

Innovation in SMEs

Strategic human resource practices and innovation performance: The mediating role of employees' innovative work behaviour



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Abstract

The literature proposes human resource practices as a driver of employees' innovative work behaviour. Although it has never been empirically tested, a specific human resource instrument that is supposed to stimulate the innovative thinking of employees is the 'Hermann Brain Dominance Instrument'. Furthermore, it is suggested that the innovative work behaviour of employees affects the innovation performance of a company. However, this has never been investigated for small and-medium sized enterprises. Therefore, this study investigates the mediating effect of innovative work behaviour on the relationship between human resource practices (including the Hermann Brain Dominance Instrument) and the innovation performance of small and-medium sized enterprises. A sample of 79 employees of a Dutch company, operating in the information technology service sector, has been used in order to conduct this study. By means of an online survey that has been sent to the employees of the company, quantitative data have been assembled. A regression analysis revealed that innovative work behaviour does not mediate the proposed relationship. However, human resource practices positive influence both the innovative work behaviour and the innovation performance of SMEs. In particular, the human resource practice 'job design' turned out to be an important driver of innovative work behaviour and the practice 'team development' an important driver of the innovation performance. Moreover, also the 'Hermann Brain Dominance Instrument' turned out to significantly influence both the innovative work behaviour and the innovation performance of SMEs. Finally, there is a significant difference between employees that do have and employees that do not have a managerial function when it comes to the relationship between human resource practices/ the 'Hermann Brain Dominance Instrument' and their innovative work behaviour. This study provides new insights with regard to the literature of innovation in small and-medium sized enterprises and in particular to the literature about innovation in the information technology service sector. The results of this study are particularly interesting for HR managers who want to stimulate innovation within their organization.

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1. Introduction

1.1 Introduction of the subject

Today, innovation is very important for firms to stay alive. Kamasak (2015) argues that some changes in the business environment, such as the growing importance of services, knowledge, creativity, the developments in information technology, digitalization, globalization, and the surge of intellectual property, have created a new kind of economy. In this new economy, intangible resources such as knowledge, creativity, corporate reputation and innovation became more important (Carmeli and Tishler, Surroca et al., Kor and Mesko, as cited in Kamasak, 2015;1331). Furthermore, the challenge that organizations faces can be defined as: *'the requirement to innovate, not just occasionally but often, quickly and with a solid success rate'* (Lawson and Samson, 2001;380). Evidence is found that innovation leads to operational excellence, market advantage, company image and reputation, and the satisfaction of employees (Laforet, 2011). This means that innovation can help firms by shaping the future of their industries (Lawson and Samson, 2001).

Small and medium-sized enterprises (SMEs) are an important driving force for economic growth and employment throughout the European Union (Del Brio, 2003;939). For these SMEs, it is extremely important to innovate. Research suggests that small firms which innovate increase their chances of survival and growth (Cefis and Marsili, de Jong and Marsili, as cited in Laforet, 2011). In fact, small firms have some advantages over large firms. Small firms have for instance a higher degree of flexibility. This flexibility can create the right networking connections, seize the opportunities provided by the markets and adapt quickly to changes in demand (Dutta and Evrard, 1999).

After acknowledging the importance of innovation, particularly for SMEs, the next step is to find out how firms can actually achieve the desired innovation. Laforet (2011) emphasizes that innovation can only occur if the capacity to innovate exists in a company. To elaborate on this, Lawson and Samson (2001) came up with a model of innovation capability. Furthermore, several other studies have been conducted that investigated the factors that will lead to innovation in firms. The results of the study of Kamasak (2015) for instance, show that innovation strategy, customer and supplier relationships, innovation culture and technological capabilities are positively related to innovation performance. However, most findings of these studies concerns firms in general and are not conducted for SMEs in particular.

Still there are a couple of studies that investigated innovation in SMEs. To summarize, these studies emphasise the importance of market orientation and learning (Salavou et al., 2004), the importance of training (Antonioli and Della Torre, 2015) and the importance of

initiatives and knowledge of employees (Van den Vrande, 2009) for innovation in SMEs. The above mentioned aspects are more or less related to Human Resource Management (HRM). Furthermore, the literature offers some important findings with regard to the direct link between HRM and innovation in SMEs. First, the results of a study of Rammer et al. (2009) confirmed that SMEs without in-house resource and development (R&D) activities can still yield a similar innovation success as R&D performers by using HRM and team work. Second, it was confirmed that the more SMEs invest in formal HRM systems, the better their innovation performance becomes (Sheehan, as cited in Antonioli and Della Torre, 2015;314).

In the context of HRM, this study will take the innovative work behaviour (IWB) of employees to assess the innovation performance of a company. The reason for this is that HRM is concerned with individual employees. Some interesting results about the link between HRM and IWB are found in the literature. An example is that the stronger and more developed an organisation's culture is toward supporting the innovative behaviour of employees, the greater the IWB will be (Xerri et al., 2009). Another study showed that cross-functional teams are a critical organizational design for stimulating creativity and innovation (Lau and Ngo, 2004). These results show that Human Resource (HR) practices can influence the IWB of employees which is supposed to have an effect on the innovation performance of the company in general (Kozlowski and Klein, as cited in Abstein and Spieth, 2014:211).

The above mentioned studies emphasise the importance of HR practices for stimulating the IWB of employees. However, these researches are not conducted specific for SMEs. This creates a gap in the existing literature with regard to the link between HR practices and IWB in SMEs. Furthermore, not all the HR tools that can stimulate the IWB of employees are discussed in the literature. A tool that might be able to do this, is the Ned Herrmann Dominance instrument (HBDI). The HBDI provides a valid, reliable measure of human mental preferences (Bunderson, 1996). Awareness of these human mental preferences enables individuals to develop themselves in the area of problem solving, leadership, communication and collaboration. It's supposed to be a starting point for innovative thinking and generating new ways of working (Herrmann National Netherlands, 2016). This would suggest that the model is able to stimulate the IWB of employees. However, this is never confirmed by academic studies.

1.2 Research motivation

The above mentioned literature offers some interesting insights. First of all, it clearly underlines the importance of innovation for firms and in particular for SMEs. Secondly, several studies proved that HR activities can stimulate the innovative work behaviour of employees. However, research about this relationship is mainly conducted for large firms and not specific for SMEs, which creates a gap in the literature. Thirdly, the HBDI is supposed to stimulate the innovative thinking of employees. This would indicate that this is a tool that can be used by the HR department to stimulate the IWB of employees. However, this is not empirically proved yet. Finally, research about the relationship between IWB and innovation performance is scarce. This study provides a new understanding of this relationship in SMEs.

The scientific relevance of this research is that it extends the literature with regards to the relationship between HRM and innovation. Furthermore, it closes the gap of the link between HR practices and IWB in SMEs. The managerial implications are that it enables HR managers to actively stimulate and increase the IWB of employees. It is proposed that this in turn, will lead to a more innovative company.

1.3 Problem statement

The actual problem is that there is no clear bundle of HR practices that will help managers in SMEs to stimulate the IWB of employees, which in turn, will stimulate the innovation performance of the company. This leads to the following research question: *‘To what extent could HR practices (including the HBDI) stimulate the innovative work behaviour of employees and finally the innovation performance of SMEs?’*.

The accompanying sub-questions are:

- *Which bundle of HR practices could stimulate the IWB of employees?*
- *Which bundle of HR practices could stimulate the innovation performance of SMEs?*
- *What is the effect of the HBDI on the IWB of employees?*
- *What is the effect of the HBDI on the innovation performance of SMEs?*
- *To what extent has the IWB of employees an effect on the innovation performance of SMEs?*

The reason why the HR practices and the HBDI (which is also a HR practice) are investigated separately has to do with the fact that the current literature does not include the HBDI in the regular set of HR practices. Furthermore, the HBDI gains special attention during this study because the research is conducted in a company that frequently uses this instrument. To gain a

better understanding of both the HBDI and a set of regular HR practices generated from the current literature, a distinction has been made. This offers a more clarifying view of the both different practices.

1.4 Contribution

First of all, an expected benefit of this study is that it generates insights with regards to the relationship between HRM and innovation in SMEs. By doing this, it will explore the IWB of employees and will investigate how this could be stimulated by HR practices. This will result in a specific set of HR practices that might influences the IWB of employees. This will be very useful for managers to stimulate innovation within a company. Furthermore, a specific HR tool, the HBDI, will be investigated in relation to the IWB of employees. This will benefit the literature about the HBDI, as well as the managerial implications of this tool for managers. Finally, this study will generate a more enhanced understating of the relationship between the IWB of employees and the innovation performance of SMEs.

1.5 Approach

First, a literature review will be provided with regard to the relevant subjects. This review starts with a conceptual part that includes the most recent and relevant literature, the so called theoretical framework. At the end of this framework, the sub-questions will be transformed into propositions and hypotheses. Finally a conceptual model will be given. This model shows all the relationships that will be investigated within this study. Secondly, the research design will be explained. This part includes aspects like the sample that is chosen and the methods that are used to investigate the research question. After that, the results of the study will be represented followed by a short conclusion of the results. Finally, a discussion will be given which involves the subjective interpretation of the results, implications of the study, limitation and suggestion for further research.

2. Literature review

2.1 Innovation in SMEs

There are many definitions of innovation within the literature. Linder et al. (as cited in O'Regan, 2005;82) defines innovation as: *'implementing new ideas that create value'*. A more extended version of this definition is: *'a product or practice that is new to its developers and/or to its potential users'* (Klein and Knight, 2005;243). Furthermore, Klein and Sorra (1996) came up with two different perspectives of innovation. They argue that within source-based stage models, an innovation is defined as: *'a new product or service that an organization, developer, or inventor has created for market'* (Klein and Sorra, 1996;1057). However, within the user-based stage model, they define an innovation as: *'a technology or a practice being used for the first time by members of an organization, whether or not other organizations have used it previously'* (Nord and Tucker, as cited by Klein and Sorra, 1996;1057). Within this report, the source-based definition will be used since this report concerns the innovativeness of internal sources of a company, the employees.

This paper focuses on innovation in SMEs. By the European Commission, SMEs are firms employing up to 250 staff (O'Regan and Ghobadian, 2005:38). A report from the Informal Environment Council from 1997 concluded that SMEs are an important driving force for economic growth and employment throughout the European Union (Del Brio, 2003:939). Salavou et al. (2004), stress that the role of SMEs has been recognised by policy makers in all countries. In fact, SMEs are generally considered to have behavioural advantages over large firms (Dutta and Evrard, 1999). Small firms have for instance a higher degree of flexibility which creates the right networking connections, seize the opportunities provided by the markets and adjust rapidly to changes in demand (Dutta and Evrard, 1999). In line with this, O'Regan and Ghobadian (2005) argue that it is important to understand that SMEs are not smaller versions of larger firms. Their needs and often their decision-making processes differ significantly from those of larger firms (Shrader et al., as cited in O'Regan and Ghobadian, 2005:83).

Innovation is for SMEs very important. On the one side, innovation in SMEs is considered to be driven by profit margin, product life cycle, business model, short-term gain, quality, funding, a qualified workforce and external sources. On the other side it is driven by pride, a desire to be successful, and to improve working conditions (Laforet, 2011). Innovation among SMEs constitutes the lifeblood of economic growth. The power of this lifeblood depends on the level that SMEs consider innovation as their main operational

strategy for gaining a competitive advantage over large companies (Nowacki and Staniewski, 2012). This means that innovation should not be overlooked in the management process of SMEs (Nowacki and Staniewski, 2012).

Although innovation is important, it also involves some serious barriers. These barriers are the lack of funds for innovation, the large risks involved in innovation projects and the large costs of technology (Nowacki and Staniewski, 2012). Another common barrier to innovation is human resource availability. This means there is usually not enough qualified staff or free time to undertake innovative activity (Kaufmann and Tödtling, as cited in Nowacki and Staniewski, 2012;757). These barriers have been found in both small and large firms. However, there are also some barriers of innovation for SMEs in particular. First of all, SMEs have limited access to knowledge of innovation. The reason for this is the lack of cooperation among entities that are supposed to create and support the industrial application of innovations (Nowacki and Staniewski, 2012). Furthermore, the financial resources for funding innovation are scarce. Finally, there are often negative attitudes towards innovative solutions by both managers and employees. They judge innovation as being costly, risky and difficult (Nowacki and Staniewski, 2012).

After acknowledging both the importance as the difficulties of innovation for SMEs, the challenge for firms is to actually achieve the desired innovation. An important challenge for SMEs is how to achieve effective innovation using organisational supporting mechanisms (McEvily et al., 2004). Several studies are conducted with attention to this challenge. The first study suggests that active learning in aspects, such as information sharing, employee involvement, team-based management and development of competent personnel, is an important driver of innovative performance in SMEs (Salavou et al., 2004). This is partially in line with a study by Zhang et al. (as cited by Laforet, 2011;381) that links deeper and wider learning to innovative SMEs. Furthermore, the research of Salavou et al. (2004) state that strategy-driven characteristics like market orientation and learning increase the innovative performance of SMEs. Competition-related characteristics, like industry concentration, also seem to have significant effects on SMEs' innovative activity. Market- and learning-oriented SMEs that face strong competition tend to be more innovative. The argument behind this view is that the product innovations of a firm are determined by both its inward and outward focus (Salavou et al., 2004).

Furthermore, Antonioli and Della Torre (2015) emphasise the importance of training

for innovation within SMEs. They mention that some scholars argue that in modern and competitive firms, training investments are necessary because of the increasingly strategic role of knowledge and human capital in building and sustaining competitive advantages. Moreover, they argue that training investments become particularly important in firms striving for competitive advantages through the adoption of organisational and technological innovation (Antonioli and Della Torre, 2015). However, they also acknowledge that training is not the only important practice that impacts the effectiveness of the innovation process. Other factors, such as rewards, communication, organisational support and time availability, are also important for SMEs (Klein et al., as cited in Antonioli and Della Torre, 2015:327). Furthermore, Rogers (as cited in Xie et al., 2010;299) argues that innovation might be higher in SMEs with higher management training, that network with each other and that carry out R&D.

Finally, Van den Vrande (2009) conducted a study about open innovation in SMEs. Open innovation can be defined as: *'systematically encouraging and exploring a wide range of internal and external sources for innovation opportunities, consciously integrating that exploration with firm capabilities and resources, and broadly exploiting those opportunities to multiple channels'* (West et al., 2003:320). The study emphasizes the importance of open innovation. Furthermore, the study divides open innovation into two dimensions, namely technology exploration and technology exploitation. The results suggest that for technology exploitation, many SMEs attempt to benefit from the initiatives and knowledge of their (non-R&D) workers. For technology exploration, most SMEs try to involve their customers in innovation processes by for instance using their inputs for products and proactively involving them in market research (Van den Vrande, 2009). This underlines the view of Salavou et al. (2004) that innovations should contain both an inward focus (for technology exploitation) and an outward focus (for technology exploration).

2.2 Innovation of SMEs in the technological service sector

This paper focuses on SMEs in the technological service sector. In the past, services were described narrowly as discrete products. However, as the nature of services has become more complex, mostly due to technological advancements, service providers are offering bundles of products (Gallaher and Petrusa, 2006). Therefore, firms in the service sector become more research intensive and are taking on a central role in the innovation activities of their clients (Gallaher and Petrusa, 2006). Furthermore, the service sector is nowadays perceived as a component of economic activity and growth (Gallaher and Petrusa, 2006). Howells (as cited

in Gallaher and Petrusa, 2006;611) argues that *‘the observable growth in Internet and Web-based services and high-technology environmental services indicates that knowledge-intensive services are having a greater value-added role in economic growth’*. Focusing on services, organisational practices could be defined clearly by articulating the kind of value the practitioners are creating for customers (Sigala and Kyriakidou, 2015). Unfortunately, service firms spent much less on R&D than manufacturing firms which contributes to a negative view of service innovation (Camacho and Rodriguez, 2008). However, this does not mean that firms in the service sector do not innovate. Camacho and Rodriguez (2008) argue that, in fact, services carried out much more innovation than indicated by R&D.

A study of Kim et al. (1993) explored the factors determining technological innovations in small firms in Korea. Their study showed that risk-taking propensity, tolerance for ambiguity, environmental heterogeneity, environmental scanning strategy, and professionalization of organizational structure are the most significant factors that distinguish innovative from non-innovative small firms (Kim et al, as cited in Xie et al., 2010;299). Furthermore, Bougrain and Haudeville (as cited in Xie et al., 2010;300) mention that networks reinforce SMEs’ competitiveness by providing them technological change, sources of technical assistance, market requirements and strategic choices made by other firms.

2.3 Innovative Work Behaviour

The importance of innovation for firms and in particular for SMEs, became explicitly clear during the last paragraphs. However, some scholars argue that innovation activities, in their turn, increase firms’ needs to provide employees with the adequate skills to change their attitudes and increase their acceptance of innovation (Antonioli and Della Torre, 2015). Furthermore, innovation studies deal with the management of innovation at the levels of organizations, work groups, networks and individuals (King and Anderson, as cited in De Jong and Den Hartog, 2010;23). So, individuals are a very important component for innovation in firms. To enhance on this, Young (2012) argues that the innovativeness of employees is a main source of organizational effectiveness that gained much attention among organizational researchers. Finally, many practitioners and academics state that organizations should foster, develop and use the innovative potential of their employees as a means to organizational success (Dorenbosch et al., 2005).

The above mentioned aspects are related to the innovate work behaviour (IWB) of employees. IWB can be defined as: *‘an individual’s behaviour that aims to achieve the initiation and intentional introduction (within a work role, group or organization) of new and*

useful ideas, processes, products or procedures' (Farr and Ford, as cited in De Jong and Den Hartog, 2010;24). Nowadays, the IWB of employees is essential for the success of a company because a company cannot be innovative without their employees (Kozlowski and Klein, as cited in Abstein and Spieth, 2014:211). This means that the IWB of employees is a specific key asset for the success of a firm in a fast-changing business environment (West and Farr, Jansses, as cited in Abstein and Spieth, 2014;211). An important note that has to be made is that IWB differs from employee creativity (De Jong and Den Hartog, 2010). Employee creativity can be defined as: *'the production of new and useful ideas concerning products, services, processes and procedures'* (Amabile, as cited in de De Jong and Den Hartog, 2010:24).The difference is that IWB also includes the implementation of ideas which implies that unlike creativity, IWB is explicitly intended to provide some kind of benefit (De Jong and Den Hartog, 2010).

There have been some researchers that investigated how firms can simulate the IWB of employees. The first one is the research of Xerri et al. (2009) that suggests that the stronger and more developed an organisation's culture is toward supporting the innovative behaviour of employees, the greater will be the IWB of employees. Another research indicated that flexible job design is a condition for showing IWB (Dorenbosch et al., 2005). This flexible job design refers to the extent that the job enables the employee to assist or even replace colleagues in unpredictable situations that arise during the daily work process (Dorenbosch et al., 2005). Furthermore, the results of a study of De Jong and Den Hartog (2010) confirmed that participative leadership, external work contacts and the innovation output of employees correlate with the IWB of employees. Finally, Abstein and Spieth (2014) conducted a research focused on the relationship between HRM and IWB. The results of this study showed that HRM is able to contribute to the IWB of employees.

2.4 HRM and innovation in SMEs

HRM can be seen as communication from the employer to the employee about important organizational objectives and employee outcomes (Guzzo and Noonan, Takeuchi, Chen and Lepak, as cited by Abstein and Spieth, 2014:212). Boxall (1996) emphasizes that 'human resource advantage' consists of human capital advantage and human process advantage. Furthermore, strategic HRM literature considers innovation as the output variable of HRM investments (Antonioli and Della Torre, 2015). HRM aims at increasing incentives for managers and employees to engage in innovation activities and develop skills needed for effective innovation efforts (Rammer et al., 2009).

Conway and Dewe (2004) argue that there is little agreement about which practices should be combined for effective HRM. A combination of HR practices is called '*a bundle of HR practices*'. Conway and Dewe (2004) investigated what the optimal bundle of HR practices is to stimulate innovation. This bundle is slightly different than the usual combination of HR practices (Conway and Dewe, 2004). The HR bundle for increasing innovation consists of: performance appraisal, employee involvement, team working, job design, training and development and provision of information (Conway and Dewe, 2004). They further argue that performance appraisal is the most important practice and is possibly linked to aspects of goal-setting and feedback. Furthermore, job design and team working have an impact on innovation within the workforce, highlighting the importance of opportunity to participate (Conway and Dewe, 2004). This is in line with a study of Rammer et al. (2009) who argue that recruiting methods to identify the right people for promoting innovation within an organisation, training for handling innovation challenges, reward systems, performance management systems and career development tools help in the formation of innovative ideas of employees.

In the literature, a distinction is made between transactional or administrative and discretionary HR practices. Some researchers mention that discretionary practices are considered an investment in employees and transactional or administrative practices are essential to meet regulatory and compliance requirements (Gavino et al, 2012). Therefore, only the discretionary practices are likely to influence employee behaviour (Gavino et al, 2012). Examples of transactional activities include handling and processing of information related to employment such as benefits enrolment and employee personnel information. Discretionary practices include training, pay for performance, performance management, promotional opportunities, selective staffing, developmental opportunities, decision making and participation (Gavino et al., 2012). Furthermore, it is supposed that for innovative firms it is logical to outsource their transactional practices. Monitoring day-to-day operations is likely to be of less importance than maximizing flexibility and creativity in innovative firms (Lepak et al, 2005).

HRM practices do also exist and are applied in SMEs. However, they are generally not formalized and extremely diverse, and thus resist generalization (Julien, as cited in Brand and Bax, 2002;453). Furthermore, the resources that SMEs can offer to their employees are limited in comparison to large organizations (Sarikdakis et al., 2013). Moreover, smaller companies have less access to resources such as human or financial capital (Nowacki and

Staniewski, 2012). This means that for SMEs, the HR strategy differs from large organizations so specific research is needed about HRM in SMEs.

Some of the aspects that enable SMEs to innovate, as mentioned before, can be linked to HR practices. To summarize, training (research of Antonioli and Della Torre, 2015), rewards, communication, organisational support and time availability (research of Klein et al, as cited in Antonioli and Della Torre, 2015), learning aspects (research of Salavou et al., 2004) and initiatives and knowledge of employees (Van den Vrande, 2009) are all factors that lead to innovation. These factors have in common that they all can be affected by HR practices, so by human resource management.

Although the above mentioned researches are related to HRM, they don't refer directly to it. Fortunately, some interesting studies are conducted with regard to the link of HRM and innovation in SMEs. First, the results of a research of Rammer et al. (2009) confirmed that SMEs without in-house R&D activities can still achieve a similar innovation success as R&D performers. R&D is a costly and risky activity that needs a minimum amount of resources and time in order to achieve results. However, HRM and cross-functional teams are innovation management tools that can help SMEs to gain similar innovation success (Rammer et al., 2009). Secondly, Sheehan (as cited in Antonioli and Della Torre, 2015:314) found that the more SMEs invest in formal HRM systems, the better their innovation performance becomes. Furthermore, a HR tool that is supposed to influence innovation but is not often mentioned in the literature, is the HBDI. The next paragraph will explain how this tool might influence the IWB of employees in SMEs.

2.5 A specific HR practice for stimulating the IWB of employees

A specific HR instrument that has not gained much attention in the literature is the HBDI. The HBDI is a self-evaluating tool that enables people to understand their own mental preferences.

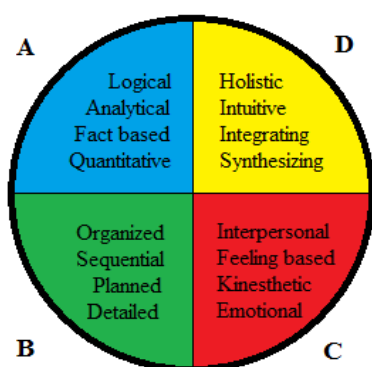


Figure 1: HBDI model

It evaluates and describes the degree of thinking of individuals in each of the four brain quadrants (Herrmann National Netherlands, 2016). The HBDI and new ways of using it effectively have been developed over more than 20 years (Coffield et al. 2004). The four clusters of preference (and their corresponding tendencies to avoid their opposite) are: upper left, characterized by logical, analytical, mathematical, and technical preferences; upper right, characterized by synthesizing, holistic, innovative,

more risk-taking preferences; lower left, characterized by organized, sequential, carefully controlled and managed thinking, planning, and acting; and lower right, characterized by preference for interpersonal relations, sensitivity to emotions, and musical interests (Olsen, as cited in Barclay, 2006:15) (see fig. 1).

The HBDI is a useful tool for investigating the interaction between humans (Wolters et al., 2007). Furthermore, awareness of the human mental preferences enables individuals to develop themselves in the area of problem solving, leadership, communication and collaboration. It's a starting point of innovative thinking and generates new ways of working (Herrmann National Netherlands, 2016). The HBDI is not only useful by diagnosing how people learn, but by showing them how to enhance their learning. Finally, it incorporates growth and development, especially in creativity, and recognizes that learning styles are not fixed personality traits, but to a large extent, learned patterns of behaviour (Coffield et al., 2004).

Barclay (2006) argues that it can be stated that the great majority of research studies supported the validity of the HBDI. However, he also mentions that the issue of generalizability has not been substantially studied and reported (Barclay, 2006). Furthermore, as with other surveys dealing with interests, attitudes, and preferences, the validity of the HBDI depends upon honest responses from each respondent (Bunderson, 1996).

The appropriate uses for the HBDI include the following areas: (1) better understanding of self and others, (2) enhanced communication, (3) enhanced productivity through teamwork, (4) work climate for creativity, (5) authenticity, (6) enhanced teaching and learning, (7) better management, (8) counseling, and (9) building composite learning groups (Bunderson, 1996). In contrast, the HBDI was not validated for use in clinical or diagnostic testing and in medical or psychological classification. Neither was the instrument validated for, amongst others, the use in admissions testing prior to educational or training programs and for use in selection testing for employment (Bunderson, 1996). While validity studies have not been performed for these uses, such studies could be done (Bunderson, 1996).

2.6 Hypotheses

As already mentioned before, the literature emphasizes the importance of innovation for firms and in particular for SMEs. Several studies proved that HR practices can stimulate the innovative work behaviour of employees. However, research about this relationship is mainly conducted for large firms and not specific for SMEs. This creates a gap in the literature.

Furthermore, the HBDI is supposed to stimulate the innovative thinking of employees. This would indicate that this is also a tool that can be used by the HR department to stimulate the IWB of employees. However, till now, this is not empirically proved.

The research question, as mentioned before, is: *‘To what extent could HR practices and tools (including the HBDI) stimulate the innovative work behaviour of employees and finally the innovation performance of SMEs?’* This question consists of all the relationships that are mentioned in the sub-questions. The literature suggests that HR practices lead to a higher degree of IWB of employees. Furthermore, it is proposed that the HBDI influences the IWB of employees. Finally, the importance of employees’ IWB for the innovation performance of a firm became clear. This would indicate that the IWB mediates the relationship between HR practices and the innovation performance of an SME. To be able to gain a better understanding of the differences between the regular HR practices and the HBDI, two separate hypotheses have been formulated.

H1a: The IWB of employees mediates the influence of HR practices on the innovation performance of SMEs.

H1b: The IWB of employees mediates the influence of the HBDI on the innovation performance of SMEs.

The literature emphasizes that HR practices lead to a higher degree of IWB of employees, as suggested by for instance Dorenbosch et al. (2005). Furthermore, the literature suggests that a specific bundle of HR practices can stimulate innovation within a company (Conway and Dewe, 2004). Therefore it is predicted that:

H2a: A bundle of HR practices has a positive influence on the IWB of employees.

H2b: A bundle of HR practices has a positive influence on the innovation performance of SMEs.

Furthermore, it is proposed that the use of the HBDI will lead to a higher degree of innovative thinking of employees (Herrmann National Netherlands, 2016). This would suggest that using the HBDI leads to a higher degree of employees’ IWB. However, this could also be related to the innovation performance of SMEs. This is why the following hypotheses have been formulated:

H3a: The use of HBDI as an HR practice has a positive influence on the IWB of employees.

H3b: The use of HBDI as an HR practices has a positive influence on the innovation performance of SMEs.

Finally, the positive relationship between the IWB of employees and the innovation performance of a company is suggested (Kozłowski and Klein, as cited in Abstein and Spieth, 2014:211). However, this holds for firms in general. Since this study focuses on SMEs, the following hypothesis is proposed:

H4: The IBW of employees has a positive influence on the innovation performance of SMEs.

2.7 Conceptual model

The above mentioned hypotheses can be summarized in a conceptual model (see fig. 2).

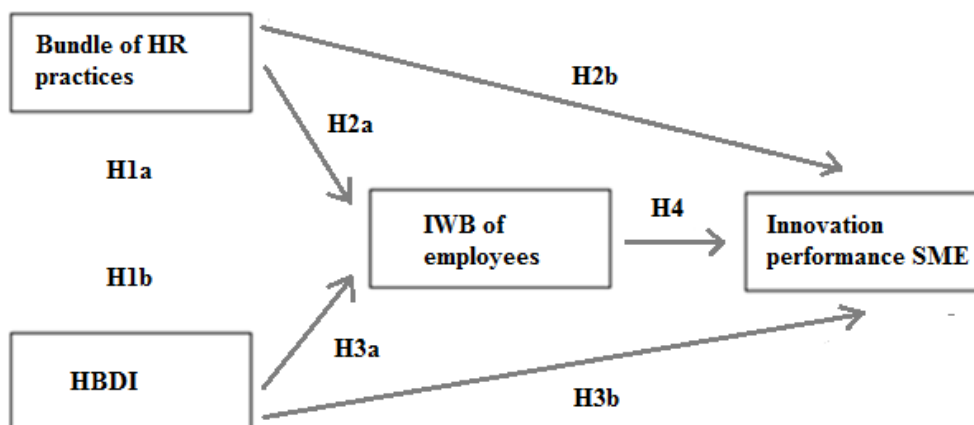


Figure 2: The conceptual model

Hypotheses 1a and 1b take the whole model in consideration which means that all the relationships are included. The model includes a mediating effect, the IWB of employees. This means that it is assumed that HR practices/ the HBDI will influence the innovation performance of SMEs through the IWB of the employees. Hypotheses 2, 3 and 4 take just one direct relationship into account.

3. Methodology

3.1 Research strategy

This research is conducted by using both interviews and a survey. The purpose of the interviews was to generate some more in-depth insights about the company that has been investigated. The subjects that gained attention during the interviews are: the structure and policies of the company, the HR strategy, the importance of innovation for the company, innovative work behaviour of employees and finally the HBDI. By means of the interviews, a survey has been designed. Furthermore, theoretical concepts and measurement scales found in the literature have been used for supporting the survey. The survey was completed by the employees of the company. After conducting the survey, SPSS has been used to analyse the results derived from the survey. These results in turn, were used for testing the hypotheses.

3.2 Research object

The study has been conducted for the company RoutIT. RoutIT is a Dutch company that offers software solutions to SMEs. The company offers services in the area of internet, mobile communication, connectivity and cloud. RoutIT offers services exclusively to local partners (RoutIT, 2016). These partners in turn, offer these services to the consumers. The company has approximately 1500 partners and 105 employees. It's a fast-growing company and is market leader of SMES from the same sector. RoutIT consists of different departments, namely: Network Operations Centre, Software, Business Services (including HR, Finance, and Legal), Operations, Partner Support and Product Management (Kwee, 2016).

The HR strategy of RoutIT is relatively informal and the HR department consists of an HR manager accompanied by an assistant who is responsible for administrative tasks. The tasks of the HR department consist mainly of: recruitment, selection, training, performance management, career development, maintaining of the working conditions, reward systems and administrative tasks (e.g. absenteeism). Furthermore, RoutIT makes use of the HBDI on a regular basis. The HR manager is responsible for this instrument. The main purpose of the HBDI within the company is that employees generate insights of their own thinking style and the thinking style of others. This helps employees becoming aware of their improvement opportunities and helps them in their communication with others. Furthermore, the HBDI is used for team compositions, evaluations during performance interviews and during communication trainings. However, the instrument is not used for the selection and recruitment of new employees and for staff assessments (Kwee, 2016).

Employees of all different departments participated in the survey. The employees are

all aware of the companies' policies, culture and structure. They are also aware of the HR practices and the use of the HBDI within the company. This makes the answers of employees comparable with each other and useful for this study. The interviews were conducted with three different persons. Due to their function, all the persons are aware of all the relevant aspects of the company. This is why the insights generated from these interviews are well comparable and useable for supporting the survey. See appendix I for the written interviews.

3.3 Data collection

Different methods are used to obtain the appropriate information. A distinction can be made between desk research and field research.

3.3.1 Desk research

This type of research consists of secondary data. Secondary research analysis is defined as: *'the re-analysis of data for the purpose of answering the original research question with better statistical techniques, or answering new questions with old data'* (Glass, 1976;3). A few sources are used for this type of research. First of all, literature about the topics that are mentioned in the research question has been studied. This literature consists mainly of articles from academic journals. Furthermore, the website of RoutIT has been investigated for getting a better understanding of the company. Finally, other documents such as books about HR practices have been used to generate a better understanding about the relevant topics.

3.3.2. Field research

Field research, the primary data of this study, is conducted for testing the hypotheses. Primary research analysis is defined as: *'the original analysis of data in a research study, which is typically imagined as the application of statistical methods'* (Glass, 1976;3). This primary research consists of a qualitative and a quantitative part. In this study, the qualitative part of this research comprises of interviews. Three interviews were conducted. See Table 1 for the persons that have been interviewed and their corresponding function and responsibilities. The information generated from these interviews has been used to develop the survey. This means that the qualitative part supported the quantitative part, which is of most interest in this study.

The second part of the field research consisted of an online survey. This survey is the quantitative part of the study. The purpose of the survey is to empirically test the hypotheses. Therefore, the survey included questions that measured the relevant variables. The operationalization of the variable will be explained later on in this chapter. The survey has been sent out by the HR manager. The employees received a link of the survey in their mailbox. The HR manager was also responsible for assuring that the employees filled in the

survey. The employees had initially a time period of two weeks to fill in the survey. After a week, they received a reminder for filling in the online survey. Due to the low response rate, they received two more reminders and after a month the survey had been closed. A total of 79 employees participated in the survey. This means that the response rate was 75%.

Table 1: Characteristics of the interviewees

Person	Function	Responsibilities
J. Kwee	HR manager	HR practices (recruitment, selection, training etc.) events, facility maintenance
A. van Wessel	Security officer/ Request for change officer	R&D, knowledge sharing, training
O. Yilmazer	HR assistant	Administrative tasks

3.4 Data analysis

By means of the interviews, some decisions have been made that influenced the operationalisation of the variables. First of all the interviews have been used to figure out what employees' innovative work behaviour means within the company. During the interviews it became clear that the company does not come up with radical innovations but with incremental ones. Furthermore, the real innovations come from just one or two departments. This means that most of the employees do not come up with new product/service ideas. This is why an IWB scale has been picked from the literature that mainly focuses on improvements and new ideas related to how the work is performed. Secondly, the interviews have been used for picking the right HR practices in order to test the hypotheses. Thirdly, the interviews made clear how the company is using the HBDI. Because the current literature does not offer an existing scale of the HBDI, the researcher has to develop the scale by herself. The interviews helped her by doing this since the interviews showed how the company uses the HBDI. This made it possible to develop the appropriate questions for the employees related to their use of the instrument. Finally, due to the interviews it was able to choose the right control variables. The interviews showed for instance that there are large differences between the departments which makes it necessary to control for these different departments.

Two statistical analyses were used for generating the results. First of all, an explanatory factor analysis has been conducted in combination with a reliability analysis. A factor analysis is an interdependence technique whose primary purpose is to define the underlying structure among variables in the analysis (Hair et al., 2006). All the variables were measured by multi-item scales and consist of reflective measurement scales. The goal of the factor analysis was to select the appropriate items for shaping the variables in order to conduct the regression analysis.

Secondly, a multiple regression analysis has been conducted. Multiple regression analysis is a statistical technique that can be used to analyse the relationship between a single dependent variable and several independent variables. The objective of this technique is to use the independent variable whose values are known to predict the single dependent value selected by the researcher (Hair et al, 2006). Because this study involves a mediator, the PROCESS function of Hayes has been used in order to conduct an appropriate regression analysis (Hayes, 2013). During the analysis, the bundle of HR practices and the HBDI are the independent variables and the innovation performance of SMEs is the dependent variable. The IWB of the employees is the mediator. Finally, some variables have been added as control variables. See Table 2 for an overview of the different variables. The goal of conducting the regression analysis was to reject or confirm the hypotheses.

Table 2: Variables used for testing the hypotheses

Independent variables	Dependent variable	Mediator	Control variables
• bundle of HR practices • HBDI	• innovation performance SMEs	• IWB of employees	• department • level of education • age • gender • function

3.4.1 Operationalization of the variables

Bundle of HR practices

As mentioned before, the HR department of RoutIT has the following responsibilities: recruitment and selection (from now on called staffing), training, performance management, career development, maintaining of the working conditions, reward systems and administrative tasks (Kwee, 2016). However, Kwee (2016) mentioned that career development is part of performance management so these practices are combined and the variable is called performance management. Furthermore, maintaining of working conditions

and administrative tasks, such as payroll, have not been investigated during this study. The reason for this is that these practices are transactional and are likely to be less important for influencing employee behaviour (Gavino et al., 2012).

Conway and Dewe (2004) investigated which specific HR practices stimulates innovation in a company. To investigate this, they used both a tree analysis and a regression analysis which generated different results. Since this study also uses a regression analysis, the outcomes of the regression analysis of Conway and Dewe (2004) have been used. The HR practices that lead to innovation are: employee involvement, team working, job design and training and development (Conway and Dewe, 2004). Performance appraisal was not an outcome of the regression analysis but only an outcome of the tree analysis. However, this practice is often mentioned within the literature. Jiménez-Jiménez and Sanz-Valle (as cited in Chen and Huang, 2009;106) argue that performance appraisal can enhance employees' motivation to engage in innovative activities and make firms achieve positive innovation results. Since RoutIT makes use of this practice, it has been included in the analysis. Furthermore, staffing seems to be an important HR practice as well because it is a discretionary practice and therefore likely to influence employee behaviour (Gavino et al., 2012). This practice is also carried out by RoutIT and therefore added to the bundle of HR practices that has been investigated. In the research of Conway and Dewe (2004), each practice was represented by a single item. However, using multi-items measurements increases both the reliability and validity. This is why other studies have been used for operationalizing this variable.

Training, performance appraisal and staffing are variables that were operationalized by making use of the items of the research of Chen and Huang (2009). Furthermore, the variable participation mentioned in their study, has been used for testing the employee's involvement. The variable training includes four items which indicate the availability of formal training activities, comprehensive training policies and programs, training for new hires and training for problem-solving ability. Staffing consists of three items regarding selectivity in hiring, selection for expertise and skills, and selection for future potential. Furthermore, the variable participation consists of three items. The items are: the degree to which firms allow the employees to make decisions, the opportunity for employees to suggest improvements into their work and the voices of the employees. Finally, performance appraisal consists of three items including developmental focus, results-based appraisal and behaviour-based appraisal (Chen and Huang, 2009).

The variable team working has been operationalized by using the research of Lau and Ngo (2004). This variable consists of five items including: problem-solving sessions, team building, quality circles, quality improvement and leadership training. However, the item quality circles has been deleted since RoutIT does not make use of this. Furthermore, the variable job design is operationalized by using the items of the research of Holman et al. (2011). This variable consists of the dimensions job control and problem demands. Problem demands are defined as: *‘the frequency and difficulty of task problems’*, and job control as: *‘the level of discretion an employee has over the timing of work tasks and methods used in work tasks’* (Jackson et al. as cited in Holman et al, 2011;178). Job control and problem demand consist each of three items. This means that the variable job design consists of six items.

The research of Holman et al. (2011) was the only one that provided clear questions for measuring the variable (job design). Furthermore, it was the only research that involved employees as respondents. The variables of the other researches were measured by answers of managers or top executives. This means that these items have been converted into questions suitable for employees. Furthermore, all variables were measured by a seven-point Likert scale with answers ranging from ‘strongly disagree’ to ‘strongly agree’. This method is more effective at generating responses than directly asking respondents to provide exact figures (Tomaskovic-Devey, Leiter and Thompson, as cited in Lau and Ngo, 2004;693). Although there is no real difference between a five-point and a seven-point Likert scale (Colman et al., 1997), a seven-point Likert scale offers more options which prevents respondent from giving too neutral answers. This is why this study also used a seven-point scale for generating the answers of the employees.

HBDI

The studies with regard to the HBDI are mainly concerned with the content of the instrument. No valid measurement scale has been found in the literature with regard to employees’ outcomes when using the HBDI. Therefore, the researcher developed a measurement scale by herself. This scale consists of four dimensions. The first dimension is the awareness of the instrument and consists of two items. The second dimension is related to the purpose of the instrument within RoutIT. The purpose of the HBDI within RoutIT is to make employees aware of their own thinking style and the thinking styles of others (Kwee, 2016). This dimension also consists of two items. The third dimension concerns the learning aspect of the HBDI and consists of two items. The final dimension concerns work related outcomes of

employees when using the instrument. Mathew et al. (2012) divided employee work outcomes into three aspects. These aspects are quality, productivity and satisfaction. Each of these aspects has been used as an item in this study. To measure this variable, a seven-point Likert scale has been used with a range from totally disagree to totally agree.

IWB

For the measurement scale of the IWB, the scale of Dorenbosch et al. (2005) has been used. This scale consists of two dimensions, namely: creativity-oriented work behaviour and implementation-oriented work behaviour. Creativity-oriented work behaviour has to do with the process where the individual's IWB starts with the recognition and understanding of work-related problems, followed by the production of new and useful ideas within an employees' own work context. Implementation-oriented behaviour includes the promotion of new ideas to colleagues, managers, supervisors etc. and realizing actual ideas that finally can be applied within the work-role, group or total organization (Dorenbosch et al., 2005). Creativity-oriented work behaviour consists of ten items and implementation-oriented work behaviour of six items. This means, the whole scale consists of sixteen items. A seven-point Likert scale has been used with a range from totally disagree to totally agree.

Innovation performance

For measuring the innovation performance, the measurement scale of Prajogo and Ahmed (2006) has been used. This measurement scale consists of the dimensions product innovation and process innovation. The items for measuring product and process innovation are based on several criteria that have been conceptualized and used in previous empirical studies of innovation (e.g. Deshpande et al., Avlonitis et al., Miller and Friesen, Subramanian and Nilakanta, as cited in Prajogo and Ahmed, 2006;506). These criteria consist of the number of innovations, the speed of innovation, the level of innovativeness (novelty or newness of the technological aspect) and being the 'first' in the market. Product innovation is defined as: '*generating ideas or the creation of something entirely new that is reflected in changes in the end product or service offered by the organization*' and process innovation as: '*changes in the way firms produce end-products or services through the diffusion or adoption of an innovation developed elsewhere or new practices developed internally*' (Gobeli and Brown, Yamin et al., as cited in Prajogo and Ahmed, 2006;506). Product innovation includes five items and process innovation includes four items. So the whole measurement scale of innovation performance consists of nine items. A five-point Likert scale with a range from 1 'worst in industry' to 5 'best in industry' has been used.

3.4.2 The survey

Different types of questions are included in the survey. First of all, the survey consists of questions related to the variables as operationalized above. Secondly, the survey includes some general questions, related to the control variables. These questions are placed at the end of the survey since placing these questions at the beginning of the survey will give the survey the initial appearance of a routine form, which demotivates the respondents to complete it (Babbie, 2010). Furthermore, the survey asks for the date of birth of the respondents instead of their age since this makes the respondents more comfortable with answering this question. Finally, because the HR manager was interested in suggestions with regard to the HR department of the company, four questions have been asked about the perception of employees with regard to the HR policy and the use of the HBDI. The answers of these questions have been used to write a short advisory report for the company. This report is not the main purpose of this study but can be seen as an offering to the company in return for their help with conducting this study. This report is shown in Appendix II. The whole survey includes 71 questions and is translated into Dutch since the employees of RoutIT speak Dutch. To avoid response set, some questions are formulated negatively. This is the case for question 6,10, 16,20,30,37,41 and 46. See Appendix III for the survey.

3.5 Epistemology

To be able to draw well-grounded conclusions, some criteria have to be met. This paragraph will describe the concepts that need to be discussed in order to conduct a correct research.

3.5.1 Reliability

Reliability is defined as: *‘the quality of measurement method that suggests that the same data would have been collected each time in repeated observation of the same phenomenon’* (Babbie, 2010;150). First, the reliability of the interviews increased by the closed structure and the use of mainly closed questions. Secondly, the reliability of the survey is maintained by offering the respondents clear instructions, a proper lay-out and by asking them understandable questions. Moreover, the fact that the survey has been sent by email, instead of asking the respondents the questions face-to-face, increased the reliability. A reliability analysis has been used to check whether the scales were reliably, so if the constructs could be used for drawing conclusions. The Chronbachs Alpha has been used to see if it was a matter of unidimensionality, the extent to which the scale measures one underlying factor or construct (Field, 2009). This increased the reliability of the research.

3.5.2. Validity

Validity is defined as: *'a measure that accurately reflects the concept its intended to measure'* (Babbie, 2010;153). First, the validity of the interviews increased by asking others to comment on the questions, to check whether the questions were clear and reflected what they were supposed to measure. Secondly, the validity increased because three persons were interviewed. The information that was needed for the survey could have been generated from the HR manager only. However, two other persons were asked the same questions to verify the answers. The three persons had all a (managerial) function that made them suitable for providing the right information. Furthermore, the variables that have been tested were operationalized by the literature. This means that the measurements scales already proved to effective measure a certain variable. This increased the content-validity of the survey (Field, 2009). Although self-reported measures involve the danger of self-reported bias, research has found that perceptual measures correlate positively with objective measures (Tomaskovic-Devey et al., as cited in Lau and Ngo, 2004;694). Furthermore, the explanatory factor analysis has been used for getting a better understanding of the structure of the variables and to validate the survey. This test is meant for solving the issue of multicollinearity, which increases the validity (Field, 2009). Finally, by using multi-items measurements both the reliability and validity increased.

3.5.3 Generalisability

Generalisability is related to the external validity. External validity refers to the approximate truth of conclusions that involve generalizations. So, the external validity is the degree to which the conclusions of a study would hold for other persons in other places and at other times (Trochim, 2006). Although this study is conducted for one specific company, the results can be generalised to a certain extent. Employees of SMEs in the same industry, so in the IT service sector, will probably have the same characteristics when it comes to innovative work behaviour. The reason for this is that innovation in this sector depends on the same environmental factors. This means that the relationship between HR practices and the IWB of employees will not be different. Furthermore, the HBDI generates insights of how people think. Although the outcomes of this test could vary between different firms or industries, this study does not take the specific outcomes into account. The only thing that is investigated is the awareness of employees about their own thinking and thinking style of others which has been linked to their IWB. This means that this is not company or industry specific but will hold for all employees that use the HBDI.

3.5.4 Representativeness

To maintain the representativeness of this study, some control variables have been used during the analyses. These control variables are: the department an employee is working at, the age of an employee, level of education, gender and function (in terms of operational or supervisory/management function). These variables might have influenced the perception of the employees and so the answers they have given.

3.6 Research ethics

Babbie (2010) emphasized that every person involved in social research should be aware of the general agreements shared by researchers about what is proper and improper in the conduct of scientific research. It is for example very important that participants participate voluntarily in a study. In this research, this is the case because employees were asked to participate and had the chance to refuse without consequences. Furthermore, no physical or emotional harm was done to them. The anonymity and confidentiality were also guaranteed because the employees were able to fill in the survey online and did not need to fill in their names. During the interviews, the researcher asked the respondents if it was allowed to record the interview. All the interviewees agreed with this. However, the researcher told them that the information was treated confidentially. Furthermore, the participants were aware of what the research is about and what the research goals are. This means that deception is not a case in this study. Moreover, all the participants were allowed to receive the results after conducting the study. At the very beginning of this study, the researcher discussed the details of the study with the HR manager. Thereby, the implications of the study for the organization were determined. The results of this conversation have been written down in a research proposal that has been handed down to the company.

Besides the ethical obligations with regard to the participants, researchers have also ethical obligations to other researchers. These obligations concern the analyses of data and the way the results are reported (Babbie, 2010). One of the most important aspects is that the limitations and failures should be reported. Within this study, a particular section is used to describe the limitations and unforeseen issues. Besides, it is important to conduct a study very precise and use subjects that really can deliver the necessary information. The employees of the firm were very useful for this study because they experience the practices of the HR department, are aware of their innovative work behaviour and are all familiar with the HBDI. Furthermore, the company that is investigated is an SME. This means that the research object is able to contribute by answering the research question.

4. Analysis

This chapter describes the two analyses that have been generated in order to test the hypotheses. First a factor analysis has been conducted with an accompanying reliability analysis. The outcomes of this analysis have been used for conducting a regression analysis. Before these analyses will be described, the descriptive statistics of the respondents and the relevant variables will be mentioned.

4.1 Descriptive statistics

The sample includes 79 respondents. Of these respondents, 86.1% is male and 13.9% is female. The age of the respondents varies between 19 and 60 with a mean of 35. Most of the respondents are working at the operations department (41.7%). Respectively, the others are working at Partner Support (15.3%), Network Operations Centre (13.9%), Product Management (11.1%), Software (9.7%) and Business Services (8.3%). Furthermore, 19.4% of the respondents have a managerial function, which means that 80.6% do not have a managerial function. Most of the respondents have a MBO diploma (40.3%), a HBO diploma (26.4%) or a WO diploma (16.7%). See appendix 4.1.1. for the relevant SPSS output.

To generate some insight into the variables that have been used for testing the hypotheses, some descriptive statistics have been obtained (see appendix 4.1.2). The amount of missing values is small (>2) and does not harm the analyses. Furthermore, the means of the variables are relatively high. For the first three variables, the respondents had 7 answer options, from totally disagree (value 1) to totally agree (value 7). The means of these variables varies between 4.94 and 5.89. The variable 'innovation performance SMEs' contained 5 answer options. The mean of this variable is 3.91. Furthermore, the Standard Deviations are all <1.03 which is relatively low compared to the mean (Field, 2009).

Finally, the skewness and kurtosis of the variables have been taken into account. Skewness says something about how asymmetric the distribution of the values is. Positive values of skewness indicate too many low scores in the distribution. Whereas negative values indicate a build-up of high scores (Field, 2009). Kurtosis says something about the flatness of the distribution of the values. Positive values of kurtosis indicate a pointy and heavy-tailed distribution, whereas negative values indicate a light-tailed and flat distribution (Field, 2009). The thresholds for skewness and kurtosis are -2 and +2 (Field, 2009). This means that both the kurtosis (which varies between -.90 and .08) and skewness (which varies between -.75 and 1.30) are acceptable so the variables do not need a transformation.

4.2 Factor analysis

A factor analysis (FA) takes a larger set of variables and looks for a way data may be 'reduced' or summarised using a smaller set of factors or components (Pallant, 2007). The analysis can also be used for reducing a large number of related items to a more manageable number that can be used for other analyses such as multiple regression (Pallant, 2007). For all four variables, a separate exploratory FA has been conducted. During the analysis, the common factor model (principal axis) has been used. This model does not take the total variance but the common variance and acknowledges that there is also a part of unique variance (Hair et al, 2006).

Before conducting a FA, some assumptions need to be met. The first assumption is the sample size. As a general rule, the minimum is to have at least five times as many observations as the number of variables to be analysed (Hair et al., 2006). Since this study includes fourteen variables when taking the separate HR practices and also the control variables into account, the sample size should be at least 70. This assumption has been met since the sample size is 79. Another assumption is that to be suitable for factor analysis, the correlation matrix should at least contain some correlations that are $>.3$ (Pallant, 2007). Furthermore, the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity are important. The KMO is a measure of sampling adequacy that examines the appropriateness of factor analysis. High values (between 0.5 and 1.0) indicate that factor analysis is appropriate (Hair et al., 2006). Bartlett's test of sphericity is a test statistic used to examine the hypothesis that the variables are uncorrelated in the population. Bartlett's significance level should be $< .05$ (Hair et al., 2006). Finally a reliability analysis was conducted to check whether the items of a specific variable were correlated. Therefore, the Cronbach's alpha has been taken into account and had to be at least $.70$ to have a good internal consistency (Hair et al, 2006). In appendix V you will find an extended version of the conducted factor analyses and in appendix 4.2 you will find the relevant SPSS output. Furthermore, appendix VI includes a codebook of the relevant variables and the accompanying items. Table 3 shows the final items with the accompanying factor loadings and construct reliabilities.

Table 3: Construct items with factor loadings and construct reliabilities.

<i>Items</i>	<i>Standardized regression weights/ Factor loadings</i>	<i>Construct reliability</i>
Staffing		.42
Staf1	.644	
Staf2	.680	
Staf3	.710	
Performance		.30
Perf1	.741	
Perf2	.781	
Perf3	.332	
Participation		.49
Part1	.574	
Part2	.822	
Part3	.778	
Team development		.70
Team1	.782	
Team2	.667	
Team3	.823	
Team4	.644	
Job design		.81
Job1	.850	
Job2	.823	
Job3	.897	
Job5	.582	
Training		.59
Training1	.738	
Training2	.574	
Training3	.825	
HBDI		.82
HBDI1	.644	
HBDI2	.721	
HBDI4	.785	
HBDI5	.584	
HBDI7	.302	
HBDI8	.821	
HBDI9	.714	
IWB		.88
IWB1	.595	
IWB2	.441	
IWB3	.772	
IWB4	.840	
IWB5	<.30	
IWB6	.468	
IWB10	.558	
IWB11	.863	
IWB12	.758	
IWB13	.651	
IWB14	.681	
IWB15	.486	
IWB16	.600	
Innovation performance SME		.90
Innov1	.776	
Innov2	.735	
Innov3	.789	
Innov4	.798	
Innov5	.642	
Innov6	.759	
Innov7	.692	
Innov8	.780	
Innov9	.775	

4.3 Regression analysis

The items that have been tested during the FA were transformed into the variables of the conceptual model by taking the means of the items. For ‘HR practices’, the means of all the items of the six separate HR practices have been taken and transformed into one variable. Furthermore, some nominal variables needed to be transformed into metric variables. Some of the control variables were measured on a nominal scale with only two categories. These were the binary variables ‘gender’ and ‘function’. To be able to take these variables into the regression analysis, a dummy has been created. This means that intervals were created between zero and one to transform the variable into a metric one (Field, 2009). The variables ‘age’ and ‘education’ were turned into binary variables by dividing the different answer categories into two and dummies were also created for them. The variable ‘department’ was a nominal variable with six categories which means that 5 dummies were needed to be able to involve this variable in the analysis. See appendix VII for an overview of the dummies of all variables.

Before conducting a regression analysis, a correlation matrix has been generated in order to gain some insights about the relationships between the variables (see Table 4). The table shows that there are significant correlations between the two independent variables, between HR practices and IWB and HR practices and innovation performance of SMEs. Furthermore, a significant correlation exists between the HBDI and innovation performance of SMEs. However, there is no significant correlation between the HBDI and IWB and between the IWB and innovation performance of SMEs. Finally, the only control variable that involves significant correlations is the variable ‘function’. Therefore, the decision has been made to include only this control variable in the analyses.

Table 4: Intercorrelations of model and control variables (n=79)

Model and control variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. HR practices	.542	.66								
2. HBDI	.495	.89	.536**							
3. IWB	.541	.67	.416**	.202						
4. Innovativeness	3.91	.62	.325**	.333**	-.044					
5. Gender	.806	.40	.067	-.088	-0.11	.181				
6. Age	35.4	10	.088	.116	.211	.177	.202			
7. Department	-	-	.179	.112	.050	.197	.086	.231		
8. Function	1.81	.40	-.127	-.112	-.414**	.133	-.006	-.404**	-.035	
9. Education	.472	.50	-.094	-0.21	.022	-.141	.089	.059	-.213	-.116

Notes: * $p < .05$, ** $p < .0$. This table contains Pearson correlations. Variables 5, 8 and 9 are dummy variables (for variable 5: 1= male, for variable 7: 1= no managerial function and for variable 9: 1= below MBO). Variable 7 contains six categories and because it is a nominal variable, no mean and SD have been provided. Variables, 1, 2, and 3 are 7-point scales and variable 4 is a 5-point scale. Variable 6 runs from 19 to 60.

4.3.1 Assumptions

Before conducting the regression analysis, some assumptions have been tested. For the relevant SPSS output see appendix 4.3.

Metric variables

For regression analysis, all variables should contain metric measurement scales (Hair et al, 2006). In this study, all relevant variables have been measured by a Likert-scale which can be used as a metric scale. For the control variables, dummy variables have been created in order to treat them like metric variables.

Sample Size

A minimum ratio for the number of respondents in relation to the number of variables is 5:1 (Hair et al, 2006). This regression involves 11 variables when taking the separate HR practices also into account. This means that the number of respondents should be at least 55. This study involves 79 respondents so this criterion has been met.

Normality

To be able to draw a regression analysis, the variables should be normally distributed. Therefore, the skewness and kurtosis need to be checked and should be between -3 and +3. The skewness and kurtosis of all variables fall between these limits which means this criteria has been met.

Outliers

Multiple regression is sensitive for outliers (Hair et al., 2006). This assumption needs to be tested for both the dependent and independent variables. The Mahalanobis distance value should be smaller than the critical value. In this study, there are two independent variables so the critical value is 13.82 (Tabachnick and Fidell, 2001). Since the Mahalanobis distance value is 13.11, this criteria has been met.

The next assumptions have been tested for each independent variable. For the separate HR practices and the HBDI, the IWB have been used as a dependent variable. For testing the IWB, the innovation performance of SMEs has been used as the dependent variable. Finally, the combined HR practices variable has been used as independent variable and IWB as dependent one.

Linearity

This assumption implies that the relationship between the dependent variable and every independent variable should be linear (Field, 2009). This assumption has been tested by generating a scatterplot based on ZRESID (the standard residuals) and ZPRED (the standardized predicted values of the dependent variable based on the model). If there is a linear relationship in this model, the dots do not form a clear pattern. Secondly, this assumption has been checked by looking at a normal P-plot to see if there is a linear relationship. The above mentioned plots showed that the relationships are linear.

Multicolinaerity

Multicolinaerity concerns the relationship among the independent variables (Hair et al., 2006). Multicolinaerity exists when independent variables are highly correlated ($R > .7$) and makes the model less accurate. A simple regression has been conducted to check the correlations between the dependent variables. The correlation table showses that the independent variables are correlated (.54). However, the correlation does not exceed the .7. Furthermore, the variance inflation factor (VIF) has also been taken into account. The VIF indicates whether a predictor has a strong linear relationship with the other predictor(s) (Field, 2009). The VIF should be below 10 (Field, 2009) which is the case because this value is 1.40. The VIF is related to the tolerance statistic (TOL) which is reciprocal ($1/VIF$). The TOL value shows how much of the predictor variable is not explained by other variables in the model (Field, 2009). In this case, the TOL value is .71. which is appropriate because it should be $>.10$ (Field, 2009).

Homogeneity of variance

Homogeneity of variance, also called homoscedasticity, is a constant range of the error terms of an independent variable (Hair et al, 2006). To see if homoscedasticity is the matter, a scatter plot has been generated to see if there is some kind of a pattern in the residuals. If there is no clear pattern, for instance a triangle, the data is homoscedastic and may be used for regression analysis (Hair et al, 2006). This is the case for all the variables. Furthermore, this assumption has been tested by generating the table 'Residuals Statistics' to see the 'Standardized Predicted Value'. Because the variables are standardized, the mean has to be 0.00 with a standard deviation of 1.00. When this is the case, the errors do not correlate with

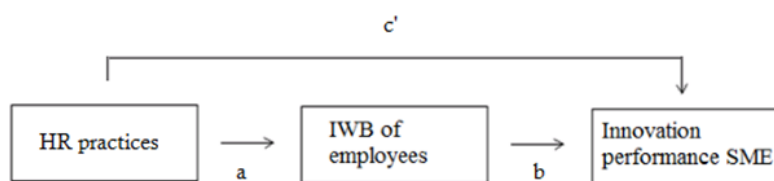
the independent variables and thus do not influence the regression model in a significant way (Hair et al., 2006). In this study, this holds for all the variables, so this criteria has been met.

Error term is normally distributed

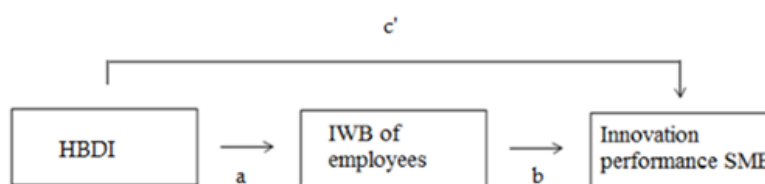
To check if the error term is normally distributed, a histogram for all variables has been generated to check whether these histograms have a normal curve of the standardized residuals of all the variables. Since this is the case for all the variables, this criteria has been met.

4.3.2 Models

During the analysis, two different models have been tested. For these models, the PROCESS function in SPSS of Hayes has been used to test if there is a mediation effect (Hayes, 2013). The first model tests the mediating effect of the IWB on the relationship between the HR practices and an SMEs innovation performance. The second model is the same as the first model but instead of the HR practices, the HBDI has been used as dependent variable (see fig. 3).



Model 1



Model 2

Figure 3: Regression models

Model 1

The first model generated the following output:

- | | |
|--|--------------------|
| 1. Relationship HR practices- Innovation performance(c): | B=(.36)(3.24,<.01) |
| 2. Relationship IWB- Innovation performance (b): | B=(-.08)(-.64,.53) |
| 3. Relationship HR practices- Innovation performance (c'): | B=(.39)(3.22,<.01) |

4. Relationship HR practices- IWB (a):

$$B=(.36)(3.54, <.01)$$

5. Relationship HR practices * IWB-Innovation performance (ab): $B=(-.03)$ BcaCI $[-.18, .05]$

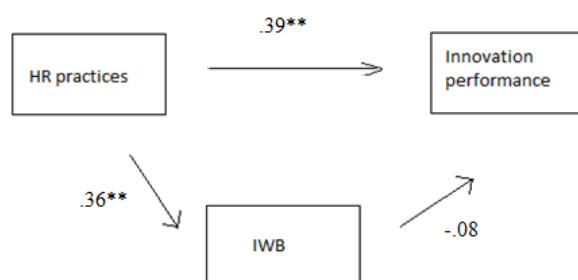


Figure 4: Outcomes regression analysis using PROCESS with HR practices as dependent variable

Notes: * $p < .05$, ** $p < .01$ confidence interval = 95%, $R = .55$, $p = .00$

The tests for the indirect effect and effect size have been conducted by using confidence intervals. To be significant, the observed confidence interval should not contain the value 0 (Hayes, 2013). The confidence interval of the indirect effect (ab) ranges from $-.18$ up to $.05$ so includes the value 0. This means that the effect of HR practices on innovation performance is not indirectly affected by the IWB of employees. The confidence interval for K^2 , the parameter that shows the effect size, ranges from $.00$ up to $.20$ which means it is also insignificant.

The analysis generated some further outcomes that are all tested by using a T-test. To decide if an effect is significant, p should not exceed $.05$ (Hayes, 2013). First of all, there is a significant direct effect of HR practices on innovation performance ($p < .01$). Secondly, the direct effect of IWB on innovation performance, controlled for HR practices is insignificant ($p = .53$) which means that the IWB of employees does not influence the innovation performance of SMEs. Finally, a significant direct effect has been found of HR practices on the IWB of employees ($p < .01$) (see fig. 4). For the significant effects, the coefficients are $.36$ and $.39$ which mean they have a medium to large effect (Field, 2009).

Finally, the covariate 'function' has a significant effect on the relationship between HR practices and the IWB with $B = (-.58)(-3.62, <.01)$. This means that the HR practices stimulate the IWB of employees with a managerial function stronger than employees that do not have a managerial function.

To summarize, the HR practices has a significant effect on the IWB but the IWB in turn does not have an significant effect on the innovation performance. Furthermore, HR practices does

have a significant effect on the innovation performance. However, there is no mediating effect of the IWB of employees.

To generate some insights about the separate HR practices, two hierarchical regression analyses have been generated. The first one takes all the separate HR practices as independent variables and the IWB as dependent variable. In the second analysis, the innovation performance of SME has been taken as dependent variable. Hierarchical regression has been used to be able to control for the covariate 'function'. Therefore, two blocks (models) have been created in SPSS. The first block includes the dependent variable and the control variable and in the second block the independent variables were added.

The first analysis provides the following information: $F(7,64)=6.56, .00$, which shows that the model can be used. The R square of model 2 is .65 and has a significant F change ($p<.00$). When looking at the significance levels of separate HR variables, only 'job design' is significant ($p=.00$) and explains 45.3% of the dependent variable, the IWB of employees. This means that the other practices do not make a significant unique contribution to the prediction of the dependent variable (Pallant, 2007). However, the regression analysis using PROCESS showed that the HR practices combined do have an effect on the IWB. Furthermore, the control variable 'function', which is measured by the dummy variable 'non managerial function', is significant ($P<.01$) and contains a Beta of $-.35$.

The second analysis provides the following information $F(7,64)=2.66, .02$ which shows that the model can be used. The R square of model 2 is .23 and has a significant F change ($p=.02$). When looking at the significance levels of separate HR variables, only 'team development' is significant ($p=<.01$) and explains 40.2% of the dependent variable. This means that the other variables do not make a significant unique contribution to the prediction of the dependent variable (Pallant, 2007). However, the regression analysis using PROCESS showed that the HR practices combined do have an effect on the innovation performance of SMEs. Furthermore, the control variable 'function' is insignificant ($p=.13$) which means that there is no difference between employees who do and who do not have a managerial function with regard to the relationship between HR practices and the innovation performance of SMEs. See appendix 4.4.1 for the relevant SPSS output.

Model 2

The second model generated the following output:

1. Relationship HBDI - Innovation performance(c): $B=(.25)(2.88,<.01)$
2. Relationship IWB - Innovation performance (b): $B=(-.02)(-.18,.86)$
3. Relationship HBDI - Innovation performance (c'):
 $B=(.25)(2.79,<.01)$
4. Relationship HBDI - IWB (a): $B=(.20,2.55,.01)$
5. Relationship HBDI * IWB-Innovation performance (ab): $B=(-.01)BcaCI [-.07,.05]$

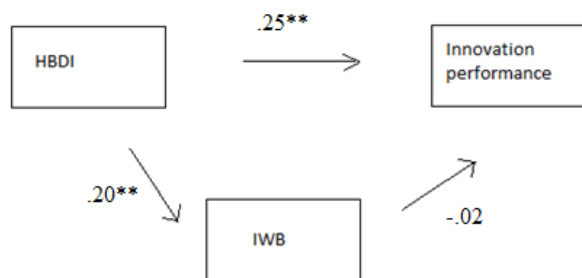


Figure 5: Outcomes regression analysis using PROCESS with HBDI as dependent variable

Notes: * $p<.05$, ** $p<.01$ confidence interval =95%, $R = .50$, $p=<.01$

The confidence interval of the indirect effect (ab) ranges from -.07 up to .05 so includes the value 0. This means that the effect the HBDI on the innovation performance of an SME is not indirectly effected by the IWB of employees. The confidence interval for K^2 ranges from .00 up to .10, meaning that it is insignificant.

The analysis generated some further outcomes that are all tested by using a T-test. First of all, there is a significant direct effect of the HBDI on the innovation performance of SMEs ($p<.01$). Secondly, the direct effect of IWB on innovation performance, controlled by the HBDI is insignificant ($p=.86$) which means that the IWB of employees does not influence the innovation performance of SMEs. Finally, a significant direct effect has been found of the HBDI on the IWB of employees ($p=.01$) (see fig. 5). For the significant effects, the coefficients are .20 and .25 which means they have a small to medium effect (Field, 2009).

Finally, the covariate ‘function’ has a significant effect on the relationship between HBDI and the IWB with $B=(-.60)(-3.64,<.01)$. This means that the HBDI stimulate the IWB of employees with a managerial function stronger than employees that do not have a managerial function.

To summarize, the HBDI has a significant effect on the IWB but the IWB in turn does not have a significant effect on the innovation performance. Furthermore, the HBDI does have a significant effect on the innovation performance. However, there is no mediating effect of the IWB of employees.

5. Conclusion

This study investigates the mediating effect of innovative work behaviour on the relationship between HR practices (including the HBDI) and the innovation performance of SMEs. A sample of 79 employees of a Dutch IT service company has been used in order to conduct the research. A regression analysis has been used in order to test the hypothesis related to the research question:

‘To what extent could HR practices (including the HBDI) stimulate the innovative work behaviour of employees and finally the innovation performance of SMEs?’.

The results revealed that the innovative work behaviour does not mediate the proposed relationship. However, both HR practices and the HBDI positively influence the innovative work behaviour of employees. The HR practice ‘job design’ turned out to be the most important one for stimulating the IWB of employees. Furthermore, both HR practices and the HBDI positively influence the innovation performance of a company. The HR practice ‘team development’ turned out to be the most important one for stimulating this innovation performance. Unfortunately, the expected positive relationship between the IWB of employees and the innovation performance of SMEs turned out to be insignificant. This means that the IWB of employees does not influence the innovation performance of a SME. The outcomes of the hypotheses are shown in Table 5.

Table 5: Outcomes of the hypotheses

Hypotheses	Outcomes
Hypothesis 1a	Rejected
Hypothesis 1b	Rejected
Hypothesis 2a	Confirmed
Hypothesis 2b	Confirmed
Hypothesis 3a	Confirmed
Hypothesis 3b	Confirmed
Hypothesis 4	Rejected

6. Discussion

Today, a lot of researchers emphasize the importance of innovation for firms and in particular for SMEs. It has been proved that innovation leads to e.g. market advantage, company image and reputation and the satisfaction of employees (Laforet, 2011). This makes it interesting to find out which practices managers could use to enhance innovation within a company.

First of all, the literature suggests a positive effect of HRM on the innovation performance of a company (e.g. Rammer et al., 2009). Furthermore, the importance of employees' innovative work behaviour for the innovation performance of a firm gained much attention in the literature. Moreover, it is proposed that several HR practices lead to a higher degree of IWB of employees (e.g. Dorenbosch et al, 2005). However, research about this relationship is mainly conducted for large firms and not for SMEs. That is why this study generates a better understanding of this relationship within SMEs and therefore contributes to the existing literature. A bundle of HR practices that are proposed to stimulate innovation has been found in the literature and used for testing this relationship. These HR practices are: staffing, performance appraisal, participation, training, team development and job design. All these practices have been tested in relationship to both the IWB of employees and the innovation performance of SMEs.

The positive influence of HR practices on the IWB of employees has been confirmed. This is in line with the results of a study of Abstein and Spieth (2014) who showed that HRM is able to contribute to the IWB of employees. A remarkable aspect is that when the effects of the separate HR practices on the IWB of employees are measured, only the practice 'job design' is significant. This means that this practice has such a strong influence that it affects the mean of all the HR practices in such a way that it becomes significant in relation to the IWB. This finding is in line with the study of Conway and Dewe (2004) who argue that 'job design' has an impact on innovation within the workforce. Innovation within the workforce involves the innovativeness of employees which is related to the IWB of employees. An explanation for this effect is that job design is related to the characteristics of an employee's job (Parker and Wall, as cited in Holtman et al, 2011;178) and the IWB of employees is related to an individual's behaviour (Farr and Ford, as cited in De Jong and Den Hartog, 2010;24). When an employee assesses the job characteristics more positively, he/she will be more motivated and will probably come up with new ideas and initiatives which will increase his/her IWB. In fact, this means that job design has to do with the intrinsic motivation of employees which makes it a very important HR practice.

Furthermore, the relationship between the HR practices and the innovation

performance of SMEs has been confirmed. This is in line with the study of Antonioli and Della Torre (2015) who argue that innovation is perceived as an output variable of HRM investments. However, it is remarkable that when testing the effects of the separate HR practices on the innovation performance of SMEs, only the practice ‘team development’ is significant. This means that this practice has such a strong influence that it affects the mean of all practices in such a way that the relationship between HR practices and innovation performance becomes significant. This finding is in line with the study of Lau and Ngo (2004) who argue that team development leads to a company’s innovation development. A possible explanation for this effect is that working in teams bundles the knowledge of employees by which powerful ideas can arise and finally the innovation performance of a company can increase. Furthermore, ‘team development’ includes items like problem-solving sessions and quality improvement which seems to be reasonably related to innovation since they are focused on improvement and development.

Secondly, the literature suggests that the use of the HBDI will lead to a higher degree of innovative thinking of employees (Herrmann National Netherlands, 2016). This would suggest that using the HBDI leads to a higher degree of employees’ IWB. However, this relationship has not been empirically tested. By investigating this relationship, this study contributes to the HBDI literature. Furthermore, the effect of the HBDI on the innovation performance of SMEs has been investigated.

The results showed that the HBDI positively influences the IWB of employees. A possible explanation is that when employees are aware of their own strengths and weaknesses, they probably will try more actively to improve themselves. This will also make them more aware of the improvement opportunities within the company which will stimulate their idea generation and finally will increase their IWB. However, the company within this study uses the HBDI as a static tool. That means that the HBDI profiles of employees are not expected to change over time. When managers are willing to believe that employees are able to change, the tool can be used dynamically which might lead to an even stronger relationship between the HBDI and IWB of employees. Furthermore, the HBDI has a significant influence on the innovation performance of SMEs. Although this has never been empirically confirmed in the literature before, a reasonable explanation can be given for this relationship. Using the HBDI might give employees the feeling that the company is up-to-date and is aware of the most relevant instruments available for employees. That is why they assess the company as more innovative compared to other companies.

For the relationship between the HBDI/HR practices and the IWB of employees, the

control variable 'function' turned out to influence this relationship. This relationship is stronger for employees who do have a managerial function than employees who do not have a managerial function. This might be explained by the reasoning that employees with a managerial function are more aware of the strategy of a company and therefore more receptive for the practices the company offers. When they are more receptive for the HR practices and the HBDI, this will probably influence their IWB more rapidly than employees that are less receptive for these practices. Another explanation is that employees with a managerial function might have a more challenging job which makes them more motivated. When they are more motivated, they are more willing to gain new experiences which means it is more likely they will be positively influenced by the practices the company offers.

Finally, the positive relationship between the IWB of employees and the innovation performance of a company is suggested in the literature (Kozlowski and Klein, as cited in Abstein and Spieth, 2014:211). This actually suggests that the innovation performance of a company finds its existence in the IWB of the employees of the company. This relationship has been tested during this study in which the IWB of employees was proposed as a mediator on the relationship between HR practices/ HBDI and the innovation performance of SMEs.

The main finding of this research is that there is no mediating effect of the IWB on the relationship between the HR practices/HBDI and the innovation performance of SMEs. This could not even be possible since the direct relationship between the IWB of employees and the innovation performance of SMEs turned out to be insignificant. This finding is in contradiction with the existing literature. An explanation for this outcome might be related to the industry in which the investigated company is operating in. During this study (by means of the interviews) it became clear that the IT service sector does not come up with radical innovations but mainly with incremental ones. Therefore, the innovation performance within this sector is relatively low. Furthermore, most innovations arise from developments in the market which means that innovation comes from outside the firm so the employees have less impact on the innovation performance of the firm. Therefore, they are not able to affect the innovation performance of a company significantly. Moreover, during the interviews it became clear that the management do not believe that the employees of most departments are able to affect the innovation performance of the company. Only a few employees of some specific departments (e.g. R&D) are supposed to do this. Therefore, the IWB of employees in general cannot influence the innovation performance of the company.

6.1 Implications

This study offers some useful insights for companies and especially for HR managers. The study shows the effect of using strategic HR practices on the IWB of employees and on the innovation performance of SMEs. Respectively ‘job design’ and ‘team development’ turned out to be particularly effective for increasing the IWB of employees and the innovation performance of SMEs. This means, HR managers can effectively use these practices to obtain both employees with a higher IWB and a more innovative company. Furthermore, this study shows the positive effect of the HBDI on the IWB of employees. This means that managers can use the HBDI, which makes employees more aware of their own thinking styles, to stimulate their innovative work behavior. More specific, by underlining the innovative part of the HBDI (the yellow quadrant), employees will become more aware of their innovative capabilities which will stimulate their IWB. Finally, it turned out that the relationship between HR practices/HBDI and IWB has a stronger impact on employees with a managerial function. This means that managers should give special attention to the employees without a managerial function in their HR strategy to achieve the desired level of innovative work behavior. This can be done for instance by making these employees more aware of the strategy and goals of the company and showing them which tools (e.g. the HBDI) can help achieving these goals.

Furthermore, this study has some societal implications. The main societal implication is that this study provides insights in how to stimulate innovation in SMEs. Since SMEs are an important aspect of our economy, they can influence the economic environment. The economic environment in turn, has huge consequences for the people living in this environment. Aspects that could be influenced are for instance the customers buying power and employment opportunities. These aspects could influence the wellbeing of the people in this environment and therefore it affects the whole society. Furthermore, this study proved that HR practices (including the HBDI) can influence employee’s behavior. This could finally lead to for instance more employee satisfaction and motivation which have important implications for both employees and companies.

6.2 Limitations

This research has some limitations. First of all, the assembled data consists of self-reported answers of the employees. Although research has found that self-reported measures correlate positively with objective measures, this study involves the danger of self-reported bias which could affect the internal validity of the study. Secondly, the research is conducted in only one

organization. This means that the outcomes may be biased by firm-specific characteristics. The organization culture could for instance influence the perception of employees and thus the given answers. This affects the generalisability of the results. This applies also for the industry the company is operating in. Another limitation of this study is that the internal consistency of some of the scales is low. This holds for the HR practices: staffing, performance and participation. This makes the outcomes less reliable.

6.3 Suggestions for further research

First of all, a suggestion for further research is to conduct the same study for more than one company in order to generalize the results. This study is actually a case study which generated some interesting insights about a SME in the IT service sector. However, in order to generalize these outcomes, research of more organizations is needed. Furthermore, the study might gain different results when conducting this study for companies in a different industry. An interesting industry is one that involves radical innovations. Due to this, the innovation performance of a company will probably be higher which will result in other outcomes compared to this study. Furthermore, it would be interesting to search for companies in which the innovation comes from the employees instead of developments in the industry. This will make it more applicable to test the IWB in relation to the innovation performance of a company and a significant relationship can be expected.

A second suggestion is to investigate the relationship between other strategic HR practices and the IWB of employees. An example of a HR practice that could be investigated is 'pay for performance' which is part of the reward policy of a company. It could be investigated if taking the innovation performance of employees in account during appraisal interviews and link this to their reward, will stimulate the IWB of employees.

A third suggestion for further research is to investigate the effect of different control variables, for instance the tenure of the employees. There might be a different outcome for employees that have been working a long time for a company compared to new employees with regard to their innovative work behavior.

Finally, an interesting suggestion for further research is to find out more about the link between IWB and innovation performance of a company. In this study, no significant effect has been found. However, there might have been some barriers that impeded this relationship, for instance the industry the company is operating in. Therefore, a suggestion is to add different types of industry as a moderator on the relationship between IWB and innovation performance of SMEs.

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Appendices

Appendix I: Interviews

Interview 1

Wat is precies uw functie binnen RoutIT?

Manager HR, en daarnaast houd ik me bezig met trainingen, een stukje commercie en events en facilitair gebouwbeheer.

Hoe lang werkt u al voor het bedrijf?

Ik ben hier nu 5 jaar werkzaam.

Wat heeft u voor deze functie gedaan qua opleiding of werkervaring?

Ik kom oorspronkelijk uit de hotellerie en de hospitality branche en heb daarnaast een tijdje in het casino gezeten. Verder heb ik een MBA gedaan en ik heb ik consultancy werk gedaan.

Voor welke taken bent u verantwoordelijk binnen uw functie?

Voor de HR is dat werving en selectie, arbeidsvoorwaarden en leaseregelingen. Maar ook de hele kleine dingen zoals de organisatie van de kantine. Het is dus veel breder dan alleen HR.

Heeft u veel vrijheid binnen uw functie?

Ik creëer veel vrijheid binnen mijn functie.

Ervaart u uw functie als uitdagend?

Ja, die ervaar ik zeker als uitdagend omdat wij de afgelopen jaren flink gegroeid zijn. Vijf jaar geleden zaten we op vijfenveertig mensen en nu zitten we op meer dan honderd. Dus elk jaar tien FTE's erbij is aanzienlijk en we denken ook dit jaar weer met tien extra mensen te eindigen.

Tot welke sector behoort RoutIT volgens u? Is dat meer de dienstensector of echt de productiesector?

Dat is de dienstensector. De ICT diensten die wij leveren aan partners die leveren zij namelijk weer aan het MKB.

Hoe zou u de bedrijfscultuur van RoutIT omschrijven?

Als open en laagdrempelig. Daarnaast heerst er ook wel een zorgcultuur. We willen elkaar graag helpen te ontwikkelen. Als tegenhanger zit er naast die zorgcultuur ook wel een stukje vermijdingscultuur als het gaat om het aanspreken op ongewenst gedrag. We vinden het geven van feedback dus erg lastig. We werken hier al heel erg aan maar het mag wat mij betreft nog wel hoger op de agenda staan. Ik ben ervan overtuigd dat je zonder feedback als organisatie niet groeit. Je hebt ook wel kritische massa nodig en moet dingen tegen elkaar durven uitspreken.

Zijn er veel regels en procedures aanwezig binnen het bedrijf?

We hebben vooral te maken met ISO-certificering die op het informatiebeveiligingsvlak spelen. Daarnaast hebben we natuurlijk gewoon ons huisreglement. We hebben nog wel extra regeltjes maar als we het hebben over hoe we met elkaar omgaan dan zijn we redelijk laagdrempelig, toegankelijk en informeel.

Liggen de werkbeschrijvingen van medewerkers vast?

Die liggen vast maar binnen hun werk hebben ze nog wel een mate van vrijheid om zich te personaliseren. Als je hier bijvoorbeeld nieuw bent bouw je contact op met een partner en de eerste keer dat je zo'n partner spreekt is het 'u' maar naarmate je die partner een aantal keer hebt gesproken is het als snel 'je' en 'jij' en wordt het veel minder formeel. Soms ontstaat er ook een facebook vriendschap of fysieke vriendschap tussen collega's en partners omdat ze dezelfde interesses hebben.

Vinden er vaak trainingen plaats binnen het bedrijf?

Er vinden elke dag trainingen plaats. Dit is eigenlijk een noodzaak voor onze partners zodat ze de klant beter kunnen supporten en kunnen ondersteunen. De commerciële trainingen zijn er op gericht om te zorgen dat de accountants en de salesmanagers van onze partners in staat zijn om naast techniek, ook een oplossing kunnen verkopen. De retailer of de MKB'er die denk niet in techniek maar die wil een oplossing.

Hoe ziet de bedrijfsstructuur eruit?

We hebben verschillende afdelingen, we hebben een afdeling NOC, Network Operations Centre. Zij controleren eigenlijk alle verbinding die RoutIT heeft. Ze controleren alle internetverbindingen en alle data die daar overheen gaat. We hebben een afdeling Software, die schrijven vooral software. We hebben Business Services, daar valt HR dan onder, een stukje Finance en juridisch. En we hebben Operations, die geven support aan onze partners. We hebben Partner Support, dat is de commerciële binnendienst, en we hebben drie mensen die buiten zitten, dus sales buiten. En dan hebben we nog een afdeling Product Management, die richten zich op telefonie, mobiele telefonie en connectivity.

In hoeverre is het bedrijf afhankelijk van haar omgeving. Komen innovaties van binnenuit of wordt er juist meer naar de omgeving gekeken?

Innovatie vind ik een heel groot woord want wij spreken zelf liever over innovatie/optimalisatie van bestaande dingen die we verfijnen en toepassen op het MKB. Dus we kijken waar de markt naar vraagt enerzijds. Want een MKB wil eigenlijk een entreprise oplossing maar niet tegen een entreprise prijskaartje. Dus wij proberen het MKB te voorzien met een high-end solution tegen een b-prijs. Daarnaast gaan wij naar verschillende beurzen op de wereld waar nieuwe technieken, of alles wat Cisco aan het doen is, te zien, om daar vooral te kijken van wat wordt nu de toekomst van netwerken. Dus we kijken naar de trends en houden in de gaten of we up-to-date zijn, lopen we voor of lopen we achter, welke ontwikkelingen gebeuren er in de Cloud en op het gebied van security, moeten we daar wat mee etc. Ik denk dat innovatie soms te veel lading krijgt, van we moeten iets totaal nieuws bedenken.

Dus het gaat vooral om incrementele innovaties?

Ja, niet om radicale innovaties. Ik denk in heel onze branche. Het is namelijk duur, de iPhone bijvoorbeeld, alles wat daar nu nog mee gebeurd is niet radicaal innoveren, meer updaten.

Wat houdt het innovatief werkgedrag van de medewerkers binnen het bedrijf in?

Dat verschilt per afdeling, eigenlijk komt de innovatie vanuit product management. Daar kijken ze van wat bestaat er al en wat moeten we toevoegen aan bestaande producten of diensten. Als we dat goed monitoren dan hebben we nog wel twee mensen die echt een stap verder zijn op research en

development, dus die echt al die beurzen afreizen, die komen echt met input, van nou dat gaat er aan komen. En als we dat willen, wat gaat onze klant dat dan kosten?

Welke karaktereigenschappen moeten mensen binnen dit bedrijf hebben om te zorgen dat het bedrijf vooruit gaat?

Dan maak je eigenlijk al een stap naar het HBDI. Als we kijken wat we belangrijk vinden en kijken naar Product Management en R&D, dan zoeken we bij R&D toch wel mensen met een goede intellectuele, vooral conceptuele gedachtemodus. In staat om vanuit het grote abstracte te concretiseren naar praktisch. Die mensen moeten echt wel out-of-the-box kunnen denken. Daarnaast helpt het ons als die mensen ook nog eens communicatief vaardig zijn. Dat is niet altijd een mix. Maar we zoeken dus ook wel naar of je het intern kan verkopen.

Wordt er vaak in teams gewerkt?

Ja er wordt in teams gewerkt maar waar we voor willen waken, en ik spreek even echt voor mezelf, is dat wij naar een vergadercultuur gaan waarin teams in een vast stramien vergaderen. Het is mijn wens en ook echt voorkeur dat we alleen gaan zitten met de mensen die het nodig hebben op dat moment van het project.

En hoe worden die teams samengesteld, wordt er ook naar het HBDI gekeken?

Ja. Als het echt in de conceptfase is wil je bijvoorbeeld graag mensen vanuit het gele kwadrant maar op het moment dat het vertaald moeten worden naar concrete resultaten dan heb je juist een blauwe denkvoorkeur nodig. Maar later als alles compleet is wil je liever een heterogeen team maar aanvankelijk wil je wat homogeen zijn. Dan komt het sterkste naar voren van wat er allemaal kan.

Welke activiteiten voert de HR afdeling precies uit?

Werving en selectie, beoordelingssystematiek, exit gesprekken, verzuim, leaseregelingen, pensioen, ziektekosten en dan ook nog alles wat vanuit de zachte kant komt, functionaliteit in het bedrijf, is de werkplek goed etc.

En loopbaanontwikkeling?

Dat is onderdeel van ons beoordelingssystematiek. Hoewel we ook wel heel duidelijk zijn naar medewerkers. Het moet wel een pareltje zijn als we zien dat iemand meer in zijn mars heeft. En daar heb je niet altijd beoordelingssystematiek voor nodig, soms kun je dat ook gewoon zien en benoemen. Dus we moeten ons niet vastpinnen aan de procedures die daar liggen. Als iemand een goed idee heeft, zeggen we wel van werk het uit dus doen we een beroep op zelfredzaamheid en initiatief.

Hoe belangrijk is vanuit de medewerkers gezien de HR afdeling binnen het bedrijf?

Eigenlijk heel belangrijk. Als je kijkt naar de samenstelling van ons teamprofiel dat twee jaar geleden door 78 werknemers is ingevuld, dan zie je eigenlijk alle denkvoorkeuren op elkaar gelegd. Dan zijn we wel heterogeen als bedrijf maar het accent ligt wel in het blauwe en het groen en dan het gele en het rode aspect komt eigenlijk als laatste. Dat ligt ook aan de branche waarin wij zitten.

Op welke manier wordt het HBDI ingezet?

Voor de teamsamenstelling. We gebruiken het niet als toelatingsinstrument. Na een maand proeftijd vragen wij voor iemand het profiel aan, dat koppel ik dan terug aan diegene. En dan gaan we wel kijken van waar ligt je uitdaging, waar moet je rekening mee houden, bijvoorbeeld het sociale aspect.

En als we dan een functie beschikbaar hebben en die persoon zou die stap kunnen maken dan kijken we wel van past het profiel van diegene daar dan bij. Het invullen van het HBDI profiel wordt overigens niet herhaald en er alleen opnieuw bij gepakt als er iets aan de hand is met iemand. De wijzigingen binnen het HBDI zijn ook miniem want er moet echt wel iets stevigs gebeuren in iemands leven voordat hij het roer omgooit. We hebben dat bij twee collega's getest en het verschil is echt miniem. Dus het wordt eenmalig ingevuld om het daarna te kunnen gebruiken. Om bijvoorbeeld met collega's om te kunnen gaan.

Denkt u dat als medewerkers zich bewust zijn van hun eigen denkvoorkeur dat dat hun innovatief werkgedrag stimuleert?

Wat ik observeer is dat het bij een aantal personen wel werkt. Hoe ik ernaar kijkt is dat de mannen en vrouwen die over het algemeen hoger zijn opgeleid, willen er over het algemeen meer rendement uithalen en zijn ontvankelijker voor feedback.

Zijn werknemers er echt dagelijks mee bezig?

Sommige wel en sommige ook niet. Daarom hebben we ook twee keer per jaar een communicatie training met een acteur om telefoongesprekken te analyseren. En daar komen de HBDI componenten in terug en worden ook specifiek benoemd. Nieuwe collega's geven de trainers ook altijd hun HBDI profielen.

U bent verantwoordelijk voor de HBDI profielen?

Ja, ik heb van iedere medewerker het profiel. Ze krijgen een hardcopy, een terugkoppeling en een digitale kopie van mij en die gaat het dossier in. Daar doen we verder niks mee behalve dat we het gebruiken. En daar zijn we heel open in en we halen vaak iemands profiel aan.

Vindt er wel eens een update-training plaats met betrekking tot het HBDI?

Ja, we hebben een LMS management systeem en als wij een kernbespreking hebben dan gaan 10 tot 20 vragen over het HBDI.

Denkt u dat het HR beleid in de toekomst zal veranderen?

Ik denk dat wij meer gaan vastleggen door de groei van het bedrijf. Er zijn verschillende manieren om naar HR te kijken. De een die zegt: 'HR is echt een business partner met HR analytics en big data'. Maar in essentie denk ik, en dat vind ik ook echt, is het gewoon goed zijn voor je mensen. En dat is ook heel duidelijk zijn en soms zeggen dat iemand hier niet meer past. En daar vind ik dat HR soms nog wel eens te zweverig in is, hier en extern, mooie modellen maar in de praktijk zie je dat al die modellen wel rafelige randjes hebben. Generiek kun je het toepassen maar leg je het echt op een medewerker dan sluit het nooit naadloos aan. Dus het is altijd maatwerk. En ik geloof wel dat HR meer behoefte heeft aan duidelijkheid en sturing en niet alleen maar aardig zijn voor elkaar.

En waar kijkt u dan naar bij het beoordelen of iemand hier niet meer past?

Als ik zie dat iemand echt ongelukkig is met het werk is wat hij doet of na een aantal gesprekken niet in staat is om een bepaald gedragspatroon te doorbreken, want daar zit het vaak in en niet in de cognitieve capaciteiten. Als ik echt zie dat mensen niet meer met zichzelf overweg kunnen vind ik dat je dat gewoon met elkaar moet kunnen bespreken. En daar zie ik veel meer een rol voor HR. HR is niet alleen maar met contracten en papieren maar het is echt mensen verder helpen, ook buiten de deur.

Waar kijkt u in algemene zin naar bij het aannemen van mensen?

Initiatief nemen, sociale vaardigheden, openheid en eerlijkheid, flexibiliteit, stukje incasseringsvermogen, kunnen ze verbinden etc. Bijvoorbeeld hoe iemand binnenkomt zegt al heel veel over iemands karakter, spiegelen ze in gedrag, kijken ze je aan, hebben ze onrustige handen etc. Er zijn heel veel aspecten waar ik uit afleid of iemand hier past of niet. En als iemand zich niet kan aanpassen en schikken naar de situatie gaat dat hem hier niet worden.

Hoe beoordeelt u innovatief werkgedrag van medewerkers?

Als ik kijk naar innovatie dan zijn dat vooral de mensen die elke dag weer komen met nieuwe ideeën. Ze kunnen zich soms wat betweterig gedragen, zitten niet in een vast stramien, komen toch wel vanuit Product Management en Product and Development. Wat er binnen Operations zit is vooral blauw/groen dus daar hoeven we het niet van te verwachten. De innovatieve mensen zijn vooral met heel veel dingen tegelijkertijd binnen bijvoorbeeld managers die het lastig vinden om lijstjes af te werken. Het zijn niet de mensen die bezig zijn met de techniek maar veel met dingen buiten.

Interview 2

Wat is u functie binnen het bedrijf?

Manusje van alles. Ik ben betrokken bij R&D, daarnaast ben ik verantwoordelijk voor de kennisdeling in de meest algemene zin van het woord binnen en buiten de organisatie. Dus opleidingen voor mijn eigen collega's en de partners. Daarnaast heb ik technisch nogal wat verantwoordelijkheden. Ik ben security officer en request for change officer.

Hoelang werkt u hier al?

Tien jaar.

Wat heeft u hiervoor gedaan qua werkervaring of opleiding?

Ik ben gecertificeerd Cisco engineer. Dus dat is mijn vakgebied. Daarnaast ben ik Microsoft engineer en heb daarnaast heb ik allerlei certificeringen gehad.

Heeft u veel vrijheid binnen uw functie?

Ja, dat is ook de manier waarop ik opereer.

En ervaart u het ook als een uitdagende functie?

Ja, juist daarom, want ik mag het zelf invullen en dat maakt het mooi. Je ziet in de ICT vaak heel veel mensen weer verdwijnen omdat ze vastgeroest zijn binnen een bepaalde functie maar dat heb ik hier niet.

Wat doet RoutIT precies volgens u?

We zijn een internet serviceprovider die halfproducten levert aan het partner ICT kanaal. Dat betekent dus dat wij samenwerken met ICT partners die onze producten weer verkopen als volwaardige producten aan hun klanten. Wij leveren dus allerlei halfproducten op verschillende gebieden en daar kan de partner zelf een pakket van maken die hij levert aan de eindklant. We hebben dus geen directe eindklant.

Tot welke sector behoort RoutIT volgens u? Is dat meer de dienstensector of de productiesector?
Echt de dienstensector.

Hoe zou u de bedrijfscultuur omschrijven?

Open, soms direct, soms confronterend direct, maar je moet als werknemer wel zelf willen halen. Dat klinkt raar maar je moet op het moment dat je iets niet weet ook durven te gaan vragen van waar vind ik het dan. Maar dat gaat niet altijd zo als het zou moeten.

En helpen mensen elkaar dan?

Ja dat wel, het is nooit een probleem als je het maar vraagt. Dat is geen probleem. Mensen zullen elkaar ook aanspreken op gedrag. We hebben bijvoorbeeld een hele sterke mening over hoe we met onze klanten willen omgaan en ook daar eisen we dat onze mensen correct met die klanten omgaan. En we willen ook dat collega's elkaar aanspreken op ongepast gedrag. Maar voor de rest een open cultuur en lekker samenwerken. We hebben bijvoorbeeld ook pooltafels staan zodat als iemand even vastzit hij zijn hoofd even leeg kan maken en er dan weer tegenaan kan.

Hoe ziet de bedrijfsstructuur eruit?

Heel erg plat. Eerst heb je MT bestaande uit vier personen waarvan twee hoofdverantwoordelijk zijn en twee verantwoordelijk zijn voor de operations en de sales kant. De hoofdverantwoordelijke bemoeien zich voornamelijk met R&D, marketing en dat soort zaken. Als afdelingen hebben we operations, die bestaat weer uit verschillende subafdelingen. En daarnaast hebben we human resources en finance, dat is eigenlijk een afdeling. En daarnaast hebben we university, en dat is mijn tak die er voor zorgt dat de kennis en skills op pijl blijven.

Zijn er veel regels en procedures aanwezig?

Te weinig, naar mijn mening. Dat heeft te maken met de groei die we meegemaakt hebben. Dat betekent dat we sneller groeien dan dat we procedures kunnen schrijven. Want bij een grote organisatie heb je wel meer structuur nodig.

Vinden er vaak trainingen plaats?

Ja, twee keer per jaar is er een verplichte kennismeting. Dat betekent dat medewerkers tussen de 100 en 150 vragen krijgen over hun vakgebied met daarnaast ook vragen over ander vakgebieden om erachter te komen wat ze van de andere afdelingen weten. Daarnaast zijn er vaak de zogenaamde kennissessies waarbij collega's elkaar over bepaalde onderwerpen bijpraten. Dat doen we op regelmatige basis en sommige teams doen dat zelfs iedere week. Daarnaast geven we interne trainingen, we hebben een compleet cursisten aanbod, ook voor onze eigen mensen. Dat betekent dat als ze bijvoorbeeld willen wisselen van afdeling dat ze verplicht zijn die training te volgen. Dat zijn zelf 2 of 3 daagse trainingen.

Welke activiteiten voert de HR afdeling uit volgens u?

Heer aannemen van mensen, ervoor zorgen dat onze normen en waarden worden gevolgd. Zorgen voor tevreden personeel op primaire en secundaire arbeidsvoorwaarden. Daarnaast zijn ze heel betrokken bij het gevoel. Dat klinkt misschien een beetje raar want dat is natuurlijk niet tastbaar maar we hebben een bepaalde cultuur en die willen we heel graag behouden. En daar wordt op gelet door HR. Dus hoe gaan we met elkaar om, wat vinden we acceptabel etc. En merken we dat bepaalde personen op wat voor manier niet helemaal de juiste kant op gaan, op wat voor manier dan ook, dan worden collega's daar door HR op aangesproken.

Hoe belangrijk is de HR afdeling vanuit de medewerkers gezien?

De HR afdeling fungeert al vraagbaak. Zoals ik hem hoor, en ik praat daar niet zo vaak over maar dan denk ik dat beide personen van HR open staan voor elke vraag, zowel werk gerelateerd als privé. En dan wordt daar serieus op gereageerd. En een keer per jaar wordt er een externe adviseur van pensioenen uitgenodigd om te kijken of onze pensioenen overal aan voldoen en dan kunnen medewerkers ook vragen hierover stellen. Dat soort dingen worden allemaal georganiseerd door HR zonder dat daarom gevraagd wordt. Daarnaast schrijven ze elke maand een nieuwsbrief. Jeffrey is ook sterk betrokken bij de Univeristy en er worden vaak, naast technische trainingen, trainingen gegeven die te maken hebben met people skills.

Denkt u dat de HR afdelingen de komende jaren gaat veranderen?

Moet je aan Jeffrey vragen. Maar zoals ik hem ken denk ik het niet.

Hoe belangrijk is innovatie binnen het bedrijf?

We zitten in de ICT dus heel belangrijk. Zonder innovatie geen vooruitgang. Heel belangrijk dus.

Komt innovatie dan echt vanuit de mensen zelf of wordt er meer naar de omgeving gekeken?

Het is een combinatie van beide. Je gaat kijken naar trends en probeert deze vroegtijdig te ontdekken want we blijven natuurlijk een bulkorganisatie en maken massaproducten. Dat betekent ook dat je niet al te vroeg op een trend kan inspelen want dat zou ook een verkeerde trend kunnen zijn. Dus je probeert wel een bepaalde basis te creëren. Daar gebruiken we onszelf voor als spiegelbeeld, ook de collega's en we bezoeken daarnaast veel events, bijvoorbeeld beurzen in het buitenland.

En wat houdt innovatief werkgedrag van de medewerkers binnen het bedrijf in?

Werknemers moeten altijd een luisteren oor hebben. Wij hebben natuurlijk 1500 partners en die zitten ook allemaal aan de luisterende kant bij hun klanten. En als zij tegen ons zeggen dat ze iets missen in ons portfolio en onze medewerkers zouden dat niet oppikken dan zouden wij niet groot worden. Wat heel belangrijk is dus dat ze goed luisteren en als ze een trend ontdekken worden ze ook gestimuleerd om daar iets mee te doen en uit te zoeken wat ze ermee kunnen.

Dus het is eerder een kwestie van trends zien dan met nieuwe ideeën komen?

Als ze die hebben dan mogen ze daarmee komen, graag zelfs. Maar daar hebben we momenteel geen passende cultuur voor. We hebben bijvoorbeeld ook geen ideeën bussen maar ik wil heel graag dat dat komt. En dat ze dan als beloning voor hun idee ook mogen meewerken aan dat project. Dat zijn wel dingen die bij mij spelen maar waarbij de operations manager nog wat terughoudender in is. Dus dat is meer een MT discussie dan een operationele discussie.

Denkt u dat het bedrijf daar in de toekomst wel heen zal gaan?

Ja, dat zal echt moeten gebeuren.

Hoe zien de teams binnen het bedrijf eruit en hoe worden ze samengesteld?

Primair wordt er gekeken naar de eigenschappen van een persoon. En we nemen niet altijd ICTers aan, we willen juist buiten ons boekje gaan. Daarnaast proberen we wel de juiste mix qua personen te vinden voor een team. We moeten wel nuance vinden en dat doen we door het HBDI te gebruiken. We leggen de HBDI profielen over elkaar heen om te kijken waar de sterke maar voornamelijk de zwakke punten liggen als team.

Op welke manier wordt het HBDI binnen het bedrijf ingezet?

Het profiel wordt al vrij snel bij binnenkomst van een persoon geschetst en ook teruggekoppeld. Sommige mensen weten namelijk niet precies wat het inhoudt. Daarna proberen we er ook wel op te sturen zodat mensen zich wel bewust zijn van hun profiel. Dat doen we vooral tijdens teamoverleggen.

En hoe vaak wordt daar dan echt actief naar gekeken binnen een team?

Op moment dat er eigenlijk wat wisselingen zijn geweest. Dat gebeurt regelmatig, als er bijvoorbeeld een nieuw persoon binnen het team komt.

En hoeveel teams bevatten een afdeling?

Operations bevat vijf teams, product management is een team en partner support is een team en de rest zit verweven binnen deze teams. Meer is niet nodig i.v.m. de platte organisatie.

Leeft het HBDI binnen het bedrijf?

Jazeker. Er wordt regelmatig op teruggekomen, ook tijdens evaluaties, beoordelingen etc. Medewerkers weten ook van elkaar welk profiel ze hebben.

Denkt u dat medewerkers zich door de bewustwording van hun denkstijl ook innovatiever op zullen stellen?

Niet alleen dat. Ze houden ook beter rekening met hun eigenschappen en valkuilen. Ze kunnen daarmee bijvoorbeeld ook betere gesprekken aan de telefoon voeren. Het kan soms wel conflictsituaties in de hand werken maar het is ook conflict vermijdend heel sterk.

Interview 3

Wat is precies uw functie binnen RoutIT?

Ik ben net als Jeffrey werkzaam binnen de HR. Ik doe alles wat je bij HR kan bedenken, salarissen, instroom van medewerkers etc. Jeffrey pakt dan meer de secundaire arbeidsvoorwaarden op maar ik pak eigenlijk alles op vanaf het moment dat de medewerker voor de eerste dag in dienst is.

Hoe lang werkt u al voor het bedrijf?

Ik ben in februari 2011 als afstudeer stagiaire begonnen. Ik zit hier dus al vijf jaar.

Heeft u veel vrijheid binnen uw functie.

Ja, naast HR doe ik ook nog veel andere taken zoals facilitaire dingetjes. Ik doe bijvoorbeeld ook agenda beheer van de directie dus ik heb veel vrijheid binnen mijn takenpakket. Maar de medewerkers staan wel centraal.

Ervaart u uw functie ook als uitdagend?

Ik ben zelf nu bezig met een studie personeelsmanagement want ik heb zelf een heel brede studie gedaan (Management Economie en Recht). Hierdoor krijg ik meer kennis en kan ik binnen routIT meer betekenen binnen het HR beleid dus dat is zeker uitdagend.

Kunt u vertellen wat RoutIT precies doet als bedrijf?

Het is een hele technische organisatie dus haak ik wat dat betreft snel af. Maar wat we doen is het leveren van infrastructuur aan partners, alles wat met internetverbindingen te maken heeft. We

bieden telefonie, mobiel etc. aan. We zijn ook bezig met een nieuwe service m.b.t. een alarmcentrale die we onze partners willen aanbieden. Dus dat is wel heel erg breed. Eigenlijk bieden we alles wat onze partner voor de eindgebruiker wil.

Hoe zou u de bedrijfscultuur van RoutIT omschrijven?

RoutIT is een snelgroeiende organisatie. Toen ik in dienst trad waren er 45 medewerkers en inmiddels al 105 en dat blijft stijgen. De cultuur is heel informeel. Je kan het wel een familie cultuur noemen want de band met collega's onderling is echt heel sterk. Maar naarmate de organisatie groeit is het heel lastig in de cultuur in stand te houden en krijg je steeds meer eilandjes tussen de verschillende afdelingen. Maar verder is hij heel informeel, open, behulpzaam naar collega's toe. Maar er komen wel steeds meer lagen binnen de organisatie omdat we zo snel groeien maar dat kan je niet tegenhouden want een bedrijf heeft wel sturing nodig.

Hoe ziet de bedrijfsstructuur eruit?

Helemaal bovenaan staat de directie. Verder heeft elke afdeling een BU manager. We hebben er een op de technische afdeling, eentje voor finance, een voor NOC en software maar ook voor sales en marketing. Daarnaast hebben we ook een BU voor R&D. Daaronder hangen de teamleiders van de verschillende teams. We hebben bijvoorbeeld een teamleider op Network & Security zitten. Verder weet elke persoon of medewerker wel waar hij verantwoordelijk voor is.

Zijn er veel regels en procedures aanwezig binnen het bedrijf?

RoutIT heeft geen CAO. We hebben zelf een reglement opgesteld met de regels en procedures zoals dat we ISO gecertificeerd zijn waarbij er elk jaar een Audit wordt gedaan. Er zijn dus wel veel regels waar je je als medewerker aan moet houden zoals een clean desk policy. Voor de rest hebben ze betrekking op hoe je met je collega's omgaat en welke informatie je met anderen mag delen en welke niet. Dus om een vast beleid te handhaven wat voor elke medewerker geldt hebben we dus wel regels en richtlijnen opgesteld.

Welke activiteiten horen precies bij het HR beleid?

Dat is heel breed. Instroom, doorstroom en uitstroom zijn de hoofdactiviteiten. Hierbij horen contracten opstellen, werving en selectie, inwerken van nieuwe medewerkers, functioneringsgesprekken, beoordelingsgesprekken etc. Daarnaast faciliteert HR activiteiten die in het pand moeten gebeuren.

Werken jullie met beoordelingssystemen?

We hebben drie momenten per jaar waarbij een teamleider met een werknemer in gesprek gaat. In het begin is dit gericht op de doelstellingen voor het aankomend jaar. Hiervoor heeft elke afdeling ook een jaarplan opgesteld met doelstellingen. Dat wordt dan op teamniveau met medewerkers besproken. Vervolgens komt het functioneringsgesprek. Hierin wordt besproken hoe we er voor staan. Aan het eind van het jaar wordt geëvalueerd hoe het gegaan is en wordt de wederzijdse verwachting weer even getoetst vanuit beide kanten. Hierbij wordt ook door beide partijen een formulier ingevuld om te kijken of men op een lijn zit.

Vinden er vaak trainingen plaats?

Ja, we hebben drie interne trainers. We hebben technische trainingen en commerciële trainingen. Deze zijn ook voor partners maar ook nieuwe medewerkers plannen we hiervoor in. Daarnaast

nodigen we ook twee keer of drie keer per jaar een externe acteur uit voor de medewerkers aan de telefoon. En dan wordt er een rollenspel gespeeld en wordt er gekeken hoe de medewerker daarmee omgaat. Verder geeft Jeffrey ook vaak HBDI trainingen. Dan wordt er een teamprofiel gemaakt. En als medewerkers aangeven een training te willen doen bijvoorbeeld voor persoonlijke effectiviteit dan schrijven we medewerkers daar extern voor in. We kijken hierbij naar de vraag van de medewerkers en kijken of dat relevant. Persoonlijke ontwikkeling van medewerkers is wel erg belangrijk binnen RoutIT.

Hoe belangrijk is de HR afdeling voor de medewerkers, hechten ze er veel waarde aan?

De HR afdeling is echt ondersteunend. Jeffrey en ik hebben een goede band met de medewerkers dus ze weten ons altijd te vinden. Ook persoonlijke kwesties worden altijd op een eerlijk besproken dus ik denk dat de medewerkers de HR afdeling erg belangrijk vinden.

Denkt u dat de HR afdeling de komende jaren gaat veranderen gezien de groei die het bedrijf doormaakt?

Qua personeel aantallen zullen er op HR geen extra personen bijkomen. Maar als het aantal medewerkers groet moet inderdaad op een bepaald moment het HR beleid aangepast worden. Maar voor nu is het lastig om te zeggen wat voor veranderingen dat precies zullen zijn. Maar we kijken naar de medewerkers en zullen aan de hand daarvan het beleid aanpassen. Sommige dingen zullen wel afhangen van het feit of het fiscaal gezien mag. De afdeling is echter wel vrij flexibel.

Hoe belangrijk is innovatie binnen het bedrijf?

Doordat we een technische organisatie zijn doen we elke dag dat we niet in de gaten houden van wat er op de markt gebeurt een stapje terug. Dus innovatie staat echt heel erg hoog. We hebben ook twee R&D medewerkers die vaak in het buitenland zitten om te kijken van wat er nou speelt op de markt en om mee te kunnen gaan als bedrijf.

Hoe ziet u die innovatie bij de medewerkers terug?

Op de operations afdeling is dat minimaal. Er vinden wel kleine innovaties plaats, bijvoorbeeld als iets erg veel klikwerk is wordt er gekeken naar hoe dat geautomatiseerd kan worden. Maar echt innovatieve ideeën ontstaan daar niet. Dat komt echt vanuit de R&D afdeling en Product Management.

Hoeveel mensen zitten er op de afdeling?

Op de R&D afdeling zijn dat er twee en op Product Management zijn dat er drie. We zijn nog wel opzoek naar uitbreiding op Product Management. Als een collega aan geeft van iets wat sneller kan, zodat het voor een partner bijvoorbeeld makkelijker wordt om iets te bestellen, dan komt uiteindelijk dat plan bij Product Management terecht en later ook bij Software zodat zij dat op kunnen pakken.

Hoe zien de teams er binnen het bedrijf precies uit? Hoe groot zijn ze en hoe worden ze samengesteld?

We hebben de sales buitendienst en sales binnendienst, ook wel Partner Support genoemd. Op de technische afdeling hebben we voor VoIP een team en voor de orderdesk. We hebben Network en Security. Daarnaast hebben we een team dat heet porteringen. Ze worden samengesteld op het momenten dat iemand op sollicitatie komt en dan kijken we naar de ambities en kennis van die

persoon en waar deze het beste zou passen. Jeffrey weet bijvoorbeeld precies tijdens een sollicitatiegesprek wat het HBDI profiel van die persoon is. En de teams liggen wel vast maar we hebben wel een aantal collega's die al binnen verschillende teams hebben gewerkt dus die kunnen ook makkelijk switchen als er bijvoorbeeld binnen een team een onderbezetting is dan kunnen zij dit opvullen. Maar verder zijn het vaste teams van mensen die ook echt een relatie met elkaar opbouwen.

En hoe worden teams aan de hand van het HBDI ingezet? Hebben ze juist hetzelfde profiel of juist een gemixt profiel?

In principe proberen we wel van alles wat binnen een team te hebben want dat vult elkaar aan. Na de maand proeftijd iedereen vult iedereen het HBDI in, stuurt het op naar RoutIT en dan bespreekt Jeffrey dat met de medewerkers. Soms wordt iedereen van een team bij elkaar geroepen en wordt er een team profiel gemaakt. Mijn ervaring is dat collega's het wel fijn vinden om dat te doen en ook inzicht te krijgen in de profielen van anderen.

Dus het leeft wel echt in het bedrijf?

Ja dat zeker.

Wordt er dagelijks gebruik van gemaakt?

Dagelijks niet. In het geval van Jeffrey wel maar voor de overige medewerkers niet. Maar zo nu en dan als je met medewerkers in gesprek bent herken je wel dingen uit het HBDI. Maar collega's bespreken elkaars profiel wel en zijn er wel open in. Ze vinden het ook leuk om elkaar te laten zien.

En wat is nou echt het doel van het HBDI volgens u?

Het wordt puur gebruikt om de profielen van medewerkers in kaart te brengen. Maar soms zie je aan de hand van het HBDI dat medewerkers meer zouden kunnen dan wat ze doen. Het kan de persoonlijke ontwikkeling dus wel stimuleren. En daarnaast wordt het gebruikt voor de teamsamenstelling.

Vindt er wel eens een update training plaats?

Over het algemeen niet. In ieder geval niet RoutIT breed. Maar het wordt dus wel gebruik tijdens de telefonische rollenspellen. Het wordt dus echt op individueel niveau of team niveau ingezet. Het grootste team bestaat uit twaalf medewerkers.

Wat is belangrijk voor RoutIT bij het aannemen van medewerkers?

Meestal t wordt een sollicitatiegesprek uitgevoerd door Jeffrey en de teamleider van de afdeling. De teamleider kijkt echt naar de inhoudelijk kennis en Jeffrey meer naar het karakter. Wat hierbij centraal staat is of de persoon bij de mensen past die al binnen het team zitten.

Appendix II: Advisory report

Adviesrapport

Dit rapport is opgesteld aan de hand van een enquête die is ingevuld door de medewerkers van RoutIT. In totaal hebben 79 medewerkers meegedaan aan de enquête. Het doel van dit rapport is het in kaart brengen van de mening van medewerkers ten opzicht van het huidige HR beleid en de manier waarop het Hermann Brain Dominance Instrument (HBDI) ingezet wordt binnen het bedrijf. Daarnaast zijn de medewerkers gevraagd om met suggesties te komen die betrekking hebben op bovenstaande punten. Deze suggesties zijn samengevat en opgedeeld in categorieën.

HR beleid

In de enquête werd de medewerkers gevraagd hoe tevreden ze zijn met het huidige HR beleid. De antwoordmogelijkheden bestonden uit een 7-punts schaal variërend van 1 ‘zeer ontevreden’ tot 7 ‘zeer tevreden’. De meeste medewerkers beoordelen het beleid met ‘tevreden’ (50%). Respectievelijk is het beleid vervolgens beoordeeld met ‘niet tevreden/niet ontevreden’ (21.1%), ‘zeer tevreden’ (13.2%), ‘een beetje tevreden’ (9.2%), ‘ontevreden’ (3.9%) en ‘een beetje ontevreden’ (2.6%). Zie bijlage 1 voor een overzicht van deze percentages en een bijbehorend histogram.

Op de vraag of de werknemers suggesties hebben met betrekking tot het huidige HR beleid geven de meeste medewerkers aan geen suggesties te hebben. Suggesties die wel gedaan worden zijn op te delen in verschillende categorieën. Zie bijlage 2 voor de bijbehorende citaten.

Persoonlijke ontwikkeling

Een aantal medewerkers geeft aan dat het HR beleid meer gericht mag zijn op de persoonlijke ontwikkeling van medewerkers. Suggesties die worden gedaan zijn het opstellen van een persoonlijk ontwikkelingsplan en gesprekken met teamleiders/de HR manager over de ambities van medewerkers.

Mogelijke verbeterpunten

Een aantal medewerkers heeft aspecten opgemerkt waarvan zij vinden dat deze meer aandacht verdienen. Dit varieert van het verbeteren van de secundaire arbeidsvoorwaarden, tot aan

persoonlijke waardering en beloning. Daarnaast wordt aangekaart dat er meer aandacht besteed mag worden aan het vinden van personeel met specifieke skills.

Betrokkenheid medewerkers

Een aantal medewerkers geeft aan dat ze meer betrokken mogen worden bij bepaalde zaken. Zo wordt er aangegeven dat er meer interne betrokkenheid zou mag komen bij het werven van nieuwe collega's en het trainen daarvan. Verder komt naar voren dat er behoefte is aan regelmatig overleg vanuit HR tussen werknemers en leidinggevende. Een andere suggestie die gedaan wordt is het opzetten van een periodiek open loket voor suggesties en verbeteringen van medewerkers.

Klachten

Uit de enquête is een aantal klachten over het HR beleid naar voren gekomen. Zo wordt er aangegeven dat te veel processen voor irritatie zorgen. Deze zouden dus makkelijker gemaakt moeten worden. Daarnaast wordt er aangegeven dat de HR afdeling te weinig doet voor de ontwikkelingsafdeling op het gebied van persoonlijke ontwikkeling.

Aanwezigheid HR beleid

Een aantal opmerkingen van de respondenten heeft betrekking op de aanwezigheid van het HR beleid. Er wordt aangegeven dat het HR beleid meer bekend moet worden gemaakt bij medewerkers en dat de afdeling zich meer moet laten zien en horen. Daarnaast wordt als suggestie gedaan dat het HR beleid vaker moet terug komen en bijvoorbeeld elke twee jaar opnieuw gemaakt moet worden.

Overige

Naast medewerkers die suggesties hebben met betrekking tot het huidige HR beleid zijn er ook medewerkers die aangeven dat ze momenteel tevreden zijn met het beleid of op het moment geen suggesties hebben. Daarnaast geeft een medewerker aan geen suggesties te hebben omdat HR niet zijn expertise is. Dit betekent dat de inhoud van het beleid beter gecommuniceerd kan worden aangezien dit bij sommige medewerkers nog onduidelijk is.

HBDI

In de enquête werd de medewerkers gevraagd hoe tevreden ze zijn met het huidige beleid waarop het HBDI wordt ingezet. De antwoordmogelijkheden bestonden uit een 7-punts schaal variërend van 1 'zeer ontevreden' tot 7 'zeer tevreden'. De meeste medewerkers beoordelen het beleid met 'tevreden' (35.5%). Respectievelijk is het beleid vervolgens beoordeeld met 'niet tevreden/niet ontevreden' (25.5%), 'een beetje tevreden' (15.8%), 'zeer tevreden' (11.8%), 'een beetje ontevreden' (5.3%), 'ontevreden' (3.9%) en 'zeer ontevreden' (2.6%). Zie bijlage 3 voor een overzicht van deze percentages en een bijbehorend histogram.

Op de vraag of de werknemers suggesties hebben met betrekking tot het huidige beleid geven de meeste medewerkers aan geen suggesties te hebben. Suggesties die wel gedaan worden zijn op te delen in verschillende categorieën. Zie bijlage 4 voor de bijbehorende citaten.

Negatieve geluiden

Niet alle medewerkers zijn even positief over het gebruik van het HBDI. Ten eerste geven enkele medewerkers aan dat het HBDI mensen te veel in hokjes plaatst en daarom geen toevoegde waarde biedt. Verder wordt er aangegeven dat het handig kan zijn om te weten wat de persoonlijkheden van collega's zijn maar dat het daadwerkelijke nut ervan niet wordt gezien. Tot slot wordt ook aangegeven dat voor het inschatten van de persoonlijkheden van collega's geen HBDI profiel nodig is.

Suggesties

Er zijn enkele suggesties gedaan die betrekking hebben op het gebruik en de inzet van het HBDI. Allereerst wordt er aangegeven dat het invullen van de vragenlijst herhaald zou moeten worden om eventuele veranderingen te zien. Verder geeft een medewerker aan dat de 'zwakke' punten die uit een HBDI profiel naar voren komen gezamenlijk besproken zouden moeten worden om zo toe te werken naar een oplossing. Tot slot wordt er ook aangegeven dat vooral de menselijke kant benadrukt moet blijven worden zoals dit momenteel gebeurt.

Verbeterpunten

Een aantal medewerkers heeft een opmerking geplaatst die kan worden opgevat als een verbeterpunt. Ten eerste wordt genoemd dat er te weinig aandacht wordt geschonken aan de terugkoppeling van het HBDI. Wordt dit wel gedaan dan zal het instrument meer gaan leven onder de medewerkers. Dit hangt samen met een opmerking waarin wordt aangegeven dat er

een vertaalslag gemaakt moet worden naar de bewustwording. Een ander punt dat is het instrument meer toepasbaar gemaakt moet worden op de werkzaamheden en dus actiever kan worden ingezet. Tot slot wordt aangegeven dat het instrument minder individueel ingezet moet worden en meer in samenhang met andere medewerkers.

Nieuwe ideeën

Uit de enquête is een aantal nieuwe ideeën naar voren gekomen die betrekking heeft op het HBDI. Een voorbeeld hiervan is het idee om KPI's voor het HBDI op te stellen. Daarnaast komt het idee naar voren om concrete opdrachten te laten plaatsvinden waarin het HBDI wordt toegepast. Tot slot is een idee dat geopperd wordt om een verkort HBDI profiel van partners te maken om tijdens telefoongesprekken op de juiste manier met deze partners om te kunnen gaan.

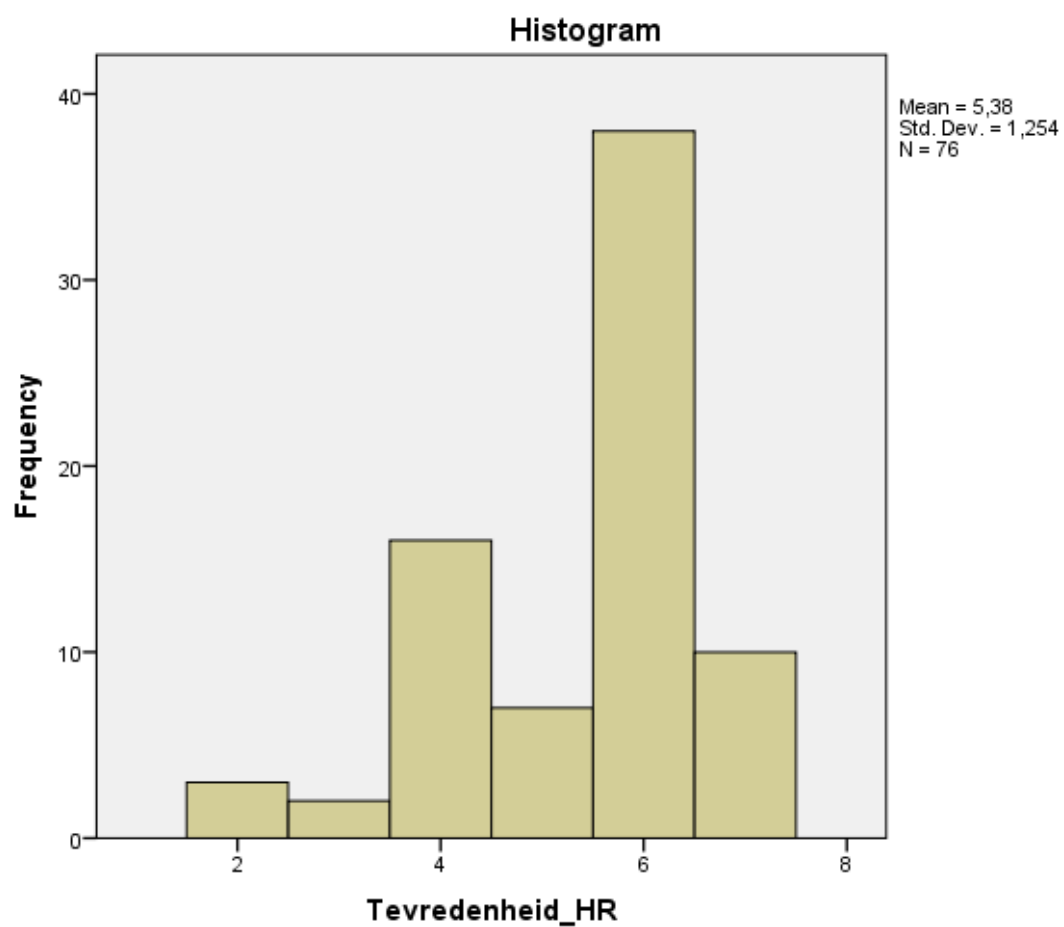
Overige

Naast bovengenoemde punten zijn er ook werknemers die aangeven dat het HBDI goed wordt ingezet en het op deze manier door moet gaan. Verder hebben sommige medewerkers geen suggesties op het moment en geeft een medewerker aan het HBDI niet te gebruiken.

Bijlagen

Bijlage 1: Statistieken HR beleid

Tevredenheid_HR		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ontevreden	3	3,8	3,9	3,9
	Een beetje ontevreden	2	2,5	2,6	6,6
	Niet ontevreden/niet tevreden	16	20,3	21,1	27,6
	Een beetje tevreden	7	8,9	9,2	36,8
	Tevreden	38	48,1	50,0	86,8
	Zeer tevreden	10	12,7	13,2	100,0
	Total	76	96,2	100,0	
Missing	System	3	3,8		
Total		79	100,0		



Bijlage 2: Citaten HR beleid

Onderwerp	Citaat
Persoonlijke ontwikkeling	“Het opstellen/invoeren van een persoonlijk ontwikkelplan.” “Beter persoonlijke loopbaanbegeleiding.” “Gesprekken voeren met medewerkers over ambities met teamleider/HR manager.”
Verbeterpunten	“Actiever, meer sessies.” “Verbeteren secondary arbeids voorwaarden.” “Persoonlijke waardering en beloning.” “Meer inzet op het vinden van personeel met specifieke skills.” “Let op de details. Bijvoorbeeld het niet veilig zijn van deze link terwijl de informatiebeveiliging voorschrijft dat dit moet.”
Betrokkenheid medewerkers	“Meer interne betrokkenheid bij het werven van nieuwe collega en trainingsschema.” “Regelmatig vanuit HR overleg over werknemers met leidinggevenden.” “Periodiek open loket voor suggesties en verbeteringen.”
Klachten	“Ik ben via Flox binnengekomen waardoor wat zaken door elkaar liepen.” “Teveel processen zorgen voor veel irritatie. Dus nieuwe processen collega-vriendelijk maken.” “HR doet veel vooroperations en support medewerker, maar weinig voor persoonlijke ontwikkeling van de ontwikkelingsafdelingen.”
Aanwezigheid HR beleid	“HR beleid moet meer bekend worden gemaakt bij medewerkers.” “Laat jezelf meer zien en horen.” “Vaker terugkomen, bijvoorbeeld elke 2 jaar opnieuw maken.”
Overige	“Prima beleid. Algemene informatie avond m.b.t. overname zou wel fijn zijn geweest.” “Nee ik ben erg tevreden zoals het momenteel is.” “Niet op dit moment” “Het gaat redelijk goed.” “Nee. Niet mijn expertise.”

Appendix III: Final version of the survey

Beste medewerker van RoutIT,

Mijn naam is Eveline van der Horst en ik studeer bedrijfskunde aan de Radboud Universiteit Nijmegen. Ik doe een onderzoek naar de relatie tussen human resource (HR) activiteiten en innovatie binnen RoutIT. Om dit onderzoek te laten slagen is het van groot belang dat zoveel mogelijk medewerkers van RoutIT meedoen aan een (online) enquête.

De vragenlijst bestaat uit zo'n 70 korte vragen en zal ongeveer 15 minuten van uw tijd in beslag nemen. Uiteraard wordt uw anonimiteit gewaarborgd en gaan uw antwoorden rechtstreeks naar de Radboud Universiteit. Mocht u vragen en/of opmerkingen hebben of geïnteresseerd zijn in de resultaten van het onderzoek, dan kunt een mailtje sturen naar: e.vanderhorst@student.ru.nl.

U helpt mij enorm met het invullen van de vragenlijst. Hieronder vindt u de link waarmee u bij de enquête terecht komt. Alvast bedankt voor uw tijd!

http://fmru.az1.qualtrics.com/SE/?SID=SV_eevHQBAQ0AnUCb3

Met vriendelijke groet,

Eveline van der Horst

De volgende stellingen gaan over de human resource (HR) activiteiten die plaatsvinden binnen RoutIT. U kunt voor elke stelling aangeven in hoeverre u het hier mee eens bent (1 =helemaal mee oneens, 7= helemaal mee eens).

RoutIT focust tijdens de selectie van nieuwe werknemers op hun kennis en vaardigheden.

Binnen RoutIT vinden leiderschapstrainingen plaats.

Input van werknemers wordt gewaardeerd binnen RoutIT.

Ik kan mijn eigen werk plannen.

RoutIT is gefocust op selectie van toekomstig potentieel.

RoutIT heeft geen uitgebreid trainingsbeleid/trainingsprogramma.

Ik kom problemen tegen in mijn werk die ik nog niet eerder ben tegengekomen.

RoutIT beoordeeld medewerkers gebaseerd op resultaat.

Ik mag geen problemen behandelen die moeilijk zijn om op te lossen.

Werknemer hebben de mogelijkheid om met suggesties te komen die het werk verbeteren.

RoutIT beoordeeld medewerkers gebaseerd op gedrag.

Ik kan beslissen wat ik doe om mijn werk te voltooien.

RoutIT organiseert formele trainingsactiviteiten.

RoutIT heeft geen aandacht voor mijn persoonlijke ontwikkeling.

RoutIT hanteert het gebruik van teambuilding.

Ik mag problemen oplossen waar geen duidelijk correct antwoord voor is.

RoutIT organiseert trainingen voor nieuwe medewerkers.
 RoutIT is selectief bij het aannemen van nieuwe werknemers.
 RoutIT organiseert trainingen met betrekking tot probleemoplossingsvermogen.
 Werknemers hebben niet de mogelijkheid om beslissingen te nemen.
 Sessies met betrekking tot probleemoplossing worden uitgevoerd binnen RoutIT.
 Binnen RoutIT worden teams samengesteld met betrekking tot het verbeteren van kwaliteit.
 Ik kan kiezen welke methode ik gebruik voor het uitvoeren van mijn werk.

De volgende stellingen gaan over het Hermann Brain Dominance Instrument (HBDI). U kunt voor elke stelling aangeven in hoeverre u het hier mee eens bent (1 =helemaal mee oneens, 7= helemaal mee eens).

Ik ben bekend met het HBDI.
 Het HBDI maakt mij bewust van mijn eigen denkvoorkeuren.
 Het gebruik van het HBDI verhoogd de kwaliteit van mij werk
 Het HBDI stimuleert mij te leren.
 Het HBDI maakt mij bewust van de denkvoorkeuren van anderen.
 Ik gebruik het HBDI regelmatig.
 Het gebruik van het HBDI verlaagd de productiviteit van mij werk
 Het HBDI stimuleert mij mezelf te ontwikkelen.
 Het gebruik van het HBDI stemt mij meer tevreden over mijn werk.

De volgende stellingen gaan over het innovatief werkgedrag van medewerkers binnen RoutIT. U kunt voor elke stelling aangeven in hoeverre u het hier mee eens bent (1 =helemaal mee oneens, 7= helemaal mee eens).

Ik denk actief mee over verbeteringen in het werk van directe collega's.
 Ik kom met ideeën om de service die mijn afdeling biedt te verbeteren of te vernieuwen.
 Ik realiseer ideeën binnen mijn afdeling/organisatie met een zekere mate van vasthoudendheid.
 Ik transformeer nieuwe ideeën zodat ze toepasbaar worden in de praktijk.
 Ik maak mijn leidinggeven niet enthousiast voor mijn ideeën.
 Ik kom met ideeën om de kennis en vaardigheden van mijn afdeling te optimaliseren.
 Ik kom met nieuwe oplossingen voor oude problemen.
 Ik kom met suggesties met betrekking tot nieuwe manieren van communiceren binnen mijn afdeling.
 Ik bepleet geen zaken met directe collega's die betrekking hebben op het werk.
 Ik kom met ideeën die betrekking hebben op de verdeling van taken en werkactiviteiten binnen mijn afdeling.
 Ik probeer problemen te achterhalen die betrekking hebben op samenwerking en coördinatie.
 Ik doe actief mee aan het verzamelen van informatie om afwijkingen binnen mijn afdeling op te sporen.
 In samenwerking met collega's transformeer ik nieuwe ideeën zodat ze toegepast kunnen worden in de praktijk.
 Ik doe niet actief mee met het bedenken welke kennis en vaardigheden nodig zijn binnen mijn afdeling.

Ik gebruik support van collega's voor mijn ideeën en oplossingen.
Ik verwijder obstakels in het idee implementatie proces.

De volgende vragen gaan over de innovativiteit van RoutIT. U kunt telkens aangeven hoe u RoutIT beoordeelt ten opzichte van de grootste concurrent in de industrie (1= slechtste in de industrie, 5=beste in de industrie).

De mate van nieuwigheid van nieuwe producten.
De nieuwigheid van technologieën die gebruikt wordt in processen.
Het aantal nieuwe producten die op de markt zijn gebracht.
Het gebruik van de laatste technologische innovaties in nieuwe producten.
Het technologische concurrentievermogen van het bedrijf.
De snelheid van nieuwe productontwikkelingen.
Het aantal nieuwe producten die als eerste op de markt zijn gebracht.
De snelheid waarmee de laatste technologische innovaties worden aangebracht in processen.
Het aantal veranderingen in processen, technieken en technologieën.

De volgende stellingen vormen een combinatie van de hiervoor besproken onderwerpen. U kunt voor elke stelling aangeven in hoeverre u het hier mee eens bent (1 =helemaal mee oneens, 7= helemaal mee eens).

RoutIT is een innovatief bedrijf.
De HR activiteiten stimuleren mijn innovatief werkgedrag.
Het HBDI stimuleert mijn innovatief werkgedrag.
Het innovatief werkgedrag van werknemers draagt bij aan de innovativiteit van het bedrijf als geheel.

De volgende vragen hebben betrekking op uw mening over het HR-beleid en de inzet van het HBDI binnen RoutIT.

Hoe tevreden bent u met het huidige HR beleid van RoutIT?
Heeft u suggesties met betrekking tot het verbeteren dit beleid?
Hoe tevreden bent u met de manier waarop het HBDI momenteel wordt ingezet binnen RoutIT?
Heeft u suggesties met betrekking tot het inzetten van het HBDI?

Tot slot volgen nog enkele algemene vragen.

Wat is uw geslacht?

- man
- vrouw

Wat is uw geboortjaar?.....

Op welke afdeling bent u werkzaam?

- Network Operations Centre

- Software
- Business Services
- Operations
- Partner Support
- Product Management (inclusief R&D)

Heeft u een leidinggevende functie?

- ja
- nee

Wat is uw hoogste genoten opleiding?

- geen
- basisonderwijs
- lager beroepsonderwijs (LBO, VMBO)
- middelbaar algemeen voorbereidend beroepsonderwijs (MAVO)
- middelbaar beroepsonderwijs (MBO)
- hoger algemeen voorbereidend onderwijs (HAVO)
- voorbereidend wetenschappelijk onderwijs (VWO)
- hoger beroepsonderwijs (HBO)
- wetenschappelijk onderwijs (WO)
- weet ik niet/ wil ik niet zeggen

Hoeveel jaar bent u al werkzaam bij RoutIT?.....

Dit is het einde van de vragenlijst. Bedankt voor uw medewerking!

Appendix IV: SPSS Output

4.1 Descriptive statistics

4.1.1 Sample characteristics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
sex	72	1	2	1.14	.348
age	70	19	60	35.39	10.015
department	72	1	6	3.68	1.500
function	72	1	2	1.81	.399
education	72	2	10	6.49	1.891
years	56	0	10	3.69	2.892
Valid N (listwise)	56				

department

	Frequency	Percent	Valid Percent	Cumulative Percent
Network Operations Centre	10	12.7	13.9	13.9
Software	7	8.9	9.7	23.6
Business Services	6	7.6	8.3	31.9
Valid Operations	30	38.0	41.7	73.6
Partner Support	11	13.9	15.3	88.9
Product Management (inclusief R&D)	8	10.1	11.1	100.0
Total	72	91.1	100.0	
Missing System	7	8.9		
Total	79	100.0		

sex

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid male	62	78.5	86.1	86.1
Valid female	10	12.7	13.9	100.0
Total	72	91.1	100.0	
Missing System	7	8.9		
Total	79	100.0		

function

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	14	17.7	19.4	19.4
Valid no	58	73.4	80.6	100.0
Total	72	91.1	100.0	
Missing System	7	8.9		
Total	79	100.0		

education

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid basisonderwijs	1	1.3	1.4	1.4
Valid lager beroepsonderwijs (LBO, VMBO)	2	2.5	2.8	4.2
Valid middelbaar algemeen voorbereidend beroepsonderwijs (MAVO)	2	2.5	2.8	6.9
Valid middelbaar beroepsonderwijs (MBO)	29	36.7	40.3	47.2
Valid hoger algemeen voorbereidend onderwijs (HAVO)	6	7.6	8.3	55.6
Valid hoger beroepsonderwijs (HBO)	19	24.1	26.4	81.9
Valid wetenschappelijk onderwijs (WO)	12	15.2	16.7	98.6
Valid weet ik niet/ wil ik niet zeggen	1	1.3	1.4	100.0
Total	72	91.1	100.0	
Missing System	7	8.9		
Total	79	100.0		

Statistics

	age	sex	department	function	education	years
N Valid	70	72	72	72	72	56
N Missing	9	7	7	7	7	23
Mean	35.39	1.14	3.68	1.81	6.49	3.69
Median	32.00	1.00	4.00	2.00	6.00	3.00
Mode	26	1	4	2	5	3
Sum	2477	82	265	130	467	206

4.1.2 Descriptive statistics relevant variables

	HR practices	Staffing	Performance	Participation	Team development	Job design	Training	HBDI	IWB	Innovativeness SME
Missing values	5,42	0	0	0	0	0	0	0	1	2
Mean	5,42	5,42	5,18	5,89	4,94	5,58	5,60	4,95	5,41	3,91
Std. Deviation	,66	,84	,95	,75	1,03	,97	,97	,89	,67	,62
Skewness	-,73	-,49	-,49	-,52	-,53	-,90	-,80	-,96	-,25	,08
Kurtosis	1,04	-,08	-,24	-,29	-,24	1,09	,41	1,30	-,21	-,75

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
sex	72	1	2	1,14	,348
age	70	19	60	35,39	10,015
department	72	1	6	3,68	1,500
function	72	1	2	1,81	,399
males	72	,00	1,00	,8611	,34826
Nomanagerialfunction	72	,00	1,00	,8056	,39855
belowMBO	72	,00	1,00	,4722	,50273
Valid N (listwise)	70				

Correlations

		HR_new	HBDI_average	IWB_average	INNOV_average	sex	age	department	function	education
HR_new	Pearson Correlation	1	,536**	,416**	,325**	,067	,088	,179	-,127	-,194
	Sig. (2-tailed)		,000	,000	,004	,577	,469	,132	,289	,103
	N	79	79	78	77	72	70	72	72	72
HBDI_average	Pearson Correlation	,536**	1	,202	,333**	-,088	,116	,112	-,112	-,021
	Sig. (2-tailed)	,000		,077	,003	,461	,337	,349	,350	,862
	N	79	79	78	77	72	70	72	72	72
IWB_average	Pearson Correlation	,416**	,202	1	-,044	-,011	,211	,050	-,414**	,022
	Sig. (2-tailed)	,000	,077		,701	,926	,080	,676	,000	,854
	N	78	78	78	77	72	70	72	72	72
INNOV_average	Pearson Correlation	,325**	,333**	-,044	1	,181	,177	,197	,133	-,141
	Sig. (2-tailed)	,004	,003	,701		,129	,143	,097	,266	,237
	N	77	77	77	77	72	70	72	72	72
sex	Pearson Correlation	,067	-,088	-,011	,181	1	,202	,086	-,006	,089
	Sig. (2-tailed)	,577	,461	,926	,129		,094	,472	,963	,460
	N	72	72	72	72	72	70	72	72	72
age	Pearson Correlation	,088	,116	,211	,177	,202	1	,231	-,404**	,059
	Sig. (2-tailed)	,469	,337	,080	,143	,094		,055	,001	,630
	N	70	70	70	70	70	70	70	70	70
department	Pearson Correlation	,179	,112	,050	,197	,086	,231	1	-,035	-,213
	Sig. (2-tailed)	,132	,349	,676	,097	,472	,055		,772	,073
	N	72	72	72	72	72	70	72	72	72
function	Pearson Correlation	-,127	-,112	-,414**	,133	-,006	-,404**	-,035	1	-,116
	Sig. (2-tailed)	,289	,350	,000	,266	,963	,001	,772		,333
	N	72	72	72	72	72	70	72	72	72
education	Pearson Correlation	-,194	-,021	,022	-,141	,089	,059	-,213	-,116	1
	Sig. (2-tailed)	,103	,862	,854	,237	,460	,630	,073	,333	
	N	72	72	72	72	72	70	72	72	72

** . Correlation is significant at the 0.01 level (2-tailed).

4.2 Factor analysis and reliability analysis

HR practices

Staffing

Correlation Matrix

		HRstaff2	HRstaff3	HRstaff1
	HRstaff2	1,000	,218	,162
Correlation	HRstaff3	,218	1,000	,190
	HRstaff1	,162	,190	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,582
Approx. Chi-Square	7,729	
Bartlett's Test of Sphericity	df	3
Sig.		,052

Component Matrix^a

	Component
	1
HRstaff2	,680
HRstaff3	,710
HRstaff1	,644

Reliability Statistics

Cronbach's Alpha	N of Items
,414	3

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1,381	46,035	46,035	1,381	46,035	46,035
2	,842	28,055	74,090			
3	,777	25,910	100,000			

Extraction Method: Principal Component Analysis.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HRstaff2	10,96	3,601	,249	,316
HRstaff3	10,85	3,361	,268	,278
HRstaff1	10,70	4,112	,226	,358

Performance

Correlation Matrix

		HRperf1R	HRperf2	HRperf3
	HRperf1R	1,000	,245	,027
Correlation	HRperf2	,245	1,000	,089
	HRperf3	,027	,089	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,508
Approx. Chi-Square		5,332
Bartlett's Test of Sphericity	df	3
	Sig.	,149

Communalities

	Initial	Extraction
HRperf1R	1,000	,550
HRperf2	1,000	,611
HRperf3	1,000	,110

Component Matrix^a

	Component
	1
HRperf1R	,741
HRperf2	,781
HRperf3	,332

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1,270	42,349	42,349	1,270	42,349	42,349
2	,983	32,759	75,108			
3	,747	24,892	100,000			

Extraction Method: Principal Component Analysis.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HRperf1R	9,7595	4,185	,192	,163
HRperf2	10,8734	4,497	,244	,051
HRperf3	10,4557	5,944	,071	,392

Reliability Statistics

Cronbach's Alpha	N of Items
,299	3

Participation**Correlation Matrix**

		HRpart1R	HRpart2	HRpart3
Correlation	HRpart1R	1,000	,259	,177
	HRpart2	,259	1,000	,455
	HRpart3	,177	,455	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,569
Bartlett's Test of Sphericity	Approx. Chi-Square	23,331
	df	3
	Sig.	,000

Component Matrix^a

	Component
	1
HRpart1R	,574
HRpart2	,822
HRpart3	,778

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Communalities

	Initial	Extraction
HRpart1R	1,000	,330
HRpart2	1,000	,676
HRpart3	1,000	,606

Extraction Method: Principal

Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1,612	53,721	53,721	1,612	53,721	53,721
2	,853	28,421	82,143			
3	,536	17,857	100,000			

Extraction Method: Principal Component Analysis.

Reliability Statistics

Cronbach's Alpha	N of Items
,493	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HRpart1R	12,1899	2,284	,245	,592
HRpart2	11,5570	3,404	,448	,294
HRpart3	11,6203	2,777	,335	,352

Team development**Correlation Matrix**

		HRteam4	HRteam1	HRteam3	HRteam2
Correlation	HRteam4	1,000	,282	,479	,189
	HRteam1	,282	1,000	,508	,448
	HRteam3	,479	,508	1,000	,358
	HRteam2	,189	,448	,358	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,686
Bartlett's Test of Sphericity	Approx. Chi-Square	61,788
	df	6
	Sig.	,000

Communalities

	Initial	Extraction
HRteam4	1,000	,415
HRteam1	1,000	,612
HRteam3	1,000	,677
HRteam2	1,000	,445

Extraction Method: Principal
Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,149	53,721	53,721	2,149	53,721	53,721
2	,869	21,714	75,434			
3	,556	13,897	89,332			
4	,427	10,668	100,000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
HRteam4	,644
HRteam1	,782
HRteam3	,823
HRteam2	,667

Extraction Method: Principal
Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
,702	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HRteam2	14,53	10,868	,420	,680
HRteam1	15,15	10,028	,546	,600
HRteam3	14,59	10,321	,612	,568
HRteam4	15,04	10,960	,392	,699

Job design

Correlation Matrix

	HRjob4R	HRjob1	HRjob6	HRjob3	HRjob5	HRjob2
HRjob4R	1,000	,194	,273	,157	,210	,298
HRjob1	,194	1,000	,066	,640	,481	,546
HRjob6	,273	,066	1,000	,027	,202	,069
HRjob3	,157	,640	,027	1,000	,392	,668
HRjob5	,210	,481	,202	,392	1,000	,370
HRjob2	,298	,546	,069	,668	,370	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,745
Bartlett's Test of Sphericity	Approx. Chi-Square	125,771
	df	15
	Sig.	,000

Communalities

	Initial	Extraction
HRjob4R	1,000	,554
HRjob1	1,000	,710
HRjob6	1,000	,712
HRjob3	1,000	,769
HRjob5	1,000	,472
HRjob2	1,000	,685

Extraction Method: Principal

Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,707	45,118	45,118	2,707	45,118	45,118
2	1,195	19,919	65,036	1,195	19,919	65,036
3	,773	12,878	77,915			
4	,616	10,264	88,179			
5	,417	6,950	95,129			
6	,292	4,871	100,000			

Extraction Method: Principal Component Analysis.

Reliability Statistics

Cronbach's Alpha	N of Items
,688	6

Item-Total Statistics

	Scale Mean if Deleted	Scale Variance if Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Deleted
HRjob1	26,1646	19,575	,550	,609
HRjob6	27,9873	20,782	,191	,749
HRjob3	26,5316	20,329	,536	,619
HRjob5	26,4430	20,199	,489	,628
HRjob2	26,7215	19,255	,565	,603
HRjob4R	26,4051	20,039	,346	,675

Pattern Matrix^a

	Component	
	1	2
HRjob4R		,697
HRjob1	,850	
HRjob6		,863
HRjob3	,897	
HRjob5	,582	
HRjob2	,823	

Extraction Method: Principal

Component Analysis.

Rotation Method: Oblimin with

Kaiser Normalization.^a

a. Rotation converged in 4 iterations.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HRjob1	22,1013	13,502	,630	,662
HRjob3	22,4684	14,073	,631	,667
HRjob5	22,3797	14,726	,478	,717
HRjob2	22,6582	13,202	,648	,654
HRjob4R	22,3418	15,177	,271	,808

Reliability Statistics

Cronbach's Alpha	N of Items
,749	5

Training**Correlation Matrix**

		HRtraining 2R	HRtraining1	HRtraining3	HRtraining 4
Correlation	HRtraining2R	1,000	,195	,280	,147
	HRtraining1	,195	1,000	,494	,107
	HRtraining3	,280	,494	1,000	,239
	HRtraining4	,147	,107	,239	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,600
Bartlett's Test of Sphericity	Approx. Chi-Square	32,772
	df	6
	Sig.	,000

Communalities

	Initial	Extraction
HRtraining2R	1,000	,330
HRtraining1	1,000	,544
HRtraining3	1,000	,680
HRtraining4	1,000	,218

Extraction Method: Principal
Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1,772	44,290	44,290	1,772	44,290	44,290
2	,920	22,990	67,280			
3	,827	20,676	87,956			
4	,482	12,044	100,000			

Component Matrix^a

	Component
	1
HRtraining2R	,574
HRtraining1	,738
HRtraining3	,825
HRtraining4	,466

Extraction Method: Principal

Component Analysis.

a. 1 components extracted.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HRtraining2R	15,7595	7,236	,280	,505
HRtraining3	15,2152	8,197	,497	,344
HRtraining1	15,8354	8,216	,346	,434
HRtraining4	16,7975	8,420	,215	,548

Reliability Statistics

Cronbach's Alpha	N of Items
,529	4

HBDIAnalysis 1**Correlation Matrix**

	HBDI1	HBDI2	HBDI3	HBDI4	HBDI5	HBDI6	HBDI8	HBDI9	HBDI7R
HBDI1	1,000	,416	,320	,008	,374	,360	,003	,061	,176
HBDI2	,416	1,000	,644	,388	,664	,549	,345	,392	,397
HBDI3	,320	,644	1,000	,685	,611	,730	,419	,569	,442
HBDI4	,008	,388	,685	1,000	,417	,524	,623	,559	,271
HBDI5	,374	,664	,611	,417	1,000	,628	,470	,387	,316
HBDI6	,360	,549	,730	,524	,628	1,000	,469	,459	,370
HBDI8	,003	,345	,419	,623	,470	,469	1,000	,573	,276
HBDI9	,061	,392	,569	,559	,387	,459	,573	1,000	,369
HBDI7R	,176	,397	,442	,271	,316	,370	,276	,369	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,831
Approx. Chi-Square	346,705
Bartlett's Test of Sphericity	df
	36

Sig.

,000

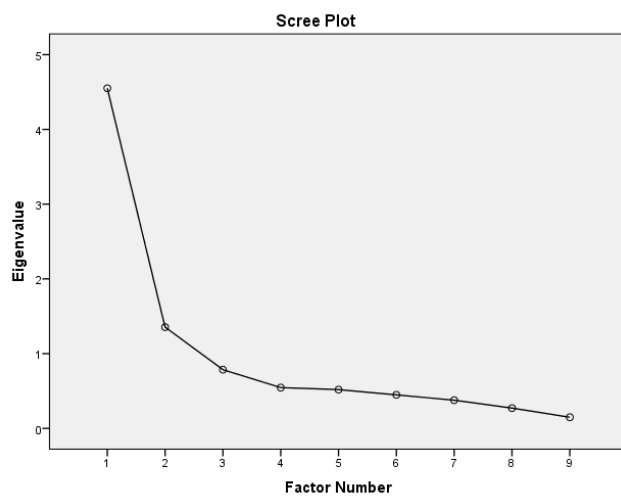
Communalities

	Initial	Extraction
HBDI1	,297	,426
HBDI2	,564	,632
HBDI3	,766	,755
HBDI4	,646	,689
HBDI5	,582	,602
HBDI6	,613	,635
HBDI8	,557	,551
HBDI9	,478	,526
HBDI7R	,248	,229

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,551	50,567	50,567	4,159	46,206	46,206
2	1,355	15,052	65,618	,888	9,866	56,072
3	,785	8,724	74,342			
4	,545	6,061	80,403			
5	,518	5,760	86,163			
6	,448	4,982	91,146			
7	,377	4,190	95,336			
8	,271	3,013	98,348			
9	,149	1,652	100,000			

Extraction Method: Principal Axis Factoring.



Analysis 2

Correlation Matrix

	HBDI1	HBDI2	HBDI3	HBDI4	HBDI5	HBDI6	HBDI8	HBDI9	HBDI7R
HBDI1	1,000	,416	,320	,008	,374	,360	,003	,061	,176
HBDI2	,416	1,000	,644	,388	,664	,549	,345	,392	,397
HBDI3	,320	,644	1,000	,685	,611	,730	,419	,569	,442
HBDI4	,008	,388	,685	1,000	,417	,524	,623	,559	,271
HBDI5	,374	,664	,611	,417	1,000	,628	,470	,387	,316
HBDI6	,360	,549	,730	,524	,628	1,000	,469	,459	,370
HBDI8	,003	,345	,419	,623	,470	,469	1,000	,573	,276
HBDI9	,061	,392	,569	,559	,387	,459	,573	1,000	,369
HBDI7R	,176	,397	,442	,271	,316	,370	,276	,369	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,831
Approx. Chi-Square	346,705
Bartlett's Test of Sphericity df	36
Sig.	,000

Communalities

	Initial	Extraction
HBDI1	,297	,426
HBDI2	,564	,632
HBDI3	,766	,755
HBDI4	,646	,689
HBDI5	,582	,602
HBDI6	,613	,635
HBDI8	,557	,551
HBDI9	,478	,526
HBDI7R	,248	,229

Extraction Method: Principal Axis

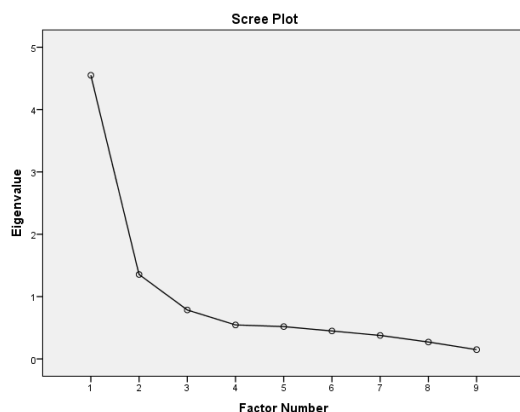
Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4,551	50,567	50,567	4,159	46,206	46,206	3,572
2	1,355	15,052	65,618	,888	9,866	56,072	2,724
3	,785	8,724	74,342				
4	,545	6,061	80,403				
5	,518	5,760	86,163				
6	,448	4,982	91,146				
7	,377	4,190	95,336				
8	,271	3,013	98,348				
9	,149	1,652	100,000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.



Analysis 3

Correlation Matrix

	HBDI1	HBDI2	HBDI3	HBDI4	HBDI5	HBDI8	HBDI9	HBDI7R
HBDI1	1,000	,416	,320	,008	,374	,003	,061	,176
HBDI2	,416	1,000	,644	,388	,664	,345	,392	,397
HBDI3	,320	,644	1,000	,685	,611	,419	,569	,442
HBDI4	,008	,388	,685	1,000	,417	,623	,559	,271
HBDI5	,374	,664	,611	,417	1,000	,470	,387	,316
HBDI8	,003	,345	,419	,623	,470	1,000	,573	,276
HBDI9	,061	,392	,569	,559	,387	,573	1,000	,369
HBDI7R	,176	,397	,442	,271	,316	,276	,369	1,000

Communalities

	Initial	Extraction
HBDI1	,275	,388
HBDI2	,564	,699
HBDI3	,721	,726
HBDI4	,646	,691
HBDI5	,561	,591
HBDI8	,542	,549
HBDI9	,478	,536
HBDI7R	,247	,232

Extraction Method: Principal Axis

Factoring.

KMO and Bartlett's Test

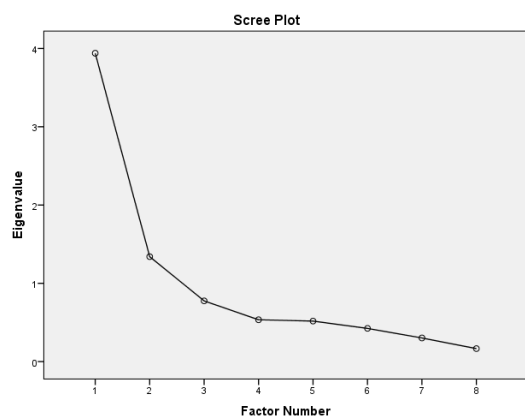
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,790
Approx. Chi-Square		277,482
Bartlett's Test of Sphericity	df	28
	Sig.	,000

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3,939	49,238	49,238	3,543	44,294	44,294	3,108
2	1,341	16,760	65,998	,868	10,848	55,142	2,242
3	,776	9,694	75,691				
4	,535	6,684	82,376				
5	,518	6,470	88,845				
6	,424	5,301	94,146				
7	,302	3,779	97,925				
8	,166	2,075	100,000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.



Analysis 4

Correlation Matrix

	HBDI1	HBDI2	HBDI4	HBDI5	HBDI8	HBDI9	HBDI7R
HBDI1	1,000	,416	,008	,374	,003	,061	,176
HBDI2	,416	1,000	,388	,664	,345	,392	,397
HBDI4	,008	,388	1,000	,417	,623	,559	,271
HBDI5	,374	,664	,417	1,000	,470	,387	,316
HBDI8	,003	,345	,623	,470	1,000	,573	,276
HBDI9	,061	,392	,559	,387	,573	1,000	,369
HBDI7R	,176	,397	,271	,316	,276	,369	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,794
Approx. Chi-Square	183,248
Bartlett's Test of Sphericity	df
	21
Sig.	,000

Communalities

	Initial	Extraction
HBDI1	,247	,367
HBDI2	,530	,719
HBDI4	,473	,598
HBDI5	,532	,615
HBDI8	,507	,644
HBDI9	,440	,529
HBDI7R	,215	,220

Extraction Method: Principal Axis

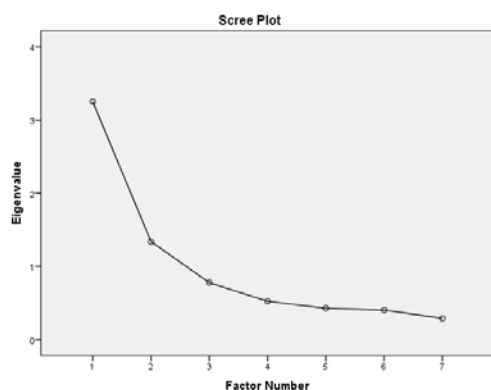
Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3,252	46,456	46,456	2,832	40,453	40,453	2,501
2	1,336	19,092	65,548	,860	12,290	52,742	1,828
3	,775	11,078	76,626				
4	,521	7,445	84,071				
5	,425	6,074	90,145				
6	,402	5,745	95,890				
7	,288	4,110	100,000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

**Pattern Matrix^a**

	Factor	
	1	2
HBDI1		,644
HBDI2		,721
HBDI4	,785	
HBDI5	,358	,584
HBDI8	,821	
HBDI9	,714	
HBDI7R	,302	

Reliability Statistics

Cronbach's Alpha	N of Items
,804	7

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HBDI7R	28,9367	32,060	,430	,796
HBDI1	28,3797	36,033	,217	,820
HBDI2	29,1013	28,451	,619	,763
HBDI4	30,7722	26,306	,601	,767
HBDI5	29,1013	28,733	,644	,760
HBDI8	30,5949	26,962	,612	,764
HBDI9	30,9114	27,107	,614	,763

IWBAnalysis 1

Correlation Matrix

	IWB 1	IWB 2	IWB3	IWB4	IWB 6	IWB7	IWB 8	IWB 10	IWB 11	IWB12	IWB 13	IBW15	IWB 16	IWB5 R	IWB9 R	IBW 14R
IWB1	1,00 0	,613	,420	,511	,274	,291	,383	,363	,297	,183	,359	,241	,382	,066	,323	,319
IWB2	,613	1,00 0	,498	,536	,459	,417	,532	,359	,397	,372	,354	,226	,260	,335	,224	,463
IWB3	,420	,498	1,000	,654	,336	,428	,272	,301	,251	,352	,582	,224	,460	,362	,232	,385
IWB4	,511	,536	,654	1,000	,450	,605	,337	,392	,387	,323	,672	,281	,469	,284	,306	,418
IWB6	,274	,459	,336	,450	1,00 0	,550	,547	,492	,461	,541	,432	,282	,238	,215	,255	,439
IWB7	,291	,417	,428	,605	,550	1,000	,346	,477	,452	,548	,526	,149	,405	,165	,269	,337
IWB8	,383	,532	,272	,337	,547	,346	1,00 0	,383	,470	,491	,267	,340	,194	,215	,063	,452
IWB10	,363	,359	,301	,392	,492	,477	,383	1,00 0	,546	,455	,467	,177	,377	,290	,321	,384
IWB11	,297	,397	,251	,387	,461	,452	,470	,546	1,00 0	,654	,309	,219	,393	,302	,160	,382
IWB12	,183	,372	,352	,323	,541	,548	,491	,455	,654	1,000	,394	,246	,299	,217	,209	,436
IWB13	,359	,354	,582	,672	,432	,526	,267	,467	,309	,394	1,00 0	,312	,480	,218	,346	,402
IBW15	,241	,226	,224	,281	,282	,149	,340	,177	,219	,246	,312	1,000	,035	,121	,187	,464
IWB16	,382	,260	,460	,469	,238	,405	,194	,377	,393	,299	,480	,035	1,00 0	,168	,335	,272
IWB5R	,066	,335	,362	,284	,215	,165	,215	,290	,302	,217	,218	,121	,168	1,000	,189	,444
IWB9R	,323	,224	,232	,306	,255	,269	,063	,321	,160	,209	,346	,187	,335	,189	1,000	,396

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,855
Bartlett's Test of Sphericity	Approx. Chi-Square	555,473
	df	120
	Sig.	,000

Communalities

	Initial	Extraction
IWB1	,560	,543
IWB2	,603	,697
IWB3	,576	,541
IWB4	,688	,721
IWB6	,522	,518
IWB7	,568	,573
IWB8	,514	,619
IWB10	,485	,452
IWB11	,598	,573
IWB12	,616	,663
IWB13	,593	,626
IBW15	,321	,236
IWB16	,438	,411
IWB5R	,366	,205
IWB9R	,323	,246
IBW14R	,529	,950

Extraction Method: Principal Axis Factoring.

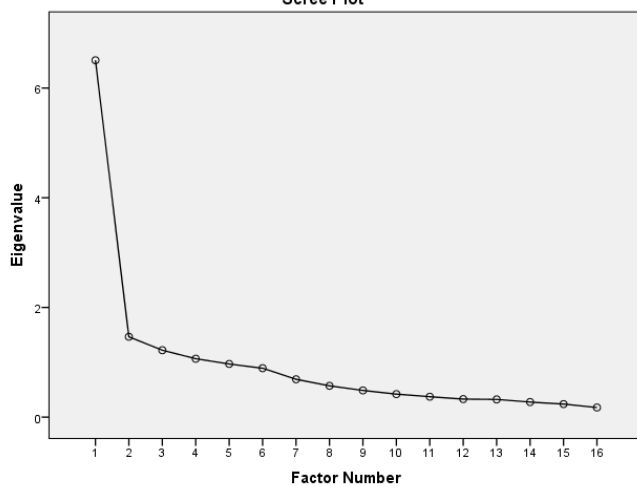
Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6,507	40,669	40,669	6,093	38,080	38,080
2	1,465	9,155	49,824	1,041	6,503	44,583
3	1,220	7,627	57,451	,803	5,017	49,600
4	1,065	6,656	64,107	,638	3,986	53,587
5	,970	6,060	70,166			
6	,892	5,576	75,743			
7	,690	4,314	80,056			
8	,571	3,566	83,623			
9	,487	3,042	86,664			
10	,420	2,623	89,287			
11	,373	2,330	91,617			
12	,330	2,060	93,677			
13	,323	2,019	95,696			
14	,275	1,718	97,414			
15	,239	1,492	98,906			
16	,175	1,094	100,000			

Correlation Matrix

	IWB1	IWB2	IWB3	IWB4	IWB6	IWB7	IWB8	IWB1	IWB1	IWB1	IWB1	IBW1	IWB1	IWB5	IBW1
								0	1	2	3	5	6	R	4R
IWB1	1,000	,613	,420	,511	,274	,291	,383	,363	,297	,183	,359	,241	,382	,066	,319
IWB2	,613	1,000	,498	,536	,459	,417	,532	,359	,397	,372	,354	,226	,260	,335	,463
IWB3	,420	,498	1,000	,654	,336	,428	,272	,301	,251	,352	,582	,224	,460	,362	,385
IWB4	,511	,536	,654	1,000	,450	,605	,337	,392	,387	,323	,672	,281	,469	,284	,418
IWB6	,274	,459	,336	,450	1,000	,550	,547	,492	,461	,541	,432	,282	,238	,215	,439
IWB7	,291	,417	,428	,605	,550	1,000	,346	,477	,452	,548	,526	,149	,405	,165	,337
IWB8	,383	,532	,272	,337	,547	,346	1,000	,383	,470	,491	,267	,340	,194	,215	,452
IWB10	,363	,359	,301	,392	,492	,477	,383	1,000	,546	,455	,467	,177	,377	,290	,384
IWB11	,297	,397	,251	,387	,461	,452	,470	,546	1,000	,654	,309	,219	,393	,302	,382
IWB12	,183	,372	,352	,323	,541	,548	,491	,455	,654	1,000	,394	,246	,299	,217	,436
IWB13	,359	,354	,582	,672	,432	,526	,267	,467	,309	,394	1,000	,312	,480	,218	,402
IBW15	,241	,226	,224	,281	,282	,149	,340	,177	,219	,246	,312	1,000	,035	,121	,464
IWB16	,382	,260	,460	,469	,238	,405	,194	,377	,393	,299	,480	,035	1,000	,168	,272
IWB5R	,066	,335	,362	,284	,215	,165	,215	,290	,302	,217	,218	,121	,168	1,000	,444
IBW14R	,319	,463	,385	,418	,439	,337	,452	,384	,382	,436	,402	,464	,272	,444	1,000

Scree Plot



Analysis 2**Communalities**

	Initial	Extraction
IWB1	,540	,827
IWB2	,602	,594
IWB3	,570	,606
IWB4	,688	,734
IWB6	,518	,518
IWB7	,567	,581
IWB8	,483	,564
IWB10	,479	,453
IWB11	,590	,587
IWB12	,614	,651
IWB13	,592	,629
IBW15	,320	,261
IWB16	,421	,401
IWB5R	,363	,244
IBW14R	,499	,664

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,857
Approx. Chi-Square		530,327
Bartlett's Test of Sphericity	df	105
Sig.		,000

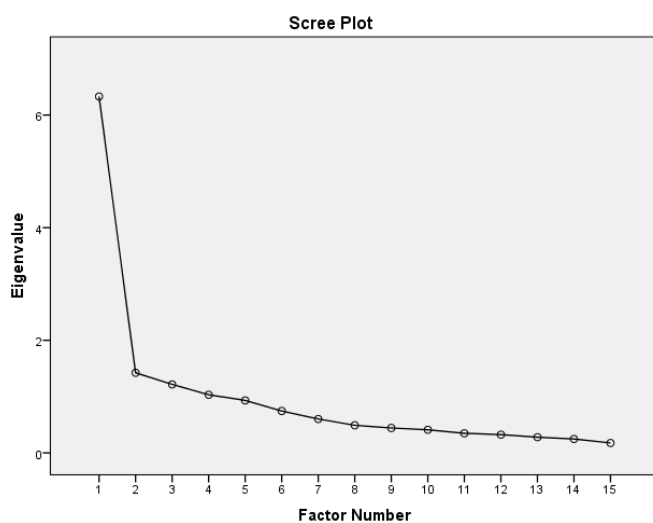
Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6,330	42,200	42,200	5,917	39,444	39,444	4,562
2	1,422	9,483	51,683	1,036	6,910	46,354	3,464
3	1,217	8,115	59,798	,771	5,142	51,496	3,003
4	1,033	6,885	66,684	,588	3,923	55,418	3,277
5	,932	6,214	72,898				
6	,744	4,958	77,856				
7	,602	4,016	81,872				
8	,490	3,268	85,140				
9	,442	2,949	88,089				
10	,410	2,737	90,826				
11	,349	2,324	93,150				
12	,325	2,164	95,314				
13	,279	1,859	97,173				
14	,247	1,650	98,822				
15	,177	1,178	100,000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.



Analysis 3

Correlation Matrix

	IWB1	IWB2	IWB3	IWB4	IWB6	IWB8	IWB10	IWB11	IWB12	IWB13	IBW15	IWB16	IWB5	IBW14
													R	R
IWB1	1,000	,613	,420	,511	,274	,383	,363	,297	,183	,359	,241	,382	,066	,319
IWB2	,613	1,000	,498	,536	,459	,532	,359	,397	,372	,354	,226	,260	,335	,463
IWB3	,420	,498	1,000	,654	,336	,272	,301	,251	,352	,582	,224	,460	,362	,385
IWB4	,511	,536	,654	1,000	,450	,337	,392	,387	,323	,672	,281	,469	,284	,418
IWB6	,274	,459	,336	,450	1,000	,547	,492	,461	,541	,432	,282	,238	,215	,439
IWB8	,383	,532	,272	,337	,547	1,000	,383	,470	,491	,267	,340	,194	,215	,452
IWB10	,363	,359	,301	,392	,492	,383	1,000	,546	,455	,467	,177	,377	,290	,384
IWB11	,297	,397	,251	,387	,461	,470	,546	1,000	,654	,309	,219	,393	,302	,382
IWB12	,183	,372	,352	,323	,541	,491	,455	,654	1,000	,394	,246	,299	,217	,436
IWB13	,359	,354	,582	,672	,432	,267	,467	,309	,394	1,000	,312	,480	,218	,402
IBW15	,241	,226	,224	,281	,282	,340	,177	,219	,246	,312	1,000	,035	,121	,464
IWB16	,382	,260	,460	,469	,238	,194	,377	,393	,299	,480	,035	1,000	,168	,272
IWB5	,066	,335	,362	,284	,215	,215	,290	,302	,217	,218	,121	,168	1,000	,444
IBW14	,319	,463	,385	,418	,439	,452	,384	,382	,436	,402	,464	,272	,444	1,000

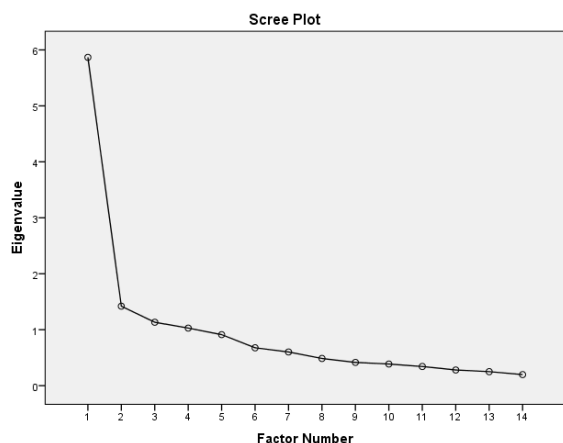
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,846
Approx. Chi-Square		472,898
Bartlett's Test of Sphericity	df	91
	Sig.	,000

Communalities

	Initial	Extraction
IWB1	,535	,819
IWB2	,599	,605
IWB3	,570	,618
IWB4	,644	,698
IWB6	,498	,493
IWB8	,482	,572
IWB10	,468	,466
IWB11	,590	,679
IWB12	,580	,612
IWB13	,591	,623
IBW15	,314	,272
IWB16	,416	,477
IWB5R	,355	,223
IBW14R	,498	,592

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5,867	41,910	41,910	5,452	38,946	38,946	4,030
2	1,420	10,143	52,053	1,039	7,423	46,368	3,592
3	1,134	8,097	60,149	,693	4,947	51,315	2,895
4	1,029	7,351	67,500	,565	4,035	55,350	2,578
5	,912	6,512	74,011				
6	,677	4,835	78,847				
7	,602	4,300	83,146				
8	,486	3,471	86,618				
9	,416	2,969	89,586				
10	,387	2,762	92,348				
11	,343	2,448	94,796				
12	,280	2,002	96,799				
13	,250	1,789	98,588				
14	,198	1,412	100,000				



Analysis 4

Correlation Matrix

	IWB1	IWB2	IWB3	IWB4	IWB6	IWB1 0	IWB1 1	IWB1 2	IWB1 3	IBW1 5	IWB1 6	IWB5 R	IBW1 4R
IWB1	1,000	,613	,420	,511	,274	,363	,297	,183	,359	,241	,382	,066	,319
IWB2	,613	1,000	,498	,536	,459	,359	,397	,372	,354	,226	,260	,335	,463
IWB3	,420	,498	1,000	,654	,336	,301	,251	,352	,582	,224	,460	,362	,385
IWB4	,511	,536	,654	1,000	,450	,392	,387	,323	,672	,281	,469	,284	,418
IWB6	,274	,459	,336	,450	1,000	,492	,461	,541	,432	,282	,238	,215	,439
IWB1 0	,363	,359	,301	,392	,492	1,000	,546	,455	,467	,177	,377	,290	,384
IWB1 1	,297	,397	,251	,387	,461	,546	1,000	,654	,309	,219	,393	,302	,382
IWB1 2	,183	,372	,352	,323	,541	,455	,654	1,000	,394	,246	,299	,217	,436
IWB1 3	,359	,354	,582	,672	,432	,467	,309	,394	1,000	,312	,480	,218	,402
IBW1 5	,241	,226	,224	,281	,282	,177	,219	,246	,312	1,000	,035	,121	,464
IWB1 6	,382	,260	,460	,469	,238	,377	,393	,299	,480	,035	1,000	,168	,272
IWB5 R	,066	,335	,362	,284	,215	,290	,302	,217	,218	,121	,168	1,000	,444
IBW1 4R	,319	,463	,385	,418	,439	,384	,382	,436	,402	,464	,272	,444	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,827
Approx. Chi-Square		427,887
Bartlett's Test of Sphericity	df	78
	Sig.	,000

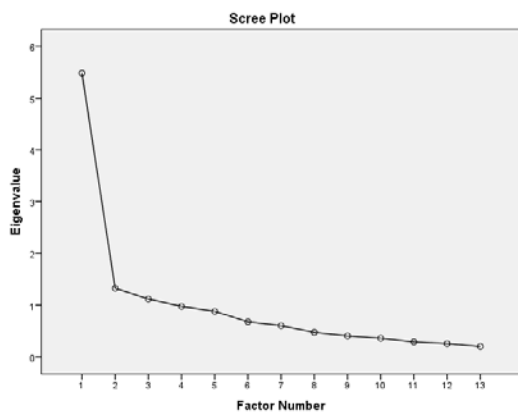
Communalities

	Initial	Extraction
IWB1	,530	,378
IWB2	,578	,473
IWB3	,569	,592
IWB4	,643	,728
IWB6	,463	,456
IWB10	,468	,472
IWB11	,586	,689
IWB12	,571	,595
IWB13	,588	,537
IBW15	,299	,274
IWB16	,415	,444
IWB5R	,355	,198
IBW14R	,494	,671

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5,484	42,188	42,188	5,023	38,640	38,640	4,233
2	1,324	10,185	52,373	,900	6,920	45,560	3,691
3	1,117	8,596	60,969	,584	4,494	50,054	2,505
4	,975	7,502	68,471				
5	,877	6,750	75,221				
6	,671	5,160	80,380				
7	,597	4,589	84,969				
8	,468	3,599	88,568				
9	,400	3,076	91,644				
10	,355	2,727	94,371				
11	,283	2,180	96,551				
12	,251	1,928	98,479				
13	,198	1,521	100,000				

Extraction Method: Principal Axis Factoring.

**Pattern Matrix^a**

	Factor		
	1	2	3
IWB1	,595		
IWB2	,441		
IWB3	,772		
IWB4	,840		
IWB6		,468	
IWB10		,558	
IWB11		,863	
IWB12		,758	
IWB13	,651		
IBW15			,486
IWB16	,600		
IWB5R			
IBW14R			,681

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
,880	13

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
IWB1	64,6538	68,021	,509	,875
IWB2	64,5641	66,015	,624	,870
IWB3	64,8974	62,509	,626	,868
IWB4	65,0513	62,465	,702	,864
IWB6	65,0769	65,526	,600	,870
IWB10	65,1154	63,090	,597	,870
IWB11	65,2179	64,121	,601	,870
IWB12	65,2564	63,102	,580	,871
IWB13	65,0897	62,732	,654	,866
IBW15	64,6282	69,276	,352	,881
IWB16	65,4487	64,952	,496	,876
IWB5R	64,7821	66,952	,387	,882
IBW14R	64,3718	63,873	,621	,868

Innovativeness SME**Correlation Matrix**

	Innov1	Innov2	Innov3	Innov4	Innov5	Innov6	Innov7	Innov8	Innov9
Innov1	1,000	,549	,568	,591	,507	,531	,423	,513	,543
Innov2	,549	1,000	,500	,559	,364	,341	,463	,630	,548
Innov3	,568	,500	1,000	,651	,413	,524	,546	,481	,609
Innov4	,591	,559	,651	1,000	,506	,494	,458	,561	,541
Correlation Innov5	,507	,364	,413	,506	1,000	,523	,326	,397	,378
Innov6	,531	,341	,524	,494	,523	1,000	,579	,589	,557
Innov7	,423	,463	,546	,458	,326	,579	1,000	,479	,433
Innov8	,513	,630	,481	,561	,397	,589	,479	1,000	,590
Innov9	,543	,548	,609	,541	,378	,557	,433	,590	1,000

Communalities

	Initial	Extraction
Innov1	1,000	,602
Innov2	1,000	,540
Innov3	1,000	,622
Innov4	1,000	,637
Innov5	1,000	,412
Innov6	1,000	,577
Innov7	1,000	,479
Innov8	1,000	,608
Innov9	1,000	,601

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,880
Approx. Chi-Square		341,691
Bartlett's Test of Sphericity	df	36
	Sig.	,000

Extraction Method: Principal Component Analysis.

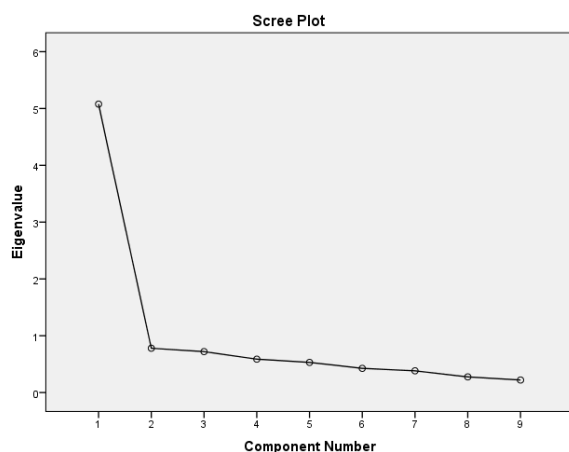
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,078	56,417	56,417	5,078	56,417	56,417
2	,780	8,669	65,086			
3	,720	8,003	73,089			
4	,588	6,528	79,617			
5	,531	5,896	85,514			
6	,426	4,734	90,248			
7	,382	4,244	94,491			
8	,276	3,063	97,554			
9	,220	2,446	100,000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
Innov1	,776
Innov2	,735
Innov3	,789
Innov4	,798
Innov5	,642
Innov6	,759
Innov7	,692
Innov8	,780
Innov9	,775



Reliability Statistics

Cronbach's Alpha	N of Items
,901	9

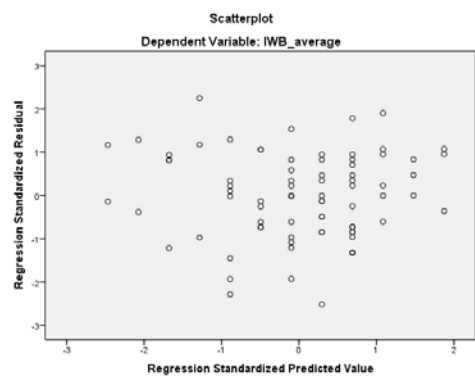
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Innov1	31,06	25,298	,699	,888
Innov2	31,38	25,501	,653	,892
Innov3	31,13	24,799	,713	,887
Innov4	31,26	25,063	,725	,886
Innov5	31,01	26,539	,555	,898
Innov6	31,34	24,411	,690	,889
Innov7	31,48	24,884	,613	,895
Innov8	31,62	23,922	,706	,888
Innov9	31,48	25,516	,700	,889

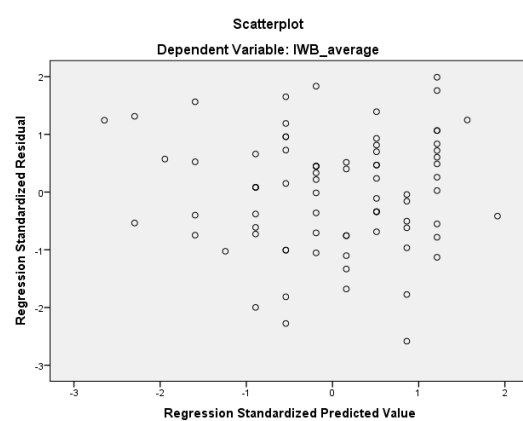
4.3 Assumptions

Linearity

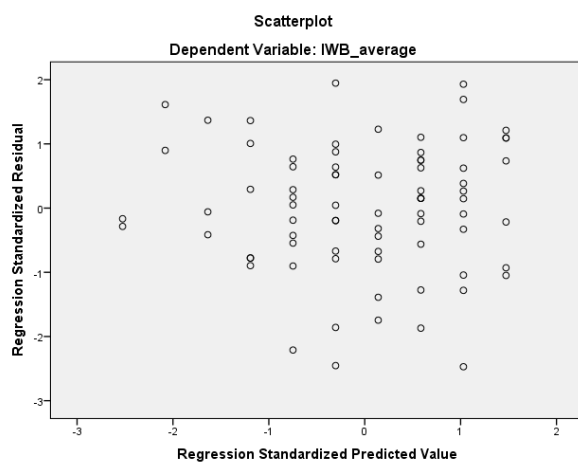
Staffing



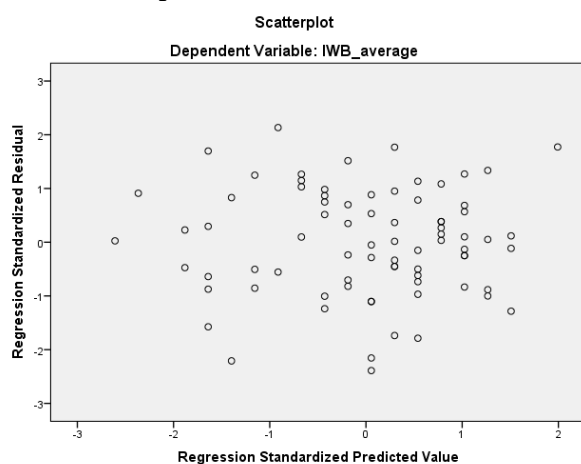
Performance



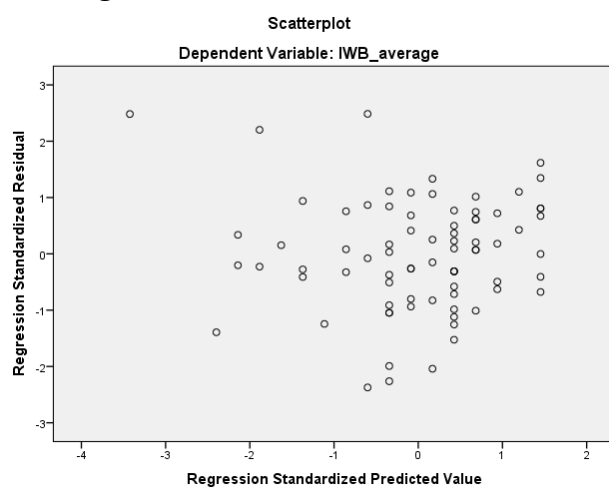
Participation



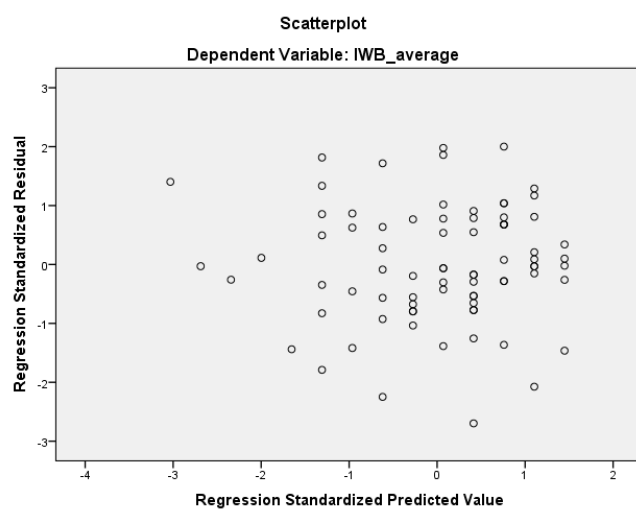
Team development



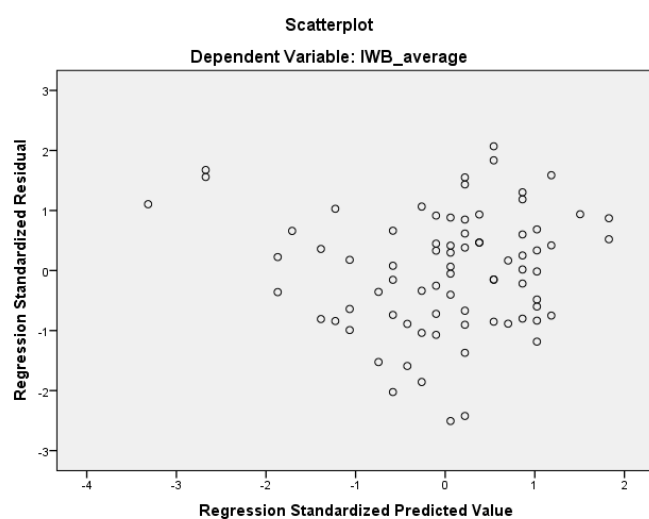
Job design



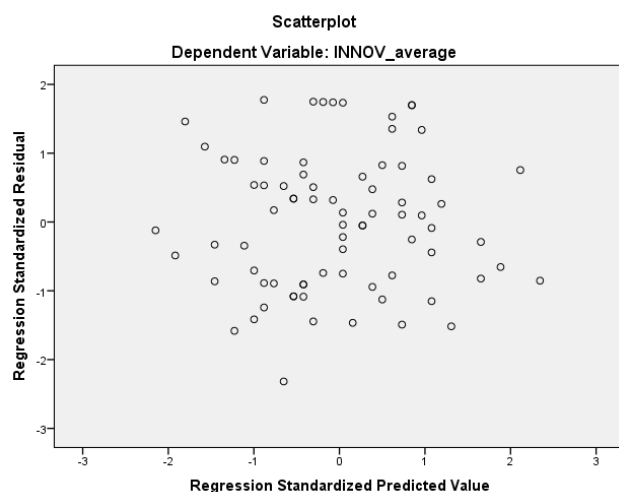
Training



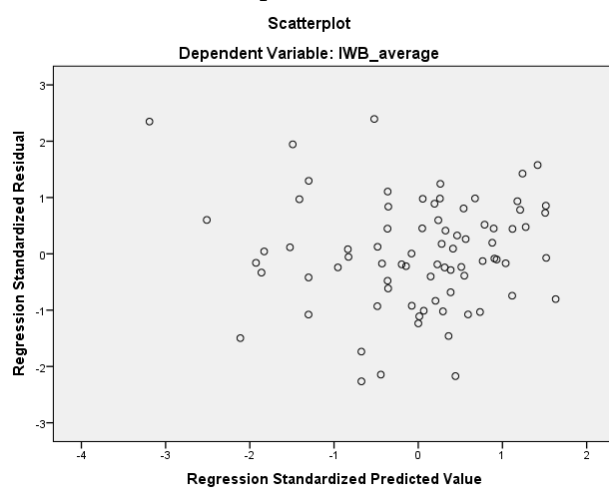
HBDI



IWB

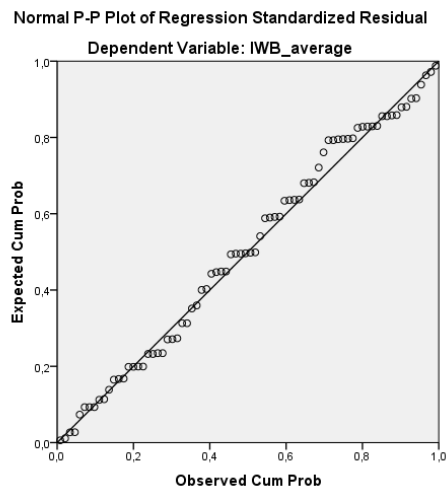


Combination of HR practices

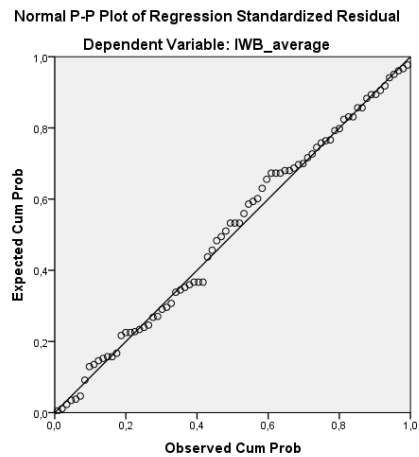


Homogeneity of variance

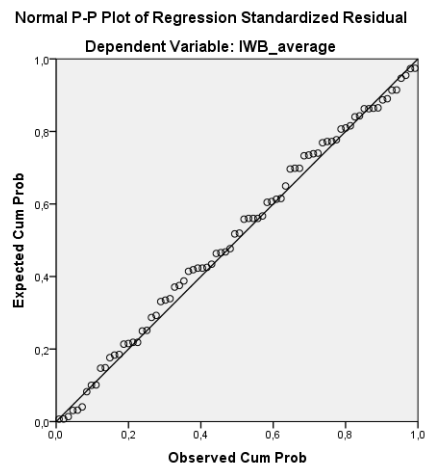
Staffing



Performance

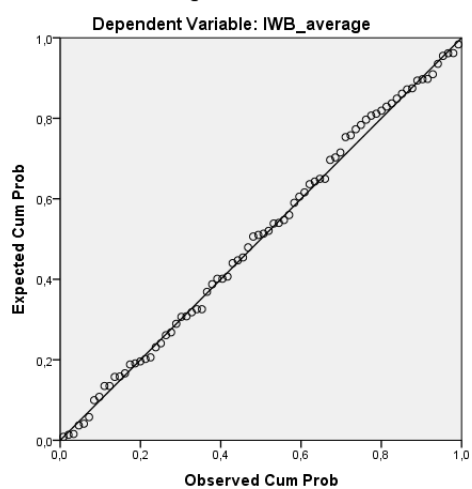


Participation



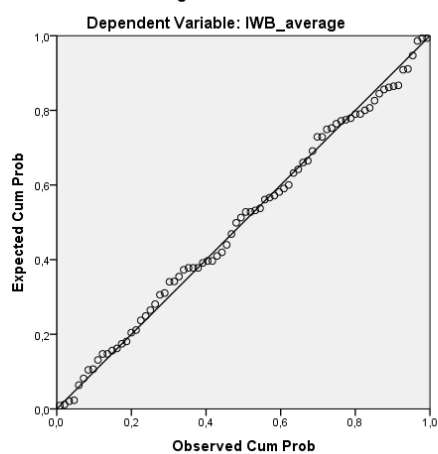
Team development

Normal P-P Plot of Regression Standardized Residual



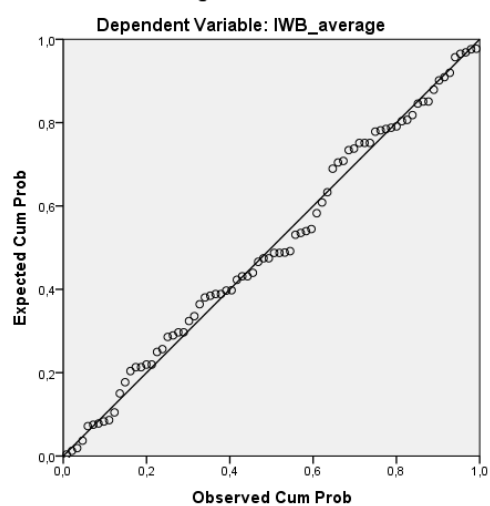
Job design

Normal P-P Plot of Regression Standardized Residual



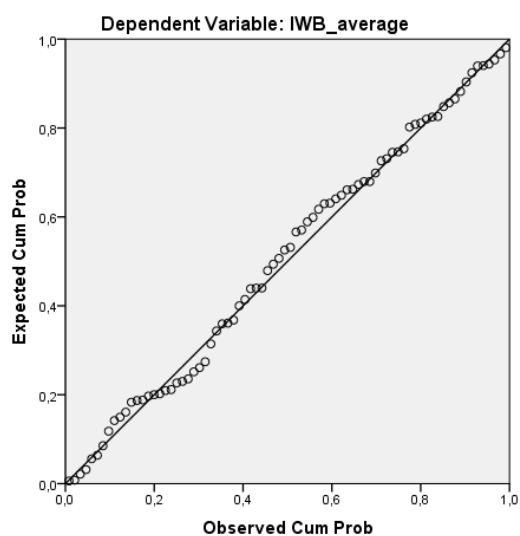
Training

Normal P-P Plot of Regression Standardized Residual



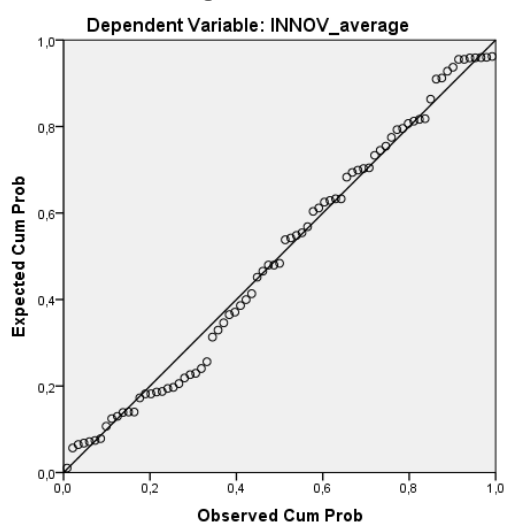
HBDI

Normal P-P Plot of Regression Standardized Residual



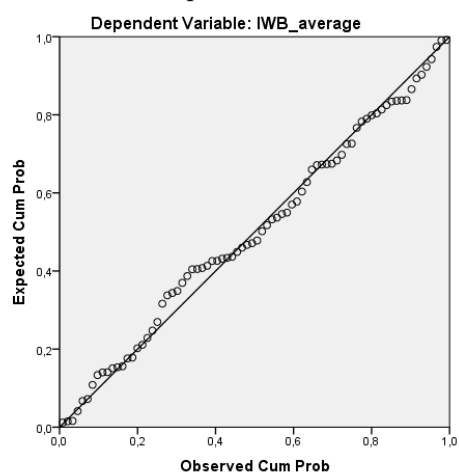
IWB

Normal P-P Plot of Regression Standardized Residual



Combination of HR practices

Normal P-P Plot of Regression Standardized Residual



Staffing**Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-2,467	1,873	,000	1,000	79

a. Dependent Variable: IWB_average

Performance**Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-2,647	1,914	,000	1,000	79

a. Dependent Variable: IWB_average

Participation**Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-2,525	1,474	,000	1,000	79

a. Dependent Variable: IWB_average

Team development**Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-2,609	1,993	,000	1,000	79

a. Dependent Variable: IWB_average

Job design**Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-3,425	1,452	,000	1,000	79

a. Dependent Variable: IWB_average

Training**Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-2,609	1,993	,000	1,000	79

HBDI**Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-3,316	1,827	,000	1,000	79

a. Dependent Variable: IWB_average

IWB**Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-2,149	2,460	,000	1,000	78

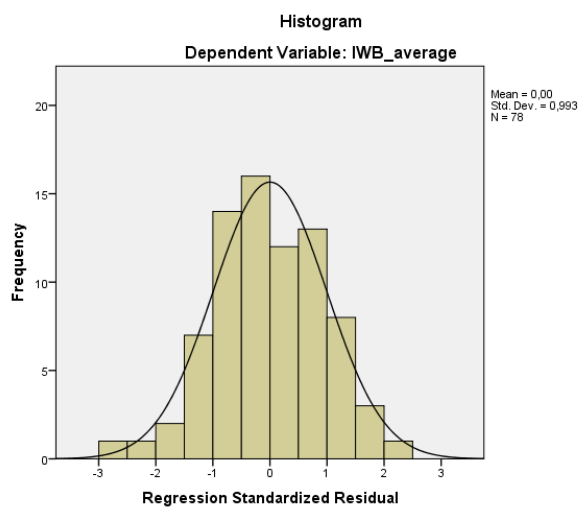
a. Dependent Variable: INNOV_average

Combination of HR practices**Residuals Statistics^a**

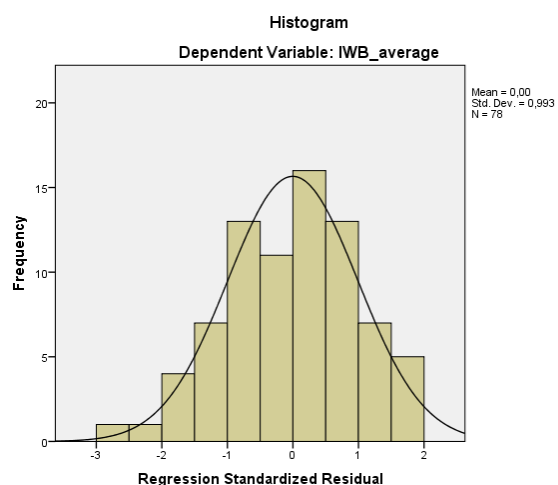
	Minimum	Maximum	Mean	Std. Deviation	N
Std. Predicted Value	-3,192	1,631	,000	1,000	79

a. Dependent Variable: IWB_average

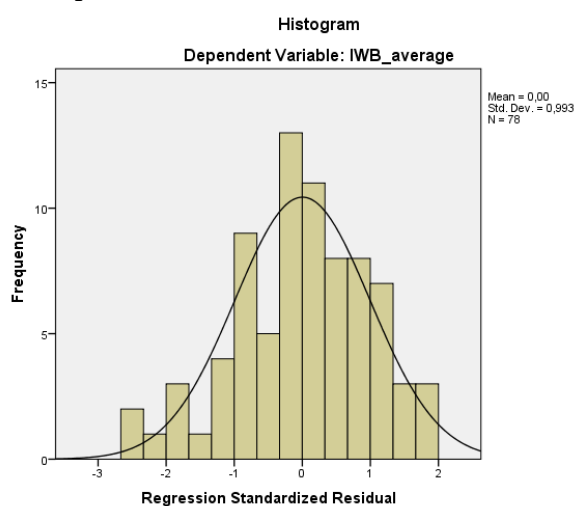
Error term is normally distributed

Staffing

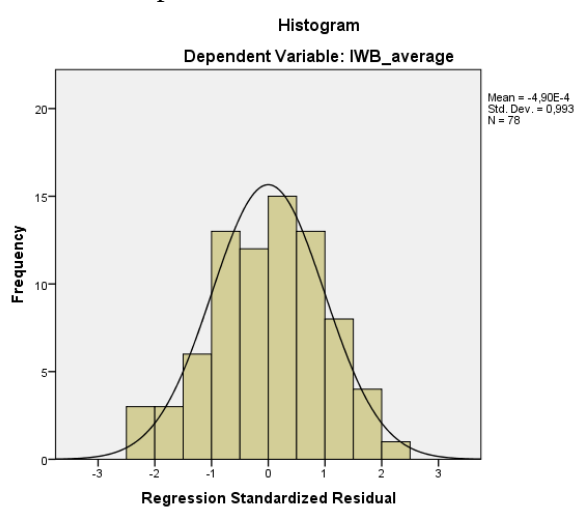
Performance



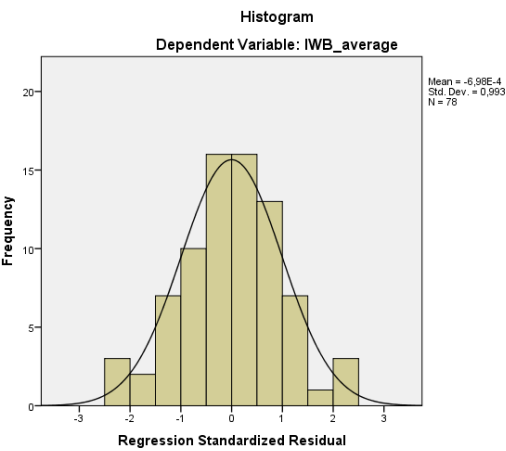
Participation



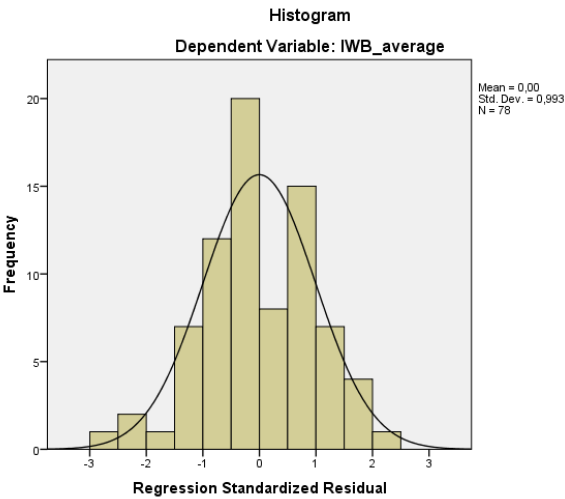
Team development



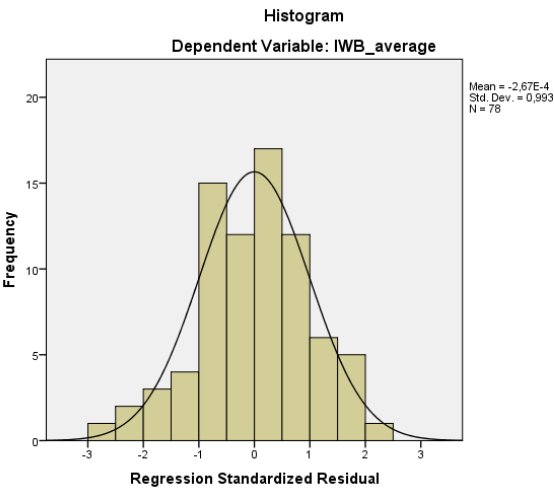
Job design



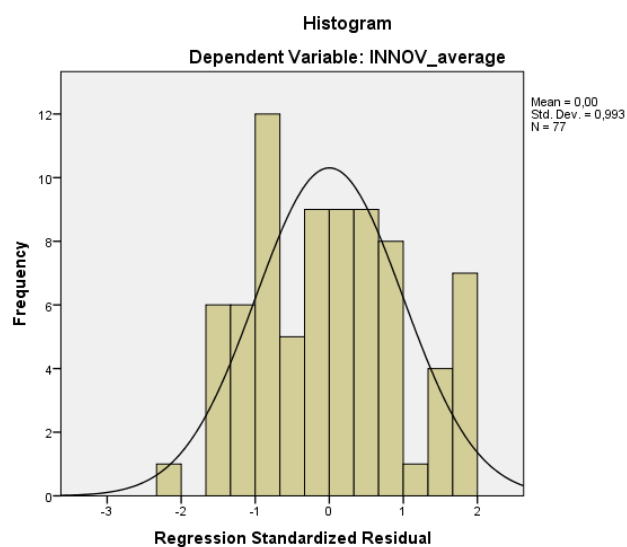
Training



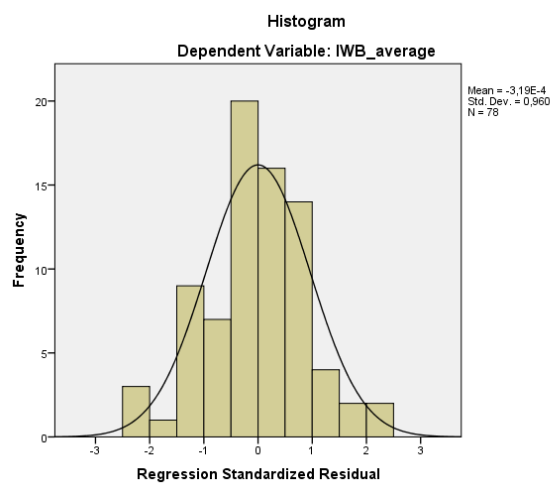
HBDI



IWB



Combination of HR practices



Multicollinaerity

Coefficients^a

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
HR_average	,712	1,405
HBDI_average	,712	1,405

a. Dependent Variable: IWB_average

Outliers

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	4,5258	5,9773	5,4112	,27005	79
Std. Predicted Value	-3,279	2,096	,000	1,000	79
Standard Error of Predicted Value	,070	,265	,114	,042	79
Adjusted Predicted Value	4,4657	6,0105	5,4048	,28073	78
Residual	-1,42421	1,34138	-,00122	,61054	78
Std. Residual	-2,302	2,168	-,002	,987	78
Stud. Residual	-2,326	2,227	,004	1,008	78
Deleted Residual	-1,45376	1,41475	,00639	,63685	78
Stud. Deleted Residual	-2,399	2,289	,003	1,019	78
Mahal. Distance	,011	13,111	1,975	2,577	79
Cook's Distance	,000	,133	,015	,025	78
Centered Leverage Value	,000	,170	,026	,033	79

a. Dependent Variable: IWB_average

4.4 Regression analysis

4.4.1 Regression with PROCESS: HR practices

Model = 4
 Y = INNOV
 X = HR_new
 M = IWB

Statistical Controls:
 CONTROL= NMF

Sample size
 72

Outcome: IWB

Model Summary

	R	R-sq	MSE	F	df1	df2
p	,5462	,2984	,2831	14,6702	2,0000	69,0000
	,0000					

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,9417	,5866	6,7190	,0000	2,7714	5,1121
HR_new	,3576	,1011	3,5392	,0007	,1560	,5592
NMF	-,5781	,1597	-3,6191	,0006	-,8967	-,2594

Outcome: INNOV

Model Summary

	R	R-sq	MSE	F	df1	df2
p						
	,3907	,1526	,3491	4,0823	3,0000	68,0000
	,0100					

Model

	coeff	se	t	p	LLCI	ULCI
constant	2,0571	,8379	2,4552	,0166	,3852	3,7290
IWB	-,0852	,1337	-,6372	,5261	-,3519	,1816
HR_new	,3928	,1220	3,2201	,0020	,1494	,6362
NMF	,2327	,1935	1,2027	,2333	-,1534	,6187

***** TOTAL EFFECT MODEL *****

Outcome: INNOV

Model Summary

	R	R-sq	MSE	F	df1	df2
p						
	,3841	,1476	,3461	5,9719	2,0000	69,0000
	,0041					

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,7214	,6486	2,6539	,0099	,4274	3,0153
HR_new	,3623	,1117	3,2427	,0018	,1394	,5852
NMF	,2819	,1766	1,5964	,1150	-,0704	,6342

***** TOTAL, DIRECT, AND INDIRECT EFFECTS *****

Total effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,3623	,1117	3,2427	,0018	,1394	,5852

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,3928	,1220	3,2201	,0020	,1494	,6362

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
IWB	-,0305	,0566	-,1794	,0548

Partially standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
IWB	-,0486	,0920	-,2831	,0965

Completely standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
IWB	-,0306	,0562	-,1731	,0575

Ratio of indirect to total effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
IWB	-,0841	,2899	-,6367	,1925

Ratio of indirect to direct effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
IWB	-,0776	,2117	-,3923	,2212

Normal theory tests for indirect effect

Effect	se	Z	p
-,0305	,0504	-,6042	,5457

***** ANALYSIS NOTES AND WARNINGS *****

Number of bootstrap samples for bias corrected bootstrap confidence intervals:

1000

Level of confidence for all confidence intervals in output:

95,00

NOTE: Some cases were deleted due to missing data. The number of such cases was:

4.4.2 Regression with PROCESS: HBDI

Model = 4

Y = INNOV

X = HBDI

M = IWB

Statistical Controls:

CONTROL= NMF

Sample size

72

Outcome: IWB

Model Summary

	R	R-sq	MSE	F	df1	df2
p	,4922	,2423	,3057	11,0313	2,0000	69,0000
	,0001					

Model

	coeff	se	t	p	LLCI	ULCI
constant	4,8928	,4427	11,0529	,0000	4,0097	5,7759
HBDI	,2035	,0799	2,5480	,0131	,0442	,3628
NMF	-,6025	,1657	-3,6364	,0005	-,9330	-,2720

Outcome: INNOV

Model Summary

	R	R-sq	MSE	F	df1	df2
p	,3514	,1235	,3611	3,1924	3,0000	68,0000
	,0290					

Model

	coeff	se	t	p	LLCI	ULCI
constant	2,5794	,8008	3,2212	,0020	,9815	4,1773
IWB	-,0233	,1308	-,1785	,8589	-,2844	,2377
HBDI	,2530	,0908	2,7861	,0069	,0718	,4341
NMF	,2528	,1966	1,2864	,2027	-,1394	,6451

***** TOTAL EFFECT MODEL *****

Outcome: INNOV

Model Summary

	R	R-sq	MSE	F	df1	df2
p	,3508	,1230	,3560	4,8407	2,0000	69,0000
	,0108					

Model

	coeff	se	t	p	LLCI	ULCI
constant	2,4652	,4777	5,1606	,0000	1,5122	3,4182
HBDI	,2482	,0862	2,8797	,0053	,0763	,4201
NMF	,2669	,1788	1,4929	,1400	-,0898	,6236

***** TOTAL, DIRECT, AND INDIRECT EFFECTS *****

Total effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,2482	,0862	2,8797	,0053	,0763	,4201

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,2530	,0908	2,7861	,0069	,0718	,4341

Indirect effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI
IWB -,0048	,0292	-,0703	,0484

Partially standardized indirect effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI
IWB -,0076	,0467	-,1121	,0768

Completely standardized indirect effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI
IWB -,0063	,0359	-,0820	,0612

Ratio of indirect to total effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI
IWB -,0191	,1877	-,3454	,2536

Ratio of indirect to direct effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI
IWB -,0188	,3181	-,2610	,3225

Normal theory tests for indirect effect

Effect	se	Z	p
-,0048	,0287	-,1658	,8683

***** ANALYSIS NOTES AND WARNINGS *****

Number of bootstrap samples for bias corrected bootstrap confidence intervals:

1000

Level of confidence for all confidence intervals in output:

95,00

NOTE: Some cases were deleted due to missing data. The number of such cases was:7

4.4.3 Hierarchical regression analysis with IWB as dependent variable

Model Summary^c

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,414 ^a	,171	,159	,61217	,171	14,438	1	70	,000
2	,646 ^b	,418	,354	,53651	,247	4,523	6	64	,001

a. Predictors: (Constant), Nomanagerialfunction

b. Predictors: (Constant), Nomanagerialfunction, Perf_average, Job_average, Team_average, Staf_average, Part_average, Training_average

c. Dependent Variable: IWB_average

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5,411	1	5,411	14,438	,000 ^b
	Residual	26,233	70	,375		
	Total	31,643	71			
2	Regression	13,222	7	1,889	6,562	,000 ^c
	Residual	18,422	64	,288		
	Total	31,643	71			

a. Dependent Variable: IWB_average

b. Predictors: (Constant), Nomanagerialfunction

c. Predictors: (Constant), Nomanagerialfunction, Perf_average, Job_average, Team_average, Staf_average, Part_average, Training_average

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	5,969	,164		36,484	,000	5,643	6,296					
	Nomanagerialfunction	-,693	,182	-,414	-3,800	,000	-1,056	-,329	-,414	-,414	-,414	1,000	1,000
2	(Constant)	3,740	,605		6,186	,000	2,532	4,947					
	Nomanagerialfunction	-,586	,162	-,350	-3,625	,001	-,909	-,263	-,414	-,413	-,346	,977	1,024
	Staf_average	-,004	,093	-,005	-,042	,966	-,190	,182	,287	-,005	-,004	,655	1,527
	Perf_average	-,032	,081	-,046	-,397	,693	-,194	,130	,136	-,050	-,038	,682	1,466
	Part_average	,037	,109	,042	,345	,731	-,180	,255	,271	,043	,033	,609	1,643
	Team_average	,002	,079	,003	,026	,980	-,156	,160	,202	,003	,002	,610	1,638
	Job_average	,310	,077	,453	4,008	,000	,156	,465	,530	,448	,382	,712	1,404
	Training_average	,066	,089	,095	,735	,465	-,113	,244	,305	,092	,070	,546	1,833

a. Dependent Variable: IWB_average

4.4.4 Hierarchical regression analysis with Innovation Performance SME as dependent variable

Model Summary^c

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,133 ^a	,018	,004	,62134	,018	1,258	1	70	,266
2	,475 ^b	,226	,141	,57695	,208	2,865	6	64	,016

a. Predictors: (Constant), Nomanagerialfunction

b. Predictors: (Constant), Nomanagerialfunction, Perf_average, Job_average, Team_average, Staf_average, Part_average, Training_average

c. Dependent Variable: INNOV_average

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,485	1	,485	1,258	,266 ^b
	Residual	27,025	70	,386		
	Total	27,510	71			
2	Regression	6,207	7	,887	2,664	,018 ^c
	Residual	21,303	64	,333		
	Total	27,510	71			

a. Dependent Variable: INNOV_average

b. Predictors: (Constant), Nomanagerialfunction

c. Predictors: (Constant), Nomanagerialfunction, Perf_average, Job_average, Team_average, Staf_average, Part_average, Training_average

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3,746	,166		22,560	,000	3,415	4,077					
	Nomanagerialfunction	,207	,185	,133	1,121	,266	-,162	,576	,133	,133	,133	1,000	1,000
2	(Constant)	2,019	,650		3,105	,003	,720	3,317					
	Nomanagerialfunction	,266	,174	,170	1,531	,131	-,081	,613	,133	,188	,168	,977	1,024
	Staf_average	,093	,100	,127	,931	,355	-,107	,293	,252	,116	,102	,655	1,527
	Perf_average	-,086	,087	-,131	-,983	,329	-,260	,089	,109	-,122	-,108	,682	1,466
	Part_average	,121	,117	,145	1,031	,307	-,113	,354	,267	,128	,113	,609	1,643
	Team_average	,242	,085	,402	2,854	,006	,073	,412	,401	,336	,314	,610	1,638
	Job_average	,007	,083	,011	,084	,933	-,159	,173	,154	,011	,009	,712	1,404
	Training_average	-,059	,096	-,091	-,611	,543	-,250	,133	,179	-,076	-,067	,546	1,833

a. Dependent Variable: INNOV_average

Appendix V: Factor analysis

HR practices

This variable is difficult to analyse because it contains six sub-variables (the practices) and consists of 23 items. It is not possible to conduct a FA for this whole variable because SPSS gives an error notion after a couple of analysis which suggests that the sample is too small or that the factor model is not suitable for this data. This is why the decision has been made to split up the variable into six separate variables. This will also be beneficial for this study because the differences between the practices can be analysed which could offer some more in-depth insights. Finally, the HR practices variable has been created by taking the means of all the separate practices. Below, the different practices will be described.

Staffing

This variable includes three items. KMO is .582 and Bartlett's test of sphericity is not significant (.05). This means that FA is not applicable. Furthermore, there is also just one dimension, which explains 46% of the variance, so rotation would not even be possible. Cronbachs Alpha is .414 and could not be increased by deleting any item. This means the variable has a low internal consistency. However, the items of the variable have been conducted from the literature so have a theoretical foundation. Furthermore, they might have a low internal consistency due to the small number of items involved.

Performance

This variable includes three items. KMO is .508 and Bartlett's test of sphericity is not significant (.15). This means that FA is not applicable. Furthermore, there is also just one dimension, which explains 42.3% of the variance, so rotation would not even be possible. Cronbachs Alpha is .30 and could increase to .39 by deleting item Perf3. However, due to theoretical considerations, this has not been done. The item is namely related to the item Perf2 because they are both focussing on appraisal but both from another perspective (results-based and behaviour-based). So when deleting Perf3, Perf2 could be affected. Unfortunately, this means the variable has a low internal consistency. However, it is conducted from the literature so has a theoretical foundation and might have a low internal consistency because of the small number of items involved.

Participation

This variable includes three items. KMO is .57 and Bartlett's test of sphericity is significant (.00). However, there is just one dimension, which explains 53.7% of the variance, so rotation

would not be possible. Cronbachs Alpha is ,49 and could increase to .59 by deleting an item Part1. However, due to theoretical considerations, this has not been done. The item concerns the opportunity for decision making by employees which seems an important item for the variable because it is closely related to the participation of employees. Unfortunately, this means the variable has a low internal consistency. However, it is conducted from the literature so has a theoretical foundation and might have a low internal consistency because of the small number of items involved.

Team development

This variable includes four items. KMO is .69 and Bartlett's test of sphericity is significant (.00). However, there is just one dimension, which explains 75.4% of the variance, so rotation would not be possible. Cronbachs Alpha is .70 and could not increase by deleting an item. This means this variable has a good internal consistency.

Job design

This variable includes six items. KMO is .745 and Bartlett's test of sphericity is significant (.00). Furthermore, there are two dimension, which explains 65% of the variance, so rotation is possible. After the rotation, KMO and Bartlett's test of sphericity stayed the same and the communalities are all $>.2$. Furthermore, there are no cross loaders.

After conducting a reliability analysis, Cronbachs Alpha is .69 and could be increased to .75 after deleting item Job6. This is done due to theoretical considerations. The item might have been a little vague to the respondents because it is about facing new problems during an employee's job, but is not very specific with regard to the nature of the problems. After the deletion, the Cronbachs alpha increased as expected to .75. Now it could be increased to .81 by deleting items Job4. Since this items is the only item that loads on the second components since JOB6 has been deleted, this items has also been deleted. Furthermore, this items is very comparable to item Job5 so is in fact needless. This means that finally there is just one dimension left.

Training

This variable includes four items. KMO is .60 and Bartlett's test of sphericity is significant (.00). Furthermore, there is one dimension, which explains 44.3% of the variance, so rotation is not possible.

After conducting a reliability analysis, Cronbachs Alpha is .53 and could increase to .55 after deleting the item Training4. Although this is just a slightly improvement, the item

still has been deleted due to theoretical reasons. The other items of this variable are about training in general but Training4 is about a particular form of training (problem-solving training) which means this items operates on a different level compared to the others.

The above mentioned analyses leads to the following overview:

Variable name	Items
Staffing	Staf1
	Staf2
	Staf3
Performance	Perf1
	Perf2
	Perf3
Participation	Part1
	Part2
	Part3
Team development	Team1
	Team2
	Team3
	Team4
Job design	Job1
	Job2
	Job3
	Job5
Training	Training1
	Training2
	Training3

HBDI

Before the analysis was conducted, the variable included 9 items and there were no expectations about the numbers of dimensions.

Analysis 1

KMO is .83 and Barlett's test of sphericity is significant (.00). The communalities are all >.2. There are two components with an eigenvalue above 1 and they explain a total of 66% of the

variance. Furthermore the scree plot shows also two components. After the rotation, all the numbers stayed the same and two components are expected. Oblique rotation has been used since this method is most appropriate for situations in which underlying factors are assumed to be related or correlated to each other (Field, 2009). The table below shows the items that contained cross loaders.

Item	Cross loader
HBI3	.14
HBDI6	.01

HBDI6 has the smallest cross loader so has been deleted. In the factor correlation matrix, at least one factor is higher than .3. This mean that the oblique rotation can be used again since there are substantial correlations between the items.

Analysis 2

KMO is now .79 and Barlett's test of sphericity is significant (.00). The communalities are all >.2. There are still two components with an eigenvalue above 1 and they explain still a total of 66% of the variance. Furthermore the scree plot shows also still two components. Only variable HBDI3 is a cross loader (.15) so has been deleted. In the factor correlation matrix, at least one factor is higher than .3, so the oblique rotation method can be used again.

Analysis 3

KMO is still .79 and Barlett's test of sphericity is significant (.00). The communalities are all >.2. There are still two components with an eigenvalue above 1 and they explain a total of 66.6% of the variance. Furthermore the scree plot shows also still two components. This time there are no cross loaders anymore.

Finally a reliability analysis has been conducted. Cronbachs Alpha is .80 and could be increased to .82 after deleting HBDI1. However, because this is just a small improvement and the Cronbachs Alpha is already high enough (>.80) this has not been done.

Based on the pattern matrix of the last FA, the following table shows the dimensions with the accompanying items and names. There are six items left and divided into two dimensions.

Factor	Items	Name
Factor 1	HBDI4 HBDI8 HBDI9 HBDI7R	Performance/learning
Factor 2	HBDI1 HBDI2 HBDI5	Awareness

IWB

Before the analysis was conducted, the variable included 16 items and two dimensions were expected (creativity-oriented work behaviour and implementation-oriented work behaviour).

Analysis 1

KMO is .85 and Barlett's test of sphericity is significant (.00). The communalities are all >.2. There are four components with an eigenvalue above 1 and they explain a total of 64.1% of the variance. However, the scree plot shows that there are two components. After the rotation, all the numbers stayed the same and still four components are expected. The table below shows the items that contained cross loaders.

Item	Cross loader
IWB4	.16
IWB3	.15
IWB9R	.01
IWB8	.06

IWB9R has been deleted since this is the smallest cross loader. In the factor correlation matrix, at least one factor is higher than .3, so the oblique rotation method can be used again.

Analysis 2

The KMO is now .86 and Barlett's test of sphericity is still significant (.00). The communalities also stayed >.2. Still 4 components have an eigenvalue above 1 and they explain a total of 66.7% of the variance. However, the scree plot still shows 2 components. The table below shows the items that contained cross loaders.

Item	Cross loader
IWB7	.15
IWB8	.16

IWB7 has been deleted since this is the smallest cross loader. In the factor correlation matrix, one factor is higher than .3, so the oblique rotation method can be used again.

Analysis 3

The KMO is now .85 and Barlett's test of sphericity is still significant (.00). The communalities also stayed $>.2$. Still 4 components have an eigenvalue above 1 and they explain a total of 67% of the variance. However, the scree plot still shows 2 components. Furthermore, IWB8 has been deleted since this is the only cross loader. In the factor correlation matrix, at least one factor is higher than .3, so the oblique rotation method can be used again.

Analysis 4

The KMO decreased a bit to .83 and Barlett's test of sphericity is still significant (.00). The communalities also stayed $>.2$. Now, three components has an eigenvalue above 1 and they explain a total of 61% of the variance. However, the scree plot still shows 2 components. There are no cross loaders anymore.

Finally a reliability analysis has been conducted. Cronbachs Apha is .88 and could not be increased by deleting another item. Based on the pattern matrix of the last FA, the following table shows the dimensions with the accompanying items and name. There are thirteen items left and divided into three dimensions.

Factor	Items	Name
Factor 1	IWB1 IWB2 IWB3 IWB4 IWB5R IWB13 IWB16	Idea generation
Factor 2	IWB6 IWB10 IBW11 IWB12	Searching for improvements
Factor 3	IWB14R IWB15	Collaboration

Innovativeness SME

Before the analysis was conducted, the variable included 9 items and two dimensions were expected (product innovation/process innovation).

Analysis 1

KMO is .88 and Barlett's test of sphericity is significant (.00). The communalities are all >.2 and are very high. There is one component with an eigenvalue above 1 and this component explains a total of 56.4% of the variance. In line with this, the scree plot shows also only one component. Due to this, a solution cannot be rotated.

Finally a reliability analysis has been conducted. The Cronbachs Alpha is very high (.90) and deleting items will not increase this number. This means, the scale has a high internal consistency. So, there are nine items left and one dimension. This is contradictory with the expectation beforehand that included two dimensions. However, the scale has a good internal consistency so can be used for the regression analysis.

See appendix 4.2. for the relevant SPSS output.

Appendix VI: Codebook

Hr practices

Staffing

HRstaff1= Selectivity in hiring new employees.

HRstaff2= Selection for expertise and skill.

HRstaff3= Selection for future potential.

Performance appraisal

HRperf1= Developmental focus.

HRperf2= Presence of results-based appraisal.

HRperf3= Presence of behaviour-based appraisal.

Training

HRtraining1= Availability of formal training activities.

HRtraining2= Availability of comprehensive training policies and programs.

HRtraining3= Availability of training for new hires.

HRtraining4= Availability of training for problem-solving ability.

Team development

HRteam1= Presence of problem-solving sessions.

HRteam2= Presence of team building sessions.

HRteam3= Presence of quality improvement teams.

HRteam4= Availability of leadership training.

Participation

HRpart1= Opportunity for decision making by employees.

HRpart2= Opportunity for suggestions of employees.

HRpart3= Importance of employees' voices.

Job design

HRjob1= Opportunity to plan own work.

HRjob2= Opportunity to choose own methods.

HRjob3= Opportunity to decide how to get the job done.

HRjob4= Opportunity to deal with problems which are difficult to solve.

HRjob5= Opportunity to deal with problems which have no obvious correct answer.

HRjob6= Presence of new problems.

HBDI

HBDI1= Familiarity with the HBDI.

HBDI2= Awareness of own thinking style.

HBDI3= Improvement quality of work.

HBDI4= Stimulating effect on learning

HBDI5= Awareness of thinking style of others.

HBDI6= How often employees use the HBDI.

HBDI7= Stimulating effect on productivity of work.

HBDI8= Stimulating effect personal development.

HBDI9= Increasing job satisfaction.

Innovative Work Behaviour

IBW1= Participation improvements of work of direct colleagues.

IBW2= Idea generation to renew services.

IBW3= Persistency in idea realization.

IBW4= Transforming ideas that become applicable in practice.

IBW5= Ability to make managers enthusiastic for employees' ideas.

IBW6= Idea generation to optimise knowledge and skills.

IBW7= Generation of new solutions to old problems.

IBW8= Ability to suggest new ways of communication.

IBW9= Ability to discuss work-related matters with direct colleagues.

IBW10= Generation of ideas concerning the distribution of tasks and work activities.

IBW11= Searching for impediments to collaboration and coordination.

IBW12= Searching for the knowledge and skills that are required.

IBW13= Transforming ideas together with colleagues that become applicable in practice.

IBW14= Participation in deciding which knowledge and skills are necessary within an employees' department.

IBW15= Using support from colleagues for ideas and solutions.

IBW16= Elimination of obstacles in the process of idea implementation.

Innovativeness company

Innov1= The level of newness of the firm's new products.

Innov 2= The novelty of the technology used in the processes.

Innov 3= The number of new products the firm has introduced to the market.

Innov 4= The use of latest technological innovations for new products.

Innov 5= The technological competitiveness of the company.

Innov 6= The speed of new product development.

Innov 7= The number of new products that are the first ones in the market.

Innov8 = The speed of adopting the latest technological innovations in the processes.

Innov 9= The rate of change in the processes, techniques and technology.

Satisfaction

Satis1= Satisfaction of employees about the HR policy.

Satis2= Suggestions with regard tot the HR policy.

Satis3= Satisfaction of employees about use of the HBDI.

Satis4= Suggestions with regard tot the use of the HBDI.

Control variables

Sex= male/female

Age= date of birth

Department= department an employee works at.

Funtion= supervisory function/ non-supervisory function

Education= highest level of education

Y.o.e= years of employment

Appendix VII: Dummy variables

Variable name	Category	Number
Gender	Males	1
	Females	0
Function	No managerial function	1
	Managerial function	0
Age	Up to 40	1
	41 and above	0
Education	None	0
	Primary school	0
	Lower vocational education	0
	Intermediate vocational education	0
	School of higher general secondary education	1
	Higher vocational education	1
	Pre-university education	1
	Bachelor degree	1
	Master degree	1

Nok	Reference	1	2	3	4	5	6
Software	Dummy1	0	1	0	0	0	0
Business services	Dummy2	0	0	1	0	0	0
Operations	Dummy3	0	0	0	1	0	0
Partner support	Dummy4	0	0	0	0	1	0
Product management	Dummy5	0	0	0	0	0	1