggestions
		Much input from employees

Table 4. Keywords for commitment-based HR practices and processes and for productivity-based HR practices and processes based on Lepak and Snell (2002) and Monks et al. (2013).

3.5.2. Operationalization Innovative work behaviour

Lastly, interview questions were created in order to get insights in how and why employees engaged in innovative work behaviour. These questions were based on measurement scales created by De Jong and Den Hartog (2010) and by Kleysen and Street (2010) because both measurement scales included the three stages of innovative behaviour as also acknowledged within this research. Answers to these questions provided insights in processes that contributed to the generation, promotion and/or implementation of a new idea and provided insights in the processes that restrained the generation, promotion and/or implementation of new ideas. The interview questions used for this research can be found in table 5.

Innovative work behaviour		**All employee behaviors related to the generation of an idea, support for the idea and application of the idea**
Items	Based on De Jong and Den Hartog (2010); Kleysen and Street (2001)	• How often do you come up with new of better ways to perform your job? • Why do you come up with new ideas? • How did you come up with this idea? • What factors encourage you to come up with new ideas? • What factors restrain you to come up with new ideas? • If you have a good idea in relation to some aspect of your job, with whom do you share this idea? • What happens this idea after you introduced it?

Table 5. Interview questions for innovative work behaviour

3.6. Procedure

3.6.1 Selection of respondents

In order to conduct the interviews, choices were made regarding the selection of respondents. There are two types of workers within the selected case organization: employees who take blood samples and employees who analyze blood samples. Within the analysis of blood samples there are two types of analysis: routine analysis and special analysis. With regard to employees who take blood samples there are differences between the locations they operate: at the hospital, at general practitioners and at people's homes but the nature of their work is the same for all locations.

The choice has been made to use employees who analyze blood samples because they all work at the same location and are therefore not affected by external conditions as would be the case with employees who take the blood samples because they work at different locations under different conditions. The analysis of blood samples are conducted within three locations. The choice has been made to choose the main location for this research because both routine analysis and complex analysis are performed within this location. Respondents from both departments were used for this research because their jobs differ in complexity meaning that there might be a difference in the extent employees engage in innovative work behaviour as job complexity is seen as an aspect of job design that might affect innovative work behaviour.

Lastly, respondents needed to be selected from the routine analysis department and special analysis department. There are multiple ways that can be used for the selection of respondents. First of all, a choice had to be made between non-probability and probability sampling. Non-probability sampling would be suitable to use when known characteristics are to be studied intensively (Kothari, 2004). As this is not the purpose of this study, probability sampling was used. More specifically random sampling was used for this research which means that employees from both the routine analysis and special analysis were randomly selected from an employee list provided by the organization.

For this research, five respondents from routine analysis and five respondents from special analysis were first selected. Although often a minimum number of respondents is required, there is little consensus about the maximum of respondents required, especially for qualitative research. It is suggested that qualitative samples must be large enough to assure that all or most perceptions that might be important are covered (Mason, 2010). Therefore, saturation, which

means that when additional collection and analysis of data no longer leads to new insights (van Aken, Berends & van der Bij, 2012), was used as a tool to determine if more interviews were needed for this research. After the ten interviews were conducted, a clear and consistent impression about HR practices, processes and innovative work behaviour was obtained meaning that there was no need to perform any additional interviews.

An invitation mail was send to the selected employees and after their approval interviews were scheduled and executed with these employees. One interview session took about 45/50 minutes. The interview questions could be seen as guidelines instead of a to-do list with questions that needed to be answered. Because of this interview setting, additional questions could be asked by the researcher if needed. Also, the order of the questions was not fixed so the researcher could adjust to answers that were given by the respondent.

Probing techniques (e.g. asking for examples, explanations and clarifications) were used to stimulate respondents to tell as much as they knew and to make the interviews detailed and extended (Emans, 2004; Belk, Fischer & Kozinets, 2012). At the end of each interview, the researcher asked the respondent if he or she wanted to discuss something that was not discussed during the interview. The reason to do this was because unexpected information that might be valuable for this research would then come up (Downs & Adrain, 2004). All interviews were recorded with a voicerecorder so no information would be lost.

3.7. Data analysis

To analyze data obtained from the interviews, all recorded interviews were transformed into interview transcripts. Numbers were assigned to the interviews so the interview transcripts would be organized but interviewees would stay anonymous. Respondent from routine analysis were labelled as 'RA1, RA2 etc.' and respondents from special analysis were labelled as 'SA1, SA2 etc.' First of all, word-by-word interview transcripts were inserted in Atlas.Ti. Familiarization is an important first step in analyzing interviews as the researcher becomes more familiar with the data by listening and reading the materials (Ritchie & Spencer, 2002). During familiarization, key ideas and themes were noted so a better understanding about the richness, depth and diversity of the data was obtained. Based on the theoretical framework and experiences gained during the interviews, key themes and sub-themes were formulated during familiarization. This resulted in four themes based on the theoretical framework: innovative work behaviour, HR practices, HR processes and the relationship between HR processes and

innovative work behaviour. The theme 'advice' was also added because the respondents were asked for advice to improve innovative work behaviour which provided valuable data for this research. Also the theme 'remaining' was added because the interview was semi-structured so valuable information other than information about the key themes could be assigned to this theme.

After that, a combination of open coding and axial coding was used for analyzing the data. Based on open coding, codes were assigned to the key- and sub-themes. During open coding, assigned codes were constantly compared to each other and changed when needed. After that, a coding scheme based on the themes and codes that resulted from open coding was created which consisted of 85 codes divided over 20 themes. This coding scheme was used for the axial coding of the data and resulted in a final results table, see appendix one. The eventually created codes could then be assigned to one of keywords created in the operationalization of HR practices and processes to determine if the practices and processes were more commitment-based or more productivity-based. For example when a respondent mentioned there was a lot of interaction during trainings, this would mean that training processes would be more commitment-based as interaction/extensive communication is seen as a characteristic of commitment-based HR processes. This was also done for HR practices. So if a respondent mentioned that salary was the only reward they received, this would mean that rewards were more productivity-based because market-based wage is a characteristic of productivity-based reward practices. Using the keywords that were created for productivity-based HR practices and processes and to commitment-based HR practices and processes made it possible to easily divide the created codes between productivity-based or commitment-based.

4. Results

In this chapter results about the research will be described. First of all, a case description will be provided and after that, results regarding innovative work behaviour, HR practices and HR processes will be discussed.

4.1. Case description

The organization chosen for this research is a healthcare organization, more specific a laboratory, that performs medical diagnostics from blood samples and is responsible for reporting these results to general practitioners, specialists and some other organizations. The organization also has its own thrombosis service. Goal of the organization is the realization of quality and efficiency of the medical diagnostics and is a frontrunner in the development of medical laboratory in the Netherlands. The mission of the organization as described on their website is: *"we are a service organization that offers medical diagnostics in its broadest way. We support medical care around the patient by offering the right diagnostics at the right moment and by this we promote the quality and expedience of healthcare"*.

In order to guarantee the quality of healthcare the organization delivers, an extensive quality system is implemented within the laboratory. The quality system should ensure that the organization meets certain quality norms, more specific the ISO norms. Goal of this quality system is to guard, report and control the service quality but is also focused on improving this quality.

In total, 477 employees are working within this organization divided over three main locations. Regarding the organizational structure, all employees have a supervisor as official head of department. In total, there are 11 supervisors and every supervisor has around 35 employees below him/her. Furthermore, there are clinical chemists working at the organization who are formally not a supervisor but are in charge when it concerns job-related issues. At the moment, there are 7 clinical chemists working at the organization and there are 3 clinical chemists who are in training. There are also specialists working at the organization. At the special analysis department there are 1 to 2 specialists for each sub-department as there are three sub-departments within the special analysis department. At the routine analysis department there are 5 specialists working at each location of the organization.

Lastly, employees' tasks within the organization are standardized as there are specific rules and procedures for the execution of their job. Further, employees' tasks are routinely, which makes this organization sort of a bureaucratic organization. The organizations' core activities do not specifically focus on innovativeness, but on efficiency and quality.

4.2. Employee innovative work behaviour in a formalized organization

In this section a description will be given about the extent employees engage in innovative work behaviour, which is specified to the extent they engage in idea generation, idea promotion and idea implementation. Further, motives for employees to engage in IWB, stimulations and barriers to engage in IWB are described.

4.2.1. Participation in innovative work behaviour

First of all, all respondents are to some extent concerned with finding better or new ways to perform their job. Some of the respondents pointed out that they are constant actively thinking about how they could improve their work for example by always being critical about protocols and work processes in order to find a better way to do their job, while others have pointed out that they are more passively thinking about how they could improve their work. They felt like the work processes are already worked out very precisely and that there is little room for improvements as the biggest improvements were already made during the years. However, when something goes wrong or when they face difficulties towards performing their job, they find a way how to do it better. Results showed that mostly respondents from the special analysis department pointed out that they are more actively thinking about improvements while respondents from the routine analysis overall pointed out that they were more passively thinking about improvements and new ideas. Examples from respondents are:

"It is a process that always continuous. You always keep thinking and you always. If something does not work well then I think we should do this differently" (RA4)

"I have to say it does not occur very often that I think that something does not work. The department already exists for many years and during the years you come to a process of working. I don't have moments during which I think big changes are needed because I don't work well." (RA1)

4.2.1.1. Idea generation

Regarding the nature of the ideas that are generated by employees it can be said that most of the ideas employees come up with are job-related and are related towards direct improvements towards their job. As the nature of their job is formalized and their tasks are to a high extent protocolled, new ideas are mainly incremental such as small work-related improvements. However some respondents pointed out they came up with organization-wide ideas. One respondent mentioned:

"I have mentioned once, you divided the workplaces in this way but you can combine much more. It is not necessary to put one person at a workplace because that person won't have work during the day. In the meantime there is time left at other workplaces so you can combine this with each other." (RA1)

As mentioned before, it was found that mainly employees from special analysis are more actively thinking about new ideas and work processes meaning that differences between the two departments can be mainly assigned to differences in idea generation, more specifically to the amount of new ideas that arise. No specific differences were found regarding the nature of the ideas.

4.2.1.2. Idea promotion

Once employees found a better way to perform their job or came up with a new idea, they all pointed out that they share this idea. No differences were found between the two departments. Most of them told that they first shared their idea with colleagues and when they also thought it was a good idea, they then shared this idea with their supervisor or a specialist depending on the nature of the idea. Some respondents also pointed out that when they felt they really needed to share an idea, they go directly to their supervisor. Examples are:

"First I discuss it with a colleague and ask what do you think about this? Well if he or she thinks it is a good idea then I will go to a supervisor." (RA2)

"I think you first share it with your direct colleagues to figure out if they think it is a good idea and after that you share it with a specialist." (SA4)

4.2.1.3. Idea implementation

Analysis of the implementation of ideas pointed out that there was some disagreement about whether the respondents felt their idea was implemented. Most of them mentioned that they felt that their supervisor always tries to implement the idea if possible while some others felt that they did not implement their idea or implemented it after a long time without providing feedback to the employee. When ideas concern small work-related improvement, these ideas are often directly implemented in consultation with colleagues and the clinical chemist. Regarding idea implementation also no differences were found between the two departments. As respondents mentioned:

"As long as it is technically possible and it will yield something, it is no problem. They are open for changes." (SA3)

"If you came up with little ideas or changes you can always discuss it. And if everyone thinks it is a good idea then it will be implemented." (RA4)

Furthermore, sometimes the organization acquires a new machine and then some employees are asked to help implementing this machine. In that case, that employee is involved in idea implementation instead of idea generation or idea promotion. One respondent for example mentioned that a new machine once entered the firm and that she was asked to help with setting up tests on the machine. During this project she became one of the experts of the machine and that project is still going on meaning that she is still responsible for that machine when something needs to be changed.

To conclude, it can be said that employees within this formalized organization are mostly concerned with incremental innovations meaning that most new ideas are improvements regarding direct work-related issues. When new ideas concern direct work-related issues, these ideas are often directly implemented by the department. Larger and more organization-wide ideas are mostly not implemented by employees themselves but by the organization.

4.2.2. Participation in project groups

Sometimes, project groups are created so employees can participate in these groups meaning that they can focus on more radical innovations or organization-wide improvements. Participation in project groups is stimulated by management and the HR department as they think it is important for employees to think about new ideas and improvements. The organization provides possibilities for the participation in certain innovative projects which differ in nature and goal. For example when a new machine is entering the firm, some employees are allowed to engage in a project to make the machine work and to set up new tests on the machine. Further, project groups are also created for less direct job-related improvements. For example, a project group has once been created in order to improve teamwork within the organization. These projects are put in place by either the employees or by the management. With regard to the participation in project groups, no differences were found between the two departments. An example from a respondent about a project is:

"Two years ago I participated in a project which focused on creating closer teams. Because there are people working at special analysis, people at routine analysis and people at the CITO lab. So we focused on becoming one team. That you respect each other more." (RA2)

4.2.3. Motives

It has been found that the main motive for employees to engage in innovative work behaviour is that they want to perform well and want to be good at their work. Respondents pointed out they that want to enjoy their work, work in a comfortable environment and work effectively and therefore are actively or passively searching for better ways to perform their job. This means that employees are mainly intrinsically motivated to come up with new ideas. Examples from respondents are:

"Sometimes I think why are we doing things this way? I am a person who thinks there should be an easier way to do it. Sometimes everything works so devious and then I think, actually it is a little bit frustration of myself or more interest that I think we could do this differently." (SA3)

"Just to keep a good running organization and I really like the work I do. You just want the organization to perform well." (RA2)

Another reason why they engage in IWB is because they work in a healthcare organization which means that delivering good work quality to patients is very important. As their job directly affects the quality of the test results, employees are extra critical towards work processes in order to prevent making mistakes in their work. As one of the respondents mentioned:

"So many things are happening in a week. You have to write so many things and do some many things and before you know, I think in a hospital it is all about human lives so you are trying to prevent making mistakes." (RA5)

4.2.4. Barriers

Surprisingly, almost all respondent pointed out that they face no explicit barriers regarding the generation of new ideas as well as the promotion of new ideas. They feel that their work environment (i.e. colleagues and supervisor) is open towards new ideas and that supervisors will always listen to ideas or suggestions. One of the respondents mentioned that sometimes she feels restrained to share a new idea when it is constantly not implemented. However, it does not stop her from keep thinking and sharing ideas. An example from a respondent is:

"At our workplace everyone is very open and you don't have to be restrained in that. Even though you come up with an idea and the supervisor thinks it won't work, it doesn't matter." (SA1)

The barriers that were mentioned were mostly related to the participation in projects instead of engaging in innovative work behaviour. Main barriers for the participation in project groups were that respondents experience a high workload which means that they do not have time and therefore do not want to engage in these projects. Another reason pointed out multiple times was mentioned by part-time workers. These employees work less than forty hours which means that the hours they are working are filled with job related tasks which they like to do and also want to do during their working time. As a result, no time and interest is left for the participation in projects because they want to do their job during the time they work. As respondents mentioned:

"The involvement and knowing what is going on in the organization is just less when you are less present. So back then when you knew more and knew more about problems it was easier to think about certain issues. Now when I work 20 hours you miss that a little bit." (SA5)

"I am a part-timer which is also an obstruction of course. I need the hours that I work to keep up everything I have at the moment and that is something I really want to do. So besides that it would be difficult to do something else." (RA3)

4.2.5. Stimulating factors

When asking about factors that stimulate employees to come up with ideas, the most important stimulation mentioned was an open working atmosphere. Respondents mentioned that supervisors and colleagues are open towards new ideas and improvements and feel that they can very easily go to them with new ideas. This stimulates them to actually think about improvements and stimulates them to share ideas. Another stimulation that was mentioned several times was involvement. Respondents who were involved in a project or were involved in decision-making, felt more stimulated to think about new ideas and improvements. On the other hand, respondents who felt like they were not really involved did pointed out that they felt that involvement was an important factor for the stimulation of IWB. Respondents mentioned:

"It depends on the work you have. You feel more involved with some tasks then with other tasks. You will sooner come up with ideas for the work you feel more involved at because it concerns your area of interest." (SA5)

"Our specialist is always open for improvements. Always. And he preferably gets these improvements from us because we have to work with it. So everything we bring up will be discussed like why this and why that."(SA2)

4.3. HR practices used in a formalized organization

During the interviews, questions were asked about training practices, performance appraisal practices, reward practices and job design practices. When looking at the overall HR vision, it can be said that the HR department tries to achieve an equal relationship between employees, management and supervisors, and tries to stimulate innovative work behaviour as the HR manager believes that the best ideas arise from employees themselves. Furthermore, the organization places value at employees' wellbeing and tries to listen to their needs and wishes with regard to their development. When an employee wants to develop him- of herself, the organization tries to honor that request. A few comments the HR manager made are:

"We try to stimulate that (IWB) with projects. When someone is very interested in the logistic process, you ask him or her, do you want to help organizing the logistic process? Well you should give this person a role in that."

"I think everyone contributes a part and my part is not more important that the part the analyst is doing. Well honestly we make money with the work the analyst does, not with what I do. And the director is not worth more than the person who is taking blood samples. I think that you can discuss many things when there is an equal relationship even though you do not have the same function. You are just responsible for other things."

"I think that the analyst who has the temperature equipment in his suitcase and sees that it does not work has better ideas then someone who sits behind his desk and ordered temperature equipment because these are a little bit cheaper than the equipment from another supplier. You should then listen to the analyst who says it does not work because he knows it."

It can be said that the organization values their employees and tries to listen to their employees. They feel that employees are the most suitable persons to come up with work-related ideas and therefore they try to stimulate that.

With regard to training practices, results show that training provided by the organization is mainly job-related. Job-related trainings such as e-learnings, also called WIN tests, are provided but also trainings with clinical chemists are provided during which employees gain knowledge and insights about specific cases or subjects they discuss. Furthermore, the providers of the machines used by the organization also organizes user days so employees stay up to date with the newest innovations about the machines. Some of the analysts attend these user days and afterwards they inform their colleagues about the most important insights, mostly during work meetings.

External trainings are mainly attended by specialists and clinical chemists but sometimes a few employees are also invited to go to this training. The selection of employees who are invited is based on who already went to an external training during the year and who is interested in the training. They try to rotate who of the employees can go to this training. After an external training is attended, the clinical chemist often shares the gained insights with the rest of the employees during work meetings. However, one respondent pointed out that he would like to be informed more about gained insights after an external training is attended. Job-related trainings were seen as very valuable and appreciated by the respondents. However, they would like the get more training.

Lastly, the organization also provides organization-wide training. However, not much training was provided during the last few years because of financial difficulties. Organization-wide training includes for example customer service training, aggression training and most recently a training 'change in thinking'. This training focused on a different way of thinking so employees should be able to approach problems more solution-focused. However, because these trainings are less directly job-related, they were provided less during the last few years. However, the HR manager does consider this type of training as important and therefore wants to offer more of these trainings during the upcoming years. As the HR manager mentioned:

"We have not put a lot of energy in other trainings besides direct job-related training because of financial difficulties but we did ask for money to so we can offer these trainings again next years. Because I think we miss those trainings."

When connecting the found results with the keywords as described during the operationalization of training practices, it seems that training practices are mostly productivity-based as trainings at the organization are often directly job-related and job-related trainings are characteristic for productivity-based HR practices. However, if an employee wants to follow a training that is not directly job related, the organization will try to honor this request and if possible, the employee will get the possibility to follow a training of interest, for example for its own personal development. Training aimed at increasing personal development is more commitment-based but it does not occur very often that employees follow this type of training. Furthermore, organization-wide training is provided, however less during the last years due to financial issues, which focus on less direct job-related aspects but more on general skill improvements. Improving general skills also relates more to productivity-based HR practices meaning that overall training provided by the organization is productivity-based.

4.3.2. Performance appraisal practices

Regarding performance appraisal practices, results show that there is not much performance appraisal within the organization. One of the most formal ways of performance appraisal is the appraisal talk. During this talk, the most important topics based on a form are discussed. Issues that are discussed refer to personal issues, developmental issues and relationships with colleagues and supervisors. All respondents pointed out that the appraisal talk was focused on the employee as a person instead of performance. As a respondent mentioned:

"We do not have a real performance talk but we do have an annual talk and then you talk a little but about your functioning and what you would like to do in the future, your goals. So that is actually the feedback you then receive". (SA5)

When an employee made a mistake, this person will be approached by their supervisor in an informal way if the mistake was very small. However, when the mistake was more serious employees will be approached in a more formal way. In that case, a VIM form will be completed and discussed during a conversation with the employee in question. Furthermore, besides getting feedback when something goes wrong, there is quite a lack of positive feedback. While some respondents mentioned that you do receive appreciation when you did something extra or came up with a good idea, most of the respondents felt that sometimes they are not appreciated enough.

The appraisal talk tend to be more commitment-based when comparing the results to the keywords created in the operationalization of performance appraisal practices. This because results showed that appraisal talks are more focused on employee wellbeing and employee needs than on quantifiable and objective results as would be the case with productivity-based performance appraisal practices. However, the feedback employees receive is more productivity-based. Employees mostly receive feedback when they made a mistake and/or results were affected by a mistake. As feedback is mainly focused on results and performance, this is in line with productivity-based performance appraisal practices as mentioned in the operationalization of performance appraisal practices. This means that although it was expected that performance appraisal practices would be productivity-based in a formalized organization, results showed that appraisal talks tend to be more commitment-based because of the person-focused approach during the appraisal talk. Feedback on the other hand tends to be more productivity-based as was expected.

4.3.3. Reward practices

Further, results show that the only reward employees receive is their monthly salary. They do receive a thirteenth month of salary but no extra bonuses or other rewards are provided if employees did something extra or participated in innovative projects as mentioned by the respondents. There is however a gratification policy so that employees who did something extra, for example participated in important projects, could get an extra gratification for that. The HR manager mentioned that it is the responsibility of the supervisors to implement this gratification policy. However, when asking the respondents about reward practices, none of them mentioned the gratification policy meaning that this policy might not be used that often.

Besides financial rewards, other rewards like a box of chocolate or flowers are also rare. Sometimes employees give each other a small present when another employee has taken over a shift from someone but small gifts from the management or supervisor are very rare. Most of the respondents mentioned that the only reward they receive for good work was an informal appreciation, but no more than that.

Reward practices can be seen as more productivity-based as straight salary is the only form of reward employees receive. Besides appreciation employees sometimes receive when they came up with ideas, no extra-role behaviour like innovative work behaviour is rewarded and no other

rewards besides financial rewards are provided which is more in line with productivity-based reward practices as mentioned in the operationalization of reward practices.

4.3.4. Job design practices

Lastly, when looking at job design it can be said that the tasks the analysts perform are highly protocolled. Employees are scheduled at a workplace beforehand but employees do work at multiple workplaces, different machines, which means that the amount of tasks differ and that employees perform multiple tasks. It can therefore be said that there is a certain amount of job rotation within their work. Further, the tasks employees perform are highly protocolled which means that these tasks are mainly routine tasks. However, there is some difference in the degree of complexity within the tasks. The tasks performed by routine analysts are less complex than tasks performed at the special analysis department but also the special analysts work conform protocol. Because of the highly protocolled tasks, there is little autonomy for employees to decide how to perform their tasks. However, they do have a certain amount of responsibility as the results of their analysis affects the patient directly as doctors make a treatment plan based on the results of the analysts. When an analyst found some aberrant results, he or she often discuss this with a specialist to make sure that the results are correct.

Lastly, there are some possibilities for job enlargement within the organization. For example, when there is a vacancy open at special workgroups, like the BTD+ work group, employees can apply for this job and thereby are able to enlarge their job. Furthermore, employees who have ambitions to do more than just their job can also apply for different kind of projects when available. This allows the employee to enlarge the tasks he or she performs.

Results showed that job design practices tend to be a combination of productivity-based and commitment-based practices. The tasks employees perform are highly protocolled and employees have little autonomy meaning that these characteristics would fit a productivity-based job design more. However, as there are opportunities for employees to perform different tasks and perform more tasks when desired, job rotation and job enlargement are also characteristics of their job meaning that these aspects would fit more towards commitment-based job design practices. To conclude, it can be said that employees' job design is a combination of productivity-based practices and commitment-based practices.

4.4. HR processes in a formalized organization and its effect on IWB

Now the HR practices within the organization are discussed, an overview of the HR processes within these practices will be highlighted and its effect on IWB will be discussed.

4.4.1. Training processes and IWB

Overall, it can be said that employees are involved during trainings, meaning that there is interaction and input from employees during trainings. Even though not all respondents considered themselves having an active role and described themselves more as a listener, all respondents pointed out that there was time for questions, feedback and comments during trainings even though it was not directly related to direct operational aspects. Furthermore, trainings are characterized by the equality between the trainer and participants. Respondents mentioned that often when specific cases are discussed, there is a lot of input from employees and an active role is expected of them. On the other hand, when the clinical chemist shares gained insights from external trainings during work meetings, a more passive role is taken by employees as they have less knowledge at that moment. However, there is also an open atmosphere for questions and input from employees during those trainings. Respondents mentioned:

"You can ask questions and there is interaction. Just questions like how do you think about that or we faced this problem, how do you think about that? And then you will get an answer or when they do not have an answer at the moment, you get a message back afterwards by mail. So attention is paid at that yes." (RA2)

"First they give a piece of theory and then they are going to ask questions you know so they have a connection with the people. And then they are going to give examples so people in the room can give a reaction about what they think about that. And then you also get a response back and they give you feedback and tips for the next time. Yes there is an interaction." (RA1)

When reflecting on the training processes, the most important training processes are characterized by interaction and equality. Trainings can be characterized by an interactive discussion between the trainer, mostly the clinical chemist, and employees. There is extensive communication and knowledge-sharing is an important aspect during trainings. There are also possibilities for questions. Knowledge-sharing and discussion refers to work-related knowledge-sharing as well as sharing ideas, improvements or thoughts as was mentioned by

the respondents. Because of the equality, discussion, knowledge-sharing and extensive communication it can be said that training processes are more commitment-based when comparing characteristics of the found processes with the keywords that describe commitment-based processes. This means that productivity-based training practices turn out to result in commitment-based training processes because employees' agency behaviour turns out to consist of asking questions, discussions, knowledge-sharing and extensive communication.

However, results indicate that training not always help to generate new ideas. Some of the respondents pointed out that training helped them to get a new vision or more knowledge which helped them with generating new ideas or improvements, while others pointed out that they did gained knowledge but that this did not specifically helped them to generate new ideas. Some of the comments that were made were:

"Yes, you will go think about it and then you think would it be possible to apply things differently or add things for example." (RA5)

"No not with new ideas but you will get more knowledge about the background of the things." (RA3)

When looking at the effect of training on idea promotion it has been found that training does not specifically help to share new ideas better but that new ideas based on training are shared with other colleagues. After a training, employees often discuss new insights with each other which in turn might result in new ideas. Furthermore, during trainings there is time for discussion and because of the equality between trainer and employees, insights are shared during trainings and new ideas are also born because of this discussion. Examples from respondents are:

"Yes you certainly have discussion points about certain trainings. Yes and then you say I see this differently, I would do it in another way. While a colleague says that he or she thinks it is a good idea. But then you are going into a discussion with each other and you ask why do you think that and why do I think this?" (RA1)

"I do not know if it specifically resulted from a training. As I said, we are as a group really open towards each other. If someone has an idea or you read something then you just talk about that and I think people are listening to it." (SA1)

Overall, it can be said that although training processes turned out to be commitment-based, these processes do not specifically contribute to employees' IWB.

4.4.2. Performance appraisal processes and its effect on IWB

Performance appraisals practices can be divided into two different practices: feedback and appraisal talks. Feedback in turn can be divided into formal feedback and informal feedback as mentioned by the respondents. Respondents mentioned that most of the feedback they receive is informal and they mostly receive feedback when something went wrong. They then hear this from colleagues or from their supervisor. However, while they mostly receive feedback when somethings went wrong, the feedback they receive is often constructive and developmental meaning that advice is provided about how to prevent this mistake the next time. Formal feedback on the other hand is provided when the mistake has larger consequences and for example affected test results. Then a VIM form is completed and the employee in question gets a conversation with his or her supervisor. A VIM form is an online form that employees fill in when they made a mistake. The employee in question then reports who was involved, which patients were involved and they report what the circumstances were. This VIM form will be discussed during a conversation with their supervisor. This conversation is constructive and developmental as the goal is to try to prevent the made mistake in the future. Comments from respondents about feedback are:

"You discuss who is involved, which patients, potential other employees. What were the circumstances? Why do you think this mistake is made and how could you prevent that? That whole process is discussed with the person in question. So if I made a mistake, then I report that and then you discuss with your supervisor or with the clinical chemist what the consequences were. And after that an improvement form is made about how you could prevent this mistake in the future." (SA3)

"If you forget something with a patient then it is not seen as a mistake but you do mention it like last week you had patient Jansen but you forgot this or that. Have you considered to do this?" (RA4)

Furthermore, appraisal talks turned out to be mainly employee-focused meaning that employee wellbeing is a central subject during the appraisal talk. The appraisal talk is conducted by the supervisor and is based on a form with questions that need to be addressed during the conversation. Although the questions are prescribed based on a form, respondents pointed out that there is also time for input from employees. As the employee has a central role during this conversation, questions can be asked and issues can be shared. Especially questions about employee wellbeing, relationships with colleagues and desires for trainings and development are discussed. The appraisal talk can be characterized by an interactive conversation with input from employees. An example about the annual interview:

"First of all, the last year will be reviewed. Well and then the question is, do you have any problems with colleagues, do you have problems with supervisors, do you have your work rhythm, do you like that? Do you like your contract? Would you like to change anything? Then you review if you have had trainings and whether you think that those trainings were enough. Then you review if there was absenteeism. Well I think if there is any absenteeism that they are trying to find out why there is absenteeism. Well what else, do you want to develop yourself? Well and then you can discuss about that". (RA4)

Employees are the central subject during the appraisal talk and attention is paid towards employee wellbeing. The communication processes during the appraisal talk are mainly about employee performance and development and most input is provided by the employee. Further, other non-work-related aspects can be discussed and ideas can be shared meaning that appraisal talk processes tend to be more commitment-based. When an employee made a mistake, feedback is provided about what went wrong, what the consequences were and how employees can prevent this mistake the next time. This feedback can be characterized by developmental feedback so the employee knows the importance of doing his job in a certain way so mistakes can be prevented. These results are also mostly in line with commitment-based HR processes when comparing them with the keywords as described during the operationalization of commitment-based processes.

Therefore, it can be said that appraisal talk practices, which are commitment-based, also result in commitment-based processes because employees' agency behaviour refers to input, personal communication and development. Further, feedback practices that were seen as productivity-based turned out to result in commitment-based processes because of the developmental learning that takes place within these processes.

When looking at the effect of performance appraisal on innovative work behaviour, there was a divided opinion about whether performance appraisal affected idea generation and idea promotion. Some respondents pointed out that they did not think that performance appraisals helped them to generate or share new ideas. Others however felt like ideas sometimes arise during appraisal talks which they directly share during this talk. For example:

"To come up with new ideas, well to discuss ideas based on problems that occur at the department or when you think something does not work very well, yes that stimulates me to think about that again." (SA3)

When looking at idea promotion, respondents pointed out that there is always a possibility to share ideas during appraisal talks. However some respondents pointed out that specific work-related ideas are not discussed with their supervisor as the specialist has more knowledge about work-related issues and therefore they often discuss those ideas with a specialist. Other ideas can always be shared during the appraisal talk. While some think the appraisal talk is a suitable moment to share an idea, others mentioned that if they have an idea that they do not wait until the appraisal talk meaning that the appraisal talk does not specifically help to share ideas. Examples from respondents are:

"Well if I have ideas then I don't wait until the annual interview to share them. I will do that immediately." (SA5)

"Yes you then share ideas like I think this or I think that. So you actually do that during the appraisal talk, at least I do that." (RA3)

As a conclusion, it can be said that the organization implements commitment-based appraisal talks that also result in commitment-based appraisal processes. On the other hand, feedback is more productivity-based but also results in more commitment-based processes. However, these commitment-based processes do not specifically contribute to idea generation and idea promotion because in general employees do not think that feedback moments and the appraisal talk are the most suitable occasions to generate and promote new ideas.

4.4.3. Reward processes and its effect on IWB

During the interviews it became clear that employees only receive a monthly salary as reward for their performance. Although they did mention that they sometimes receive appreciation which they also see as a reward for their work. Because salary was the only official reward practice employees received, it was hard get more information about reward processes as no processes could be attributed to salary. Therefore, it was asked whether the introduction of rewards for extra role behaviour would stimulate employees to generate more ideas or to participate in an innovative project and it was asked if the lack of extra rewards impeded the generation of new ideas or participation in an innovative project. None of the respondents pointed out that extra rewards would stimulate them more to come up with ideas or to participate in innovative projects. They also pointed out that the lack of extra rewards did not impede them to come up with new ideas or to participate in innovative projects meaning that employees are intrinsically motivated when they come up with ideas and that extra rewards would not encourage them more. Respondents mentioned about whether an extra reward would be a stimulation:

"No I don't think so. I think it works the other way around, that it gives a certain satisfaction like it is nice that they thought about that. They should not have done it but it is kind that they do it." (SA3)

"I think people are definitely sensitive for rewards. Positive rewards, no matter if it is just a handshake or a financial reward, yes I am convinced about that." (SA5)

Respondents further mentioned about whether the lack of extra rewards would impede them:

"Well I personally don't think so. I would keep coming with ideas but I cannot talk for my colleagues of course." (RA2)

"No if I have a good idea then it does not impede me. Because I know it won't make me financial better. Often it concerns ideas that also give me an advantage in the way I work. Or it can be an advantage for the patient. So for me it does not impede me to think well I don't get a reward for it." (SA1)

This means that it can be said that employees are intrinsically motivated when engaging in innovative work behaviour and when participating in innovative projects. This also becomes clear when looking and the main motives for employees to engage in innovative work behaviour as main reasons for them were that they want to like their work and want to do their work in a good way so therefore they come up with new ideas or improvements. So, although reward practices are productivity-based, introducing rewards for extra-role behaviour which is more commitment-based is not likely to contribute to employees IWB.

4.4.4. Job design processes and its effect on IWB

Lastly, results from job design processes showed that employees felt that even though their tasks are highly protocolled, they did feel their job was diverse because of the different tasks they perform. Further, employees did not describe their job are routinized because of the fact they do perform different tasks and work at different workplaces. Employees are scheduled at a specific workplace beforehand meaning that they have little input to decide at which workplace they will work. However, employees pointed out that they do experience a certain amount of freedom to decide which tasks they want to perform at which point. They also pointed out that they can discuss with colleagues who is going to work at which tasks and that they have the possibility to divide tasks among colleagues. Respondents mentioned:

"In the end, how you fill in your work, of course you are bounded by many rules but in the end you actually decide it yourself, the results just have to be available on time." (RA1)

"How and in which frequency you use something, in that you are totally free in. Or free, the agenda decides what to do. However, the agenda is not always leading because many times things are coming in that are not even reported in the agenda. So every day is different." (SA1)

Furthermore, although innovative work behaviour is not formally expected from employees, respondents pointed out that the organization and supervisors are open towards new ideas and try to encourage employees to generate and share ideas they might have. The organization tries to stimulate employees to think about organization-wide problems and ask employees for input and advice for solutions about certain issues. However, respondents pointed out that sometimes they find it hard to think about organization-wide issues because of a lack of knowledge and interest in these issues.

Results further show that especially employees who work at special analysis experience some degree of teamwork as they often work physically closely next to each other meaning that discussion, extensive communication and knowledge-sharing often easily arise. One of the respondents also mentioned that their specialist actually expects input from employees with regard to new ideas and that this specialist also involves them in work-related decision making meaning that he makes use of participation in decision-making as he wants input from his employees regarding a decision or opinion about a certain work-related issue. The same specialist also gives his employees certain responsibilities to involve his employees. The respondent in question for example mentioned:

"First we had two specialists but now only one because the other one went to Almelo. And our specialist then said, I can do it alone but then I need my employees who will get their own tasks within the chemistry department. So with who I can discuss issues with and can trust and who I can give responsibilities. And now he is doing that". (SA2)

Because job rotation, experienced teamwork, stimulation of advice/input, participation in decision-making and providing responsibilities are processes that take place during daily work processes, it can be said that processes during employees' daily work are more commitment-based when comparing these processes to the keywords as mentioned in the operationalization of job design. This means that although job design practices are productivity-based because of the formalized nature of the job, processes that take place during employees' daily work turned out to be more commitment-based because of job rotation, perceived teamwork, participation

in decision-making, responsibilities for some employees and because employees are asked for input/advice.

Results about the effect of job design processes on innovative work behaviour showed that especially the variation in tasks helps with idea generation and idea promotion. Respondents mentioned that working at different workplaces prevented them to create only one vision about how the work should be done. Working at different workplaces helped them to keep a fresh view at work processes which stimulated idea generation. Furthermore, respondents pointed out that job rotation helped them to share ideas as working at different workplaces also means that they have to work with different colleagues which makes it easier to discuss ideas. Especially respondents from special analysis experience some degree of teamwork as they physically work closely next to other colleagues. Because they work right next to each other, discussions often easily arise during which new ideas are born and shared. Respondents mentioned:

"I do think so because we rotate with each other over those work places so sometimes I see something and then I am curious if another person also see that and because of that you engage into a discussion like I see something weird, could we fix it in this way? And then you are going into a discussion with each other." (SA3)

"Well because of the variation you have, you perform your tasks less routinely. Because every time you work at a different workplace you think it has been a few weeks since I worked here so then you are going to think about the work processes." (RA4)

Further, the employees that are asked for input/advice in organization-wide issues and work-related issues pointed out that this encouraged them to come up with new ideas or improvements. However, respondents pointed out that it stimulates work-related innovative work behaviour more than organization-wide innovative work behaviour because some employees find it hard to think about organization-wide issues because of a lack of knowledge or do not have the interest to think about those issues. The respondent whose specialist closely involves employees in decision-making pointed out that this results in involved employees who are constantly thinking about improvements or solutions to problems. Other respondents, especially from routine analysis pointed out that they experience some lack of participation in decision-making and therefore experience less involvement. However, involvement was an

advice that was mentioned several times by respondents from specials analysis as well by respondents from the routine analysis to increase innovative work behaviour meaning that employees who do not feel really involved, do think that involvement would stimulate innovative work behaviour. Lastly, the respondent who mentioned that their specialists gives his employees responsibilities pointed out that this leads to more involvement within the department and that this also stimulates innovative work behaviour as employees then feel it is their responsibility to think about improvements and better ways to perform their job.

4.5. Conclusion

First of all, results showed that training practices tend to be productivity-based and that results of training processes showed that training processes turned out to be more commitment-based because of the extensive communication, discussion and knowledge-sharing employees' engage in. However, these commitment-based training processes did not specifically contribute to innovative work behaviour.

Further, the appraisal talk tend to be more commitment-based and also resulted in commitment-based processes. However, these appraisal talk processes did also not specifically contribute to innovative work behaviour. The feedback employees receive is mainly provided when employees made a mistake meaning that feedback practices are productivity-based. However, feedback processes were described as developmental meaning that goal of the feedback was to teach employees how to prevent the mistake the next time so feedback processes turned out to be more commitment-based. However, feedback processes also did not stimulate innovative work behaviour.

Reward practices are productivity-based as the only official reward employees receive is a straight salary. Reward practices did not contribute to innovative work behaviour. Also, the implementation of extra rewards would not stimulate employees more to engage in innovative work behaviour and the lack of rewards also does not impede them to engage in innovative work behaviour.

Lastly, results about job design showed that job design practices are overall productivity-based because of the nature of the job. Employees work conform protocol, have little responsibilities and extra role behaviour like innovative work behaviour is not formally expected. However, job rotation is implemented by the organization and also job enlargement is possible meaning

that the overall job design practices are a combination of productivity-based and commitment-based. However, during employees' daily work there are processes that seemed to stimulate innovative work behaviour which are not related to specific implemented practices. First of all, employees who work closely next to each other experience some degree of teamwork because they can easily communicate and discuss issues with each other. Also participation in decision-making and providing responsibilities turned out to be applied by a specialist which resulted in increased involvement and innovative work behaviour. Lastly, the organization and supervisors try to encourage input and advice for work-related improvements as well as for organization-wide ideas. This results in an open working atmosphere that stimulates innovative work behaviour. However, this stimulation mainly affected direct work-related innovative work behaviour. Overall, processes that were said to stimulate innovative work behaviour within this organization are job rotation, teamwork, stimulation of advice/input, participation in decision-making and providing responsibilities. An overview of the results can be found in table 6.

	Practices	Processes	Contribution to IWB	Mechanism
Training	Productivity-based	Commitment-based	No	Asking questions Input employees Discussion Knowledge-sharing
Appraisal talk	Commitment-based	Commitment-based	No	-
Feedback	Productivity-based	Commitment-based	No	Developmental learning
Rewards	Productivity-based	Productivity-based	No	-
Employee tasks	Productivity-based	Productivity-based	No	-
Job rotation	Commitment-based	Commitment-based	Yes	Knowledge-sharing Gaining new insights
Teamwork	X	Commitment-based	Yes	Discussion Knowledge-sharing
Stimulation advice/input	X	Commitment-based	Yes	Involvement
Participation in decision-making	X	Commitment-based	Yes	Involvement
Responsibilities	X	Commitment-based	Yes	Involvement

Table 6. Overview of found HR practices and processes and their contribution to IWB.

To conclude, the research question which was "how do HR processes contribute to employees' innovative work behaviour in a formalized organization" can be answered by a revised proposition created based on the results found during this research:

Proposition: job rotation, teamwork, stimulation of input/advice, participation in decision-making and providing responsibilities stimulate innovative work behaviour in a formalized organization because it leads to increased knowledge-sharing, extensive communication and involvement among employees which are stimulating factors for employees' IWB.

5. Discussion

Goal of this research was to find out how HR processes contribute to employees' innovative work behaviour within a formalized organization. It was expected that a formalized organization would make use of a high-productivity HR system with productivity-based HR practices (Bowen & Ostroff, 2004; Lepak et al., 2006) which would result in commitment-based HR processes due to employees' agency behaviour during HR processes (Giddens, 1984; Zanoni & Janssens, 2007). These processes in turn would affect innovative work behaviour and should explain how innovative work behaviour takes place within the organization.

5.1. Discussion innovative work behaviour

Results first of all showed that all employees do engage in innovative work behaviour to some extent. Some employees are more passively engaging in innovative work behaviour and only generate new ideas when they face a problem or think that something does not work well, while others are more actively seeking for new and better ways to do their job. Results showed that especially employees who work at special analysis are more actively engaging in idea generation. This can be explained by the fact that their work is more complex meaning that they need to think more when doing their job which stimulates idea generation. It has also been found in other studies that job complexity enhances innovative work behaviour (Oldham & Cummings, 1996; Ohly, Sonnentag & Pluntke, 2006). It is said that people who have more complex jobs tend think that it is their task to improve working procedures (Frese, Teng & Wijnen, 1999) and therefore are more actively engaging in idea generation.

Besides the fact that job complexity can explain why employees working at special analysis are more actively seeking for improvements and new ideas, it can also be explained by the fact that it is likely that employees with certain personal characteristics work at special analysis. Within the organization, all employees start as a routine analyst. When they want to have more challenge in their work, they can apply for a job at the special analysis department. This means that employees who are working at this department are employees who apparently wanted more complexity in their work meaning that a specific type of person most likely applies for these jobs. Studies also showed that personal characteristics affect creativity and idea generation (Oldham & Cummings, 1996). In general, studies showed that a set of characteristics like broad interests, attraction to complexity, intuition, toleration of ambiguity and self-confidence are positively related to creativity (Barron & Harrington, 1981; Oldham & Cummings; 1996). As creativity is an important characteristic of idea generation (De Jong & Den Hartog, 2010),

employees who have certain personal characteristics are more likely to engage in idea generation. In this case, attraction to complexity might be a characteristic of employees who work at the special analysis department as these jobs are more complex and can therefore explain why these employees are more actively engaging in idea generation.

5.2. Discussion of HR processes that stimulates employees' IWB

It was found that several HR processes contributed to employees' innovative work behaviour. Surprisingly, almost all the processes that affected IWB were processes that did not result from implemented HR practices but concerned HR processes that occurred during employees' daily work. Results showed that job rotation, experienced teamwork, stimulation of input/advice, providing responsibilities and participation in decision-making were processes that stimulated employees' IWB mostly.

Job rotation processes resulted from job rotation practices as employees are scheduled at specific workplaces before they start working. Workplaces are rotated during the week but employees are to some extent also able to divide among colleagues who is going to work at which workplace. Because employees do not only work at one workplace, and therefore perform different tasks, they keep getting a fresh view about work processes and therefore idea generation is stimulated. Results also showed that because of job rotation employees have to work with different colleagues every time which makes it easier for them to share thoughts and ideas so idea promotion is stimulated because of job rotation. Previous research has also found that job rotation stimulates innovative work behaviour (Lepak & Snell, 2002; Laursen & Foss, 2003; Zhou et al., 2013). Laursen and Foss (2003) for example mentioned that job rotation increases interaction among key actors and facilitates knowledge sharing which contributes to innovative work behaviour. To conclude, knowledge sharing and gaining new insights are employee behaviors that take place during job rotation and these behaviors stimulate innovative work behaviour among employees.

Teamwork was also seen as a process that stimulated IWB among employees. Some of the employees pointed out that they physically work closely together. Because of this physical proximity, employees experience some degree of teamwork which makes it is easier to discuss issues with each other and to share ideas and thoughts. During these discussions, ideas easily arise and can be shared with each other. Other researchers also found that teamwork positively affected innovative work behaviour (Laursen & Foss, 2003; Shipton et al., 2006; Zhou et al.,

2013). Teamwork enables individuals to share knowledge and enables to share the tacit knowledge exhibited by more experienced employees (Brown & Duguid, 1991; Shipton et al., 2006). When working closely together, individuals are encouraged to observe, ask questions and receive feedback which is stimulating for innovative work behaviour (Shipton et al., 2006). However, teamwork did not result from implemented HR practices but was experienced by some employees during their work. Employee behaviors like discussion and knowledge-sharing behaviors thereby seem to stimulate idea generation and idea promotion.

Furthermore, some of the employees pointed out that their specialist or supervisor involves his employees in certain issues by asking for their opinion about work-related issues or by asking them for input. The organization also tries to involve employees in organization-wide issues by being as transparent as possible during employee meetings. During these employee meetings they try to explain why certain decisions have been made and what the vision of the organization is. They then also point out what certain issues and problems are at the moment and ask employees to come with input and ideas about organization-wide issues. Especially involvement in work-related issues seemed to affect involvement among employees. Employees who pointed out that they feel involved in work-related issues pointed out that this stimulated IWB as they feel more involved and thereby are more encouraged to contribute by for example thinking about improvements or new ideas to solve certain problems.

However, not all employees feel involved during their work but they did point out that involvement would be an important factor to stimulate innovative work behaviour. In literature, involvement is also seen as in important factor that stimulates innovative work behaviour (Janssen, 2000; Shipton et al., 2006; De Jong & Den Hartog, 2007). Job involvement is said to be the key that unlocks motivation which energize employees to exert extra effect in innovative work behaviour (Brown, 1996; Janssen, 2000). Also de Jong and den Hartog (2007) mention that involvement enhances motivation to generate ideas and to strive for successful implementation. This means that when people are involved and feel involved in their job, they are more motivated to exert effort to show extra-role behaviors like innovative work behaviour. Although stimulation of input and advice is not officially implemented by HR practices, this stimulation does take place by some supervisors and specialists which increases involvement among these employees. This involvement in turn stimulates innovative work behaviour.

Besides the fact that some supervisors/specialists involve employees by asking them for input or advice, sometimes employees are also given certain responsibilities. When providing responsibilities to employees, they feel more responsible for certain tasks which increases innovative work behaviour as it will be more likely that they find new or better way to do the job or to improve work processes they are responsible for. Laursen and Foss (2003) also found that delegation of responsibilities increases innovative work behaviour. It is said that having responsibilities is a source for intrinsic motivation which in turn leads to more innovative work behaviour as employees will experience more excitement, energy, concentration, commitment and creativity (Amabile et al., 1996; Gagne & Deci, 2005). Giving employees responsibilities also increases involvement because employees then feel more involved with the tasks they are responsible for. This involvement stimulates innovative work behaviour as job involvement is said to be the key that unlocks motivation which energize employees to exert extra effect in innovative work behaviour (Brown, 1996; Janssen, 2000).

Lastly, participation in decision-making turned out to stimulate innovative work behaviour. There is one sub-department within the special analysis department in which the specialist expects help and input from his employees to make certain work-related decisions. Normally there are two specialists working at each sub-department but in this specific sub-department there is only one specialist. This specialist places responsibility at his employees and let them help with making decisions. This results in committed and involved employees who are actively thinking about new ideas and solutions to problems meaning that idea generation as well as idea promotion and idea implementation is stimulated among these employees. Literature also widely believes that participation in decision-making stimulates innovative work behaviour (Laursen & Foss, 2003; Shipton et al., 2006; De Jong & Den Hartog, 2007). Decision-making determines the extent to which people can influence the leader's decision and affects idea generation as well as idea promotion and idea implementation (De Jong & Den Hartog, 2007). Amabile, Schatzel, Moneta and Kramer (2004) also found that participation in decision-making leads to innovative work behaviour and teams that did not use participation in decision-making lead to less motivated employees and impeded the generation of ideas that could have improved performance. So participation in decision-making enhances employees' innovative work behaviour because employees then feel more involved.

5.3. Discussion of HR processes that did not stimulate employees' IWB

In contrast of what was expected, training, rewards and performance appraisal did not specifically contributed to employees' IWB although these processes, besides reward processes, were considered to be commitment-based. Training processes were seen as commitment-based because extensive communication and knowledge-sharing are employee behaviors that take place during which issues other than direct operational issues can be discussed. Monks et al. (2013) found that these processes stimulated commitment among employees are thereby would increase the likelihood that employees engage in innovative work behaviour. However, as the training practices are productivity-based in nature, this resulted in trainings during which new knowledge is gained and specific cases are discussed. So although the processes refer more towards commitment-based processes, the content of the training stays the same and did not seemed to affect innovative work behaviour but only increased knowledge and skills.

Regarding performance appraisal practices, the appraisal talk seemed to be commitment-based while feedback seemed to be more productivity-based. The commitment-based appraisal talk also resulted in commitment-based processes as extensive communication, discussion of non-work-related issues and input from employees are employee behaviors that take place during appraisal talks. Further, feedback practices that were considered productivity-based turned out to result in commitment-based processes as developmental feedback and employee learning were central subjects during feedback.

However, it was expected that these commitment-based processes would contribute to IWB but it turned out that this was not the case. This can be explained by the fact that performance appraisals like the appraisal talk is conducted by the supervisor and refer more to personal issues instead of work-related issues. As employees' innovative work behaviour within this organization mostly refers to direct job-related issues, this can explain why performance appraisals do not contribute to IWB even though these processes are commitment-based. This because the nature of the appraisal talk is not aligned with the nature of ideas employees generally generate.

Lastly, reward practices and processes seemed to be productivity-based as a market-based wage is provided and extra role behaviors like innovative work behaviour is not rewarded. Results also showed that rewards did not contribute to employees' innovative work behaviour and that the introduction of extra rewards would also not stimulate them to engage in IWB. Some other researchers also found that financial rewards might not be the most stimulating incentive to enhance innovative work behaviour (Amabile, 1988; De Jong & Den Hartog, 2007). Amabile (1988) for example mentioned that intrinsic motivation is a more important trigger to stimulate extra-role behaviour than extrinsic rewards which is in line with results found during this research.

Overall, it can be said that the combination of productivity-based practices and processes and commitment-based practices and processes makes it possible for a formalized organization to focus on efficiency but also on innovative work behaviour. This phenomenon is called 'ambidexterity' in the literature. Ambidexterity can be defined as: "an organization's capability to pursue exploration and exploitation simultaneously in order to increase flexibility and efficiency and thus resolve the productivity dilemma" (Garaus, Cüttel, Konlechner, Koprax, Lackner, Link & Müller, 2016, p. 355-356). Exploration refers to developing new capabilities in order to enhance flexibility while exploitation refers to refining and using existing capabilities in order to maximize efficiency (Garaus et al., 2016). Ambidexterity makes it able for an organization to solve the tension between innovation and efficiency and thereby will be able to increase performance. This means that formalized organizations might need to implement an ambidextrous HR system that focus on efficiency but also stimulates innovative work behaviour instead of implementing either a productivity-based or commitment-based HR system as is often assumed to be the best (Bowen & Ostroff, 2004).

5.4. Practical implications

This research showed that although formalized organizations most likely implement productivity-based practices that focus on efficiency, it can simultaneously focus on innovative work behaviour by implementing additional practices and processes. Results of this research showed that perceived teamwork, job rotation, stimulation of input/advice, providing responsibilities and participation in decision-making are processes that occurred in some departments during employees' daily work which stimulated innovative work behaviour even though it was not formally implemented by the organization through HR practices. Formalized organizations might want to implement these processes as HR practices so these stimulations

can be applied to more employees and in other departments in the organization meaning that innovative work behaviour would be stimulated throughout the whole organization and not just within one or a few departments were these stimulating processes occur.

Formalized organizations should therefore consider implementing an ambidextrous HR system with practices focusing on productivity but also on innovative work behaviour. For example, job design in a formalized organization mostly refers to standardized jobs with little responsibility and little teamwork. However, when making use of job rotation, employees work less routinized and are stimulated to think about work processes. Teamwork can also be implemented meaning that physical proximity may be created by placing employees closely together so idea generation and idea promotion can arise from communication and knowledge-sharing behaviors. Further, organizations might want to involve employees by letting them participate in decision-making and by giving certain responsibilities as this increases involvement which in turn positively affects innovative work behaviour.

To conclude, managers of formalized organizations should keep in mind that employees' innovative work behaviour is a valuable resource which should be stimulated by integrating a HR system that also focuses on increasing innovative work behaviour. Teamwork, job rotation, stimulation of input/advice, providing responsibilities and participation in decision-making could be implemented as practices that stimulate knowledge-sharing, extensive communication and involvement and as a result stimulates innovative work behaviour while they should simultaneously implementing practices that keep focusing on productivity so the organization would be better able to keep up with its competitors.

5.5. Theoretical implications

This research tried to close the literature gaps as described in the introduction and thereby contribute to literature by giving more insights in HR processes and innovative work behaviour in a formalized organization. First of all, as most HRM research to date has focused on HRM at the organizational- and team level (Wright & Nishii, 2007; Seeck & Diehl, 2016), this research provides insights in how HRM works at the individual level. Especially attention is provided at HR processes as to date mostly attention is provided at HR practices in HRM research. Results of this research showed that HR practices do not always result in aligned HR processes as it was found that productivity-based training practices for example resulted in commitment-based training processes because of employees' agency behaviour. It was further

found that although certain HR practices are implemented by the organization, it turned out that there were other HR processes that occurred within the organization without the implementation of matched HR practices. For example stimulation of input/ideas, providing responsibilities, participation in decision-making and teamwork took place within the organization as a result of daily work processes but these processes did not arise from implemented practices. This means that studying only the effect of implemented HR practices on certain organizational outcomes might not be enough as it turned out that other (unintended) processes might be the cause of certain outcomes, in this case innovative work behaviour.

Further, most of the research about HRM and innovative work behaviour took place in organizations that already used an innovative strategy or in which innovative work behaviour was already present (De Winne & Sels, 2010). This research contributes to literature because insights are provided about how innovative work behaviour can take place in a formalized organization that is not implementing an innovation strategy. Results showed that teamwork, job rotation, stimulation of input/advice, providing responsibilities and participation in decision-making stimulate employees' IWB in a formalized organization. This means that besides implementing productivity-based HR practices, formalized organizations could also implement commitment-based HR practices in order to stimulate efficiency as well as innovative work behaviour. This implies that HR practices within a HR system do not need to be designed in order to achieve only one goal which is often assumed (Bowen & Ostroff, 2004) but can also be used in combination in order to achieve different organizational outcomes.

5.6. Limitations and suggestions for future research

The first limitation of this research is that self-reported data was used in order to measure innovative work behaviour. As innovative work behaviour is a subjective measure, it would be better to make use of multiple data sources by for example asking supervisors about employees' innovative work behaviour (Kleysen & Street, 2001; de Jong & den Hartog, 2010). The same is true for measuring HR processes meaning that it would be better to use more data sources to measure HR processes as not only employees are responsible for the co-production of HR practices and because the implementer also engages in agency behaviour. Therefore, it would have been better if the implementers of the HR practices were also used for this research as a more complete overview about HR processes could then be provided. Lastly, a limitation of this study is that only one data collection method was used. It would have been better if the qualitative research method, interviews, would be combined with a quantitative research

method as this would provide better statistical evidence about the degree of innovative work behaviour and would make it able to show relationships between HR processes and innovative work behaviour more precisely.

Future research should therefore focus on quantitative research in order to find statistical evidence for the effect of the found HR processes on innovative work behaviour in formalized organizations. Also more research is needed about innovative work behaviour in other formalized organizations in order to find out which other processes might stimulate innovative work behaviour as only one organization was used for this research. Research in other organizations might result in other additional processes. Lastly, more research about ambidexterity might be needed in order to find out how organizations can effectively combine practices in a HR system that affect productivity as well as innovative work behaviour as results showed that ambidexterity made stimulation of innovative work behaviour possible in a formalized organization.

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Appendix one – final results table

Key-themes	Sub-themes	Codes	Quotes
IWB	1. Idea generation	A. Small work related improvements B. Organization-wide ideas C. Participation in project	"Yes little practical things, when you think it does not work well we could do this differently." (SA3) "Yes within our group we are doing that, at least I think so." (SA2)
	2. Idea promotion	A. With colleagues B. With supervisor C. With specialist D. With clinical chemist	"I discuss it with colleagues. Then you discuss what do you think about this?" (RA2) "With colleagues and with the specialist. And when it's a special idea then a little bit higher with the clinical chemist." (SA1)
	3. Idea implementation	A. Implemented by organization C. After a long time D. Self-implementation E. Not implemented	"I do think it takes a long time before they agree with it" (RA2) "But otherwise it is just implemented at the work floor" (SA1) "And I am not the only one because I know from colleagues that they see I'm not going to suggest something because they don't do anything with it."(RA1)
	4. Stimulations	A. Involvement B. Open working atmosphere C. Stimulation by organization D. Other	"Are there factors, of course there are factors because you just want to do your job good." (SA2) "They are open towards ideas I think personally. At least I my work they are but I don't know how others perceive it." (RA2)
	5. barriers	A. No barriers B. Working part-time C. Nature of work D. Workload	"I don't think there is much going on within our domain where we should think about or what has to be changed." (SA5) "No no. I am not the kind of person that feels restrained in something and I also not the culture here, at least not where I work." (SA3)
	6. Motives	A. Want to perform good	"Well because I think it would work better in practice." (RA4).

		B. Prevention of mistakes	"Because you run into things I think. Maybe you have to repeat things many times
		B. Other	which annoys you and then you think we could do it better." (SA4)
	7. Initiatives Medlon	A. Project groups	"I see changes coming from HR, trainings or think about or that you can participate
		B. Asking/stimulation of input	in a project group so think about something, you definitely see that happen at places
		C. Could not recall	(SA5)
HR practices	1.Training	A. External cursus/training	"I have had some training for the machines we work with. Just to keep the quality
		B. Internal retraining	high within Medlon." (RA2)
		C. Online tests	"Nationwide meetings we go to for discussing quality checks." (SA3)
		D. Organization wide trainings	"Once in the two months we have a training by the clinical chemist so they keep
		E. Other work related trainings	you up to date with what's going on." (RA1)
	2. Performance appraisal	A. Annual interview	"Annual appraisal talks and well if you made a mistake they will come to you but
		B. Informal feedback	further only during the appraisal talk we have every year." (SA4)
		C. Formal feedback	"Informal and formal so if you did something wrong you mostly hear that." (SA3)
	3. Rewards	A. Salary	"There is no extra reward for employees who do something extra. There is also no
		C. Gift from colleagues	money for that." (SA5)
		D. Appreciation	"No only salary and in December you will receive a Christmas present but besides
		E. Other	that nothing." (RA5)
	4. Job design	A. Protocolled tasks	"They do expect that you think well about your work but not that you are
		B. Task variety	innovative, no I don't think so." (RA3)
		C. IWB not expected	"Yes at our department we have different workplaces." (SA4)
	5. Other	A. Career path	"Yes they try to make people aware of the fact that there are certain grow
		B. Involving employees	possibilities. Maybe not within the company of in a function but in your personal
		C. Opportunities personal development	development. These possibilities are certainly there." (SA3)

		D. Work meetings	"We have work meetings and then you have a meeting with your team." (SA1)
HR processes	1. Training	A. Interaction	"Well you can always ask questions during trainings so that's possible." (SA5).
		B. One-sided communication	"There is personal attentions and everyone, for example Pietje said this and Marietje
		C. Active role	said that, then everyone was approached personally. I really appreciated that."
		D. Passive role	(RA2)
		E. Asking questions	"You can ask questions and there is interaction. Just questions like how do you
		F. Providing input	think about this and we faced this problem, how do you think about that?" (RA3)
		G. Discussion	"It is two-sided and during the presentation we try to make a question-answer game
		H. Other	about it." (SA2)
	2. Performance appraisal	A. Interaction	"You hear it from your supervisor. He will come to you and says well you requested
		B. Possibility for own input	this but you just need to go to this doctor." (RA5).
		C. Person focused	"You have a standard form were some issues are noted that you need to discuss.
		D. Discussion other issues possible	And besides that you have your own input, they you say I would like to discuss
		E. Based on prescribed form	this." (RA1)
	4. Job design	A. Freedom division of tasks	"A lot is routine work but because I do something extra it makes it more unexpected
		B. Teamwork	so less routine." (RA3)
		C. Participation in decision-making	"Every day is different. Every day you have different patients so there is variation."
		D. Responsibility	(SA4)
		E. Routine work	"Sometimes you sit or stand next to each other and then you discuss things." (RA2)
HR processes and IWB	1. Training	A. Effect on idea generation	"I don't know if it specifically results from a training because as I said we as are
		B. No effect on idea generation	department are very open towards each other." (SA1)
		C. Effect on idea promotion	"Yes that definitely happens. If you have ideas, especially now when there is less
		D. No effect on idea promotion	work, you can express all ideas." (RA4)

		E. Effect on idea implementation	"Not really, although you do improve things". (RA5)
	2. Performance appraisal	A. Effect on idea generation	"If I have an idea then I don't wait until the annual interview. Then I will do that
		B. No effect on idea generation	immediately." (SA1)
		C. Effect on idea promotion	"Well you know you share it but that does not specifically result from the appraisal
		D. No effect on idea promotion	talk." (SA4)
		E. Effect on idea implementation	"Yes you share it and they also ask do you have certain issues you want to discuss
		F. No effect on idea implementation	so then you can share it." (RA4)
	3. Rewards	A. Extra reward no stimulant	"It would not stimulate me more. I think it is nonsense to link money towards that."
		B. Extra reward stimulant	(SA1)
		C. No extra reward obstruction	"Not for me but maybe it works for other people. I think for some people it would
		D. No extra reward no obstruction	work but not for me." (SA4)
	4. Job design	A. Effect on idea generation	"Yes I think so because if you perform different tasks you also get more insights."
		B. No effect on idea generation	(SA2)
		C. Effect on idea promotion	"Yes because you will look differently at certain issues." (SA1)
5. Advice		A. More involvement	"I think and I keep saying it, I think the work floor is too little involved.
		B. More openness organization	Involvement would help a lot." (RA1)
		C. More teamwork	"I would be nice if you could keep this large organization small. That you let people
		D. More responsibility	feel responsible for their work and their own environment." (SA5)
		E. More appreciation	"Make sure that you stay a team." (RA2)