



MASTER THESIS

Increasing the predictability
of social innovation application
with the extended MOA-model

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INCREASING THE PREDICTABILITY OF SOCIAL INNOVATION APPLICATION WITH THE EXTENDED MOA-MODEL

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I ABSTRACT

The following research aims to increase the knowledge utilization within organizations in the region Twente. The current knowledge utilization is investigated on the basis of the concept of social innovation. Hereby, social innovation is defined as a knowledge utilization process in organizations where everyone participates affecting the innovation in work organization and labor relations, which ultimately provides an improvement in work performance, work quality and the development of talent. In this exploratory study among 204 respondents in the region Twente is examined which factors had an effect on the application of social innovation by individuals within the organization. For this purpose the MOAC-model, an extension of the MOA-model, was developed and used in this study. Knowledge utilization is a process affected by the motivation of employees, the opportunities employees receive from the organization, the abilities employees have within the organization to utilize the knowledge and the culture of the organization they work for. Hence this study acknowledged, in contrast to the current studies on knowledge processes within organizations, the importance of the organizational culture. This study showed that culture within organizations was indeed an important predictor for the application of social innovation by individuals within organizations. However, the most important predictor was found to be the individual abilities of employees. This research showed that organizations themselves are in control to realize a higher level of social innovation application among their employees by, in addition to the abilities, providing their employees also opportunities to work together and focusing the culture more on the principles of sociability and solidarity. Furthermore, this study provides organizations with the introduction of the MOAC model a more grounded way to explore the knowledge processes within the organization.

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11 INTRODUCTION

Social innovation is seen as an important method to increase the use of knowledge within organizations. Nevertheless, there is so far little or no attention given to how social innovation can predict the use of knowledge within organizations. This while a large proportion of knowledge within organizations remains unused (Davenport & Prusak, 1998; Wilensky, 2015). It is particularly striking how organizations suffer a great loss of knowledge from perhaps the most valuable asset they possess: their employees. Therefore seeks this exploratory research to contribute to the predictability of social innovation application within organizations.

To counter the loss of knowledge, this research focuses on the question how organizations in the region Twente can obtain maximum knowledge from their employees by focusing on application of social innovation within the organizations. Within the organizations in the region Twente is explored how the application of social innovation is encouraged by personal and organizational structures. This region was chosen because the region Twente wants to emerge itself as a well-respected knowledge region in the Netherlands.

Until now there has been given little or no attention to knowledge utilization within organizations based on the contribution of innovation. Consequently, this research aims to provide an important contribution to scientific knowledge about knowledge utilization by demonstrating how organizations can improve their knowledge processes on the work floor by making use of social innovation. As organizations manage to get more out of perhaps the most important resource that they have at their disposal, they not only increase the knowledge utilization level but they are also able to enhance the innovation capacity of the organization. The Erasmus Competition & Innovation Monitor of Volberda, Van den Bosch and Jansen (2005) confirmed this. Namely, the Erasmus Competition & Innovation Monitor revealed that only a quarter of the innovation success of organizations was explained by technological innovations. Three quarters of the actual success of innovations within organizations was explained in terms of social innovations.

According to this research, social innovation is a knowledge utilization process in organizations where everyone participates affecting the innovation in work organization and labor relations, which provides an improvement in work performance, work quality and the development of talent.

With the United States, the United Kingdom and Australia as pioneers, social innovation became worldwide increasingly acknowledged and applied. For instance by the European Commission, who decided to give social innovation a prominent place in Horizon 2020, the biggest EU Research and Innovation program ever with nearly €80 billion of funding available aimed at securing Europe's global competitiveness.

The European Commission approach focuses mainly on delivering real change on how and how much Europe innovates from science and technology driven innovation to boost the competitiveness of their businesses for new business models but also for social innovation (Barroso, 2011). They defined social innovation as the innovation that is both social in their ends and in their means, remaining open to variations it might take. It is the innovation on how life and work are organized. It can be stated that their approach considered social innovation to be the mechanism to support the use of knowledge and the development of knowledge within the European Union.

This research aims to expand the scientific knowledge on the topic of social innovation and intends to offer organizations in the region Twente practical advice based on the obtained insights about the predicting factors how the application of social innovation can be increased. By increasing our understanding about how the application of social innovation within organizations can be affected, organizations are able to use this acquaintance to structure these factors in a way that employees are able to show a higher level of social innovation application at their work.

In order to reach these objectives the MOA-model has been used. The MOA-model is a highly acclaimed and reliable model used to examine the behavior with respect to knowledge processes within organizations. According to Millington (2012), organizations

that are not sharing the quantity and quality of knowledge they possess have a problem with one or more of the factors of the MOA-model.

The MOA-model describes knowledge processes on the basis of the factors motivation, opportunity and ability. Based on previous research, which showed that the culture of an organization had a strong influence on the functioning of both the organization and the functioning and health of its employees (Goffee & Jones, 1996; Alvesson, 2012), the MOA model is extended with culture as a fourth factor. Culture consists of the written and unwritten rules an organization constitutes and affecting the practices within organizations (Schein, 1996). The culture of organizations is considered as an important factor for the social innovation application by individuals within organizations, because social innovation processes are typical processes that can succeed only if the people in the organizations are allowed to make mistakes, to try out or able to work together. Ultimately, this research viewed social innovation within organizations as a series of actions, changes, or functions bringing about a result (Hess, 2010). This has resulted in the following research question:

To what extent do the motivation, opportunity, ability and culture effect the application of social innovation of employees within organizations?

Structure

First, this research will provide an overview in the theoretical framework of the relevant literature concerning social innovation. In addition, the factors affecting social innovation are examined. These factors were described as part of the process related to the concept of social innovation. Based on the findings a research model will be developed, which will be used in this research. There after, more information will be given about the methodology this research used. This implies more information about the quantitative research that has been used for this research. A total of 204 employees from the region Twente participated in this study. For this purpose they have been commissioned through different communication channels to fill out the questionnaire. Third, the data has been collected, analyzed and compared to the findings from the literature regarding to social innovation. Fourth, in the

conclusion the research question of this study will be answered. Finally, the limitations and recommendations for possible further research are given.

Scientific relevance

This research on the application of social innovation within organizations, contributes in various ways to the scientific knowledge on this subject. With the extension of the MOA-model, a model has been developed in which the influence of culture is included as a predictor of social innovation application. Herewith, the research endorses the importance of the organizational culture in knowledge processes within organizations and makes a significant contribution by investigating the role of the organizational culture on the application of social innovation by individuals within organizations.

The study also makes a significant contribution to our scientific knowledge by adding a new definition of social innovation. Up to now social innovation was examined from various perspectives and different visions. As a consequence the concept had until now no comprehensive and specific definition. This study presumes to have altered this by its own definition, on which researchers in the future can build on.

Practical relevance

The application of social innovation within organizations is of interest because organizations have a lot of knowledge at their disposal, but make little use of the available knowledge. Therefore, these organizations have an interest in investigating the factors that are affecting the process of social innovation application by individuals within organizations. In addition, the region Twente wants to present itself as a pioneering knowledge-based region (Wentink, 2006). Policymakers in the Twente region have a strong interest in the utilization of knowledge and therefore these policymakers have great interest in this research about social innovation application within organizations. In the end, this research shows its practical relevance by developing a model that enables organizations to further develop the application of social innovation within the organization in a successful way.

2 | THEORETICAL FRAMEWORK

This chapter provides an overview of the theoretical framework that is used for the study. The theoretical framework aims to clarify the factors affecting the application of social innovation by individuals within the organization. Based on the theoretical framework this research seeks for a well descriptive model for social innovation within organizations. This model needs also to take into consideration the culture of organizations.

First, this section will elaborate on the concepts of social innovation and knowledge utilization. Thereafter, based on an existing model, the corresponding factors of the knowledge utilization process are examined. Ultimately, based on the literature a conceptual model was developed to describe the process of social innovation application by individuals within organizations.

2.1 | Social innovation

The development of social innovation has recently been encouraged significantly (Hahn & Andor, 2013). This is caused by social, organizational and technical factors. A social factor, which played a crucial role in the development, was the change of how society is organized. A mainly hierarchical organized society changed to a more horizontal information and network society (Castells, 2000; Hajer, 2011; Peeters, Schulz, van Twist & van der Steen, 2011). Organizations became also more horizontally arranged. This resulted in more transparency and openness of organizations, higher democratization and valorization (Moulaert, MacCallum, Hillier & Haddock, 2012).

The way organizations communicate changed and became more important. In the network age, there was a fundamental change in the way we communicate. Here, the technological developments, like the introduction of the Internet, played an important role as a catalyst. Organizations and governments decided to focus more on innovation to drive their business results, productivity and prosperity (Volberda, Jansen, Tempelaar, & Heij, 2011). Where these organizations and governments invested massively in technological developments, the non-technological innovations were overlooked. However, organizational and behavioral

aspects also seemed to have a significant impact on the business results, productivity and prosperity.

In recent years, the importance of these organizational and behavioral aspects has gained recognition and became a popular research topic under the name of social innovation. From various perspectives and with different visions researchers examined the concept of social innovation. This resulted in a large number of widely varying definitions. The most relevant definitions are shown in Table 2.1.

Perspective	Social Innovation is...
<i>Societal perspective</i>	<p>.. the innovation that is both social in their ends and in their means, remaining open to variations it might take. It is the innovation on how life and work are organized (Barroso, 2011).</p> <p>.. the development of new concepts, strategies and tools that support individuals and groups to achieve improved well-being (Dawson & Daniel, 2010).</p> <p>.. the satisfaction of alienated human needs through the transformation of social relations: transformations which 'improve systems that guide and regulate the allocation of goods and services to satisfy those needs and which establish new structures and organizations (Moulaert, MacCallum & Hillier, 2013).</p> <p>.. the novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than to private individuals (Phills, Deiglmeier, & Miller, 2008)</p>
<i>Organizational perspective</i>	<p>.. the interplay between the development of new management skills (dynamic management), the application of innovative organizational principles (flexible organization), and the realization of high quality work forms (work smarter) to improve competitiveness and productivity (Volberda, Van den Bosch & Jansen, 2006)</p> <p>.. an innovation in work organization and labor relations that leads to improved performance of the organization and development of talents (Nederlands Centrum voor Sociale innovatie, 2009)</p> <p>.. participatory and interdependence renewal of labor, organization and human resources to improve the performances of employees to bring the organizational performance, quality of the work and the employment relations to higher level (Pot, 2012)</p> <p>.. the modernization of the work organization and the maximum utilization of competence, aimed at improving business performance and developing talent (Task Force Sociale Innovatie, 2005)</p> <p>.. a strategically driven innovation in the field of organizing and / or organizational behavior and can be interpreted as an ability of an organization (Oeij, Dorenbosch, Klein Hesselink & Vaas, 2010)</p>

Behavioral perspective	<p>.. the maximum utilization of competences and talents (Taskforce Sociale Innovatie, 2005; NCSI, 2009)</p> <p>.. through interaction between employer and employee interactively shaping the employment relationship (NCSI, 2009; Pot & Ville, 2009)</p>
Work perspective	<p>.. the creation of new processes and procedures for structuring collaborative work and the introduction of new social practices in a group or the development of new business practices (Mumford 2002, p. 253).</p> <p>.. an organized search- and development process, leading to documented and imported instruments, design and measures of a non-technological nature that contribute to the stepwise increase of the productivity of (groups of) employees' (Flikkema, 2010)</p>

Table 2.1 – Definitions of social innovation

What is striking about the different perspectives is the difference in how social innovation is being defined. The first group of scientists focused on the societal perspective and described social innovation based on the way it can contribute to the way social relations are established and developed. The second perspective, the organizational perspective described social innovation particularly based on the idea how organizations must apply social innovation and if they applied it successfully how these organizations subsequently would benefit from it. For example, among other things it stated that the use of social innovation aimed at optimum use of individual talents within the organization.

The third group of scientists, who look at social innovation from the behavioral perspective, focused on the contrary on how behavior changed within organizations. Specifically, it was focused on how employees' behavior changed. For example by being able to work together and interact with colleagues. It is therefore more concerned with the idea of how work need to be carried out in order to achieve results.

The comparison between the three groups of definitions revealed that the first group focused on the changes in social relations, the second group on the optimum use of talent within the organization and the third group focuses at the collaboration on the work floor. As a result, the different definitions have identified the main aspects of the concept of social innovation, but at the same time no definition gave a comprehensive description of social innovation.

Hence, this research builds on the above definitions of social innovation and merged the principles of the three groups into an overarching definition. This overarching definition contains multiple different aspects of the above perspectives and definitions. Thus, the new definition attaches importance to concepts by seeing social innovation as a process of interaction (Mumford, 2002; NCSI, 2009; Pot, 2009) and participation between people (collaborative work), aimed at making optimal use of knowledge (Task Force Sociale Innovatie, 2005; NCSI, 2009), increasing the motivation of employees and realizing an improvement of organization results (Volberda, Van den Bosch & Jansen, 2006; NCSI, 2009; Flikkema, 2010; Pot, 2012).

The purpose is to develop a definition that helps to describe and develop the process of social innovation application within organizations. It is also important that the definition pays attention to the factors that affect the process of social innovation application. Therefore, social innovation is in this study defined as:

“A knowledge utilization process in organizations where everyone participates affecting the innovation in work organization and labor relations, which provides an improvement in work performance, work quality and the development of talent”

2.2 | Knowledge utilization within organizations

The term knowledge utilization has a central role in this research. This is for example evidenced by the definition of social innovation that was described as a process of knowledge. Therefore this research examined what knowledge utilization exactly is and how it is related to social innovation.

Knowledge is considered to be a process of sharing tacit with tacit knowledge, tacit to explicit, explicit leverage, and explicit back to tacit. People extract knowledge from data and information, after which it is filtered, stored, retrieved and dispersed (Meihami & Meihami, 2014). The principle of acquire knowledge applies to people, but also to organizations.

It is important for organizations to manage knowledge. This process, known as knowledge management, was cited as “a discipline that promotes an integrated approach to identify, capturing, evaluating, retrieving, and sharing all of an enterprise’s information assets. These assets may include databases, documents, policies, procedures, and previously uncaptured expertise and experience in individual workers” (Duhon, 1998).

The process of knowledge can be divided in several ways. The most well known distinction is between tacit knowledge and explicit knowledge. Most knowledge arises as tacit knowledge. It is with much effort-converted information that has developed through the principal of trial and error (Sung & Choi, 2012).

Tacit knowledge is usually defined as “knowledge difficult to articulate” (Nonaka & Takeuchi, 1995; Baumard, 1999) or as “the organization does not know what it knows” (O’Dell & Grayson, 1998, p. 154). For that reason tacit knowledge within organization cannot increase the knowledge utilization within organizations.

Conversely, explicit knowledge is able to increase the knowledge utilization within organizations. This type of knowledge is formal and systematic. Moreover it can be easily communicated and shared (Nonaka & Takeuchi, 1997). Explicit knowledge is reflected in words, sentences, documents, organized data, computer programs and in other explicit forms (Sung & Choi, 2012).

Explicit knowledge is the knowledge that is transmitted from employee to employee when the principle of social innovation is used correctly. Because when the employees are able to transfer the knowledge within the organization in various forms, organizations can make more use of these resources. Or stated differently: more knowledge can be utilized within the organization.

This process of knowledge utilization has been described as the process of structured interactions entailing the creation, sharing and application of knowledge between actors (Swan, Clarke, Nicolini, Powell, Scarbrough, Roginski & Taylor-Phillips, 2012; Caponio, Hunter

& Verbeek, 2015; Duhamel, Dupuis, Turcotte, Martinez & Goudreau, 2015; Marsh, & Reed, 2015).

In this process, the biggest challenge that the knowledge utilization within organization is facing is to convert the tacit knowledge of its parts (employees) into available and explicit knowledge for the entire organization. With this research, organizations gained insight on how the application of social innovation can help them in order to achieve a higher level of knowledge utilization.

Therefore an important factor is how the individuals within an organization may co-create with each other. Here it is assumed that when people from different perspectives look at a certain situation it can create synergy. By knowing more, the expectation is that working groups are capable to do greater things.

Link to social innovation

Knowledge utilization within organizations is inextricably connected to the concept of social innovation. A higher knowledge utilization within organizations leads to a higher level of social innovation within organizations. By making proper use of existing resources, particularly of the knowledge from employees, more knowledge can be utilized and therefore social innovation within the organization will be enhanced (Von Krogh, Nonaka & Aben, 2001). And vice versa, enables the application of social innovation that employees are able to apply their personal knowledge (Lowe, 2002).

Better use of the knowledge base double the impact on innovation success among organizations, which score high when it comes to social innovation application (Volberda, Jansen, Tempelaar & Heij, 2011). By promoting the application of social innovation by individuals within the organization, those organizations stimulate that employees actively learn and ultimately gain more knowledge. These associations make it possible that employees score better in terms of knowledge acquisition and use (Lowe, 2002). This was studied by means of The Workplace and Employee Survey (WES), which was developed to explore a broad range of issues relating to employers and their employees. Here the relationships among competitiveness, innovation, technology use and human resource

management on the employer side and technology use, training, job stability and earnings on the employee side were examined (Krebs, Patak, Picot & Wannell, 2006).

2.3 | The MOA-framework

Now that it is clear that knowledge utilization is a type of social innovation, it is important to examine the factors affecting the process of knowledge utilization within organizations. Within the existing literature, many studies have examined knowledge management and processes within organizations. A highly acclaimed and reliable model used to examine the behavior with respect to knowledge processes, is the MOA-model.

The MOA-model is a well-developed framework that is used as a theoretical basis to explain behavior of employees. It is mainly used to explain about work performance (Blumberg & Pringle, 1982; Boudreau, Hopp, McClain & Thomas, 2003). During its existence, the MOA-model has been used in order to explain a wide variety of behaviors, like consumer choices (MacInnis, Moorman & Jaworski, 1991), social capital activation (Adler and Kwon, 2002; Binney, Hall & Oppenheim, 2006) and decision-making (Wu, Balasubramanian & Mahajan, 2004).

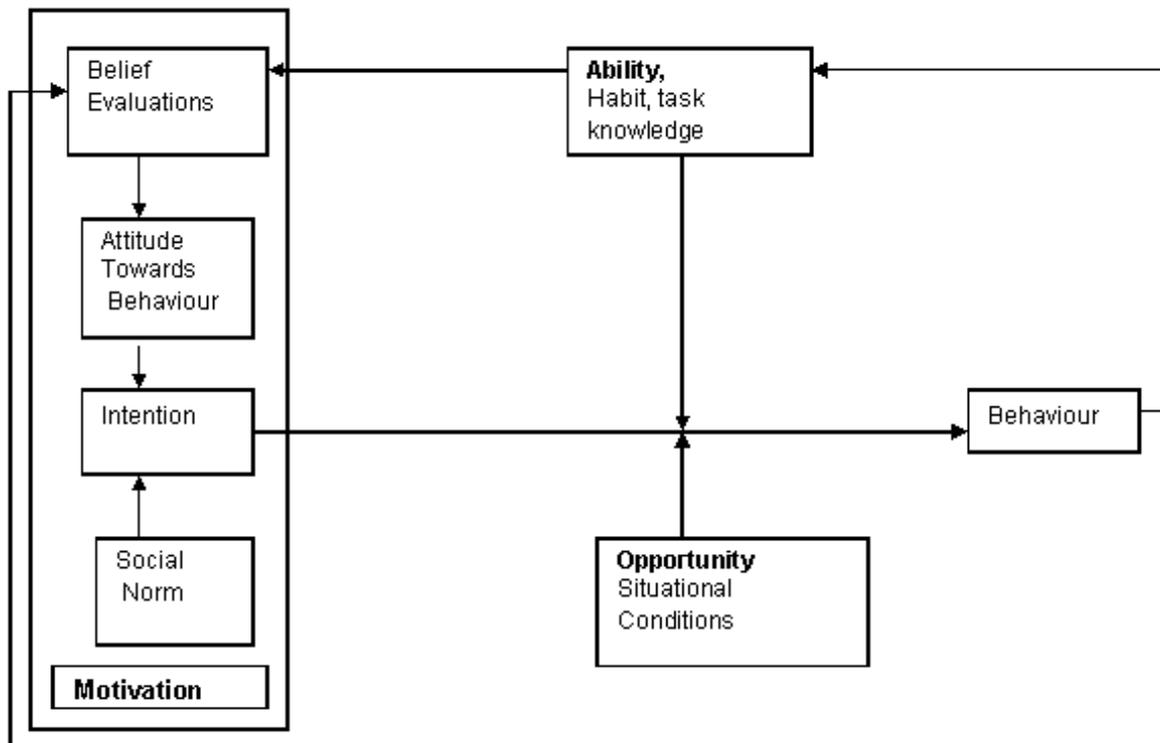


Figure 2.1 | The MAO-model

The MOA-model consists of three basic concepts: motivation, ability and opportunity. Hereby motivation refers to the encouragement to collaborate, ability to skills and capabilities requirement to carry out behavior, and opportunity to the contextual and situational constraints relevant to the performance of a certain behavior (Hughes, 2007).

From a knowledge utilization perspective, motivation, opportunity and ability (MOA) play complementary roles in influencing behavior (Cummings & Schwab, 1973). Motivation, opportunity and ability are related constructs (Blumberg & Pringle, 1982). For instance, when employees do not have the ability to utilize their knowledge optimally, they may also be less motivated to utilize their knowledge because they perceive it as difficult for them.

According to Siemsen, Roth and Balasubramanian (2008) no action takes place when not all the factors are present. Therefore these scientists proposed the constraining-factor model. According to this model the minimum of the factors ultimately determines the behavior. In other words, it appears that in each situation the limiting factor (bottleneck) determines the extent to which knowledge will be utilized.

2.4 | Personal motivation of employees

Employees are one of the most valuable assets an organization possesses. For that reason employees critically influence the success of an organization (Carneiro, 2000). Therefore it is essential for organizations to know if employees are motivated and how their motivation is build up (Bourgault, King, Hart, Campbell, Swartz & Lou, 2008).

Motivation ensures that employees are turned into action. Despite the importance, executives within organizations often have no idea which factors are affecting the motivation of their employees.

Work enjoyment

Work enjoyment refers to the judgment of employees about the quality of their personal working life (Peters, De Bruijn, Baker & Van der Heijden, 2011). The presence of job enjoyment makes employees feel vital and energetic, dedicated to their work, and often

makes them forget about everything around them (Bakker, 2003). The presence of work enjoyment has positive effects on individuals, their colleagues and partners, and for the organization as a whole (Bakker, 2003).

Empowerment

Robbins and Judge (2003) referred to the work itself as “the extent to which the job provides the individual with stimulating tasks, opportunities for learning and personal growth, and the chance to be responsible and accountable for results”. Hereby, the nature of work was considered to be the most important factor of personal influence (Sharma & Bhaskar, 1991). This is expressed by the empowerment and recognition of employees.

As stated by Manzoor (2011) empowerment and recognition have a positive effect on employee motivation. A high level of both factors ensures more motivation among employees. Empowering could enable human capacities to flourish. Empowered employees will give more meaning to their work and show a constant progression in their coordination and work performance (Yazdani, Yaghoubi & Giri, 2011). Ultimately more motivation to complete tasks, will lead to an increased organizational performance and success (Manzoor, 2011).

Working together with colleagues

The extent, to which employees want or need to collaborate with colleagues, depends according to De Rijk, Van Raak and Van der Made (2007) on the available resources. Examples include the available time that can be worked, the presence of a meeting place, the ease with which the operators can reach another and the availability of training opportunities for skills. However, the instrument that underlies the collaboration between employees is often overlooked. De Rijk, Van Raak and Van der Made (2007) equated the willingness with the motivation to work together.

Motivation by organization

Employees often know broadly from one another what they are doing, but do not have the feeling that they are actually aware of each other's work (Datema, 2015). Working

together is a complex process affected by either the social context as well by the people and the physical context. In addition, these factors also influenced each other. To enhance cooperation in an organization, it is important to take all these aspects into account (Thoolen & Gosselink, 2012). Because even though the physical context supports the collaboration still as good, if the management does not cooperate, it is not possible for employees to work together in a successful way (Thoolen & Gosselink, 2012).

Reward and promotion

Earlier studies stated that rewards provide satisfaction among employees, which directly influenced the performance of employees (Khan, Farooq & Ullah, 2010). Organizations are able to motivate their employees by offering a reasonable salary and payment (Lange & Houran, 2009).

Another important element of the personal factor is the opportunities for promotion (Pergamit & Veum, 1999; Sclafane, 1999; Ellickson & Logsdon, 2002; Peterson, Puia & Suess, 2003). When employees believe that their organization offered good future opportunities, the employees' satisfaction was influenced positively (Drafke & Kossen, 2002).

Based on these elements, this study looked at how the motivation of employees possibly affects the application of social innovation by individuals within the organization, by the following hypotheses:

H1a: The personal motivation of employees has a significant effect on the application of social innovation by individuals within the organization.

H1b: The application of social innovation by individuals has a significant effect on the personal motivation of employees.

2.5 | Opportunities of employees within organizations

Previously, performance in the workplace was seen as an interactive feature of ability and motivation. Blumberg and Pringle (1982) added a third variable, namely opportunity. Opportunity is related to the chances employer offers its employees to work in a social innovative way (Sterling & Boxall, 2012).

According to Blumberg and Pringle (1982) opportunities of employees were together with the motivation subject to the work context, which can be less or more empowered. In order to achieve high performances, employees need resources. Examples of resources are information and technology.

The potential of the performance is limited by the degree to which organizations providing support. Nowadays it is widely accepted that ability and motivation together with opportunity constitute an inevitable set of mediators in Human Resource Management models (Boxall & Purcell, 2011).

Time

Time is a precious resource. Repeatedly managers and employees make the connection between time and workload. The workload of employees determines whether the employees are given the opportunity to reflect themselves or to share knowledge with colleagues (McAuliffe & Winter, 2013). If organizations attach importance to knowledge sharing between employees, it is important that they provide the means for this purpose. This includes offering available time, enough spaces, sharing encouragement, and related reward mechanisms to activate exchange of knowledge (Chen, Chang & Tseng, 2012).

Work conditions

The conditions in which employees have to carry out their work could lead to work engagement among employees but for example also to health problems (Demerouti, Baker, Nachreiner & Schaufeli, 2001). According to Van Vegchel (2012), the working conditions can be divided into two categories, namely the work requirements and the resources for workers.

Work requirements refers to the physical and mental demands of work that is required of employees, who are after associated with physical and psychological problems. Irregular working hours and high-pressure performance are examples of work requirements (Demerouti, Bakker & Voydanoff, 2010).

The second category, resources, refers to the psychological, physical, social and organizational aspects of work that neutralize the effects of work requirements. They help employees to recover from the effects of job requirements. In addition, resources encourage personal growth of employees and ensure that employees achieve their work goals (Demerouti et al., 2001). Feedback and social support are examples of resources.

The opportunities offered by organizations are examined in this study. The assumption on forehand is tat the opportunities offered by the organizations will have a positive effect on the social innovation behavior. Therefore, the following hypothesis was established:

H2: The opportunities of employees have a significant effect on the application of social innovation by individuals within the organization.

2.6 I Individual abilities of employees

Ability refers to the need to maximize an individual's skills or proficiencies to show social innovation application (MacInnis, Moorman & Jaworski, 1991). Ability is a distinct concept from motivation. Hereby ability refers to the judgment of organizations about their capacity to enable the application of social innovation on their employees. Without the necessary skills within organizations, it is even for a highly motivated employee not likely to exhibit social innovation (Gountas & Mavondo, 2005).

Ability is about how employees within the organizations have the ability to use knowledge. It deals with the capabilities of individuals within the organizations to enable the application of social innovation (Turner & Pennington, 2014). Within this research ability concerns how organizations could feasibly establish the application of social innovation of employees. This

ability is defined as the talent, skill, or proficiency in a particular area related to the action (Rothschild 1999; Siemsen, Roth & Balasubramanian, 2008).

Constrained by organizational factors such as routines, habits, self-organizing, organizations with a high score on social innovation provide their employees opportunities to stimulate their application of social innovation in their daily job (Morris, Consolvo, Munson, Patrick, Tasi & Kramer, 2011).

Routines

When organizations have a social innovation approach, there are many organizational variables where they must be reckoned with. One such variable is the practices within organizations (Watts, 2001; Philips, Noke, Bessant & Lamming, 2006; Junarsin, 2009). A routine is a repeated sequence, which has its roots in algorithms and heuristics about how the company gets their things done (Teece, 2012). Organizational routines, including those related to organizational transformation, transcend the people involved, though the routines for some purposes it may be useful studied as developed and embedded in the minds of multiple employees (Miller, Pentland & Choi, 2012)

According to central organization theories, organizations can be regarded as a bundle of routines (March & Simon, 1958; Nelson & Winter, 1982; Freeman & Hannan, 1989). In addition, routines are seen as persuasive shaped individual and organizational measures, because they are defined as repeating, recognizable patterns of independent behaviors under organizational actors (Feldman & Pentland, 2003).

For organizations, it is often difficult to break through existing and successful routines. Existing structures and processes are organized around a historically shaped set of customers and products (Chang, Chang, Chi, Chen & Deng, 2012). This bureaucratic structure discourages the introduction of social innovation within the organization (Stringer, 2000). Junarsin (2009) states that the innovative behavior is inhibited by fear within the organization. From the reasoning that the current systems and procedures have helped them to build a competitive advantage, organizations feel resistant to changes.

Habits

To find the values that govern a system's theory-in-use, do not ask people what they believe but watch what they do (Tagg, 2007). The governing values that determine the ability of organizations to enable the application of social innovation are embodied in the standardized routines within these organizations.

Every standardized routine ultimately forms a habit. These habits emerge because the human brains are continuously looking for ways to save effort. Experimental researches with animals discovered that mental activity decreased when having habits (Milgram, 1963). For example, if laboratory rats know how they are able to navigate a maze, it led to a decrease of mental activity. Even if people are not able to recall their experiences that created habits, these habits are still at the base of the behavior (Milgram, 1963).

Duhigg (2012) described three steps of habit formation. The first step in his so-called "habit loop" is the cue, a trigger that informs the brain to enter automatic mode and which habit to use. The second step is the routine: physical, mental, or emotional. The third step is the reward, which helps the brain decide whether this specific habit loop is worth remembering for the future.

The accumulation of all these habits of the people within an organization together forms the organizational culture (Rice, 2012). When organizations recognize the importance of these habits, they are possibly also able to transform the way in which the employees communicate. Furthermore, they also increase the impact on how the work is done and how customers react to the goods and services.

Self-organizing

An important feature of social innovation is self-organizing. Together with cross-functional teams self-organizing ensures creativity. Close social networks between employees and operating in decentralized cross-functional teams create space, ambition and enthusiasm (Volberda, Van den Bosch & Jansen, 2007).

Employee empowerment arises from the conviction that new forms of work organization are overturning traditional managerial structures and returning control to employees (Harley, 1999). This conviction is also closely related to the concept of social innovation.

Work became organized in a different way. Organizations became more transparent and gave employees more space to organize work with the idea of working smarter. Both talent development and the principle of working smarter are seen as high forms of employment, which can be realized with the application of social innovation. It enables the improvement of the productivity and competitiveness of organizations (Volberda, Van den Bosch & Jansen, 2007).

This also applies for knowledge sharing. Sharing knowledge and mutual learning with colleagues is positively related to lowering manufacturing costs, faster completion of new development projects, team performance, innovation capabilities, sales growth, revenue from new products and services and firm performance (Hansen, 2002; Cummings, 2004; Arthur & Huntley, 2005; Hansen, Mors, & Lovas, 2005; Collins & Smith, 2006; Lin, 2007a; Lin, 2007b; Mesmer-Magnus & DeChurch, 2009).

In short, the abilities of individuals consist of several key components that potentially affect the application of social innovation within organizations. The following hypotheses are tested in study to show whether the individual employees have the ability to use their knowledge:

H3a: The abilities of employees within an organization have a significant effect on the application of social innovation by individuals within the organization.

H3b: The application of social innovation by individuals has a significant effect on the abilities of individuals within the organization.

2.7 | Organizational culture

Motivation showed to be a critical influencer for organizational success and ensured that employees are turned into action (Carneiro, 2000). The opportunities showed to enable employees to achieve high performances with the provided support resources, such as information and technology (Blumberg & Pringle, 1982; Boxall & Purcell, 2011). And without abilities employees were not able to apply social innovation, because of the absence of capabilities of individuals within the organizations to enable the application of social innovation (Turner & Pennington, 2014).

However, it is excessively striking that the MOA-model showed a lack of attention to the written and unwritten rules of an organization. The written and unwritten rules constitute the culture of an organization. It can be understood as the common understanding of the members, and the persons concerned, the organization regarding what goes on daily in their venture (Schein, 1996).

The organizational culture has a strong influence on the functioning of both the organization and the functioning and health of its employees (Alvesson, 2012). When there is within an organization a meeting about the marketing budget, it makes a difference whether the head of marketing is present or the head of finance.

From its own perspective, a marketer highlights an interest in investing in the communication and marketing policy of the organization. In contrast, the financial terms can be an uncertain investment since it is not tangible what the organization get in return for the investment. A financial man could possibly want to get a better understanding of what results it might bring the organization (Kotler & Levy, 1969).

Cultural factors consist of the education, experience and interaction styles of people within an organization (Schwieger, Melcher, Ranganathan & Wen, 2004). The backgrounds of the group members also are able to influence the process. The way in which people make decisions and perceive a particular topic may be influenced by education, knowledge and experience (Mbuba, Wang & Techatassanasoontorn, 2013).

This also includes the experiences they share.

In this study is chosen to study the organizational culture on the basis of the principles of Goffee and Jones (1996). They have studied the culture within organizations on the basis of the principles of human relation. As a result, other models to describe the culture within organizations were not chosen. For instance the Competing Values Framework (CVF), a well-known means to characterize individual and organizational leadership (Cameron, Quinn, DeGraff & Thankor, 2007). The Competing Values Framework examines the organizational culture from the perspective of the individual; Goffee and Jones (1996) studied the culture from the organizational perspective. Thus, this study used the approach of Goffee and Jones (1996).

Goffee and Jones (1996) are two important scientists who admit the importance of the culture within an organization. They speak in terms of communities and designed a matrix to divide organizational culture based on sociability and solidarity. This matrix distinguished four types of organizational culture: 'networked', 'mercenary', 'fragmented' and 'communal'.

Sociability

Sociability describes the friendliness of relationships between people in an organization. Ideas, attitudes, interests and values are shared through friendships (Di Pietro & Di Virgilio, 2013). According to Goffee and Jones (1996) communities with a high level of sociability are characterized by conversational atmosphere and amity. For example, this is reflected in outings organized by colleagues and relatively quickly built up friendships among employees (Moncrief, 2007).

This has a number of advantages. It offers a pleasant working environment and encourages teamwork and creativity. In contrast, can the performance of underperforming individuals be deliberately masked by colleagues (Schein, 2009).

Solidarity

Solidarity refers to the emotional and non-instrumental relations within organizations with

internal friendliness and among members of the corporation (Hakhu, Kiran & Goyal, 2013). Communities with a high level of solidarity are characterized by strong professional relationships between colleagues. Personal ties are practically devoid. This has the advantage that the work is carried out effectively and relationships are released without any external pressure.

Furthermore, strong professional relationships and solidarity among employees promote positive reactions to work (Duncan 1997; Winter-Collins & McDaniel, 2000; Beecroft, Kunzman & Krozek, 2001). For example by making work enjoyable, enhancing the spirit of teamwork, promoting information sharing and creating openness to new ideas and relieving stress factor on the part of the members (Hakhu, Kiran & Goyal, 2013).

The disadvantage is that it is only effective when it is focused on the right strategy. Solidarity is limited to interaction directed towards ends. Hereby it is of major importance that the interaction is not in violation of the good of the human person, or of basic rights of a personal, social, economic or political nature (Jeffries, Johnston, Nichols, Oliner, Tiryakian & Weinstein, 2006). Moreover, the division of roles is clear and this prevents the kind of altruistic behavior that occurs in a cozy situation.

		Solidarity	
		High	Low
Sociability	High	<p>Networked culture</p> <p><i>Triggers for innovation</i></p> <ul style="list-style-type: none"> • informality • having fun <p><i>Characteristics</i></p> <ul style="list-style-type: none"> • unplanned connections • diversity of talent and interests • radical ideas • slow implementation 	<p>Communal culture</p> <p><i>Triggers for innovation</i></p> <ul style="list-style-type: none"> • teamwork • participation <p><i>Characteristics</i></p> <ul style="list-style-type: none"> • strong visionary leadership • innovation is possible throughout the organisation • longer-term projects
	Low	<p>Fragmented culture</p> <p><i>Triggers for innovation</i></p> <ul style="list-style-type: none"> • establishing cognitive conflict <p><i>Characteristics</i></p> <ul style="list-style-type: none"> • successful innovation largely depends on recruiting the right skills and talents • individualistic behaviour tolerated 	<p>Mercenary culture</p> <p><i>Triggers for innovation</i></p> <ul style="list-style-type: none"> • market pressures <p><i>Characteristics</i></p> <ul style="list-style-type: none"> • planned and measured outcomes in mind from the beginning • accepting of incremental steps • capable of fast implementation

Figure 2.2 | Organizational culture matrix (Goffee & Jones, 2006)

According to the authors, there is no best strategy. They also argued that corporate managers could change the strategy by taking several steps. Based on their matrix, Goffee and Jones stated that organizations could affect the level of sociability and solidarity (Abdul Rashid, Sambasivan & Abdul Rahman, 2004). The level of sociability can be increased by promoting to share ideas, limit hierarchical differences, recruit with interest and emotions in consideration and by arranging (in) formal meetings in and outside the office (Van Bentum & Stone, 2005; Seppänen & Dalen, 2013).

Stimulating the will to win encouraged commitment to share corporate goals and to make employees aware of competitors can increase solidarity. In conclusion, Goffee and Jones (2006) are convinced that culture has a substantial effect on the ability of the organization to create a value proposition. But to change the culture positively organizations need to be aware of the current culture and organizational climate.

As indicated earlier, this study differs from other studies towards social innovation by assuming the importance of culture. It is expected that the culture of organizations is a major predictor of the extent to which the application of social innovation by individuals is shown within the organizations. Therefore, the following hypothesis has been established:

H4: The culture of the organization has a significant effect on the application of social innovation by individuals within the organization.

In addition, the role of culture in this research is given extra attention. This is done by looking at the impact that culture has on the other factors that play a role in this research. As a result, an analysis is made of the impact of culture on the personal motivation of individuals, the opportunities offered by organizations and the ability of employees. Therefore, the following hypotheses have been established:

H5: The culture of the organization has a significant effect on the personal motivation of individuals within the organization.

H6: The culture of the organization has a significant effect on the opportunities of individuals within the organization.

H7: The culture of the organization has a significant effect on the abilities of individuals within the organization.

2.8 | Work performances

The application of social innovation has a major impact on the activities of the organization and stimulates among other team efficiency, effectiveness and provides mutual support among members of the organization (Graham, 1991). This has a positive impact on the organization's ability to adapt to a rapidly changing environment, facilitate organizational operations, and assist organizations to achieve their goals.

The concept of work performances explains the employees' attitudes towards work that has been attributed to them (Borman & Motowidlo 1993: 73). It has been defined as the employees' activities and behaviors in order to achieve the objectives of the organization (Murphy 1989; Campbell 1990).

The performance of employees in the workplace is important for organizations because these organizations want to establish the sustainability of their competitiveness. Furthermore, it improves the amount of knowledge within organizations that is utilized. For this purpose, it is important that the employees provide optimum work performances. As a result, it is a widely studied topic in the literature. The first studies on work performance date to early last century (Yerkes & Dodson, 1908). A well-known movement of researchers examined work performances on the basis of the activation theory. According to this theory, work performances of employees are the result of the interaction of job demands and the motivation level fed from different sources (Yerkes & Dodson, 1908; Scott 1966).

It is assumed that the work performance is the biggest and most important contribution employees can provide their organization (Arvey & Murphy, 1998). Employees who deliver high performance at work, have shown to perform two to ten times more effectively at their job compared to employees with a low work performance (Rimland & Larson, 1986, Ackerman & Kanfer, 1993). It is therefore not surprising that organizations have a great

interest in understanding how they can enable employees to optimize their work performances. This is needed in order to create a high level of knowledge utilization.

For the evaluation of work performance within an organization, it is according to Wu (1992) important to look at the professional knowledge, profession proficiency, work attitude, interpersonal relationship and work ethic. Work performance can also be influenced by the position employees occupied within the organization (Cross & Cummings, 2004). However, previously it was by Brass (1981) assumed that employees who occupied a central position in the organization did not have a better chance to show higher work performances. However, this research builds upon the most recent studies and suspect that the position within the organization influences the level of work performances. It is therefore also important that the assessment of work performance also looks at the nature of the work and the position occupied by the employee within the organization (Perry-Smith & Shalley, 2003).

A major influencer for the work performance is the goal setting, which increases the work performance of employees (Mitchell, Thompson & George-Falvy, 2000). It provides employees immediate benefits, such as a sense of purpose and challenge (Latham, 2004). With applying the concept of goal setting, organizations are able to increase the commitment of employees. For example by offering rewards and by letting their employees participate (Locke & Latham, 2002). Feedback also turned out to be an important factor. When employees were provided with feedback, it helped to increase self-efficacy, the probability of employees to set higher goals in the future and to build their ability to develop new strategies for work performances.

One of the optional ways to develop new strategies is to apply the principle of social innovation. As mentioned above, this is related to the concepts of motivation and ability, which turned out to be important concept too when it comes to work performances. This study assumes that work performances of employees will be affected positively when the application of social innovation by individuals within organizations is carried out on a higher level. Consequently, this study presumes that organizations need to increase the social innovation application to get maximum work performances.

2.9 | Work quality

The way in which work is organized has been found subject to change. Organizations are more aware of the quality that they need to deliver and individualization has become increasingly visible at its employees. Nowadays employees have different demands related to their individual contribution at the work floor. These employees are less satisfied with standard procedures and show a strong desire towards a more individualized process. For this, innovation plays an important role to meet these needs by inventing new solutions to the new needs of employees.

The work quality of employees is an important condition to better manage and utilize knowledge within organizations. From a quality perspective, knowledge has been considered as the essence of the output (Drucker, 1999, p.84). According to the perspective of Drucker (1999), employees are best able to make a judgment about their personal work quality. It is a trade-off for organizations between quality and quantity they wish to supply. Organizations must provide a good harmony in order to balance the quality of work, because the work quality within organizations can suffer disruption from a possible lack of time or lack of adequate work.

Work quality can be approached in different ways. The objectivist approach focuses on work quality on objective features of work and assumes that these are the predominant cause of employee experiences, for example the employee well being. By contrast, the subjectivist approach focuses on employee work preferences and their perceived fulfillment (Bustillo, Fernandez-Macías, Antón & Esteve, 2009).

The objectivist approach its conditions demonstrate how the experience of work and personal work preferences are formed (Green, 2006). The subjectivist approach is not capable to demonstrate that and focus more on the individual measurement. Therefore, it is important that in the assessment of the effect of social innovation application on work quality adopts the objectivist approach. According to this objectivist approach, work quality is described as the extent to which a job has factors that foster beneficial outcomes for the employee for the organization (Sen, 1985; Green, 2006; Tangian, 2007).

The current situation with respect to the work quality can be measured based on five factors: work organization and team design, skills and development, security and flexibility, wage and payment system, collective representation and voice. Work organization and design team can be divided into job discretion, job demands and participation in teams. Skills and development includes training and opportunities for development. Contract type and flexible working arrangements belong to security and flexibility. Finally, collective representation and voice can be subdivided into trade union agreement, employee participation practices (Tangian, 2007; Bustillo et al., 2009).

The application of social innovation seems able to stimulate this process, and thereby giving organizations more insight into how these considerations can best be made. Employees are often very aware of what the organization expects of them and whether they are actually able to meet the expectations. Through a better understanding of the knowledge utilization process, organizations can make a more comprehensive assessment of how employees themselves judge the work quality and whether it may need to be adjusted. When organizations are able to find a good balance between quality and quantity, it will ensure employees to have a higher degree of satisfaction with the quality of their own work. This not only leads to a higher inner satisfaction but it also serves as a possible incentive for increased productivity.

When organizations improve the work quality it results in several advantages. It is expected that employees develop a higher level of wellbeing. It also reduced the likelihood that workers are considering or wishing to move to another employer. Consequently it lowered the departure of employees. Furthermore, it also appears to have a positive effect in the long-term experience of the enthusiasm and satisfaction of employees and reduces it the risk of anxiety and depression (Warr, 1990).

2.10 | Development of talent

The individualization in the workplace has resulted in an increasing need for employees to develop themselves. Organizations are able to support this development by managing talent within the organization. This can lead to a positive effect for both employee and employer.

Organizations have an interest in employees who develop their talents and establish programs in which employees will further develop themselves in order to view and perform work processes and tasks from different perspectives. This is essential, as organizations want to be innovative in the end. In order to develop talent within the organization, it is important that the organization provides an environment in which employees have a certain degree of freedom and are allowed to make mistakes. The same characteristics were previously assigned in this research to social innovation.

As the region Twente wants to present itself as the knowledge region of the Netherlands, their focus should be aligned on enabling the development of talent within organizations. This might contribute to achieve their objective to become a well-respected knowledge region.

This study follows the definition of Garavan, Carbery and Rock (2012) to describe the concept of talent development. In his research on talent development within organizations the concept was described as the planning, selection and implementation of development strategies to ensure that organizations have both the current and future supply of talent to meet their strategic objectives (Garavan, Carbery & Rock, 2012, p. 6).

According to Bloom (1985) the development of talent takes place in three stages (initiation, development and perfection). In the first stage, employees are getting interest and are guided to a topic, idea, or discipline. The second stage concerns instructions in the skills, knowledge, and values of the domain. In the third stage, employees learn to apply their passion, create a unique style and message and explore original situations.

It is important for organizations that want to increase their social innovation application, have an interest in providing good facilities for employees. Including for the development of talent. This is of importance because organizations fear a failure to talent that could inhibit the potential growth. Therefore it should be a part of the business strategies of organizations (Collings & Mellahi, 2009). As a consequence managing the talent within organizations has become a central part of the human resource strategies of organizations.

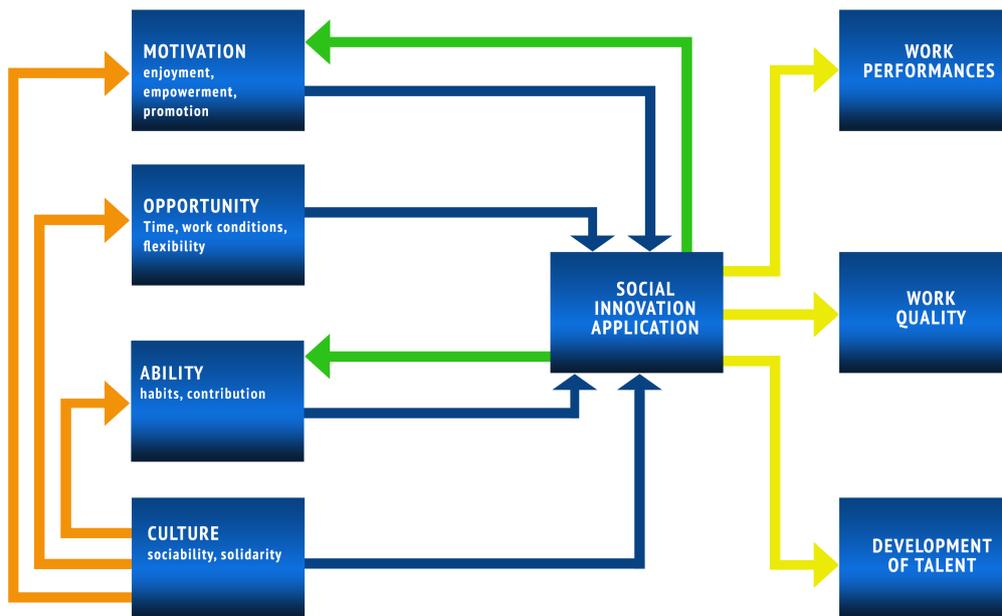
Organizations that offer their employees the opportunity to develop their talent create for itself a stronger position making them better able to retain employees (Boxall & Purcell, 2003). This also applies to areas and regions. Policies and practices, as a result, should be aligned on promoting talent development.

For the employees themselves it has also positive effects. It appears, among other things to increase the leadership skills of individuals when organizations facilitating talent development. It facilitates also the opportunity offered to put the potential of employees for coming up with creative ideas for the employer (Christensen, Johnson & Horn, 2010). Furthermore, research showed that there is an increased fairness and commitment among employees (Ford, Harding & Stoganova, 2010). Finally, Caplan (2013) stated that strategic talent development ensures that innovations are generated in the workplace.

Conceptual model

As mentioned above, this research suggests that motivation, opportunity, ability and culture are the factors that must be considered when identifying the application of social innovation by individuals within organizations. Based on these factors and the previously acquired knowledge about the MOA framework, a descriptive model has been drawn up. This descriptive model of social innovation application is shown in Figure 3.1.

Based on this model, this study examines the impact of the factors affecting the application of social innovation and the effects of the application of social innovation on these factors. Thus, the effects of social innovation application to the work performance, work quality and the development of talent are left untreated. These effects are not included in the study because this research first wants to provide insight into the foregoing process and considered it too early and too precarious to map out the effects on the work performance, work quality and the development of talent.



Note: Blue is the effect of the factors motivation, opportunity, ability and culture on social innovation application; green is the effect of social innovation application on motivation and ability; orange is the effect of culture on motivation, opportunity, ability and culture; yellow is the effect of social innovation application on work performances, work quality and development of talent.

Figure 2.3 | Descriptive model of social innovation application of organizations

3 | METHODOLOGY

This chapter describes how this research has been conducted. Participants, design, procedure and the measurements will be described in the following sections. It has been decided to carry out an exploratory study. This enables that insight into the topic and related issues will be provided. With this, this research examined the factors affecting the application of social innovation by individuals within organizations. The right part of the model, the effects of the application of social innovation on the work performances, work quality and development of talents, were not included. It is still too early to examine also these effects and to bind meaningful conclusions to possible outcomes of these effects. This exploratory study was conducted in the region Twente. The procedure section explains in more details this specific choice.

3.1 | Participants

The data for the analysis of social innovation application by individuals within organizations was obtained by making use of an online questionnaire among the working populace in the region Twente. In total 204 employees participated in this research. The age of these respondents was between 17 and 63 years with an average age of 31,57 years. Accessing the data on the basis of gender showed that more men took part in this study. In fact, 129 respondents were male (63,2 %) and 75 participants were female (36,8 %).

These participants were approached through online communication channels. Organizations were asked to participate and to invite employees by making use of their internal communication tools. Next to that, potential participants received a request by the social media channels Facebook and LinkedIn to participate in the study.

The participants were asked to complete an online questionnaire, which was available at Qualtrics, a web-based tool for data collection and analysis. The participants could fill in the online questionnaire anytime anywhere they want. All participants filled out the same questionnaire.

Most participants (65,6%) were found to have a minimal education level of University of professional education (HBO in Dutch). 87 participants (42,6%) attended a University of professional education (HBO), 47 participants (23%) followed education at the University of Research (WO in Dutch). The other participants were educated at a lower level: 10 Grade (LBO/VBO/VMBO/MBO) with 4,9%, 11th Grade (MAVO/first 3 years HAVO and VWO/VMBO theoretical and combined programs in Dutch) with 4,4%), Community College (MBO in Dutch) with 27,2% and Senior General Secondary Education/High School Diploma with Advanced classes (VWO in Dutch) with 7,8%). No participant showed to have no education or only had education at a primary or elementary school.

The participants were also divided according to the sector in which they work. Most respondents were active in Trade and repair (23,5%), followed by Health and social work (19,6%) and Business services (9,8%). To make the amount of participants for each sector large enough, in order to make an accurate estimate of the population by sector the fourteen sectors were reduced to four sectors, namely the Financial & Banking sector (business services & banking, insurance, trade & repair), (Semi) Government (education & government), Welfare (health & welfare care) and other sectors (agriculture & fisheries, construction, energy, hospitality, metal technology, transport & communications and other services). The distribution of the total number of participants among these four sectors can be found in Table 3.1.

		<i>n</i>
Gender	Male	129
	Female	75
Education	No education / primary school / secondary school	0
	10th Grade	10
	11th Grade	9
	Community College	35
	Senior General Education/ High School Diploma with advanced classes	16
	University of Professional Education	87
	University of Research	47
Industry	Financial & Banking	73
	(Semi) Government	25
	Well fare	42
	Other services	64

Table 3.1 | Gender, Education and sectors of respondents

3.2 | Design

Based on the MOA-model with the addition of the organizational culture, the extent to which the factors affecting the application of social innovation by individuals within organizations was examined. These factors were divided into motivation and abilities of employees and opportunity and culture of organizations. All factors formed each their own research area, whereby the participants on the basis of statements reviewed the chosen factors.

A questionnaire was used for this research. This made it possible to reach a representative number of participants in a relatively short time. More important it enabled the study to collect a large amount of information in a relatively short time frame.

Prior to the questionnaire, the participants were shown an introductory text. This introduction stated why participants were asked to fill in the questionnaire and also told what was expected from them.

3.3 | Procedure

The data collection took place from August till October 2015. The participants were located and working in the region Twente. This region wants to present itself as a pioneering knowledge-based region (Wentink, 2006). By presenting itself as a knowledge region, Twente wants to attract students, entrepreneurs and organizations (Bos, 2007). To be a knowledge region Twente needs to be aware of the current knowledge utilization in the region.

Pretest

Before the real questionnaire was shown to a big group of participants, a test panel was asked to fill in the questionnaire. This was a group of 20 randomly in Twente working people, who were asked to provide helpful feedback in order to improve the questionnaire and prevent for inaccuracies. The limited feedback of the test panel improved the questionnaire and ensured that the response time is optimally tuned, words were comprehensible and the formulation of questions was logical and easy to understand.

Questionnaire

Participants were approached through online communication tools and guided to the website of the questionnaire, Qualtrics. There the participants needed to read a short introduction about the purpose of the research where after the questionnaire started.

The questionnaire was divided in seven different parts. The scales of the used factors (motivation, opportunity, ability, culture, social innovation application) were shown to fill in (see appendix I). For every item of the scales, participants had to fill in on a 7-point Likert-scale how they agreed or disagreed with the statement. This scale included the following options: strongly disagree, disagree, tend to disagree, neutral, tend to agree, agree and absolutely agree.

Measurements

The personal motivation of employees was measured based on the items from the research of Bosma (2008) about organizational change. One of the aspects of this research was the motivation of employees about change processes within organizations. In total, the personal motivation among employees was measured based on an eight-item scale.

The opportunities that the employees are provided by the organization in order to work together, was also measured on the basis of an eight-item scale. The origin of the scale chosen for opportunity lies in the research of Cegarra-Navarro, Cepeda-Carrion and Jimenez-Jimenez (2011). They examined the social aspects of innovation in relation to organizational memory and technology.

Ability is studied based on the extent to which employees in the organization had the ability to make optimum use of their knowledge. Pot, Kraan and Bossche (2009) earlier investigated the influence of work and organization on work behavior. Their research was based on social innovation. In the survey, Pot, Kraan and Bossche (2009) used a scale to measure the individual ability. This scale is adapted to a seven-item scale for this study.

Since culture has not been measured in a similar study, the origin of this scale lies in a different context. Calzada and Shaw (2011) studied the cultural character of work departments. The cultural character was examined in terms of sociability and solidarity. For this study, culture has been studied by using the eight-item scale.

Le Blanc, Loo and Janssen (2013) used an extensive scale based on the research of NCSI (2009) to describe whether organizations applied social innovation. Specifically, the scale was used to distinguish if organizations may or may not be characterized as organizations with a high level of social innovation application by looking at specific practices within organizations in the field of labor organization, labor relations and the relationship with the environment. To measure the application of social innovation by individuals, an adapted version of this scale, consisting of eleven items, was used in this study.

4. Results

There are four independent variables in this study: employee motivation, employer opportunities, individual abilities and organizational culture. The dependent variable was the level on the application of social innovation within an organization.

For each construct was first examined whether the independent variable had an effect on the application of social innovation by individuals within the organization. This is done on the basis of the measurement of the linear regression.

But first it was important to examine whether the data contained outliers. Therefore the research data was tested in SPSS on the basis of The Outlier Labeling Rule (Hoaglin, Iglewicz & Tukey, 1986). The Outlier Labeling Rule searches for outliers in the data by multiplying the difference between the first and third quartile of the distribution with a parameter (g). The value found is subtracted from the first quartile and added to the third quartile, with which the boundaries are established. All observations that do not fall within the two values are considered to be outliers. This method can be applied for the detection of outliers because the data of this study were normally distributed. From the plots arose the presumption that the group formed Professional Education University would contain outliers. Therefore the data were analyzed in more detail. Here, the guidelines set by Hoaglin, Iglewicz and Tukey (1986) were focused on this specific research and its corresponding size. The Outlier Labeling Rule (Hoaglin, Iglewicz & Tukey, 1986) revealed that the data in this study did not contain any significant outliers. Because no outliers were detected, the dataset remained unchanged.

4.1 | Factor Analysis

The factor analysis is a data reduction tool used to determine whether the factors of this study showed similar patterns of responses. It examined if to find out the underlying structure of a group of items. By doing so, with the factor analysis, it is examined whether the individual entries can be derived to one or a limited number of aspects (factors). If so, then a constructed variable can be created (De Vaus, 2013).

In this study, it was important to perform the factor analysis to find evidence that the predefined indicators (motivation, opportunity, ability, culture, social innovation application) may actually form the factors. There are two types of variables: latent variables (factors) and observed variables. Participants may respond similarly to questions about ability and the social innovation application, which can be both associated with the latent variable work activity performance. A similar pattern can be caused when variables have similar patterns of responses because they are all associated with a latent (i.e. not directly measured) variable. The factor analysis is able to determine whether these two predefined constructed actually form the two constructed variables or that the items to determine of these constructs should be divided into new variables.

For the analysis, with the Varimax rotation a principal component analysis (PCA) was conducted on the results of the participants on a total number of 42 items. It was decided to carry out the factor analysis on the basis of the Varimax rotation, which was developed by Kaiser (1958) and the most common and popular rotation method by far (Abdi, 2003). It minimizes the complexity of the components by making the large loadings larger and the small loadings smaller within each component (Jolliffe, 2002). Furthermore, this method assumed that population factors are not correlated and it tends to produce multiple group factors. The complete overview of the conducted factor analysis is shown in appendix II.

In the analysis, the items were tested in order to determine whether or not the items of the constructs might actually constitute the defined constructs. It is also possible that the results show that certain items of different constructs exhibit a degree of cohesion, which causes that these items should be classified into the same construct. The individual items have to be correlated ($r > 0,5$) but the correlation may not be too strong ($r > 0,9$). That causes difficulties in determining the unique contribution of a specific item for the factor (Field, 2000).

In addition, the sample size of the study should be large enough to be able to interpret the value of the good outcomes (Comrey & Lee, 1992; Tabachnick & Fidell, 2007). With a sample size of 204 participants is the sample size of this research considered as an average sample size according to the guidelines.

The results of the Varimax rotation gave evidence for the intended constructs. The items motivation, opportunity, ability and social innovation application formed each with its own construct. The items, which measured culture in this study, however could be divided over two constructs. Although Goffee and Jones (2006) argued that these items collectively measured the culture of organizations, emerged from the data doubt that the distribution of culture on the basis of sociability and solidarity has not been analyzed as such. Because it is possible that not all of these items may be included in the same construct, there was a need more evidence. As a result the reliability of the construct was addressed. With a Cronbach's Alpha of 0,745 (see table 4.2) showed reliability level of the construct culture to be adequately and therefore there was sufficient evidence to maintain the construct culture. As a consequence, there was no evidence found to redistribute the items to form various new constructs and all pre-set constructs remained unchanged.

4.2 I Reliability test

In order to determine whether the items of the various factors actually might form a scale, the factors were tested using the Cronbach's alpha. With Cronbach's alpha these factors were assessed based on the correlation of the various items. Therefore it is considered to be a measure of scale reliability. The score of the Cronbach's Alpha range between 0 and 1 and from 0.7 the correlation is considered to be a high correlation. The results in Table 4.2 showed that all factors scored higher than 0.7. As a result all factors had a sufficient internal consistency.

Construct	M	SD	Cronbach's alpha
Employee motivation	5,27	0,98	0,752
Organizational opportunity	5,15	1,24	0,894
Employee abilities	5,70	1,22	0,891
Organizational culture	5,37	0,88	0,745

Table 4.2| Means, standard deviations and Cronbach's alpha

For the constructs in this research, use was made of the Pearson's product-moment correlation coefficient in order to determine the correlation between the constructs. The descriptive statistics and correlations between the constructs can be found in Table 4.3.

	Descriptives						
	Mean	SD	1	2	3	4	5
1. Employee motivation	5,27	0,98		0,262**	0,276**	0,035	0,172*
2. Organizational opportunity	5,15	1,24			0,486**	0,354**	0,438**
3. Employee abilities	5,70	1,22				0,279**	0,608**
4. Organizational culture	5,37	0,88					0,219**
5. Social innovation application	5,14	0,82					
Age	31,57	10,04					

Note: * $p < 0,05$, ** $p < 0,01$. Employee motivation, organizational opportunity, employee abilities, organizational culture and social innovation application were answered on a seven-point Likert scale (1=fully disagree to 7=fully agree).

Table 4.2| Means, standard deviations and correlations among the main constructs and age.

To test the various effects also an ANOVA was conducted using SPSS. With these analyses four groups were compared in their outcome on the different dependent variables. These groups concerned the sectors in which the employees are working. In this section the effects of the independent factor on the dependent factor will be discussed. In addition, by using linear regression was examined the extent to which the various independent factors had a predictive value for the dependent variable social innovation application.

4.3 | Effect of the personal motivation on social innovation application

When analyzing the relationship between the motivation of employees and the social innovation application, it turned out that the personal motivation of employees did not had a significant effect on the social innovation application of individuals within the organization. This was evident from the results ($t=0,519$) of the study ($p=0,6$). It demonstrated that motivation was not a good predictor for social innovation application by individuals within the organization. As a consequence, the personal motivation of employees did not have a significant effect on their social innovation application within the organization and hypothesis 1a, the personal motivation of employees has a significant effect on the application of social innovation by individuals within the organization, was rejected.

In order to get an even more concrete look at how the personal motivation of employees had an effect on social innovation application, this study looked at the standardized coefficient, Beta (β). It showed that motivation ($\beta=0,03$) was the fourth predictor of social innovation application.

On the basis of the ANOVA the differences between the groups were looked at. This showed that there was measured a significant difference ($p=0,029$) between the different sectors ($F=3,071$). Nevertheless showed the personal motivation at no group to be a good predictor of social innovation application. However, a distinctive finding was the negative beta ($\beta=-0,172$) at the (semi) Government sector. It indicated that the personal motivation within the government sector had a negative effect on social innovation application.

Within this research also the relationships were analyzed between the individual items and social innovation application. This revealed a number of significant correlations. So were 'my personal motivation to collaborate with colleagues increases because my work activities force me to work together' ($r=0,148$), and 'my personal motivation to collaborate with colleagues increases because I am obliged by the organization to work together' ($r=0,146$) significant at the 0,05 level. At 'my personal motivation to collaborate with colleagues increases because I am extremely interested to learn from my colleagues' ($r=0,295$) and 'my personal motivation to collaborate with colleagues increases because I am stimulated by the organization to work together' ($r=0,355$), the correlation was even significant at the 0,01 level.

4.4 | Effect of social innovation application on the personal motivation

In the analysis of the effect ($t=2,695$) social innovation application had on the personal motivation of employees, a significant ($p=0,008$) positive effect was found at the personal motivation. Therefore, hypothesis 1b, which stated that the social innovation application of employees had a significant effect on their personal motivation, was confirmed. Furthermore, the social innovation application showed to be a predictor ($\beta=0,186$) for the motivation of employees in the organization to work together with colleagues.

The difference between the groups ($F=4,836$) was also found to be significant ($p=0,009$). Here, social innovation application showed a significant positive effect on motivation in the Financial & Banking sector ($p=0,008$) and by other sectors ($p=0,047$). At Welfare ($\beta=0,101$) the effect was found not significant ($p=0,525$). (Semi) Government ($\beta=-0,08$) showed a negative effect but not significant ($p=0,702$) on the individual motivation of employees.

4.5 | Effect of the opportunities on social innovation application

Whether the organization offered its employees the possibility to collaborate with colleagues, was assessed in the construct opportunity. The relationship of this construct ($t=2,897$) with the social innovation application has resulted in a significant ($p=0,004$) positive effect on social innovation application. As the opportunities the organization offered their employees showed to have a significant effect on their social innovation application by individuals within the organization, hypothesis 2, which stated that the opportunities of employees have a significant effect on the application of social innovation by individuals within the organization, was confirmed.

The individual opportunities of employees ($\beta=0,191$) within an organization turned out to be the second best predictor of social innovation application. As a result, it can be stated that the opportunities turned out to be an important predictor of social innovation application in this research.

The measurement of the difference between the groups revealed that the sectors ($F=0,17$) did not differ significantly from each other ($p=0,917$). However, it appeared from the results that a significant effect was measured within a sector. In the sector Finance & Banking ($p=0,013$), the individual opportunities of an employee had a significant effect on the social innovation application. Here it was with ($\beta=0,167$) also a reasonable important predictor of social innovation application of individual employees.

At the relationships of the individual items with respect to the social innovation application, all of the individual items were significantly at the 0,01 level. Here, the correlation was lowest at 'the organization in which I work allows me to collaborate with colleagues by

providing sufficient time to work together' ($r=0,278$), and strongest at 'the organization in which I work allows me to collaborate with colleagues by providing me and my colleagues together the opportunity to invent new techniques, methods or instruments' ($r=0,471$).

4.6 | Effect of individual abilities on social innovation application

The analysis of the relationship between the individual ability and social innovation application, showed a significant ($p<0,01$) positive effect of the individual abilities on social innovation application ($t=7,967$). Indeed, the results showed that the abilities ($\beta=0,513$) for more than half to determine the social innovation application of individual employees. This made it the most predictive value of all the measured variables. The individual abilities employees have within the organization showed to have a significant effect on their social innovation application within the organization and therefore hypothesis 3a (the abilities of employees within an organization have a significant effect on the application of social innovation by individuals within the organization) was confirmed.

In line with the outcomes of the total constructs, almost all sectors showed a significant effect too. The strongest effect was measured at Finance & Banking ($p<0,01$) and Other sectors ($p<0,01$), followed by welfare ($p=0,006$). By contrast, the government sector showed no significant effect ($p=0,199$).

Nowhere else were the relationships between the individual items and social innovation application as strong as in the individual ability. Here, all items were found to be significant correlated at the 0,01 level. At 'within the organization where I work I have the ability to help my colleagues by sharing my knowledge' ($r=0,410$), the correlation was the least strong and at 'within the organization where I work I have the ability to contribute to the creation of new products or services' ($r=0,559$) and 'within the organization where I work I have the ability to contribute to the improvement of new products or services' ($r=0,559$), the correlations were the strongest.

4.7 | Effect of social innovation application on individual abilities

The analysis of the effect of social innovation application by individuals in the organization on the individual ability of employees, showed a significant ($p < 0,01$) positive effect on the individual abilities of these employees ($t = 11,387$). As a consequence, hypothesis 3b was confirmed and indeed showed the social innovation application of individual employees within the organization has a significant effect on their individual abilities within the organization. In comparison with the effect on the motivation of employees, revealed that social innovation application had a bigger predictive value ($\beta = 0,625$).

Furthermore, the sectors ($F = 52,194$) showed a significant ($p < 0,01$) different result. In all sectors showed social innovation application to be a strong predictor with minimal $\beta = 0,476$ (welfare) as predictive value to the utmost $\beta = 0,676$ (other sectors).

4.8 | Effect of organizational culture on social innovation application

In the analysis of the relationship between the culture of organizations and the social innovation application by individuals, the results showed that the culture of organizations had a significant effect ($p = 0,003$) on the social innovation application by individuals ($t = 2,984$).

Next to that, culture showed to have a significant positive predictive value ($\beta = 0,205$) on social innovation application by individuals. Because the culture of the organization had a significant effect on the social innovation application by individuals within the organization, hypothesis 4, which stated that the culture of the organization has a significant effect on the application of social innovation by individuals within the organization, was confirmed.

The groups also differed significantly ($p = 0,011$) on their scores on social innovation application ($F = 4,603$). This is evident from the widely differed effects of the comparing sectors. Thus, the sectors (semi) Government ($t = 0,444$, $p = 0,661$) and Well fare ($t = 0,989$, $p = 0,329$) were far from significant, whereas the Financial & Banking sector ($t = 1,920$, $p = 0,059$) came close and the other sectors showed to have a significant effect ($t = 2,275$, $p = 0,026$).

4.9 | Effect of organizational culture on the personal motivation

The results of this study showed that the culture of organizations did not have a significant effect ($p=0,508$) on the personal motivation of individuals within organizations ($t=0,664$). Thus hypothesis 5, which stated that the culture of the organization has a significant effect on the personal motivation of individuals within the organization, cannot be confirmed. It also had a very low but positive value as a predictor ($\beta=0.047$). Also the groups ($F=2,372$) showed no significant effect ($p=0.096$). In all groups, the significance level was very low, ranging from $p=0,383$ (Well fare with $t=0,882$) until $p=0,681$ (Semi Government with $t=-0,417$).

4.10 | Effect of organizational culture on the opportunities

The effect of culture was also measured on the opportunities of individuals within organizations. The results showed that the culture of the organization had a highly significant effect ($p > 0,01$) on the opportunities of individuals within the organization ($t=4,431$). It also appeared that culture had a reasonable level of predictive value ($\beta=0,298$) on the opportunities of individuals within the organization. As a consequence hypothesis 6, which stated that the culture of the organization has a significant effect on the opportunities of individuals within the organization, can be confirmed.

Furthermore, there was a strong significance ($p>0,01$) measured in the comparison between the groups ($F=10,696$). At the Financial & Banking sector ($t=2,834$, $p=0,006$) and Other sectors ($t=3,021$, $p=0,004$), the effect of culture was found to be significantly positive, unlike Well fare ($t=1,840$, $p=0,073$) and (semi) Government ($t=0,588$, $p=0,562$).

4.11 | Effect of organizational culture on the individual abilities

The culture of organizations showed also to have a significant effect ($p=0,001$) on the abilities of individuals within the organization ($t=3,348$). The seventh hypothesis stated that culture of the organization has a significant effect on the abilities of individuals within the organization. With the outcome of the data this hypothesis was confirmed. Furthermore, the predictive value of culture ($\beta=0,229$) on abilities showed to be nearly similar as the

predictive value culture had on the opportunities of individuals within the organizations ($\beta=0,298$).

There was also a significant difference ($p=0.001$) measured between the groups ($F=6.746$). The difference was greatest between (semi) Government ($t=0,244$, $p=0,810$) and the two significance sectors Financial & Banking ($t=2.373$, $p=0,02$) and Well fare ($t=2,304$, $p=0,026$). The Other sectors showed not to be a significant predictor ($t=1,812$, $p=0,075$) for the abilities of individuals within the organization.

Hypothesis	Independent Variable	Dependent Variable	Accepted / Rejected
Hypothesis 1a	Motivation	Social innovation application	Rejected
Hypothesis 1b	Social innovation application	Motivation	Accepted
Hypothesis 2	Opportunities	Social innovation application	Accepted
Hypothesis 3a	Ability	Social innovation application	Accepted
Hypothesis 3b	Social innovation application	Ability	Accepted
Hypothesis 4	Culture	Social innovation application	Accepted
Hypothesis 5	Culture	Motivation	Rejected
Hypothesis 6	Culture	Opportunities	Accepted
Hypothesis 7	Culture	Ability	Accepted

Note: At a 0,05 significance level.

Table 4.3| hypothesis testing results

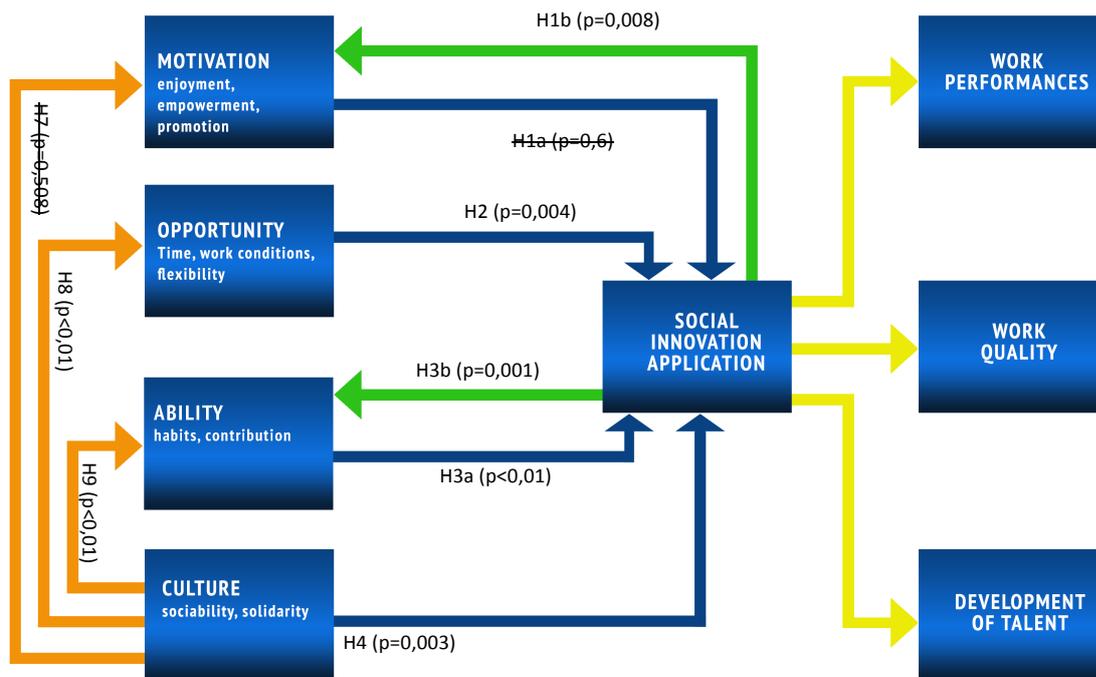
5 | Conclusion

This chapter provides an overview of the conclusions of the study. The purpose of this research was to explore how employees could better utilize knowledge within their organization. The knowledge utilization of employees is examined by the concept of social innovation. Hereby social innovation was given a more comprehensive definition that helps to describe and develop the process of social innovation application within organizations. As a result, social innovation is described as an knowledge utilization process in organizations where everyone participates affecting the innovation in work organization and labor relations, which provides an improvement in work performance, work quality and the development of talent. Furthermore, social innovation is considered to be an important mean in order to increase the knowledge utilization within organizations.

To enable organizations to increase the utilization of knowledge among their employees, this exploratory study was performed to determine which factors carried out an effect on this process. Use has been made of the MOAC-model, a model based on the existing MAO-model, and developed in this study. With this model, knowledge processes within organizations were described with the additional factor culture. This has resulted in the following research question:

To what extent do the motivation, opportunity, ability and culture effect the application of social innovation of employees within organizations?

In conclusion, it is proven with this research that the application of social innovation has a number of important affecting factors. Beforehand the expectation was that motivation, opportunity and ability would show to be important predictors for the application of social innovation. In addition, the concept of culture was studied to clarify whether the culture of an organization would also be a satisfying predictor for the application of social innovation within organizations.



Note: Blue is the effect of the factors motivation, opportunity, ability and culture on social innovation application; green is the effect of social innovation application on motivation and ability; orange is the effect of culture on motivation, opportunity, ability and culture; yellow is the effect of social innovation application on work performances, work quality and development of talent.

Figure 5.1 | Descriptive model of social innovation application of organizations, including the hypothesis results

The research data revealed that opportunities, abilities and culture are important predictors of social innovation application according to the individual perception of employees within the region Twente. This enables to confirm the presumption that culture also is an important predictor. It also becomes clear that the extension of the MOA-model to the MOAC-model was justified for this study. From the factors were in particular the abilities of employees provided by the organization a crucial factor with a predictive value of more than 50 percent. Furthermore, it can be seen as surprising that personal motivation did not turn out to be a significant predictor for the level of social innovation application by employees within the organization

It can be argued that the organizations, which wish to utilize more knowledge, can be considered responsible for taken action to reach a higher level of social innovation application. These organizations are able to accomplish a higher level of social innovation application by finding out first whether the organization offers its employees the ability to use knowledge within the organization.

In addition, the level of social innovation application by individuals within organizations can be increased by expanding the opportunities of employees and by focusing the organizational culture more on sociability and solidarity between employees. By recognizing the importance of culture and the principles arising from this research, organizations are able to change and improve the opportunities and abilities of employees in the organizations. It also appears the culture besides its direct effect had an indirect effect on increasing the social innovation application among employees, as previously was shown that opportunities and abilities had a significant effect on the social innovation application.

By realizing an increase in social innovation application among employees, the organizations in the region Twente are in a position to make better use of knowledge. It also appeared that increasing social innovation application had a positive effect on employees by making them more motivated and offering them more abilities to utilize their knowledge. Hence, the key factors for the region of Twente are identified which allows the region to present itself more and more as a knowledge region not by introducing new knowledge sources (companies, workers and students), but by making better use of the current knowledge sources.

6 | Discussion

This chapter further elaborates on the results and conclusions of this study. This highlights inter alia the link between the findings of this study and the findings of previous studies earlier discussed in the theoretical framework. Furthermore, expectations and possible causes and implications of the results are discussed. Herewith, it seeks to embed the results in the practical context: the knowledge utilization within organizations in the region Twente. The answers will be translated into recommendations for practitioners of organizations. Furthermore, the limitations in the research process and suggestions for future research are addressed in this chapter.

The results of the data confirmed that knowledge utilization could be improved by organizations by means of social innovation. Hereby, social innovation was given a new and more concretized definition by describing it as:

“A knowledge utilization process in organizations where everyone participates affecting the innovation in work organization and labor relations, which provides an improvement in work performance, work quality and the development of talent”

Social innovation gained in course of time increasing attention in the literature, partly due to the fundamental change in the way we communicate nowadays. The concept was widely studied from numerous perspectives, with a large number of definitions of the concept as a consequence. With the new definition, this study distinguished itself from previous studies about social innovation by bringing together and uniting the principles of social innovation in order to outline and clarify the concept. This has been achieved by considering the concept as a knowledge utilization process and sequential was the perspective deviant compared to the societal, organizational, behavioral and work perspective. These perspectives were found to only describe the concept very generic describe or did not treat the whole concept.

By making use of social innovation, organizations are better able to exploit the knowledge of their employees. Therefore, the concept of knowledge utilization played a very prominent role in this research. As stated by Nonaka and Takeuchi (1997), the biggest challenge for

organizations in the use of knowledge is to convert the tacit knowledge of the employees into available and explicit knowledge for the entire organization. This enables organizations to transmit and apply the present knowledge within the entire organization. In line with the research of Swan et al. (2012) implies this study the idea that actors within the organization need to interact and apply knowledge with each other. However, this study elaborated further on this idea by stating that when tacit knowledge will be converted into explicit knowledge, knowledge within the organization will be expanded even more. The underlying idea behind it is the expectation that it will emerge synergy among the individuals.

Factors

The knowledge utilization of employees within the organization has been studied with reference to the MOAC-model. This model is based on the existing MOA-model, a highly acclaimed and reliable model, often used to examine behavior with respect to knowledge processes. Knowledge processes are examined in this model on the basis of three factors, namely motivation, ability and opportunity. This study added a fourth factor and is therefore divergent to studies of researchers of among other Blumberg and Pringle (1982), Boudreau, Hopp, McClain and Thomas (2003) and Binney, Hall and Oppenheim (2006).

With the expansion to the MOAC-model disputed and assumed this study that a fourth factor, the culture of an organization, had an important effect on the social innovation application within organizations. According to the literature on organizational culture, knowledge processes within organizations needed to give attention to the possible effects the organizational culture might have (Beecroft, Kunzman & Krozek, 2001; Schein, 2009; Alvesson, 2012). However, researchers who studied knowledge processes based on the MOA-model did not take the culture into consideration. This study revealed that the expansion to the MOAC-model enables to research knowledge processes within organizations, groups or networks in a more comprehensive manner, by recognizing the importance of culture and by taking it as an independent factor in the test-related factors, such as use of knowledge.

Prior to the data analysis it was assumed that the personal motivation of individual employees would have a proven positive effect on the level of social innovation application

by employees in organizations in the Twente region. It was suggested to be the most critical influencer of organizational success (Carneiro, 2000). The personal motivation would not only affect positively the employee themselves, but also on colleagues, partners and the organization. Also the factors of motivation were seen as important influencer for the way employees performed at work. An increased motivation of employees would result in more enjoyment (Bakker, 2003), more recognition and empowerment (Mazoor, 2011) and to the intensified cooperation with colleagues (De Rijk, Van Raak & Van der Made, 2007). Contrary to expectations, showed the findings that motivation was not a significant predictor for the social innovation application by individuals. Therefore the extent to which knowledge is used within organizations cannot be explained by how motivated the employees of the organizations are. Thus, where evidence was found in the literature for the effect of the motivation, does this study demonstrates the opposite.

A second factor, which has been explored, was the opportunities for employees to collaborate with colleagues. Opportunity is related to the characteristics and chances organizations offered its employees to work together in a social innovative way (Sterling & Boxall, 2012). Researchers (among others Blumberg & Pringle, 1982) claimed that resources are just required in order to reach a certain performance. Likewise resources are needed for the utilizing knowledge. If organizations want their employees to utilize more knowledge, it is important to provide these employees the available time, enough spaces, sharing encouragement en related mechanism to activate knowledge sharing and utilization (Chen, Chang & Tseng, 2012). This can be confirmed with the results of this study. The opportunities were an important predictor for the social innovation application demonstrated within the organization. It can be said that when organizations think that knowledge is not utilized optimally, perhaps it can be attributed to the opportunities offered. Specifically, the results showed that when the organizations allowed employees to work together to ensure that employees are able to invent new techniques, methods and tools, the employees showed to have a very high level of social innovation application.

The main predictor of social innovation application was the ability of employees to work together. Consistent with the study of Gountas and Mavondo (2005), who concluded that the ability of individuals within a group was required to have a certain behavior, this

research found that the individual abilities are important for individuals to be able to show a high level of social innovation application. It turned out to be decisive for more than half for the level of social innovation application by individuals within the organization. Thus, employees within the region Twente are able to use the talents, skills and competencies within the organization.

Although this research acknowledged the importance of the ability of employees, previous scientific studies have shown that it is difficult for organizations to change the actual ability. Among other things because routines, habits and structures are historically shaped within organizations and do not adapt themselves quickly. As a consequence, bureaucratic structures complicate the introduction of social innovation application within their organization. Simply put, organizations have a natural resistance to change (Junarsin, 2009).

Prior to this study, it was assumed that culture was a neglected variable in studies of the effects that described knowledge processes. The literature showed that culture as the common understanding of the members, and the person concerned, the organization regarding what goes on daily in their venture had a possible effect on knowledge processes (Schein, 1996). Notwithstanding a lack of attention was given to culture in scientific research about knowledge processes. It was seldom or never included in the examination of knowledge processes within organizations based on the MOA-model. This can be regarded as at least remarkable. Even more because in earlier studies evidence was found that culture did have a significant influence on organizational processes. A study of Alvesson (2012) for example, showed that the organizational culture had a strong influence on the functioning of both the organization and its employees. This is corroborated with this study, in which evidenced was found to include culture as an important factor to predict the social innovation application of individuals within organizations.

Goffee and Jones (1996) state that the sociability and solidarity among employees within the culture make it possible that the culture is a positive influencer of behavior. This makes this approach based on the organizational perspective, being able to identify if the culture of an organizations stimulates teamwork, work harder, sharing of information, and a spirit of openness to new ideas. The data from this study revealed that the more the culture within

organizations is focused on the sociability and solidarity among employees, the greater the extent the social innovation application was among employees. It can be concluded that the culture of organizations in region Twente has an important influence on the social innovation application of employees.

The use of knowledge within organizations by employees is an ongoing process where the arrows move in both directions. By doing so, the social innovation application showed to positively influence the motivation of employees. From the literature earlier evidence was found that strong professional relationships and solidarity among employees promote positive reactions to work (Duncan 1997; Winter-Collins & McDaniel, 2000; Beecroft, Kunzman & Krozek, 2001). This means that researchers can assume that when employees demonstrate more social innovation application, the extent that they are motivated increases too. With making work more enjoyable, enhancing the spirit of teamwork and relieving stress factor on the part of the members as a result (Hakhu, Kiran & Goyal, 2013). It has become clear that increasing the responsibility, to be heard and an open and transparent organizational structure did have a positive and proven relationship with the amount of enjoyment, interest and ambitions of the employees.

Furthermore, this study revealed that the social innovation application of employees also yield meaningful information for predicting the ability that employees have to use their knowledge effectively within the organization. The more an individual employee showed social innovation application, the more he or she was able to utilize knowledge. As indicated earlier in this study, it is very important for employers to ensure that employees realize the ability. It promotes the information sharing and creating openness to new ideas (Hakhu, Kiran & Goyal, 2013). Therefore ability is not only considered to be very important for exhibiting social innovation application, but also to actually have the ability to make optimum use the knowledge.

The findings also showed that the expansion to the MOAC model was a justified decision. This model has demonstrated in this exploratory study that the culture is an important prognostic factor on the application of social innovation within organizations. As a result, the written and unwritten rules of an organization are proven predictors and culture can no

longer be ignored.

6.1 | Research limitations

This research has been conducted in the context of social innovation application within organizations. Findings in this research show how the process of social innovation application within organizations is affected by multiple factors. The conceptual model used in this study explains how the process of social innovation application takes place. This study differed from previous studies when it comes to the observed predictive factors. Within this research opportunities, abilities and culture were considered as important factors unlike the motivation of employees. An important finding that turned out was the fact that culture did have a recognized predicting value and therefore a factor that cannot be overlooked by examination of knowledge processes within organizations.

The absence of the effect of motivation on the level at which knowledge utilization within organizations take place, can be caused by various reasons. Obviously, this can mean that the relationships that are not found actually do not exist, but it is also possible that the relationship was not found while it is present in reality. One possible reason for the lack of affect is the possible alignment of the constructs used in this study. This could be a topic of discussion. More so because there several available existing ways and constructs in the literature to measure personal motivation of employees. Making use of an existing construct can save time. In return, the choice of a particular and existing construct can be decisive for how employee motivation is actually measured. It is not inconceivable that when making use of a different construct, the results would give a different reflection. It is therefore highly recommended for further research to re-evaluate and weigh up the construct of personal motivation of this study against the alternative motivation constructs.

The concepts ability and social innovation application have a common ground, because they are both associated with the work performance. It is measured in the study with the factor analysis to prove whether these constructs could be retained. This showed that both constructs could be retained. Nevertheless, the overlap can be seen as a possible limitation of this study. Despite no evidence has been found in this study, this might have hindered the study. It cannot be ruled out that a similarity in the patterns actually does not exist.

Another limitation is the type of research. It is important to take into consideration that this research was an explorative study. This makes it not possible to behold directly all the evidence found in the research as established facts. They provide an insight into the process of social innovation application within organizations, but do not offer the possibility to establish certain findings with certainty. This is because the study was carried out with the aid of a group of random people, at random organizations in the region of Twente. As a result, caution should be exercised when interpreting this study.

Despite that, was the choice for the region Twente a deliberate choice because it is precisely this region that wants to profile itself as the knowledge region of the Netherlands. It is therefore possible that this region differed in the degree to which factors related to knowledge utilization were present. As the region wants to present itself as a knowledge region, it might offer for example more opportunities to employees. In addition, each region is characterized by his or her culture. Not only organizations can differ from each other in terms of culture: it is also plausible to assume that there is a potential difference between the culture of organizations based on the region where they are located.

Another limitation of this research is the data used. For this, requests have been made through communication channels to people within the region Twente in order to participate in the study. This allows that participants have selected themselves in the study. The data showed that a relatively young group of employees participated in this research. This can be explained by the fact that the recruitment took place online. In addition, can be debated, if the response is representable for the working population in Twente. This can be questioned because the education level of the participants is above the average level of education. Nevertheless, there were no significant differences measured between the levels of education in this study.

6.2 | Practical implications

To counter the loss of knowledge, organizations in de region Twente should determine how the knowledge of their employees could be utilized in the best possible way. Here they should be aware that the extent, to which knowledge is actually used, depends on a variety

of factors. With this research, these organizations are offered guidelines regarding knowledge processes based on the application of social innovation within organizations.

Organizations are leading for the extent to which employees within the organization can optimize their social innovation application. This emerged from the fact that the ability employees are offered by the organization turned out to be a major predictor for the actually application of social innovation. The first priority for organizations therefore is to increase the ability of employees to enhance their social innovation application. Giving the employees more control about the way and order in which work is carried out and by letting them contribute to the way in which organizations try to improve its services, processes and products can increase the ability of employees enormously.

When organizations its employees have provided the ability, organizations can further stimulate the process of social innovation application by increasing the opportunities for employees. Organizations are able to facilitate these opportunities in various ways. Consider for example the provision of sufficient time, providing the opportunity for colleagues to together invent new technologies, methods and instruments and providing flexibility by offering space to determine working hours themselves.

Third, organizations can direct the culture of the organization more towards the principles of sociability and solidarity in order to increase the application of social innovation. As a result employees are able to make better use of knowledge more quickly. For organizations, however, it is anything but an easy task to make better use of knowledge of employees. For instance it is possible that the culture of an organization is the norm for decades, which is never taken in doubt. It can be anchored to the norms and values an organization has. This also means that adjusting for example, the culture of an organization might lead to unpredictable reactions of the employees. Despite that, the higher level of knowledge utilization seems to be beneficial to both employer and employee.

6.3 | Recommendations

Organizations in the Twente region face the challenge of better utilize the knowledge within the organization. For this, they are not facing the challenge of how they can be more

attractive to recruit new staff, but by making better use of knowledge possessed by the current employees. This section provides an overview of the possibilities of how organizations might deal with the way in which knowledge can be utilized well.

This explorative study examined how organizations could improve the knowledge utilization within their organization based on the principle of social innovation. This research offered organizations in the region Twente with the MOAC-model an extended and more comprehensive framework to determine whether the application of social innovation within their organization was low or high. Furthermore, it offers organizations with a low level on the application of social innovation guidelines how they possibly are able to improve their level of social innovation application. With the outcome of this study, it is likely that organizations have to find the cause not by the employees but by themselves.

6.4 | Future research

Previous studies on knowledge processes within organizations have made an incomprehensible mistake on how knowledge processes are approached. Because the choice of not taking into account the organizational culture seems unfounded. The evidence for this statement is provided by this research. With the findings from this research, a clear recommendation for further research on knowledge processes is to examine the culture of organizations or regions as a dependent factor for the level on which a certain behavior is shown. This can be examined by the use of the research model of this study, in which the MOA framework was extended to the MOAC framework.

That leads directly to the second important point for further research. By the extension to the MOAC-model, this research designed and used a research model, which has never been used before. The adequacy of the model has been proven in this explorative study, but would be bathed in expansion of knowledge about the functioning of the model in more scientific studies. As a result, there can be formed more evidence to show that the MOAC-model can serve as a basis for the investigation of knowledge processes.

Finally and perhaps most important recommendation is to measure the effect of the application of social innovation on the work performances, work quality and the development of talent. As stated earlier, this research addressed only the factors of the application of social innovation and not the end effects of the model. With addressing the end effects, a next study is able to complete the mapping for the whole descriptive model of social innovation application of organizations.

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APPENDIX I | QUESTIONNAIRE

Beste deelnemer,

Hartelijk dank voor uw deelname aan deze vragenlijst. Het doel van dit onderzoek is om inzicht te krijgen over de optimale kennisbenutting binnen organisaties.

De resultaten van dit onderzoek worden anoniem behandeld. Het invullen van de vragenlijst duurt ongeveer 10 minuten. Mocht u de resultaten van dit onderzoek willen ontvangen, dan kunt u dit aangeven na het invullen van de vragenlijst.

Voor vragen en opmerkingen kunt u contact opnemen met p.vanderven@student.utwente.nl.

Alvast hartelijk bedankt voor uw deelname.

Peter van der Ven
Student Communications Studies, Universiteit Twente

DEEL I - MOTIVATIE

Geef per onderdeel aan in hoeverre het een effect heeft op je persoonlijke motivatie om binnen je organisatie samen te werken met collega's.

Mijn persoonlijke motivatie om samen te werken met collega's wordt verhoogd doordat...

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet mee oneens/niet mee eens	Een beetje mee eens	Mee eens	Helemaal mee eens
... ik meer plezier heb als ik samen kan werken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... ik erg geïnteresseerd ben om van mijn collega's te leren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... ik van streek raak als een collega meer kennis heeft dan ik	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... mijn werkzaamheden mij dwingen samen te werken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... ik word gestimuleerd door de organisatie om samen te werken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

... ik verplicht word door de organisatie om samen te werken	<input type="checkbox"/>						
... ik mij beter kan ontwikkelen als ik samenwerk	<input type="checkbox"/>						
... dit mijn kans op promotie verhoogd	<input type="checkbox"/>						

DEEL II –OPPORTUNITY

Geef per onderdeel aan in hoeverre je organisatie jou de mogelijkheid biedt om samen te werken met collega's

De organisatie waarin ik werk biedt mij de mogelijkheid om samen te werken met collega's door ...

	Helemaal mee oneens	Mee oneens	Een beetje mee oneens	Niet mee oneens/niet mee eens	Een beetje mee eens	Mee eens	Helemaal mee eens
... voldoende tijd te bieden om samen te werken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... mij met collega's te laten bepalen hoe werkzaamheden uitgevoerd zouden moeten worden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... mij en mijn collega's samen de mogelijkheid te bieden nieuwe technieken, werkwijzen of instrumenten te bedenken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... mij met collega's kennis uit te laten wisselen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
.. ruimte te bieden om onafhankelijk van tijd en plaats (samen) te werken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... ruimte te bieden voor het, in overleg, invullen van werktijden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

... flexibiliteit te faciliteren, onder meer gebruik makend van ICT	<input type="checkbox"/>						
... ruimte te bieden om een deel van de werktijd aan nieuwe ideeën te werken	<input type="checkbox"/>						

DEEL III – ABILITY

Geef per onderdeel aan in hoeverre jij binnen de organisatie het vermogen hebt om je kennis te benutten.

Binnen de organisatie waarin ik werk heb ik het vermogen om...

	helemaal mee oneens	mee oneens	een beetje mee oneens	niet mee oneens/niet mee eens	een beetje mee eens	mee eens	helemaal mee eens
... zelf te bepalen hoe ik mijn werkzaamheden uitvoer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... zelf te bepalen in welke volgorde ik mijn werkzaamheden uitvoer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... goede ideeën aan te dragen tijdens vergaderingen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... een bijdrage te leveren aan het verbeteren van bedrijfsprocessen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... mijn collega's te helpen door mijn kennis te delen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... een bijdrage te leveren aan het bedenken van nieuwe producten/diensten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... een bijdrage te leveren aan het verbeteren van producten/diensten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DEEL IV – Sociability

Geef per onderdeel aan hoe sociaal jij en je collega's op het werk zijn.

De werksfeer binnen onze organisatie is zeer sociaal doordat...

	helemaal mee oneens	mee oneens	een beetje mee oneens	niet mee oneens/niet mee eens	een beetje mee eens	mee eens	helemaal mee eens
... we als collega's onderling goed met elkaar kunnen opschieten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... collega's gaan ook buiten het kantoor met elkaar om.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... als collega's onze organisatie verlaten, blijven we in contact.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... collega's hier doen gunsten voor anderen, omdat ze elkaar aardig vinden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Deel V – Solidarity

Geef per onderdeel aan hoe solidair jij en je collega's op het werk zijn.

De collega's van mijn organisatie zijn onderling zeer solidair want...

.. collega's delen dezelfde strategische doelstellingen	<input type="checkbox"/>						
... collega's voeren het werk effectief en productief uit	<input type="checkbox"/>						
... collega's treden krachtig op om slechte prestaties aan te pakken.	<input type="checkbox"/>						

... collega's elkaar helpen om werkzaamheden te voltooien

DEEL V - TOEPASSING SOCIALE INNOVATIE

Geef per onderdeel aan in hoeverre de stelling overeenkomt met de toepassing van sociale innovatie binnen jouw organisatie.

	helemaal mee oneens	mee oneens	een beetje mee oneens	niet mee oneens/niet mee eens	een beetje mee eens	mee eens	helemaal mee eens
In mijn organisatie hebben werknemers de mogelijkheid om samen te werken zonder hiervoor toestemming te vragen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ik mag samen met mijn collega's sturing geven aan de werkzaamheden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ik heb een stem in het formuleren van de ambities van de afdeling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ik heb een stem in het formuleren van de ambities van de organisatie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Als ik een idee heb voor een nieuw product/dienst, wordt er snel besloten of het er komt of niet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Er is een duidelijk hiërarchische structuur binnen de organisatie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Binnen de organisatie weten afdelingen wat er speelt bij andere afdelingen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Werknemers worden ingezet voor werkzaamheden waarin ze goed zijn / werknemers doen waar ze goed in zijn

Ik mag fouten maken van mijn manager en durf hiervoor uit te komen

De lijnen binnen de organisatie zijn kort waardoor het eenvoudig is samen te werken met collega's

Mijn leidinggevende geeft mij precieze opdrachten die ik moet uitvoeren

DEEL VI – ALGEMEEN

Geslacht

- Man
 Vrouw

Leeftijd

Organisatie

Sector

- Bank- en verzekeringswezen
 Bouw
 Energie
 Gezondheids- en welzijnszorg
 Handel en reparatie
 Horeca
 Landbouw en visserij
 Metaaltechniek
 Onderwijs
 Overheid
 Transport en communicatie
 Voeding
 Zakelijke dienstverlening
 Overige diensten

Wat is je hoogst genoten opleiding?

- LBO / VBO / VMBO (kader- en beroepsgerichte leerweg)
- MAVO / eerste 3 jaar HAVO en
- VWO / VMBO (theoretische en gemengde leerweg)
- MBO
- HAVO en VWO bovenbouw / WO-propedeuse
- HBO / WO-bachelor of kandidaats
- WO-doctoraal of master

Einde vragenlijst

Bedankt voor het invullen van de vragenlijst. Bent u nieuwsgierig naar de resultaten van dit onderzoek? Vul dan hieronder uw e-mailadres in en u krijgt per e-mail de onderzoeksresultaten toegestuurd.

Peter van der Ven

Student Communications Studies, Universiteit Twente

APPENDIX II | FACTOR ANALYSES

Rotated Component Matrix^a

	Component				
	1	2	3	4	5
MOT 1	-,060	,313	,434	-,214	,152
MOT 2	,212	,321	,544	-,099	,152
MOT 3	,035	-,034	,543	,051	-,147
MOT 4	,081	-,100	,664	,104	,067
MOT 5	,158	,175	,583	,181	,047
MOT 6	,077	-,087	,759	,133	-,018
MOT 7	-,028	,334	,418	-,164	,012
MOT 8	,029	,130	,612	,044	-,109
OPP 1	,159	,654	,114	,016	,192
OPP 2	,302	,716	-,012	,039	,033
OPP 3	,383	,608	,058	,249	,112
OPP 4	,276	,635	,086	-,018	,307
OPP 5	,221	,638	,143	,295	-,025
OPP 6	,167	,666	,132	,260	-,113
OPP 7	,165	,797	-,033	,106	-,042
OPP 8	,258	,609	,303	,246	-,072
ABI 1	,634	,288	,040	-,038	,042
ABI 2	,625	,275	,003	-,021	-,010
ABI 3	,633	,134	,185	-,095	,256
ABI 4	,715	,166	,250	,006	,091
ABI 5	,457	,350	,027	-,131	,411
ABI 6	,654	,334	,301	,027	,121
ABI 7	,675	,342	,290	,057	,144
SOC 1	,146	,127	,006	,330	,686
SOC 2	,037	-,057	-,105	,077	,740
SOC 3	,067	,047	,021	,009	,664
SOC 4	,061	,059	,024	,208	,724
SOL 1	,052	,215	,047	,401	,229
SOL 2	-,204	,362	,149	,540	,141
SOL 3	-,060	,293	-,081	,606	,158
SOL 4	-,040	,402	-,172	,324	,285
SIA 1	,658	,257	-,008	,049	-,008
SIA 2	,688	,184	,003	,122	,150
SIA 3	,772	,055	,084	,307	-,024
SIA 4	,731	,086	,145	,317	-,072
SIA 5	,540	-,034	,302	,458	-,171
SIA 6	,351	-,106	-,086	,000	-,033
SIA 7	,378	-,045	,244	,583	-,011
SIA 8	,442	,088	,072	,562	,117
SIA 9	,444	,135	-,029	,022	,263
SIA 10	,376	,151	-,037	,559	,082
SIA 11	,209	,044	-,067	-,262	-,135

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 12 iterations.