The role of job design practices in firm-level creative capital

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Acknowledgements

This master thesis is part of my graduation at the University of Twente for the Master of Science in Business Administration, with specialisation Human Resource Management. The thesis provides a full report on my research conducted in the last couple of months and covers the introduction to the topic, theoretical framework, methodology, results, discussion and conclusion.

These couple of months have been a great experience for me with a lot of mixed feelings; interested, confident, enjoyment, eagerness, excitement, thankful, energetic, encourage, surprised, inspired, challenged, but also irritated, dissatisfied and indecisive. Nevertheless, most of all I am relieved and satisfied with these findings and the accomplishment of this challenging research. During these months, help was highly valued and therefore I would like to thank certain persons.

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Brummen, September 2013
Roy Noordhoek

Abstract

Purpose – This paper builds further upon the research of Straatman, Veenendaal, and van Velzen (2012) who translated the creative capital concept of Florida (2002) to the organisational level. They argue that research on this topic is rather underdeveloped and covers mainly conceptual research. This paper tries to extend the literature on firm-level creative capital by exploring the job design characteristics of firms with high and low firm-level creative capital and the concept at the organisational level.

Design / methodology / approach – For this explorative research we used a qualitative, multi-method, multi-case study design. For comparison, we stratified, based on written materials like company's website and available research papers of research project initiated by the University of Twente in which these companies have participated in the past, into two groups. This led to a preliminary stratification of companies into two groups, one group scored low and the other group scored high on firm-level creative capital. We conducted semi-structured interviews with manager at eight different companies in the region of Twente, The Netherlands. These companies operated in the design, engineering and manufacturing industry. We then transcribed the interviews and coded the data via hypothesis, initial, axial and focussed coding techniques. We then used the coded data to compare our findings on the different dimension of firm-level creative capital with the preliminary score to create two groups. We then compared these groups on the role of job design practices in firm-level creative capital.

Findings – First, we argue that firm-level creative capital has a right for existence between the other capitals within intellectual capital, because of the essence, namely the aggregated creative ability. Second, our results provide evidence that creative capital exists at an organisational level. Third, the findings indicate that organisations with a high firm-level creative capital provide employees with the freedom to choice their working methods and freedom in scheduling their work. In addition, organisations with high firm-level creative capital design jobs that are complex and challenging. Moreover, organisations with high firm-level creative capital design jobs that have continuously interaction outside the organisation. The organisations use these practices to release the creativity of their employees.

Recommendations – As this is an explorative research, the findings cannot be generalised, therefore we recommend other researchers to test these findings with a quantitative research design based on probability sampling to be able to state something about the population. We encourage other researchers to take formal properties like centralisation, formalisation, control systems and technology of the organisation into their research. In addition, we encourage them to look at the relation between creative capital and innovation.

Originality / value – This research as part of a research program is of value, because before this program no known operationalisation and conceptualisation of firm-level creative capital existed. This research program provides the first researches that explores qualitatively with a multi-case study design, the role of HR practices in firm-level creative capital. This paper is the first that explores the role of job design practices with such a research design.

Keywords – Firm-level creative capital, creative capital theory and job design practices
Paper type – Master thesis

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1 Introduction

Creative capital is a popular topic in the urban and economic literature since Richard Florida introduced this concept in his best-selling book '*The rise of the Creative Class' (2002).* He argues that creative people are key drivers of urban and regional growth, because they attract creative business, generate more innovations and have a higher level of entrepreneurship.

Since its introduction, research on creative capital concentrates on the urban level, where researchers consider creative capital a key predictor of economic growth of urban cities and regions (cf. Batabyal & Nijkamp, 2010; Marlet & van Woerkens, 2007). Veenendaal, van Velzen, and Looise (2012) argue that research on the implications of creative capital at the organisational level is underdeveloped. Since organisations are places where creative people work together and create economic value for the organisation, firm-level creative capital seems to be an important topic for further research. In the end, the performance of the organisations within a city or region determines that area's economic performance. By this logic, we expect that the creative capital identified in regions is also identifiable in organisations within that region. Firm-level creative capital likely contributes to the organisation's performance as it does on the urban level (Straatman et al., 2012). It is even possible that firm-level creative capital is a better measure for organisational performance because human capital cannot fully explain the innovative performance, as it is about the possession of KSAO's and not the actual use of KSAO's within the organisation. This is in line with the research of Florida (2002) and Florida and Goodnight (2005) in which the creative class constitutes creative occupations that in turn leads to innovation. It is about the actual use and not the possession of KSAO's. Thus, research on the concept of firm-level creative capital and in which manner human resource practices affect firm-level creative capital proves valuable as it possibly enables to explain organisational performance, and provides organisations with guidelines on how they can realise competitive advantage via innovative performance.

This paper is the outcome of a team-based research project on firm-level creative capital as part of a research program with the University of Twente on firm-level creative capital. In this paper, the research is built upon the studies of Straatman et al. (2012) and Veenendaal et al. (2012). Their efforts focus on translating the findings on creative capital in the urban literature to the organisation studies. In this paper, we refer to firm-level creative capital as *the aggregated creative organisational ability, which is the organisational enactment to integrate*

the creativity of individuals as well as the creativity embedded in their relationships. Individual creativity is *the ability of employees to make a valuable combination of previously unrelated concepts, knowledge, ideas or experience for the organisation.*

The team-based research project aims at providing data necessary to investigate if the concept of firm-level creative capital is able to provide understanding to the research field. We develop a conceptualisation and operationalisation of the firm-level creative capital based on literature to stratify organisations into two groups that correspond with their firm-level creative capital. This allows us to compare the HR practices at each group. Follow up research is able to develop instruments to measure firm-level creative capital and organisations can use them to increase firm-level creative capital by using certain human resource practices. Within this team research project, each of us focuses on one HR practice and on the role of this HR practice in firm-level creative capital. Based on the argument of Straatman et al. (2012) there are three mechanisms to obtain firm-level creative capital. These are recruitment and selection, job design and training and development. In their discussion, they also notice the importance of external labour to obtain firm-level creative capital. The idea behind it is that human resource practices affect firm-level creative capital, because creative capital is embedded in employees (Straatman et al., 2012). Straatman et al. (2012) argue that therefore recruitment, selection, training, development and motivation of employees influence firm-level creative capital. The recruitment and selection, and training and development focusses on the acquirement of employees with higher creative ability, whereas recruitment and selection focusses on the acquirement of higher creative ability via its environment (Shalley & Gilson, 2004), while training and development focusses on the internal development of a higher creative ability. The job design practices focus on the release of the creativity of employees and on the mobilisation of firm-level creative capital.

Autonomy and job complexity as part of motivational characteristics, and social support, interdependence and interactions outside the organisation as part of social characteristics play likely a role in firm-level creative capital as former research showed that these job design characteristics have a strong relationship with creativity and innovation. A meta-analysis by Hülsheger, Anderson, and Salgado (2009) shows that support for innovation, external communications and goal interdependence relates strongly to creativity and innovation. A meta-analysis by Hammond, Neff, Farr, Schwall, and Zhao (2011) shows that autonomy and job complexity relates strongly to creativity and innovation. It is possible that these

characteristics, which are one of the strongest characteristics related to creativity and innovation, are evenly important for organisations with high firm-level creative capital.

Figure one visualises the positioning of three research projects within the program.

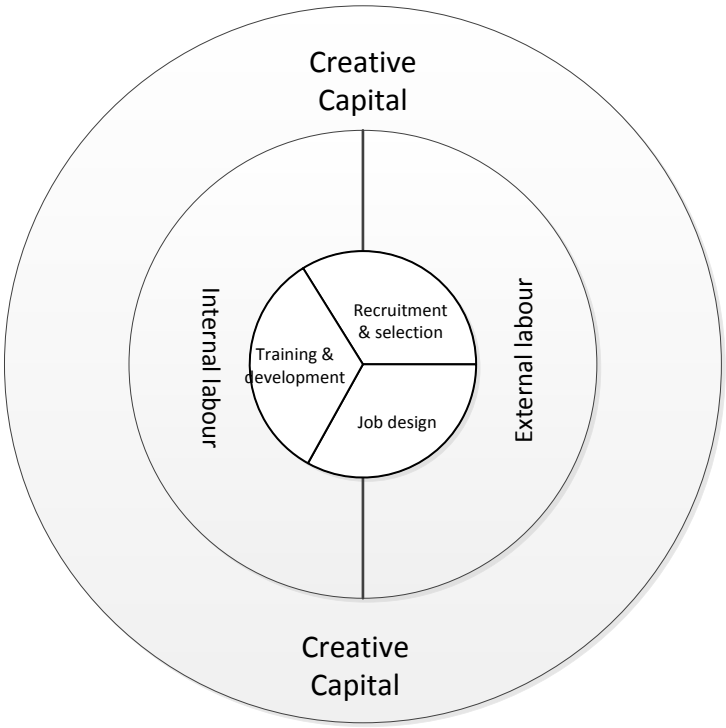

Figure 1 research projects within research program

As mentioned before, job design practices increase firm-level creative capital as they focus on releasing the creativity of the employees, which is aggregated to the firm performance.

Job design is "the assignment of goals and tasks to be accomplished by employees" (Anand & Daft, 2007, p. 689). Buchanan (1979) refers to it as the specified contents, methods and relationships of jobs so to meet the requirements of both employees and organisation. To elaborate more on this definition, it is about the responsibilities and duties of a job, the relationships between employees and supervisors, co-workers, clients and customers, and about the working methods.

Humphrey, Nahrgang, and Morgeson (2007) found that job design, especially its motivational characteristics of job design, increases the motivation of employees. Motivation is in turn one of the building blocks for creativity (Amabile, 1998). Therefore, we argue that job design practices facilitate firm-level creative capital as employees release their creativity due to the motivational aspects of their jobs, in turn increases the organisation's creative

capital. This is in line with the reasoning of Straatman et al. (2012), who argue that organisations can obtain firm-level creative capital through job design practices that increase employee's their inner motivation so that they are more likely to use their creative capital.

Organisations do not only need to obtain firm-level creative capital but also need to mobilise it to fully utilise firm-level creative capital (Straatman et al., 2012). The idea behind it is that employees interact in a social environment which allows the employees to produce creative outcomes (Straatman et al., 2012; Woodman, Sawyer, & Griffin, 1993). The social environment provides the employee with the needed KSAO's that in turn mobilises the firm-level creative capital (Straatman et al., 2012).

This is in line with the idea in the urban literature where tolerance mobilises creative capital (Straatman et al., 2012). Urban areas that are more diverse favours creative capital, as these areas are more tolerant towards new ideas (Florida, 2004b). The reason is that areas that have a higher tolerance and open-mindedness towards new ideas are better able to attract members of the creative class, which in turn leads to a higher creative capital (Boschma & Fritsch, 2009; Florida, 2004b). These areas are able to attract the creative class as the diversity creates low entry barriers. The creative capital of a region in turn affects the economic performance of regions (Boschma & Fritsch, 2009). The idea is that regional diversity affects performance of a region also applies to organisations as diversity positively affects the creative performance of groups (Shalley & Gilson, 2004). The creative performance of groups in turn affects the creativity of organisations (Woodman et al., 1993).

In the urban literature is the diversity with regard to creative capital measured with the bohemian- (Boschma & Fritsch, 2009), gay- (Hoyman & Faricy, 2009), and melting pot index (Boschma & Fritsch, 2009; Hoyman & Faricy, 2009). The bohemian index measures the number of writers, designers, musicians, actors, directors, painters, sculptors, photographers and dancers within a region, while the gay index looks at the number of gay people that live in a high-technical concentration in a region. The other measure used to reflect the tolerance is the melting pot, which is the percentage of foreign-born habitants within a city's population. Diversity at the organisational level focusses mainly on the demographic-, functional-, and educational- diversity (Van Knippenberg & Schippers, 2007). Other diversity on the organisational level include bio-demographic diversity that refers to the direct observable differences between employees (Horwitz & Horwitz, 2007), and informational diversity covers the knowledge and different perspectives of employees (Jehn, Northcraft, & Neale, 1999).

Straatman et al. (2012) argue that the diversity in organisations exposes employees to different experiences and knowledge that employees in turn can use to generate new ideas. This line of reasoning comes from Amabile (1998) who states that expertise is one of the building blocks for creativity. This means, as proposed by Straatman et al. (2012), that organisations with high diversity in employees' KSAO's are better able to mobilise firm-level creative capital.

Organisations that bring employees with diverse KSAO's together through interdependence like teams, allow employees to draw upon the others expertise which in turn mobiles creative capital. It is indeed that organisations that have diverse teams for creativity-demanding tasks perform well on performance and effectiveness in comparison with more homogeneous teams (Guzzo & Dickson, 1996). Other research like the meta-analysis of Horwitz and Horwitz (2007) shows that task-related diversity positively influence the performance of teams on creativity and innovation. Organisations with high diversity are likely better to mobilise firm-level creative capital. However, the only known research on firm-level creative capital does not support this idea. Florida and Goodnight (2005) looked into the SAS institute, a software company which lists in the top 20 of Fortune's 100 best companies to work for, how it came to its success as this company score high on firm-level creative capital. The main finding is that the organisation invests it is long-term relationships between sales, and support staff, developers and customers, through retaining its employees. The company is good at retaining its employees as it has a turnover rate between 3% and 5%, while the industry average is 20% (Florida & Goodnight, 2005). Due to the socialisation and low turnover rate at SAS the workforce is rather homogeneous than heterogeneous. Although, the workforce is rather homogeneous, the organisation brings employees of different units together to work on projects.

This is rather contradictory to the expectations of Straatman et al. (2012) who propose that organisations with high diversity are better able to mobilise firm-level creative capital as employees can draw upon the expertise and experience of other members of the organisation, which the organisation can foster through for example interdependence like teams and project groups. Therefore it is important to conduct further research on the use of job design practices, like interdependence across several organisations to compare the use of job design practices by organisations that score high and that score low on firm-level creative capital.

The objective of this research is therefore to explain the role of job design practices in firm-level creative capital and extending the literature on firm-level creative capital. As we

explore the role of job design practices in firm-level creative capital, we do not aim to uncover causal relationships. With this research question, we try to explore the characteristics of organisations that score either high or low on firm-level creative capital. Therefore, we consider it as an explorative study than an explanatory study. The importance of research on job design practices becomes even clearer when considered that even if organisations make use of certain recruitment and selection practices and make use of external labour to obtain creative capital, it does not necessarily result in creative capital when employees' job does not allow them to release it. This means then that the organisation cannot benefit from it, as it does not allow creative capital to be mobilised. Thus, we expect that job design plays a role in firm-level creative capital. The following research question stands central throughout this research:

What is the role of job design practices in firm-level creative capital?

The findings are also of theoretical relevance, because prior to this research program, no known conceptualisation and operationalisation of firm-level creative capital exists, this program provides a conceptualisation and operationalisation. The conceptualisation gives the reason for the existence of firm-level creative capital and thereby rejects critics (cf. Glaeser, 2005) on the use of creative capital. For this, we position the firm-level creative capital among several other capitals. The essence of firm-level creative capital, which is the organisational creative ability, gives the concept right for existence among the other capitals within intellectual capital. In addition, we need the operationalisation of firm-level creative capital as the current literature lacks an operationalisation (Straatman et al., 2012). More specific, this paper gives the operationalisation of the three dimensions of firm-level creative capital, which allows future researchers to build on. Moreover, this research program with the different researchers is the first research program that provides qualitative results for the theory on firm-level creative capital in which researchers stratify companies in two groups to explore the role of human resource practices where this research paper looks into the job design practices. Therefore, this research extends the current literature on firm-level creative capital by providing findings on the relationships between job design practices and firm-level creative capital through a multi-case study design.

The findings of this paper have practical relevance as they give organisations a possible lead how they can improve their firm-level creative capital. Organisations interested in creative capital can therefore compare their use of job design practices with the case organisations in this thesis. The influence of job design practices on firm-level creative capital

is important for organisations as it leads to creativity and innovations. The innovation in turn allows organisations to be competitive.

2 Creative capital and job design

Florida (2002) introduced the term creative capital in his book 'The rise of the creative class'. After the introduction several researchers used creative capital and their holders, the creative class, in their research (cf. Florida & Goodnight, 2005; Hansen & Niedomysl, 2009; Marlet & van Woerkens, 2007). Current literature lacks a clear definition on the concept of creative capital itself, as mentioned by Veenendaal et al. (2012). The reason for this is that most of the research done for the urban or economic literature often lacks sufficient funding and time for representable samples and measuring effects given the large populations involved with subjects studied in these fields. Urban and economic studies prefer more distant measures like the creative class measure, instead of more proximal measures of creative capital (Straatman, 2011). With this focus on the creative class, literature is short on concepts for creative capital itself.

Straatman (2011) also points out that besides the shortage of theorising about creative capital, the literature that does come up with a definition on this concept, elaborates on the definition of urban creative capital of Florida (2005) instead of firm-level creative capital. Most of the literature review resulted in some implicit definitions of creative capital, not related to the organisational level. The majority of these implicit definitions are similar to the definition of urban creative capital of Florida (2005). Straatman et al. (2012) extended the definition of Florida and Goodnight (2005), who define organisational creative capital "an arsenal of creative thinkers, whose ideas can be turned into valuable new products and services" (p. 2), by arguing that firm-level creative capital is the "the aggregated creative ability of the organisation, embedded in the individual employees and in the relations between employees" (p. 5).

This definition of Straatman et al. (2012) could be improved as this definition has some drawbacks. The best improvement is to elaborate on the aggregated creative ability as Straatman et al. (2012) do not explain what they mean with it. However, before addressing these shortcomings, we should also address the critiques on the definition of creative capital. One of the main critiques regarding the concept of creative capital of Florida (2002) and which is not solved is that creative capital is not a novel idea but rather the same concept as human or social capital (Glaeser, 2005), which in turn can be associated with the umbrella concept of intellectual capital (Kang & Snell, 2009). Moreover, as research of creative capital at an organisational level is limited, no known operationalisation of firm-level creative capital exists. Before we turn to these points, we first elaborate on the literature of creative capital.

2.1 Systematic literature review

We conducted a systematic literature review to be acquainted with the concept of creative capital. The choice for a systematic literature, is that it gives sufficient detail on how researchers conducted the literature review and other researchers are able to replicate the review (Tranfield, Denyer, & Smart, 2003). We preferred a systematic review because the literature review forms the knowledge base for the entire research project and we acknowledges that other researchers should have a clear understanding of the subset of the research.

For the literature search on creative capital articles, we used Thomson Reuter's Web of Science database and SciVers Scopus database and entered the terms "creative class", "creative capital" and "creative capital theory". Concerning the SciVers Scopus database, we searched for these terms in article title, abstracts, and keywords of articles, and concerning Thomson Reuter's Web of Science database, we searched for these terms in topic and titles of articles. We selected the articles based on the citation count in both databases and the selected articles are the top ten most cited. When there was overlap between the articles of the two databases, we used only one article and searched for the next most cited article until we found the top ten most cited articles. Further, an expert who is knowledgeable about the topic of creative capital checked the list with the top ten most cited articles and added three more articles because the expert found these articles to be important.

For the literature search on job design articles, we used Thomson Reuter's Web of Science database and SciVers Scopus database and entered the terms "job design", and "job design" AND "creativity". We chose these terms because research on creative capital at an organisational level is rather underdeveloped (Straatman et al., 2012) and these terms are best usable, as 'creativity' is one of the dimensions of firm-level creative capital, see chapter 0. In addition, we used the term 'creativity' as the literature found with these terms also provides information on the other dimensions of firm-level creative capital. Concerning the SciVers Scopus database, we used these terms in the search function for article title, abstract and keywords of articles, and with regard to Thomson Reuter's Web of Science database, we used these terms in the search function for topic and title of articles. We selected the articles based on the citation count and we selected the top twenty articles for both search terms and of each database as far as the availability of that many articles. Again, the overlap between the articles meant in some cases that we used the next highly cited article. The literature list became

larger as we searched in the references for other usable articles and added these to the literature.

2.2 Creative capital and creative class

Creative capital is a popular topic in the urban and economic literature since Richard Florida introduced this concept in his best-selling book '*The rise of the Creative Class' (2002).* The idea is that the creative capital and its possessors are a predictor of the performance of regions as they produce ideas, technology and information that benefit the regions.

According to Florida (2002) the creative class, as holders of creative capital, is the main force behind the economic growth and regional development of a city or region. The reason for this is that regions with a high share of creative people generate more innovations, have a higher level of entrepreneurship, and attract creative businesses (Boschma & Fritsch, 2009). As a result, cities and regions who want to succeed in economic performance should concentrate their efforts on trying to attract members of the creative class (Batabyal & Nijkamp, 2010).

Florida (2004b) divided the creative class in separate groups of creative occupations. He makes a distinction between the creative core, creative professionals and bohemians. The creative core consists of members "whose economic function is to create new ideas, new technology and/or new creative content" (Florida, 2004b, p. 8). Creative core members can be found "in science and engineering, architecture and design, education, arts, music and entertainment" (Florida, 2004b, p. 8). Creative professionals "engage in complex problem solving that involves a great deal of independent judgment and requires high levels of education" (Florida, 2004b, p. 8) and work in "business and finance, law, health care and related fields" (Florida, 2004b, p. 8). Individuals who are engaged in cultural and artistic occupations make up the group of Bohemians.

According to Florida (2004b) places with a diverse population like gays, artists, and foreign born reflect the region's tolerance and openness to diversity and these regions are especially attractive for members of the creative class. He argues that regions attract members of the creative class when these regions are tolerant and open-minded, reflected by populations with diverse cultural and ethnical backgrounds, because the creative class sees these tolerant environments as positive and the diversity of the region inspires innovation (Andersen & Lorenzen, 2005). More specific, Florida (2003, 2004b) identified three critical

factors which places should possess to make creativity and the attraction of creative class members happen. These three conditions are Technology, Talent and Tolerance (3Ts) (Florida, 2003). Technology is the function of both innovation and high-technology concentration. Talent includes the people with a bachelor's degree and above. While tolerance stands for the openness, inclusiveness, and diversity to all ethnicities, races and walks of life of the people within the specific city or region (Florida, 2003). When a city or region has a diverse population like populations of gay- and bohemians, it reflects the tolerance of the region towards these diverse people, more specifically it reflects the low entry barriers of that region (Florida, Mellander, & Stolarick, 2008). These low entry barriers allows the region to attract people from a wide range of backgrounds (Boschma & Fritsch, 2009; Florida et al., 2008).

A city or region can measure to find out if they are attractive to people from the creative class for example by looking at the gay, melting pot and bohemian indexes. These indexes reflect the regional tolerance towards gays and bohemians (Florida et al., 2008) and foreign-born habitants. The bohemian index should have a positive effect on the attractiveness of the region towards other members of the creative class as a high proportion of bohemians reflects a regional culture, lifestyle and values that are different than a region of the mainstream (Florida, 2004b). These bohemians gives the regions a sense of liveliness and reflects the region's openness to different values (Florida, 2004b). The bohemian index measures the number of writers, designers, musicians, actors, directors, painters, sculptors, photographers and dancers within a region while the gay index looks at the number of gay people that live in a high-technical concentration in a region. Another measure used to reflect the tolerance is the melting pot, which is the percentage of foreign-born habitants within a city's population. These measures are rather limited in scope as the diversity of regions and especially organisations is broader than the measures of bohemians, gays and foreign-born. Other researchers use bio-demographic diversity and task-related diversity to reflect the diversity in teams (Horwitz & Horwitz, 2007). Bio-demographic diversity refers to the direct observable differences like age, gender and race, while task-related diversity refers to the individual acquired attributes like functional expertise, education, and tenure (Horwitz & Horwitz, 2007). Other researchers look at different bio-demographic diversities than ethnicity and look at cultural diversity and nationality diversity (Groves & Feyerherm, 2011). The bio-diversity is in line with what other researchers call social category diversity (Jehn et al., 1999). Informational diversity of Jehn et al. (1999) is almost similar to the task-related diversity of Horwitz and Horwitz (2007) as both cover the knowledge of employees but informational

diversity also refers to the diversity of perspectives of employees. Another diversity measure in teams is value diversity that is about the perspectives of each team member towards the group's goals, targets, tasks and mission (Jehn et al., 1999). Van Knippenberg and Schippers (2007) found in their meta-analysis that the majority of the literature on diversity research focused on demographic, functional and educational diversity. Other researches use personality of team members as a measure for diversity to study the effect of diversity in personality on group performance (Van Knippenberg & Schippers, 2007).

Regional tolerance predicts the regional employment and the population growth as stated by Florida (2003). This is because tolerance measured with gay- and bohemian index affects regional development by increasing the productiveness and efficiency of local resources, this happens through four mechanisms (Florida et al., 2008). Florida et al. (2008) argue that populations of gays and bohemians reflect low regional entry barriers for human capital. These regions are better able to attract talented employees than regions without low entry barriers. This increases the efficiency of the accumulation of this capital. Second, these populations reflect mechanism that makes knowledge spill-overs more efficient because the network of artistic persons enhances the transfer of ideas and knowledge between firms and industries (Florida et al., 2008). Third, Florida et al. (2008) argue that regions with these populations are associated with creativity and innovation, because regions with these populations reflect the open-mindedness of an region. The last one is that regions with these populations are able to mobilise resources and form new firms, because these marginalised groups needed in the past to mobilise the resources in traditional institutions, which were less open. Thus the underlying mechanisms increase the entrepreneurial activity (Florida et al., 2008).

Talented and creative people are mobile and choose to live in a region with a people's climate instead of a business climate. A business climate uses conventional explanations for growth, for example low taxes or a rich supply of physical infrastructure (Boschma & Fritsch, 2009). Based on the proposition of Florida (2004b) it can be concluded that certain areas are better able to retain and attract creative people because of their climate. It is necessary to attract creative people, because as claimed by Florida (2002) businesses move to areas with qualified labour instead of the creative class moving to areas for jobs.

Thus, according to Florida (2002) the creative class is mobile and moves towards regions that fulfil their demands. The regions that are able to fulfil their demands and attract the creative class are regions that offer tolerance and openness. Consequently, these regions are

better able to attract the creative class than regions without tolerance and openness. Regions that are characterised as open and tolerant facilitate a good business climate, because according to Florida (2002) business tend to move towards locations that have qualified labour instead that the creative class moves towards other regions for their jobs. Several researchers have tested these notions.

2.3 Research findings of creative capital in the urban literature

One of the researches that empirically tests the ideas of Florida (2004b) is the research by Boschma and Fritsch (2009). Their research focused on the regional distribution and concentration of the creative class. They found that the distribution of the creative class across the European regions is unevenly. Within these European regions, the highest creative populations are found in the main cities of the countries (Boschma & Fritsch, 2009). They found support for a positive effect of the openness index on bohemians in all European countries included in the analysis, like England and Wales, Finland, Germany, The Netherlands, Norway, with the exception of Sweden. Second, they found a positive effect of openness on creative core in all European countries with the exception of The Netherlands. Third, they found a positive effect of openness on creative professionals with the exception of The Netherlands and Sweden. Thus, Boschma and Fritsch (2009) provided some evidence for the notion that the presence of the creative class is affected by the tolerance and openness of a region and thereby providing some support for the claim made by Florida (2004b). Boschma and Fritsch (2009) also investigated the regional facilities as the explanatory factor for the choice of a certain region by the creative class. The coefficient of the public provision index as a measure for regional facilities, showed a positive sign for the creative core for all European regions with the exception to England and Wales and they found a negative sign for creative professionals. The second measure, cultural opportunity index is able to explain the share of creative core and the creative professionals only when the share of bohemians is omitted (Boschma & Fritsch, 2009). A region is better able to attract bohemians when it has many cultural amenities. They measured urban climate with the population density and found a positive effect on the share of creative class in all European countries except England and Wales. The creative class is attracted to an urban climate (Boschma & Fritsch, 2009). Their research showed that past employment growth does have an effect on the share of the creative class. Thus, the findings made it possible to conclude that a region that is tolerant and open is able to attract the creative class. Regions with cultural and recreational activities are able to explain the share of the creative core and creative professionals when they omitted the share

of bohemians from the regression. While an open culture and cultural activities are important for attracting the creative class, employment opportunities are of equal importance (Boschma & Fritsch, 2009).

Another research by Hansen and Niedomysl (2009) centred around the proposition that the creative class is selective in the destination location. They looked if the creative class moved more often and if the reasons to move differ from other migrant groups. For this research, they investigated the migration of different age groups in Sweden. Hansen and Niedomysl (2009) found that highly educated people and low educated people move away from a place characterised by tolerance as measured by the integration-, bohemian- and openness index. They found that the main reason for migration is employment and this migration is more profound for highly educated people. They found that people below twenty-five years old and with low education move towards areas that score high on tolerance. It is argued by Hansen and Niedomysl (2009) that people with low education move towards areas which score high on tolerance to get education and afterwards when educated move towards areas which score lower on tolerance. Thus, people move towards areas that score high on people climate and afterwards when they are part of the creative class move towards areas that score low on people climate and these findings are the opposite as argued by Florida (2002). This finding becomes more salient by their survey research that showed that the share of education reason to migrate is bigger for low educated persons (18%) than for high-educated persons (15%).

As argued by Glaeser (2005) the creative class does not differ much from the human capital, because the members of the creative class are mostly highly educated and skilled. This might bring into questions that the creative capital theory is not much different from the human capital theory. Marlet and van Woerkens (2007) investigated this notion, they compared the creative capital theory in relation to the human capital theory. More specific they looked if the creative class does have an effect on the growth of a region, as is argued by Florida's creative capital theory. They found support for the notion that the creative class correlated with employment growth. Marlet and van Woerkens (2007) found that the creative class is a better predictor of employment growth than the education measures and the employment growth is mainly based on the employment growth in the financial and commercial services, and start-up companies. Boschma and Fritsch (2009) also found this effect of the creative class on start-up rate.

Boschma and Fritsch (2009) found that the creative class has a positive effect on the regional development in The Netherlands measured by the annual employment growth rate in the period 1993 until 2002. Only bohemians have a positive effect on regional development in Germany (Boschma & Fritsch, 2009). In combination with the education measure, the creative class measure dominates the education measure in its effect on regional development. This is only true for The Netherlands, not for Germany. The effect on regional development can be the result of the positive relationship between innovation, creativity and the formation of new business (Hackler & Mayer, 2008; Lee, Florida, & Acs, 2004) which is based on the notion of Florida (2003, 2004b) that cultural-, economic and technological creativity reinforce each other. Boschma and Fritsch (2009) found a positive effect of a creative or highly educated workforce on the start-up rate. They found a positive effect of the share of employees with high education, share of creative core and share of creative professionals on innovation. More specific, the effect of education on patents is stronger than that of creative occupations.

The research of Hoyman and Faricy (2009) is in line with the research of Marlet and van Woerkens (2007) and focuses on the effects of social-, human- and creative capital on economic growth. They tested the effect of these three theories on job growth, average annual wage change and average annual wages in two-hundred-six American Metropolitan Statistical Areas in the period from 1990 until 2004. Hoyman and Faricy (2009) found that growth measured by job growth, absolute levels of wages or growth in wages is not affected by the creative class, while human capital is found to be a predictor of economic growth and development measured by job growth, average wage and average wage change.

To conclude, some authors find evidence for the notion of Florida that the creative class is attracted to areas that are open, tolerant and have employment opportunities, while other authors find that the creative class moves away from open areas. Some authors find evidence for the notion that the creative class positively affects economic growth, while other researchers find no effect on the creative class on economic growth. These researches will have some shortcomings that we use to improve our research.

2.4 Shortcomings in the current research on creative capital

While there are empirical findings on the creative class of Florida and each empirical research on this topic provides guidelines for further research, we address some shortcomings.

Boschma and Fritsch (2009) argue that researchers should take a broader perspective on creativity into account, because it is possible that creativity is not only a characteristic of the creative class. Creativity is not inherently to the creative class, but also a characteristic of other individuals. Boschma and Fritsch (2009) argue therefore for a more dynamic approach. When we apply the term creative capital to organisations, we should not only take the creative class into account, but as well the creativity in other employees. This idea is precisely what we have taken into account at this research. Firm-level creative capital is not only about the creativity of employees who have a job within the organisation related to creativity or innovation, but also about the creativity of every employee.

Second, although Hansen and Niedomysl (2009) found that the creative class moved in the opposite direction than expected, this finding should be viewed in its regional context (Hansen & Niedomysl, 2009). The regional hierarchy in Sweden can be regarded as a strong one. For countries that have less strong regional hierarchy it is still possible that people move towards areas with high people climate. There is some evidence in the study of Hansen and Niedomysl (2009) that highly educated persons move towards areas with high people climate; these areas are Stockholm and Gothenburg in Sweden. Research concerning the creative class is dependent on the region where the researchers conduct their research. Thus, this means we cannot generalise the findings to other countries.

Consequently, we consider a more dynamic approach, because creativity is not necessarily a characteristic of the creative class. In this research, we take a broader approach towards the creativity within the organisation and therefore we do not only focus on the creative class. Apparently, not only the creative class possess creative capital but also other employees, so what does that mean for the creative capital on firm level.

2.5 Creative capital on firm-level

2.5.1 Position of creative capital within intellectual capital

Intellectual capital can be understood as all knowledge stocks firms utilise for competitive advantage (Kang & Snell, 2009). Intellectual capital can be seen as consisting of (1) human capital, (2) social capital/ relational capital, (3) organisational/ structural capital and (4) customer capital (Kang & Snell, 2009; Stewart, 1997; Yang & Lin, 2009).

Human capital is defined as the "core asset of an organisation, including knowledge, skills, experience, competence, attitude, commitment, and individual personal characteristics; in other words, a firm's repository of valuable knowledge and skills" (Yang & Lin, 2009, p.

1968) . While various scholars include further concepts such as intellectual agility (Roos, Roos, Dragonetti, & Edvinsson, 1997), education and psychometric evaluations (Edvinsson & Malone, 1997; Schultz, 1961), most scholars define human capital as the knowledge, skills, abilities and other characteristics (KSAOs) of individuals that might be utilised to create value (Kang & Snell, 2009; Straatman et al., 2012; Yang & Lin, 2009). As an illustration, Kang and Snell (2009) argue that human capital is the basis for organisational learning as organisational learning is facilitated through individual learning. On an organisational level, human capital can be understood as "the aggregate accumulation of individual human capital that can be combined in a way that creates value for the unit" (Wright & McMahan, 2011, p. 95). The human capital within an organisation can either be homogeneous or heterogeneous (Gong, 2003; Willis, 1986). While heterogeneous organisational human capital consists of employees with differences in KSAOs, homogeneous organisational human capital refers to employees with the same KSAOs.

Second, social capital or in some research referred to relational capital can be understood as the value created and embedded in both internal relationships among employees as well as external relationships such as with stakeholders or customers (Kang & Snell, 2009; Yang & Lin, 2009). Consequently, social capital enables for a knowledge exchange within an organisation (Kang & Snell, 2009). Thus, while human capital can be considered as the foundation for organisational learning, social capital enables organisational learning through a common ground of insights and knowledge (Stata, 1986). Social capital often relates to innovation and the generation of new ideas. It has been criticised that social capital has been used too widely and stretched (Veenendaal et al., 2012). Veenendaal et al. (2012) draw on the seminal work of Coleman (1990) to create focus, defining social capital in terms of the value available in relationships, which are generated through socialisation and sociability.

Various scholars distinguish social capital into bonding and bridging social capital (Putnam, 2000). Bonding social capital refers to the value of relationships between homogeneous groups or actors, while bridging social capital refers to relationships between heterogeneous groups, or actors (Putnam, 2000). According to Putnam (2000) bonding social capital is "inward looking and tends to reinforce exclusive identities and homogeneous groups" (p. 22). Bonding social capital is the value of relationships between densely connected groups or individuals with ties between the members that are strong and that provide social support and within-group solidarity (Agnitsch, Flora, & Ryan, 2006; de Souza Briggs, 1998; Gittell & Vidal, 1998). Bridging social capital is the value of relationships

between heterogeneous groups or individuals with ties that researchers consider weak (de Souza Briggs, 1998; Gittell & Vidal, 1998). Bridging social capital is important to acquire a variety of resources and to enhance the diffusion of information between and within the groups while bonding social capital is likely between members that have similar resources to each other (Putnam, 2000). In other words, bonding social capital are the assets embedded in within-group networks while bridging social capital are the assets embedded in between-group networks or external relationships (Adler & Kwon, 2002). Bridging social capital focuses on the weak, external relations of an actor with an actor outside the group, while the bonding social capital focuses on the strong, internal ties with other actors within a social, homogeneous group.

Another differentiation of social capital is by Kang and Snell (2009). Kang and Snell (2009) distinguish between cooperative social capital and entrepreneurial social capital. Kang and Snell (2009) argue that three main dimensions influence social capital- the structure, affect and cognition. While, the structural dimension of social capital relates to the network configuration, the affective dimension is about the characteristics of relationships like trust and expectations. Lastly, the cognitive dimension relates to the importance of shared values and norms among groups. Based on these dimensions, Kang and Snell (2009) conceptualised two archetypes of social capital. The first one, cooperative social capital, is characterised by a tight network configuration with strong and dense relationships, a foundation of trust and a common understanding of how knowledge can be merged. Entrepreneurial social capital on the other hand characterises a loose social system with weak network relationships, flexible trust through personal experiences and a common understanding regarding technical, professional or operational knowledge (Kang & Snell, 2009). Kang and Snell (2009) conceptualise that cooperative social capital might facilitate exploitation, while entrepreneurial social capital might facilitate exploration.

These distinctions in social capital are similar, as entrepreneurial social capital corresponds best with bridging social capital and cooperative social capital corresponds best with bonding social capital. Entrepreneurial social capital and bridging social capital both characterises weak and non-redundant networks, while cooperative social capital and bonding social capital both characterises strong and dense networks. The entrepreneurial social capital characterises trust developed via direct personal experiences and cooperative social characterises trust based on norms and values of the group (Kang & Snell, 2009). Bonding social capital is between actors within a social entity and they likely share group norms and

values, therefore bonding social capital corresponds with cooperative social capital. Bridging social capital is between heterogeneous actors and because there is a relationship between them, they likely have cooperated in the past, and therefore corresponds entrepreneurial social capital with bridging social capital because direct personal experiences developed into trust in the entrepreneurial social capital. Bonding social capital entails the relationships between homogeneous groups or actors and taken together with the inward looking of these groups it is likely that the group shares a common architectural knowledge, which is the overall understanding of how thinks work together. Although the group perhaps differs on expertise the members are able to integrate their knowledge with that of others, because they understand how things work together (Kang, Morris, & Snell, 2007). This is also for cooperative social capital where members share a common understanding on how things work together. Members share common component knowledge in entrepreneurial social capital that means that members within the relationship know something about the content of the domain of the other members to interpret and understand the new knowledge, but in which they do not need to understand the whole fit. This is also the case for bridging social capital where the relationship is between heterogeneous members, these members likely do not understand the whole fit, but only know the content of the domain of the partner (Kang et al., 2007). Although, these distinctions are similar to each other in this research we focusses on the distinction of Putnam (2000).

Third, customer capital is understood as "the value of an organisation's relationships with whom it does business with" (Stewart, 1997, p. 77). The essence of customer capital is the knowledge embedded in the market channels and customer relationships of organisations (Bontis, 2004). Consequently, we argue that customer capital relates to social capital, as the focus is of an external relationship of an organisation.

Lastly, organisational or also sometimes termed structural capital refers to knowledge embedded in processes, systems and routines (Yang & Lin, 2009). In a similar way, Yang and Lin (2009) define organisational capital as any structural element of an organisation that facilitates the employee's ability to create wealth for the firm and its stakeholders including efficiency, transaction time, procedural innovativeness, and access to information for knowledge codification. Consequently, it has been argued that organisational capital basically is the knowledge that stays behind if all employees leave (Kang & Snell, 2009). Thus, the organisation possesses organisational capital and employees do not influence organisational capital.

Based on these understandings of the concepts, scholars argue that intellectual capital is related to knowledge management and innovation (Ling, 2012; Stewart, 1997; Subramaniam & Youndt, 2005). According to Powell, Kenneth, and Lauren (1996) knowledge, learning capabilities and knowledge transfer are vital for innovation. Thus, innovation is dependent on the interaction and exchange of knowledge (Landry, Amara, & Lamari, 2000), leading to the establishment of the link to intellectual capital. Consequently, intellectual capital can explain how knowledge, embedded in individuals- human capital- and relationships- social capital and customer capital- as well as in organisational processes- organisational capital, leads to innovation. Creative capital relates to human and social capital, as it is the creativity embedded within and between employees. Thus, there is a close relationship to creative capital. According to Glaeser (2005) creative capital is fundamentally the same as human or social capital and no novel idea and should not be positioned as an individual capital. To explore this issue further, the next section demonstrates the differences and similarities between creative capital and human capital as well as social capital, while positioning creative capital within intellectual capital.

Positioning creative capital within human capital

Researchers could argue based on the definition of creative capital used by Straatman et al. (2012) that creative capital is the same as human or social capital. Human capital includes the KSAOs of individuals and social capital the relationships individuals possess. In this case, human capital is the collection of knowledge, skills, abilities and other characteristics, not the aggregation as defined by Straatman et al. (2012) in their definition of firm-level creative capital.

We earlier discussed the definition that is used by Wright and McMahan (2011) and they argue that human capital is "the aggregate accumulation of individual human capital that can be combined in a way that creates value for the unit" (p. 95). Within this definition individual human capital consists of the "characteristics possessed by an individual that can yield positive outcomes for that individual" (Wright & McMahan, 2011, p. 95). This definition is on the unit-level and states that human capital is more than the sum of the KSAO's of individuals as it is about the aggregation, what is stated by the definition that is used by Straatman et al. (2012). When using this definition the only difference between human and creative capital would be creative ability, as both definitions are about the aggregation and not the sum, and both definitions are about the value that it can provide to organisations. However, creative ability makes the distinction as it is not about all the skills, abilities and

other characteristics embedded in employees, but only the creative ability, the skill as part of all KSAO's. Creative ability can be seen as a part of all the abilities of human capital. Consequently, creative capital is not a different concept, but a part of human capital. This is also found by Marlet and van Woerkens (2007) who found that creative capital is a better predictor than education (part of human capital) for employment growth.

When looking at creative capital as a part of human capital we need to figure out where we position it within the theory. Human capital can be either homogeneous or heterogeneous. A homogeneous workforce consists of people with the same KSAO's and uses exploitation. Exploitation looks at old certainties and makes the existing workforce more efficient (March, 1991). A heterogeneous workforce uses exploration and is about risk taking, variation, and experimentation, (March, 1991). Within a heterogeneous workforce, the KSAO's of the employees are different and the organisation can use that to look outside the boundaries of organisations, which makes innovation possible. A homogeneous workforce benefits the organisation in exploitation activities while a heterogeneous workforce benefits the organisation in exploration activities. A homogeneous workforce makes incremental innovation possible while a heterogeneous workforce makes radical innovation possible. Organisations that are able to bring a more heterogeneous workforce or a more diverse workforce into the organisations and allows them to cooperate through job design practices mobilises the creative capital in the organisation (Veenendaal et al., 2012).

Combining human and creative capital, we can argue that creative capital only arises when the human capital of the workforce of an organisation is heterogeneous. Because a heterogeneous workforce has no boundaries, employees will use their creative abilities for innovations. Within a homogeneous workforce, the (possible) creative abilities of employees will not arise, because the organisation needs them for making the existing processes more efficient.

Positioning creative capital within social capital

Similar to human capital, also social capital has a close relationship to creative capital. According to Straatman et al. (2012) the difference between organisational social and creative capital is that organisations possess social capital, while creative capital is embedded within the employees. Based on the definitions of social capital discussed earlier (Kang & Snell, 2009; Yang & Lin, 2009), social capital is as well embedded within the employees. Additionally, while an organisation might possess a relationship based on a contractual form, it is not possible for organisations to possess these relationships as the employees establish

and endure these relationships. Consequently, when an employee leaves the organisation, the relationships in relation to this employee might end as well.

Veenendaal et al. (2012) give another argument for the need of creative capital. They argue that the term social capital is overstretched, as seen in the number of levels of analysis used. When social capital is defined too broad, it results in the problem to "capture the complex variety of factors" (Inkpen & Tsang, 2005, p. 161). Veenendaal et al. (2012) argue that there is need for another approach to explain exploration through the perspective of a heterogeneous workforce as social capital is used as a mediating variable between homogeneous workforce and exploitation. While it might hold true that researchers have overstretched social capital, it does not change the fact that there is a large resemblance between creative and social capital as both are embedded within employees and covers both internal and external relationships. Instead of focussing on the differences, we try to focus on the positioning within social capital.

Pullen, Weerd-Nederhof, Groen, and Fisscher (2012) who researched the required network characteristics for open innovation found that organisations should share the same goals, have a common level of trust in terms of fairness and reliability and have a high resource complementarity, while having weak network ties. The reason for this is, that weak network ties allow a business-like approach to open innovation, which in turn leads to higher performance. When relating this notion to creative capital, we can argue that organisations should follow a rather entrepreneurial social capital structure with weak ties, resilient trust and common knowledge (Kang & Snell, 2009).

We can also position creative capital in relation to bonding and bridging social capital. Firm-level creative capital requires both bonding and bridging social capital, because as mentioned before organisations with a diverse heterogeneous workforce stimulates group's creativity because of the diverse KSAO's (Veenendaal et al., 2012). For organisations that require new ideas to flow into the organisation are in need of relationships to dissimilar groups, which requires bridging social capital (Putnam, 2000). Even if an organisation has a diverse workforce, it is crucial that there is one common company culture and shared goals and norms. Thus, we argue that organisations need a certain level of trust and bonding social capital to enable bridging social capital. This is in line with the study of Pullen et al. (2012) as a shared objective and trust was found to be of importance for open innovation.

Lastly, as discussed above, social capital can consist of internal and external relationships. Consequently, this paper argues that firm-level creative capital encompasses both organisational internal relationships as well as external relationships to other stakeholders.

2.5.2 Conclusion of the positioning of firm-level creative capital

The definition used by Straatman et al. (2012) for creative capital, mentioned above, has some flaws. First, salient improvement introduced in this paper is that organisational creative ability is defined, while Straatman et al. (2012) only incorporates the definition of regional creative ability without transforming it to a definition of organisational creative ability. Second, it is not only about the relations, which are possessed between the employees, but also about the relationships of the employees outside the organisation. It is about the internal and external relationships of the employees.

The discussion above indicated the differences and similarities between creative capital and other capitals. While there are various similarities, we argue that creative capital is not the same concept as human-, or social capital. Neither human nor social capital alone is sufficient to explain creative capital. A combination of both concepts does not explain creative capital, as it does not involve the essence of the aggregated creative ability. Consequently, it is vital to include the concept of creative capital to intellectual capital. Table 1 summarises this discussion and Figure 2 illustrates how this paper positions creative capital.

Capital	Human capital	Social capital	Structural capital	Customer capital	Creative capital
Essence	Human intellect	Internal and external relationships	Organisational routines	Market relationships	Creative ability
Definition	Knowledge, skills, abilities and other characteristics that might be utilised to create value	The value created and embedded in both internal relationships among employees and external relationships such as with stakeholders	Any structural element of organisation that facilitates the employee's ability to create wealth for the firm and its stakeholders including efficiency, transacting time, procedural innovativeness, and access for knowledge codification	The value of an organisation's relationships with whom it does business with	The aggregated organisational ability, which is the organisational enactment to integrate the creativity of individuals as well as the creativity embedded in their relationships
Scope	Internal within employees	Internal and external	Internal organisational links	External organisational links	Internal within employee node, internal within employees, internal organisational links, external organisational links

Table 1 position creative capital

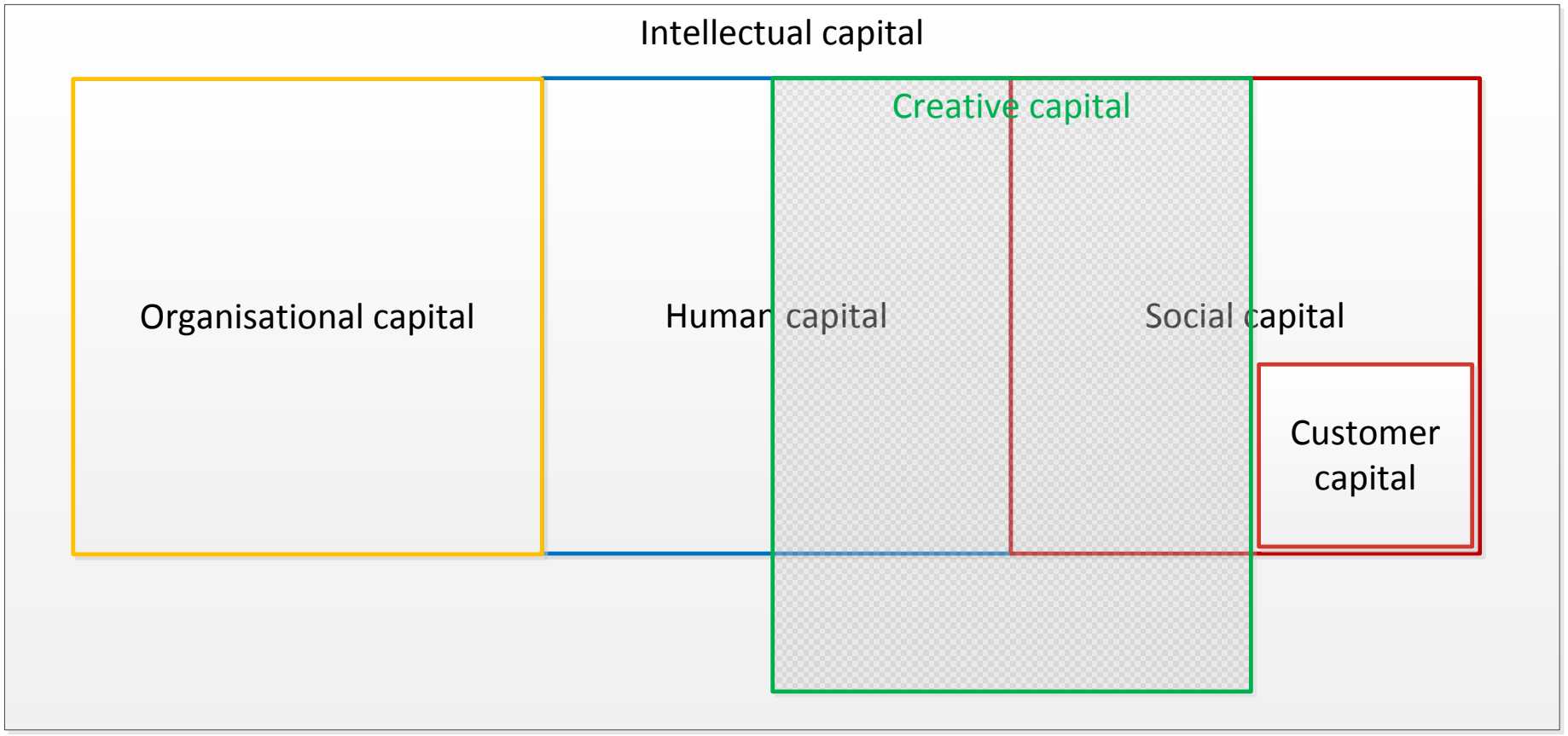

Figure 2 position creative capital

2.5.3 Creative ability

While Straatman et al. (2012) extend the creative capital definition of Florida (2002) to an organisational level, it has a prominent drawback as it argues that creative capital entails the aggregated organisational creative ability, but does not explicit state what creative ability constitutes.

As argued by Veenendaal et al. (2012) the firm-level creative capital concentrates on the creative ability instead of the creative thinking ability. The creative thinking ability is the manner in how individuals cope with problems and solutions (Amabile, 1998). It is their capacity to combine ideas into new combinations. This thinking ability is based on an individual's personality, but also on how individuals think and work (Amabile, 1998). As argued by Amabile (1998) not only is creative thinking ability important for creativity, but also expertise and motivation are essential for creativity. Creativity can be understood as the development of new and valuable ideas in any domain (Amabile, Conti, Coon, Lazenby, & Herron, 1996). Creativity can relate to products, processes and people. However, it is not the same as innovation, as Amabile et al. (1996) describe, creativity is part of innovation: "innovation is the successful implementation of creative ideas within an organisation" (p. 1155). Thus, creativity does not necessarily imply the implementation of the ideas. As mentioned before creative thinking, expertise and motivation are essential for creativity. In this regard, expertise can be seen as the knowledge of the individual. While expertise and creative thinking are part of individuals human capital, the individual will not put forward his knowledge, skills and abilities if that individual is not motivated (Amabile, 1998). The motivation comes in two forms, extrinsic- and intrinsic motivators (Amabile, 1998). Extrinsic motivators come from outside the person and the individual uses this to get something desirable like incentives or avoid something painful like being fired. While this definition of creativity is on a rather individual level, Woodman et al. (1993) argue that group creativity is influenced by the constitution of the group in terms of its diversity, certain group characteristics, such as the size, shared identity, homogeneity, as well as contextual influences.

One shortcoming of the model on creativity by Amabile (1998) is that it does not include the occasion to use the skills and abilities. The opportunity is one of the three prerequisites to realise the required performance as argued by the ability-, motivation-, and opportunity-framework or in short AMO-framework. The three prerequisites constitute opportunity, ability and motivation. The AMO-framework states that performance is a function of the

opportunity to participate, motivation and ability (Boselie, Dietz, & Boon, 2005). It means that the needs of the organisation are realised when an human resource management system is in place that serves the interest of employees, their motivations and their job quality (Boselie et al., 2005). As argued by Bailey, Berg, and Sandy (2000) these three components make up the high-performance work system. This system provides employees the possibility to participate in decisions, provides human resource management practices to ensure the workforce is skilled for the task and provides incentives to motivate employees to participate. As argued by Wright and Kehoe (2008) the AMO-framework ignores certain practices like stock options. The abilities and opportunities to participate are seen as direct influences on performance, while the motivation can be regarded as the mediator between HR practices and performance (Boselie et al., 2005). Concerning creativity, creative thinking and expertise are part of the human capital of an individual and the motivation the promoter for creative performance. Based on the AMO-framework, a person is able to generate new and valuable ideas when he has the opportunity, in addition to the required motivation and the needed abilities. Creative ability should have at least some component of the provided opportunity.

The definition of creativity by Amabile et al. (1996) is in line with the definition used by Choi (2004a, 2004b) who defined creativity as "the generation of novel or original ideas that are useful or relevant" (Choi, 2004a, p. 188). Creativity is the performance outcome, while creative performance is the behavioural manifestation of creativity. Choi (2004a, 2004b) measures creative performance as:

(1) The degree to which the student listens to someone's ideas and is open towards their ideas
(2) The degree to which the student produces and shares new ideas, provide different explanations, have alternative perspectives and other solutions which can be regarded as creative
(3) The degree to which the student combines or integrates different perspectives, ideas or materials in a manner that is constructive.

Choi (2004b) found that creative ability predicts creative performance. The creative ability at the individual level is defined as the individual "skills or competencies that are relevant for creative performance" (Choi, 2004a, p. 198). It is about the abilities to generate new ideas or take a differentiating view towards problems (Choi, 2004a).

This definition of creative ability has some similarities with the definition on the regional creative ability of the workforce as mentioned by Veenendaal et al. (2012). It is about the entity's ability to make a combination of unrelated concepts, knowledge, ideas or experience into something valuable for the region (Baer, 2010; Vartanian, Martindale, & Matthews, 2009). We change this definition to a firm-level definition of creative ability. We define organisational creative ability as the ability of organisations to integrate and aggregate the creativity of individuals into something valuable. Individual creativity is the ability of employees to make a valuable combination of previously unrelated concepts, knowledge, ideas or experience for the organisation.

Consequently, the definition given for organisational creative ability extends the concept of firm-level creative capital as defined by Veenendaal et al. (2012). The conceptualisation of this concept is necessary to be able to operationalise this concept and measure which organisations have high creative ability and thereby high creative capital. It is not only the possession of creative capital, but also the ability of organisations to make use of the creativity of individuals and thereby realising creative performance. This is in line with the subjectivist view on resources of Foss, Klein, Kor, and Mahoney (2008), as opposite to the resource based view, who state that entrepreneurship is "a creative team act in which heterogeneous managerial mental models interact to create and arrange resources to produce a collective output that is creatively superior to individual output" (p. 73). Thus, it is not about the possession of resources like the creativity of individuals, but about the services like the creative outcomes, these resources can generate. Thus, creative ability is about the active use of the creativity of individuals, in other words to integrate the creativity of employees in the organisation.

2.6 Creative capital and innovation

As mentioned before creativity can be understood as the development of new and valuable ideas in any domain (Amabile et al., 1996) and "innovation is the successful implementation of creative ideas within an organisation" (p. 1155). In comparison with the definition of firm-level creative capital, it becomes clear that firm-level creative capital leads to innovation as the aggregated creative organisational ability is about the integration of the creativity embedded in the employee as well as in their relationship in the organisation.

The integration of ideas in the organisation, or innovation can affect the organisation differently, as we can make a distinction between innovations. Incremental innovations refers to the improvement of existing products, services or technologies and improves the potential

of current products and services while radical innovation is about the major transformation of existing products, services or technologies that replaces the current product, service or technology (Chandy & Tellis, 2000; Ettlie, 1983; Subramaniam & Youndt, 2005).

The radical and incremental innovations are in line with the differentiation between exploration and exploitation, which in turn leads to innovation. Exploitation looks at old certainties and makes the existing workforce more efficient, as it involves the use and refinement of existing knowledge, technologies and products, while exploration is about risk taking, variation, and experimentation, and involves the search for new knowledge, technologies and products (March, 1991; Veenendaal et al., 2012). Exploitation corresponds with incremental innovation and exploration corresponds with radical innovation.

Based on our positioning of creative capital in relation to social and human capital, we can argue that firms that score high on firm-level creative capital likely have radical innovation, while firms that score low on firm-level creative capital likely have incremental innovation. Organisations that score high on firm-level creative capital score also high on the aggregated creative ability and correspondingly organisations that score low on the concept have a low aggregated creative ability. Organisations with high firm-level creative capital can integrate the creativity of a diverse workforce with different KSAO's in the organisations that in turn result in with radical innovation (Veenendaal et al., 2012).

We have defined firm-level creative capital, positioned it within intellectual capital and made clear the importance of it, now we turn to job design practices that possibly play a role in creative capital.

2.7 Job design

We expect that job design plays a role in creative capital, because the design of jobs affects employees' creativity and allow employees to release their creativity; it enables employees to have relationships both inside and outside the organisation, which also affects employees' creativity; and it allows the organisation to make use of the creativity and integrate it in the organisation. These aspects are dimensions of creative capital just as we have mentioned before.

Concerning employees' creativity, jobs designed to be intrinsically motivating lead to creativity, because employees engage in their work for the enjoyment and challenge of it (Amabile, 1998). Amabile (1998) found that employees are more creative when they are intrinsically motivated than extrinsically motivated. Especially, enriched jobs designed to be

satisfying and motivating should lead to creativity because motivation is one of the components of creativity Amabile (1998). These enriched jobs have many of the motivational characteristics as mentioned by Morgeson and Humphrey (2006). Jobs that are simplified score low on the motivational characteristics and are less motivating and satisfying than the enriched jobs. This results in less creativity as the job is less motivating. Thus, job design plays a role in creative capital as it affects the dimension of creativity.

With regard to employees' relationships, the design of jobs enables the employee to build relationships within the organisation as well as outside the organisation. Organisations that design jobs so that employees need to work in teams, need to communicate or are dependent on each other enable employees to build relationships within the organisation. Jobs designed in such a manner that communication outside the organisation is necessary to fulfil their job enable employees to build relationships outside the organisation. These relationships expose employees to different knowledge bases both inside and outside the organisation that fosters creativity. Jobs designed to enable interactions and built relationships inside and outside the organisation leads to creativity. Jobs that characterises these social environments score high on the social characteristics of Morgeson and Humphrey (2006). Jobs that score high on these social characteristics result in job satisfaction (Humphrey, Nahrgang, & Morgeson, 2007).

To conclude, job design plays a role in creative capital as it influences the three dimensions of firm-level creative capital namely creativity, relationship and organisational creative ability.

2.7.1 Autonomy

Autonomy is in earlier research defined as the degree of freedom that an employee or individual has in performing his task (Amabile, 1993; Hackman & Oldham, 1975, 1976). Research that is more recent suggests that autonomy is about the degree to which a person's job allows for freedom, discretion and independence to choose his working methods, to schedule his work and to make decisions (Breaugh, 1985; Morgeson & Humphrey, 2006; Wall, Jackson, & Mullarkey, 1995). This latest definition includes three connected forms of autonomy as it covers autonomy in work scheduling, autonomy in decision-making and autonomy in work methods. We define autonomy as "the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out" (Oldham & Hackman, 2010, p. 464)

We expect that autonomy plays a role in firm-level creative capital, because autonomy is intrinsically motivating for employees. Intrinsically motivating work enhances the creativity of employees. Autonomy facilitates creativity and thereby plays a role in creative capital. Thus, organisations who design jobs in such a manner that employees experience freedom affect creative capital through the dimension creativity.

Researches support this notion. First, research by Beugelsdijk (2008) with a sample of Dutch firms presents that task autonomy relates positively to both incremental- and radical innovation, as measured by the share of new products in total sales. In the same research of Beugelsdijk (2008) it becomes clear that flexible working hours as part of job autonomy positively relate to incremental innovation. In the research of Beugelsdijk (2008), incremental innovation considers new products for the firm, while radical innovation considers new products for the industry. Because innovation is the successful implementation of creative ideas, which on itself is the result of the creativity of employees (Amabile et al., 1996), it is likely that task autonomy affects the creativity of employees. Similar research about task autonomy shows that the interaction of task autonomy with other variables positively relates to creative performance. The experimental research of Zhou (1998) with undergraduate students from a large Midwestern university in the US who took an introductory class in business administration shows that students were most creative when they received positive feedback informally delivered and who had high task autonomy. This is in line with the reasoning by Amabile et al. (1996), who assume that relatively high autonomy enhances the creativity of employees.

Job autonomy affects individual innovation through proactive behaviour. Parker, Williams, and Turner (2006) found in their research among production employees in an United Kingdom based wire makers company that job autonomy affects proactive behaviour through role breadth self-efficacy and flexible role orientation and that it also directly affects proactive behaviour. Employees who engage in proactive behaviour first make an assessment about their own capabilities to engage successfully in those activities. Consequently, for organisation to get this proactive behaviour they should increase employees' perception of their capabilities. We discuss this later on. Concerning flexible role orientation, employees show more proactive behaviour when they have long-term goals beyond their direct job and see their role more flexible. This proactive behaviour results in individual innovation as employees with proactive behaviour take initiative in the improvement of circumstances and thereby confronting the status quo (Crant, 2000). Longitudinal survey research by Seibert,

Kraimer, and Crant (2001) among alumni of a university in Midwestern of the US shows that proactive personality, which is a construct that relates to proactive behaviour (Crant, 2000), affects individual innovation. Employees that perform innovative behaviour develop and implement their ideas (Seibert et al., 2001).

Amabile et al. (1996) argue that control and ownership over work facilitate creativity. Ohly, Sonnentag, and Pluntke (2006) found in their study among randomly selected employees in a large internationally operating high-technology company that job control strongly affects creativity. The reason behind this is that job control gives employees the possibility to experiment with new ideas, which gives employees the leeway to generate creative ideas. Besides experimenting with ideas, job control might give employees the feeling to be responsible for their work (Hackman & Oldham, 1975; Ohly et al., 2006) and lead to more initiative (Frese, Kring, Soose, & Zempel, 1996; Ohly et al., 2006). Longitudinal research by Frese et al. (1996) with a representative sample of full-time employed habitants of Dresden (East Germany) shows indeed that job control significantly predicts changes in initiative. To conclude, meta-analyses conducted by Eder and Sawyer (2007) and Harrison, Neff, Schwall, and Zhao (2006) resulted in a positive finding for the relationship between job control and creativity (as mentioned in Ohly & Fritz, 2010).

Autonomy is not always preferred as this may reduce creativity and even create stress for employees. As reviewed by Chua and Iyengar (2006) people from lower socioeconomic status and people from interdependent cultures do not always prefer autonomy for choice and excessive options for action creates stress and stifle creativity (as mentioned in Johns, 2010).

To conclude, organisations that design jobs that provide autonomy to their employees affect employee's creativity as based on the aforementioned theories and findings. Organisations that score high on firm-level creative capital explicitly implement this job practices to release the creativity of their employees. Consequently, organisations that implement this practice create a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, we argue that organisations explicitly implement autonomy as job design practice to release the creativity of their employees to turn it into something valuable for the organisation. This leads to the following proposition:

Proposition 1: Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly

designing jobs that allow autonomy for their employees, while organisations with low firm-level creative capital do not explicitly design jobs that allow autonomy.

2.7.2 Job complexity

Complex jobs are viewed by Oldham and Cummings (1996) as jobs that are characterized by high levels of autonomy, skill variety, feedback, significance and identity. This view includes both task characteristics as well as knowledge characteristics. Job complexity could also refer to knowledge characteristics only, which is then about the complexity and difficulty of someone's tasks. We refer to job complexity as "the extent to which the tasks on a job are complex and difficult to perform" (Morgeson & Humphrey, 2006, p. 1323).

We expect that job complexity plays a role in creative capital, because complex jobs provide the employee with challenging work. Challenging work is intrinsically motivating for employees. Work that is intrinsically motivating for employees enhances the creativity of employees. This results in a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, organisations that design complex jobs create a pool of creativity in the organisation by allowing their employees to release their creativity that the organisation can use.

Research supports this notion. Oldham and Cummings (1996) found in two manufacturing facilities that when employees have creativity-relevant personal characteristics and perform complex work while their supervisors are non-controlling and supportive, the rated creativity and patents are highest. They found that when employees score low on creativity-relevant personal characteristics supportive, non-controlling supervisors and complex jobs have detrimental effects on rated creativity. Other research also revealed a positive relationship between job complexity, measured as autonomy, variety and feedback, and ideas submitted by employees to a suggestion program (Hatcher, Ross, & Collins, 1989; as mentioned in Oldham & Cummings, 1996).

Similar to the interaction effects of creativity-relevant personal characteristics, complexity of jobs and non-controlling supportive supervision on rated creativity, so has employee cognitive style in interaction with job complexity and extrinsic rewards effect on creativity. Research in two manufacturing facilities indicates that extrinsic rewards positively enhance creativity only in complex jobs for employees with an innovative cognitive style while the relationship is negative for employees with an adaptive cognitive style (Baer, Oldham, & Cummings, 2003). Extrinsic rewards enhance creativity for employees with an

adaptive cognitive style in simple jobs, while it has a negative effect for employees with an innovative cognitive style (Baer et al., 2003). Employees with adaptive cognitive style execute procedures without questioning them, whereas employees with innovative cognitive styles are more likely to question the procedures (Baer et al., 2003). Simple jobs do not give much opportunity for employees to apply personal control at their work but organisations that give employees extrinsic rewards give employees the possibility to exercise control for their work (as mentioned in Baer et al., 2003; Eisenberger & Rhoades, 2001).

Besides the direct interaction effect of job complexity on creativity, researchers found that job complexity also indirectly affects creativity. Job complexity predicts both creative performance and creative self-efficacy (Tierney & Farmer, 2002). Self-efficacy is seen as the perceived capability of an employee in successfully performing certain tasks (Parker et al., 2006). Because they see themselves as capable in performing tasks, they show more proactive behaviours like initiative (Frese & Fay, 2001; as mentioned in Ohly et al., 2006; Speier & Frese, 1997; as mentioned in parker et al., 2006). Research showed that job complexity relates positively to number of patents and creativity as rated by supervisors (Oldham & Cummings, 1996). Ohly et al. (2006) discovered that in a high-tech German firm job complexity is not related to creativity or initiative.

Besides the positive effects of job complexity on creativity, research conducted by Ohly et al. (2006) in a high-tech organisation found that routinisation relates positively with creative- and proactive behaviours, more specifically with creativity and innovation. The researchers see routinisation not as the opposite of job complexity, because routinisation can occur in complex jobs. Routinisation occurs through repeating a certain behaviour (Betsch, Haberstroh, Glöckner, Haar, & Fiedler, 2001; as mentioned in Ohly et al., 2006). By repeating tasks, employees eventually trigger automatically the needed behaviour for those tasks and there is no need for conscious decisions about the tasks. These realised free mental resources of employees explain the positive effect on creativity. It gives the employee the possibility to think about other their work (Ohly et al., 2006).

Three theories support the notion that complex and challenging jobs foster creativity. The combination of the competence motivation theory of Harter (1978) and the cognitive evaluation theory of Deci and Ryan (1985) leads to the recognition that optimal challenges functions give an individual a maximum sense of competence that in turn affects enjoyment and intrinsic motivation. The second theory, the flow model of Csikszentmihalyi (1975) states that optimal challenges allows the individual to direct its attention from unrelated stimuli to

the current task. This increased attention involvement gives the individual the enjoyment of fully engaging in the task. Jobs that provide enjoyment and intrinsic motivation result in creativity, because intrinsic motivation is one of the three building blocks for creativity Amabile (1998).

To conclude, organisations that design jobs that are complex affect employee's creativity as based on the aforementioned theories and findings. Organisations that score high on firm-level creative capital explicitly implement this job practice to release the creativity of their employees. Consequently, organisations that implement this practice create a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, I argue that organisations explicitly implement job complexity as job design practice to release the creativity of their employees to turn it into something valuable for the organisation. This leads to the following proposition:

Proposition 2: Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing complex jobs, while organisations with low firm-level creative capital do not explicitly design complex jobs.

2.7.3 Social support

Social support considers the helpfulness of both supervisors as well as co-workers (Karasek et al., 1998). It is about the degree that a job allows for advice and assistance from supervisors and co-workers. We refer to social support as "the degree to which a job provides opportunities for advice and assistance from others" (Morgeson & Humphrey, 2006, p. 1324).

We expect that social support plays a role in firm-level creative capital, because support provides employees with advice, encouragement and assistance from both supervisors and colleagues. The advice, encouragement and assistance from colleagues and supervisors enhance the creativity of employees. This results in a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, organisations that design jobs with social support create a pool of creativity in the organisation by allowing their employees to release their creativity that the organisation can use.

Several researches support the notion that social support affects the creativity of employees. The social support that affects creativity comes from support from supervisors as well as colleagues.

Supervisors support

Researches support the notion that supervisor support enhances employee's creativity. Amabile, Burnside, and Gryskiewicz (1999) and Amabile et al. (1996) argue that supervisory support towards creativity as perceived by employees probably occur when the supervisor is a good role model, when the supervisor values the contributions of employees, and when the supervisor shows confidence in the group. There is indeed need for supervisors to value the contribution of employees, because current interests within the organisation often reject the creative ideas. Innovators who try to come up with ideas that can be valuable for the organisation often meet the crowd that rejects the creative notions (Sternberg, 2006). Supervisors need to show interest in employee's ideas and show gratitude towards the employee for the proposed ideas to defy the crowd. Supervisors need to show support for ideas during the whole process. Organisations need that support, because when supervisors confront creative employees in their formative stage with criticism they are likely to withdraw their ideas. This idea comes from research of Gallucci, Middleton, and Kline (2000) on creative striving by gifted children, which shows that creative people withdraw when they are confronted with criticism in their formative stage. Supervisors can provide valuable feedback on the ideas but the effect depends on how they give their employees feedback. When employees expect external evaluation that gives them constructive information about the way they can improve their performance, is likely favourable for the intrinsic motivation of the individual and for their creativity. This idea is in line with an experimental research by Shalley and Perry-Smith (2001) among undergraduate students enrolled in a course on organisational behaviour. They found that individuals who expected an informational evaluation have higher intrinsic motivation and creativity than individuals who expected a controlling evaluation. The locus of control that is the individual's choice to work and have control over the task mediated the relationship between evaluation and intrinsic motivation. Although, it is an experiment it could be applicable to employees (Shalley & Perry-Smith, 2001). Another research in a laboratory setting conducted by Zhou (1998) among undergraduate students from a large Midwestern university reveals that when an individual receives informational feedback its creativity is higher than when its receives feedback in a controlling way. Creativity is highest when individuals receive positive, informational feedback and have high autonomy (Zhou, 1998). Research among employees and supervisors from a hospital focussed on profit shows that employees in groups with creative co-workers demonstrate more creativity when supervisors provide developmental feedback like how employees can improve their performance, how they can learn and develop themselves (Zhou,

2003). Although the first two studies are in a laboratory setting it gives a good idea on how supervisors and managers affect their employee's creativity via their feedback on their performance.

Supervisors are able to influence creative efforts via two other types of support than through idea support. These two other types of support are work-, and social support as the results of a literature review on leadership behaviour and creativity by Mumford, Scott, Gaddis, and Strange (2002) shows. Concerning work support, supervisors should provide support to their employees to enhance creativity. Work support includes the assistance of supervisors to get access for their employees to resources they need for their creativity (Mumford et al., 2002). Research conducted by Ekvall and Ryhammar (1999) among teachers working at a Swedish university on the effects of organisational realities on creativity showed that resources relate positively to creativity. Qualitative interviews among senior managers of medium and large firms in the advertising industry in the United Kingdom showed that resources relate to a creative working environment that fosters creativity (Ensor, Cottam, & Band, 2001). Supervisors who are able to realise the resources and time needed for their employees have likely more creative outcomes (Carmeli, Reiter-Palmon, & Ziv, 2010). This is also the conclusion of an interview research among R&D scientists by Amabile and Gryskiewicz (1987) where supervisors need to provide the employee with resources like time to enhance creativity research. It becomes clear that supervisors should provide time for employees to think about ideas, play with the ideas and discover different views. That time is important shows another research by Amabile, Hadley, and Kramer (2002) in which they looked at the effects of different levels of time pressure on the creative thinking by using daily diaries from individuals that worked on projects that needed creativity. The results show that to enhance creative thinking, organisations need to counter for extreme time pressure when possible and if that is not possible then to create a mind-set that the urgency is legitimate (Amabile et al., 2002). Employees need to work on the project for a part of the day without any distractions to allow the employee to be creative. Interruptions in their tasks affect the creativity of employees (Amabile et al., 2002)

Concerning the social support of supervisors, research by Tierney and Farmer (2004) with a sample of employees from a R&D division in a chemical company in the US shows that supervisors' expectations for employee's creativity enhance employee's view of creative expectations through supervisors' supportive behaviour, and employee's view of creative expectations affects creativity through employee's creative self-efficacy. Thus, employees

with supervisors who have high expectations about the creativity of these employees reported that the supervisors provided them with more resources, recognised their creative performance, supported information sharing and collaboration with others, and set creativity goals. The employees see this provision of resources to them as the communication of supervisor's expectations towards employee's creativity. Research by Carmeli and Schaubroeck (2007) at a small-sized information service company and a medium-sized financial institution in Israel presents that perceived expectations from supervisors towards employees' creativity relate positively to employees' self-expectations for creativity and this in turn relates positively to creative involvement at work. Supervisors who show their expectations for creativity towards their employees likely increase employees' self-expectations towards creativity and in turn affect creativity. Further, employees who feel that their supervisors expect them to be creative have stronger beliefs in their capacity concerning creativity. These higher levels in creative self-efficacy result in more creativity. Supervisors are not only able to affect creativity through enhancing self-efficacy of employees but also via employees' self-expectations for creativity. Another research in the same line by Diliello, Houghton, and Dawley (2011) via a web-based survey among employees of the US Army Contracting Agency shows that perceived supervisor's support for creativity increases the relationship between creative self-efficacy and creativity as perceived by the employees themselves. That means that when employees, with high creative self-efficacy, are supported and they perceive this as support for creative behaviours, they are more likely to turn their creative abilities in creativity (Diliello et al., 2011). Supervisors can increase their employees' self-confidence towards creativity by verbal persuasions and modelling activities that are central to creativity as research by Tierney and Farmer (2002) shows among two samples, the first sample includes employees of a manufacturing division of a large consumer products organisation and the second sample consists of mainly white-collar employees of an operations division of a high-tech firm. Concerning the role of supervisors as a model for the employees, research by Shalley and Perry-Smith (2001) among undergraduate students enrolled in a course on organisational behaviours shows that individuals have higher creative performance when exposed to a model. Additionally, employees' sense of confidence and competence play a role in knowledge sharing. Employees who are more confident that they share useful knowledge are more willing to share knowledge and actually engage in knowledge sharing (Cabrera, Collins, & Salgado, 2006; Lin, 2007). Consequently, organisations that are able to affect positively their employees' self-efficacy are able to enhance their employees' knowledge sharing. Supervisors who are capable to enhance their

underlings' confidence expose themselves and other underlings to new knowledge as this enhances knowledge sharing. Parker (1998) results show that supervisors are likely able to enhance employees' confidence in carrying out tasks by listening to employees, keeping employees informed and encouraging them to speak. Co-workers can possibly enhance their colleagues' self-efficacy by appraising the usefulness of their co-workers' knowledge as co-worker collegiality relates positively to self-efficacy (Lu, Leung, & Koch, 2006).

Supervisors can influence employees' creativity by being open, accessible and available for their employees (Carmeli et al., 2010). These three factors are part of inclusive leadership. It is found by Carmeli et al. (2010) that inclusive leadership affects the creativity of employees through psychological safety. Leaders who are open, accessible, and available for their employees to discuss new ideas create an environment where employees feel safe to come up with new ideas. In similar lines Tierney, Farmer, and Graen (1999) investigated the creativity of 191 research and development employees in a large chemical company and found that open interactions with the supervisors and the encouragement and support by the supervisors result in increased employee's creativity. Amabile and Kramer (2007) examined daily diaries of professionals in project teams and found that the professionals are most creative when they perceive their leaders as open towards new ideas, collaborative and cooperative with the employee, willing to reward the creative work and who is able to evaluate the creative ideas honestly. Their results show that to affect creativity through employees' motivation organisations should create a sense that employees are able to progress with their task, because realising a goal or completing a tasks induces pleasure and occasionally elation. To enable employees to progress through their work, supervisors should provide direct help, provide resources and time, and act to successes and failures that are based on a learning orientation (Amabile & Kramer, 2007). The best way to create a sense of being able to complete goals or tasks is for supervisors to set clear goals.

The access of employees to existing knowledge and information makes it possible for them to be creative (Amabile, 1998). Knowledge sources facilitate creativity as these are the building blocks for creativity (Carmeli et al., 2010). Employees are able to combine this expertise into new concepts and ideas. Access to more knowledge sources affects employee' creativity and therefore supervisors should support knowledge sharing. Managers can influence the culture for knowledge sharing to expose the employees to other knowledge sources as research shows that employees' perception of management support for knowledge sharing is positively related to perceived knowledge sharing culture (Connelly & Kelloway,

2003). Besides that perceived management support facilitates a culture of knowledge sharing it also relates directly to employees' willingness to share knowledge. Research shows that perceived management support positively relates to employees' willingness to donate and collect knowledge of colleagues (Lin, 2007). Organisations where managers demonstrate their support for sharing knowledge facilitate a culture that fosters knowledge sharing that eventually could lead to knowledge sharing among employees. Research supports this notion as perceived supervisor support affects employees' knowledge exchange (Cabrera et al., 2006) as well as the perceived usefulness of knowledge sharing (Kulkarni, Ravindran, & Freeze, 2007). Indeed, supervisors who encourage and support knowledge exchange facilitate internal knowledge sharing and external knowledge sharing in firms (Carmeli, Gelbard, & Reiter-Palmon, 2013). Carmeli et al. (2013) findings come from research with a sample of full-time employees employed in both manufacturing and non-manufacturing firms. Concerning internal knowledge sharing supervisors' encouragement towards employees on sharing ideas and active participation in teams, leads to a climate that fosters both encouragements by co-workers to participate actively and open sharing of ideas. This climate creates a positive attitude towards creativity that in turn likely affects employees' creative performance. Research by Lim and Choi (2009) provides support for this notion as they found in their research with undergraduate students at a North American business school that supportive leadership influences constructive group norms which in turn affect positive attitude toward creativity that in its turn affects creative performance. Research by Troy, Szymanski, and Varadarajan (2001), among one key informant of a work group in each company that is randomly selected from the National Housewares Manufacturers Association (NHMA), shows that an open communication climate leads to greater knowledge sharing.

Supervisors can also give advice on external knowledge sources to encourage their underlings to use and acquire information from outside the organisation so to enhance creativity. This is necessary because research among engineers of two divisions of a large electronics organisation shows that engineers select information channels that take them minimal effort to access (Gerstberger & Allen, 1968). This is likely more evident in local teams as team-members work together and are more accessible to each other. Members mainly rely on the information within these groups instead of more diverse knowledge bases. Individuals mainly rely on information that is common rather than uncommon among group members for decisions (Larson, Foster-Fishman, & Keys, 1994). Experiments by Larson et al. (1994) among undergraduate student at the University of Illinois at Chicago demonstrate that individuals rely strongly on information that is common among members. Consequently,

employees are likely to use mainly knowledge that is common and thereby inhibiting creativity. The preference of employees for knowledge sources within the organisation over the use of external sources is more pronounced by the research of Anderson, Glassman, McAfee, and Pinelli (2001). They found that a randomly selected sample of United States aerospace engineers and scientists prefer oral communications within the organisation to the use to confer with others outside the organisation. Employees prefer to use their knowledge sources that are easily and more convenient for them to access. Supervisors can cope with this preference by providing encouragement and advice on the use of external information.

Support from colleagues

Research by Diliello et al. (2011) shows that perceived work-group support for creativity increases the relationship between creative self-efficacy and creativity as perceived by the employees. Thus, when employees who perceive that they produce useful ideas, perceive their co-workers as supportive of creative behaviours they probably are able to turn their creative capabilities into creativity.

Employees are more likely to exchange knowledge as they perceive that their co-workers value knowledge sharing (Cabrera et al., 2006). Co-workers' support and their encouragement of knowledge sharing relate positively to perceived usefulness of knowledge sharing (Kulkarni et al., 2007). When employees perceive that sharing knowledge with colleagues is useful and valued, it is more likely that they actually perform that behaviour. The access of employees to existing knowledge and information makes it possible for them to be creative (Amabile, 1998). Knowledge sources facilitate creativity as these are the building blocks for creativity (Carmeli et al., 2010). Employees are able to combine this expertise into new concepts and ideas. In addition to the expertise of employees, employees' creative thinking ability also explains their creativity (Amabile, 1998). Creative thinking ability is another building block of creativity. Employees who are better able to combine and modify knowledge are likely to be more creative. It is important to expose employees to different kinds of expertise as this enhances creativity.

There are several theories that support the notion that social characteristics like support from supervisors and co-workers affect creativity and thereby creative capital. According to the componential theory of Amabile (1983a, 1983b) the work environment affects employees' creativity. This theory has several characteristics and one of them is perceived leader support. This theory proposes that leader's support for creativity as perceived by the employee is the characteristic that is most under control of the direct supervisor (Amabile, Schatzel, Moneta,

& Kramer, 2004). Leaders behaviour affect employee's creativity through the perceptions of employees about their leaders' support for creativity (Amabile et al., 2004). Another theory is the self-consistency theory that suggests that employees behave in a manner that is consistent with their self-worth (Korman, 1970). Managers who are able to affect their employee's self-worth concerning creativity are able to foster their employee's creativity. This is in line with the research by Diliello et al. (2011) that shows when supervisors support employees who have high creative self-efficacy these employees perceive that as support for creative behaviours and in turn they are more likely to convert their creative abilities into creativity.

To conclude, organisations that design jobs with supervisor support affect employee's creativity as based on the aforementioned theories and findings. Organisations that score high on firm-level creative capital explicitly implement these job design practices to release the creativity of their employees. Consequently, organisations that implement this practice create a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, I argue that organisations explicitly implement supervisors support as job design practice to release the creativity of their employees to turn it into something valuable for the organisation. This leads to the following proposition:

Proposition 3: Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing jobs that give their employees support from supervisors, while organisations with low firm-level creative capital do not explicitly design jobs with support from supervisors.

2.7.4 Interdependence

Interdependence is referred to the extent that someone's job depends on others and how others are dependent on someone's job (Kiggundu, 1983). It is about the connection between jobs. We refer to interdependence as "the degree to which the job depends on others and others depend on it to complete the work" (Morgeson & Humphrey, 2006, p. 1324).

We expect that interdependence plays a role in firm-level creative capital, as this exposes employees to new information, expertise and ideas that are redundant within the organisation. This exposure to organisational redundant information makes it possible for employees to combine different knowledge, concepts and ideas within the organisation into something valuable. This results in a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, organisations that design jobs with

interdependence create a pool of creativity in the organisation by allowing their employees to release their creativity that the organisation can use.

Different researches support this notion. Questionnaire administered research among appropriate persons chosen by randomly selected managers in Hong Kong showed that the degree of contact and accessibility of employees with one other affect positively the willingness to share knowledge and also affect one's belief to engage in knowledge sharing (Chow & Chan, 2008). Employees who depend on their colleagues to fulfil their job, or colleagues who depend on the work of the employee are likely to share knowledge with each other due to the degree of contact necessary to fulfil successfully one's job. Some researchers consider these formal contacts and relationships as salient for sharing knowledge (O'Dell & Grayson, 1998). New knowledge for the employee results in an increase of its knowledge base, and this knowledge is one of the foundation blocks for creativity (Amabile, 1998). Burt (2004) identified in his research among managers who ran the supply chain of one of America's largest electronic companies in 2001, that managers who span structural holes with their social networks in the electronic company produce more likely an idea for a problem and this idea is probably more valued by top managers. The exposure of employees to diverse knowledge sources within the organisation allows them to combine these sources into new ideas.

A clear example of interdependence between employees comes in the form of teams. In teams employees need to work together to complete their job. It is likely that this form facilitates knowledge sharing. Especially in long-lived teams employees are more likely to share knowledge with each other than in short-lived teams (Bakker, Leenders, Gabbay, Kratzer, & Van Engelen, 2006). Bakker et al. (2006) argue that employees in new product development teams share knowledge, because they share the goals of the team and need to share the knowledge to create new knowledge. Staples and Webster (2008) found that when task interdependence is low in distributed and local teams the relationship between trust and knowledge sharing is stronger than when task interdependence is high. In a study conducted in a financial service organisation it is found that in heterogeneous teams perceived task interdependence relates positively to innovative behaviour only when goal interdependence is perceived as high (Van der Vegt & Janssen, 2003). Task interdependence relates to creativity, because innovative behaviour consists of three different behavioural tasks namely idea generation, idea promotion and idea realisation. In this, the idea generation part relates conceptually to creativity.

Several theories support this notion that interdependence affects creativity. One of the theories is the strength-of-weak-ties theory of Granovetter (1973) that posits that weak ties expose the employee to different perspectives that are different from the employee, but also different from each other. This exposure to different views, and also likely conflicting with the actor's cognitive framework will likely result in creative ideas (Mumford & Gustafson, 1988). Consequently, exposure of the employees to different knowledge bases via the creation of jobs that allow the employees to work with another colleague within the organisation allows for the generation of creative ideas.

To conclude, organisations that design jobs with interdependence affect employee's creativity as based on the aforementioned theories and findings. Organisations that score high on firm-level creative capital explicitly implement this job practice to release the creativity of their employees. Consequently, organisations that implement this practice create a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, we argue that organisations explicitly implement interdependence as job design practice to release the creativity of their employees to turn it into something valuable for the organisation. This leads to the following proposition:

Proposition 4a: Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing jobs that depend on other jobs, while organisations with low firm-level creative capital do not explicitly design jobs with interdependence.

Therefore, organisations can make use of interdependence to enhance the creativity of employees, which the organisation can use to turn it into something valuable. In addition, the organisation can actively implement interdependence to affect the relationships within the organisation.

The organisation can develop jobs that are dependent on each other to affect the structural, affective and cognitive dimensions of social capital. The organisation can use team-based structures to affect the density and strength of the relationships as team structures can require interaction between members. Organisations that make use of team-based structures allow the development of strong and dense social connections that are efficient for sharing in-depth knowledge which in turn allows for exploitative learning (Leana & Van Buren, 1999). The use of team structures also allows the organisation to establish norms, rules and procedures, because team structures affect the socialisation of members (Kang & Snell,

2009; Osterman, 1984). The socialisation enhances the shared goals and values. The shared organisational norms and organisational membership results in institutionalised trust (Kang & Snell, 2009). Members of the social unit are more inclined to share a deep range of knowledge, because of the overarching goals and norm of reciprocity (Kang et al., 2007; Leana & Van Buren, 1999; Nahapiet & Ghoshal, 1998). The socialisation also allows individuals to develop and internalise a shared architectural knowledge (Nonaka & Takeuchi, 1995). Organisations that make use of teams structured around horizontal processes instead of functional grouping allow employees to gain a better perspective how things relate together (Brown & Duguid, 2001; Hammer & Stanton, 1999). This allows the members to develop a shared architectural knowledge. Shared architectural knowledge helps employees to understand how their knowledge is combined and allow employees to integrate their knowledge with that of others without the need to have knowledge in that field (Kang et al., 2007). This combination of characteristics is similar to the cooperative social capital that allows employees to acquire and integrate in-depth knowledge (Kang et al., 2007). The organisation can use this in turn for incremental innovation because it facilitates exploitation, as argued by Kang et al. (2007).

The organisation can also design temporary team-based structures to affect the structural, affective and cognitive dimensions of social capital. The organisation can affect the density and strength of the relationships within the organisation as these team-based structures allows the employees to interact with other members of the organisation. Temporary team-based structures stimulates temporary and diverse connections between core employees and other actors (Kang et al., 2007). Especially cross-functional teams give employees the possibility to interact with actors in different functions (Clark, Amundson, & Cardy, 2002). Whereas strong and dense connections hinder employees to explore varied knowledge domains, these relationships provide access to novel and diverse knowledge (Kang et al., 2007). These weak and nonredundant ties allow for exploratory learning (Kang et al., 2007). Positive experiences between parties result in dyadic trust, which in turn stimulates the sharing of knowledge (Kang et al., 2007; Leana & Van Buren, 1999). Dyadic trust allows the sharing of a wide range of knowledge as dyadic trust requires less effort to build and maintain the relationship, which provides employees the possibility to adapt their relationships when necessary (Kang et al., 2007). Both characteristics are part of the explorative social capital that allows employees to acquire novel and diverse knowledge that facilitates exploratory learning (Kang et al., 2007).

Creativity is the development of new and valuable ideas in any domain (Amabile et al., 1996). It is the result of a combination of previously unrelated concepts, knowledge, ideas or experiences. Although employees can come up with ideas and release their creativity, because of the implemented job design practices, organisations also need to enact on the ideas of their employees. Innovation, which constitutes creativity, is the successful implementation of ideas in the organisation (Amabile et al., 1996). Organisations can also make use of interdependence between members, like fixed or temporary team-based structures, to turn the ideas into something valuable for the organisation. Research supports this notion. Shipton, West, Dawson, Birdi, and Patterson (2006) found in their longitudinal study with manufacturing companies in the UK that teamwork is a predictor of innovation. Especially teams with diverse members likely scores good on innovation as team diversity has a positive effect on performance (Guzzo & Dickson, 1996). Literature research by Guzzo and Dickson (1996) shows that diversity in teams is positive for the effectiveness and performance of teams especially when the team performs creativity-demanding tasks. A number of researchers make the distinction between demographic characteristics that are observable and job-related attributes that are less easily observable (Van Knippenberg & Schippers, 2007). Demographic characteristics include for example gender, race, ethnicity, and age while job-related attributes include for example educational and functional backgrounds. Some researchers add another typology of diversity as some characteristics are neither easily observable nor job-related, like the differences in personality and value (Van Knippenberg & Schippers, 2007). Team diversity indeed stimulates creativity and innovation. Horwitz and Horwitz (2007) used peer-reviewed articles about team diversity published in the period between 1985 and 2006, and meta-analysed the effects of the task-related and bio-demographic diversity at the group level. They found that task-related diversity has a positive effect on team performance like creativity and innovation. Teams with members diverse on functional expertise, education and organisational tenure have better performance than homogeneous teams. That functional diversity and diversity in tenure have an effect on innovation is also found by Camelo-Ordaz, Hernandez-Lara, and Valle-Cabrera (2005). The effect of tenure on innovation is different from the effect of educational and functional diversity on innovation. Camelo-Ordaz et al. (2005) found, in their sample of companies with more than fifty employees in the industrial and agricultural machinery-, chemical industry-, and electric and electronic machinery and material sectors, that diversity in tenure in top management teams has a negative influence on innovation while functional diversity has a positive effect on innovation only when there is strategic consensus in the team. That a

common strategic vision is important for innovation is especially relevant for teams that organisations form to enact on the ideas of employees to implement the ideas of their employees. These teams can be temporary as the organisations only form these teams when the organisation needs them for the implementation of ideas. When these teams have a common understanding of objectives and show commitment towards the team's goals this likely affects the innovation on team level. A meta-analysis of team-level antecedents by Hülsheger et al. (2009) shows that vision relates strongly to creativity and innovation. This finding is in line with the finding on the strong link between goal interdependence and innovation. Their research shows that goal interdependence relates positively to innovation. The formation of teams around goals results in innovation.

To conclude, organisations that design jobs with interdependence affect employee's relationships as based on the aforementioned theories and findings. Organisations that score high on firm-level creative capital explicitly implement this job practices to create cooperative social capital. The organisation can use this cooperative social capital to turn the creative pool into innovation. Consequently, the implementation of this practice allows organisations to realise innovations. Thus, we argue that organisations explicitly implement interdependence as job design practice to act on the creativity pool to turn it into something valuable for the organisation. This leads to the following proposition:

Proposition 4b: Organisations with high firm-level creative capital focus on acting on the creativity pool to turn it creative performance for the organisation by explicitly designing jobs that depend on other jobs, while organisations with low firm-level creative capital do not design jobs with interdependence.

2.7.5 Interactions outside the organisation

Interaction outside the organisation has similarities with the dimension 'interacts with and serves the public' of Stone and Gueutal (1985). Although, interaction outside the organisation is seen as broader than only interacting with customers as it about the interaction of an employee with actors outside the organisation (Humphrey et al., 2007). We refer to interactions outside the organisation as "the extent to which the job requires employees to interact and communicate with individuals external to the organization" (Morgeson & Humphrey, 2006, p. 1324).

We expect that interactions outside the organisation play a role in creative capital, as these connections expose employees to new information, expertise and ideas that are non-

redundant to the organisation. The employee can use this non-redundant information, expertise and ideas to combine it into something valuable for the organisation. This results in a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, organisations that design jobs with interactions outside the organisation create a pool of creativity in the organisation by allowing their employees to release their creativity that the organisation can use.

Researches support this notion as interaction outside the organisation permits employees to acquire knowledge, which in turn affects creativity, because this allows employees to make combinations of this information (Amabile, 1998). Especially weak relationships are likely to affect creativity, because weak relationships expose employees to more diverse sources and non-redundant information (Perry-Smith & Shalley, 2003). These weak ties constitute occasional interaction, reduced closeness and short history (Baer, 2010; Granovetter, 1973). Research in a large, global agricultural-processing firm endorses this notion as actors are most creative when they have more weak ties (Baer, 2010). Research conducted by Perry-Smith (2006) among scientists in two laboratories of a research institute that focusses on different technologies like information technology and aerospace engineering indicates that weak ties foster creativity. In the same line of research, Rowley, Behrens, and Krackhardt (2000) found in their research on tie-strength in strategic alliance networks that weak ties are beneficial for performance in uncertain environments, which requires more creativity and innovations, while strong ties are beneficial in a more certain environment. Especially in an environment, which demands more exploration for new ideas and innovations, organisations need weak ties to get new information. Organisations enhance creativity by designing jobs in such a manner that employees are able to build weak relationships outside the organisation. There is a difference between the centrality of the jobs in the organisation and its effect on creativity in combination with the number of outside ties. Perry-Smith (2006) found that centrality is more positively associated with creativity when the numbers of ties outside the organisation are low than when the number of ties are high. This is likely due to the consumption of time associated with maintaining ties (Ahuja, 2000), because maintaining ties outside the organisation probably offset the benefits of ties within the organisation due to less time devoted to these ties. Peripheral employees are more likely to benefit from the number of outside ties, which suggests that organisations need to design jobs in a way that these individuals are able to develop many relationships with actors outside the organisations. Web-based survey research by Baer (2010) among a sample of employees from a large, global agricultural-processing firm resulted in the findings that the most creative actors are the ones

who score high on openness to experience and who maintain highly diverse, ideal seized weak networks. It is not about the number of weak ties that an employee has, it is about the diversity of these ties and the optimal size of the network.

Other researchers found that the most creative small worlds are the ones that have a combination of strong and weak ties (Fleming & Marx, 2006). Small worlds are locally intense clusters (i.e. high closure and strong ties) with weak bridging ties to other clusters (Fleming & Marx, 2006). Fleming and Marx (2006) looked into the ties of small worlds in Silicon Valley and Boston and found that strong ties within clusters and bridging ties between clusters leads to creativity. They argue that the combination of access to non-redundant and new information and simultaneously trust, resource sharing and information flow within the clusters are beneficial for creativity. Research findings on alliances present similar results. A comparative longitudinal case study research on three design-intensive furnishings manufacturers by Capaldo (2007) illustrates that a large periphery of heterogeneous ties and strong ties around the leading firm result in competitive advantage. Firms that adopt a dual network structure rely on relationships based on trust for exploitation, while for exploration purposes they rely on non-redundant knowledge sources via weak relationships. What becomes clear is that cohesion captures the strength of ties within the core group, while structural holes capture the ties that are non-redundant outside the core group (Zheng, 2010). According to Zheng (2010) the best mix of social capital for innovation are weak, though extensive, ties with actors external to the organisation and strong ties with internal actors and this is based on her review of empirical papers on the relationship between social capital and innovation.

Several theories support the idea that interaction outside the organisation positively relates to creativity, and thereby to creative capital. The strength-of-weak-ties theory of Granovetter (1973) supports the idea that interactions outside the organisation can enhance the production of creative ideas, because weak ties characterised by infrequent interaction, limited emotional closeness and short history allow for the exposure to socially distant sources of knowledge. That is the knowledge that provides the actor with likely non-redundant information, which in turn probably stimulates the combinatory process that leads to creative ideas (Perry-Smith & Shalley, 2003). Although tie strength does not necessary mean, that there is access to non-redundant information, because ties strength is conceptually independent from the diversity of the information that is accessible through these ties (Baer, 2010). Another theory that provides insight in the access to diverse information is the

structural holes theory of Burt (1992), which argues that structural holes provide the actor with superior information and opportunities as it exposes the actor to novel communities, different ideas and varied experiences. Structural holes are in this regard unique ties to other actors which can be organisations, individuals and regions that are otherwise not connected to each other (Burt, 1992).Thus, interaction outside the organisation could expose employees to diverse knowledge sources, which in turn enhances creativity. Theory of creative thinking of Simonton (1999) is about the process of variation and retention. Concerning the process of variation, this adds to the novelty of ideas and the retention process adds to the usefulness of the idea. The access to knowledge elements makes it possible to combine these elements into new variations, and thereby contributes to the variation. The main concept of the theory is that the number of cognitive elements and the breadth of these cognitive elements affects the probability of novelty (Amabile, Barsade, Mueller, & Staw, 2005). Thus again the exposure to a breadth of cognitive elements for example via interaction outside the organisation fosters the novelty of ideas.

To conclude, organisations that design jobs with interaction outside the organisation affect employee's creativity as based on the aforementioned theories and findings. Organisations that score high on firm-level creative capital explicitly implement this job design practice to release the creativity of their employees. Consequently, organisations that implement this practice create a pool of creativity that the organisation can use to turn it into something valuable for the organisation. Thus, we argue that organisations explicitly implement interaction outside the organisation as job design practice to release the creativity of their employees to turn it into something valuable for the organisation. This leads to the following proposition:

Proposition 5: Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing jobs that allow for interaction outside the organisation, while organisations with low firm-level creative capital do not design jobs with interaction outside the organisation.

We proposed several propositions with job design practices that likely play a role in firm-level creative capital, see Table 2 overview propositions. We expect that organisations with a high level of creative capital design jobs that are complex and interdependent on others their job, provide autonomy and supervisors' support, and allow for interaction outside the organisation.

Nr	proposition
1	*Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing that allow autonomy for their employees, while organisations with low firm-level creative capital do not design jobs with autonomy.*
2	*Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing complex jobs, while organisations with low firm-level creative capital do not design jobs complex jobs.*
3	*Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing jobs that give their employees support from supervisors, while organisations with low firm-level creative capital do not design jobs with support from supervisors.*
4a	*Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing jobs that depend on other jobs, while organisations with low firm-level creative capital do not design jobs with interdependence.*
4b	*Organisations with high firm-level creative capital focus on acting on the creativity pool to turn it into creative performance for the organisation by explicitly designing jobs that depend on other jobs, while organisations with low firm-level creative capital do not design jobs with interdependence.*
5	*Organisations with high firm-level creative capital focus on releasing the creativity of employees to turn it into creative performance for the organisation by explicitly designing jobs allows for interaction outside the organisation, while organisations with low firm-level creative capital do not design jobs with interaction outside the organisation.*

Table 2 overview propositions

3 Research method

We used a multi-method, multiple-case study design, as this allowed us to explore and challenge existing theories (Saunders, Lewis, & Thornhill, 2009). It permits to build and explore further upon the existing creative capital theory. We applied the multiple-case study design for the replication logic to compare the findings in several cases with the findings in other cases to see whether those findings correspond with our propositions and to confirm or disconfirm new insights (Yin, 1984). It provided in-depth analyses on job characteristics and creative capital for several cases. This design made it possible to compare the job design characteristics between organisations that score high and that score low on firm-level creative capital to extend the existing theory and to meet the research objective. In other words to see which job design characteristics organisations have that score high on firm-level creative capital.

Before the data collection and operationalisation of the variables we conducted a systematic literature search (Tranfield et al., 2003) to develop a knowledge base about the topic. The research classifies as a cross-sectional study as the analysis is across units without a temporal component (Gerring, 2004). We selected the companies via a non-random sampling technique.

Firm-level creative capital *The aggregated creative organisational ability,* which is the organisational enactment to integrate the creativity of individuals as well as the creativity embedded in their relationships			
Dimension and definition	**Sub-dimensions**	**Topic**	**Example question/ interview item**
Relationships *Relationships within an organisation and outside to its stakeholders that are both aimed at strengthening existing relationships and building new ones*	*Bonding*	*Relationships between homogeneous groups (Putnam, 2000)*	Relationships exists mainly between groups that are familiar to each other
	Bridging	*Relationships between heterogeneous groups (Putnam, 2000)*	Relationships exists mainly between groups that are dissimilar to each other / groups have access to non-redundant information / the knowledge base is increased by connection to other groups
	Internal	*Relationships between employees within the organisation*	Relationships exist between employees within the organisation to generate ideas and act on ideas, internal networks
	External	*Relationships between the organisation and external stakeholders*	Relationships exists between employees and actors outside the organisation to generate ideas and act on ideas, external networks
	Weak	*Weaker relationships, those involving comparatively low levels of closeness and interaction (Granovetter, 1973)*	The relationships are characterised by relatively low levels of interaction
	Strong	*Stronger relationships involve a high level of emotional closeness and relatively frequent interaction and reciprocity (Granovetter, 1973)*	The relationships are characterised by relatively frequent interaction / relationships are based on trust
Organisational creative ability *The ability of organisations to integrate and aggregate the creativity of individuals into something valuable*			The main activity of our organisation is developing new products, services and processes/ main activity of our organisation is focusing on our current product portfolio and improving
Creativity *The ability of employees to make a valuable combination of previously unrelated concepts, knowledge, ideas or experience for the organisation*	*Expertise*	*Knowledge of an individual (Amabile, 1998)*	People have to develop new ideas and concepts by combining existing ideas, knowledge and concepts
	Motivation	*The force to execute a certain behaviour*	Employees are motivated to be creative / are encouraged to combine different ideas, knowledge and concepts
	Creative thinking skills	*How flexible and imaginatively people approach problems (Amabile, 1998)*	Generate new ideas and think outside the box

Table 3 operationalisation creative capital

Job design *Is defined as "the assignment of goals and tasks to be accomplished by employees" (Anand & Daft, 2007, p. 689). This means that the contents, methods and relationships are specified so that it meets both the technological- and organisational requirements and social- and personal requirements of the employee (Buchanan, 1979). It is about the responsibilities and duties of the job, the relationships between the employee and supervisors, co-workers, clients and customers, and about the methods of doing the job.*			
Dimension and definition	**Sub dimension**	**Topic**	**Research questions**
Contents *Is about the main duties, knowledge qualification, skill requirements, experience, and abilities needed for the job*			**General** More specific, what can you tell me about the contents of the job?
	Job complexity	*"The extent to which the tasks on a job are complex and difficult to perform" (Morgeson & Humphrey, 2006, p. 1323)*	What can you tell me about the difficulty of the jobs? What can you tell me about the challenge of the job? Can you give me an example?
Methods *Is about the way the jobs are realised, it is about the freedom to choose their own methods, it is about the progress experience towards the final goal*			**General** More specific, what can you tell me about the methods?
	Autonomy Work scheduling autonomy *"The freedom to control the scheduling and timing of work" (Humphrey et al., 2007, p. 1336)* Work methods autonomy *"The freedom to control which methods and procedures are utilized" (Humphrey et al., 2007, p. 1336)* Decision-making autonomy *"The freedom to make decisions at work" (Humphrey et al., 2007, p. 1336)*	*"The degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out" (Oldham & Hackman, 2010, p. 464)*	How much freedom do the employees have in choosing their work schedule? How much freedom do the employees have in choosing their methods? How much freedom do the employees have in making their own decisions? Can you give me an example?
Relationships *Is about the relationships within an organisation and outside to its stakeholders that are both aimed at strengthening existing relationships and building new ones*			**General** More specific, what can you tell me about the relationships?
	Interaction outside the organisation	*"The extent to which the job requires employees to interact and communicate with individuals external to the organisation" (Morgeson & Humphrey, 2006, p. 1324)*	What can you tell me about the interaction between employees and actors outside the organisation? To what extent do employees need to communicate with these actors? Can you give me an example?
	Interdependence Initiated interdependence *"The extent to which work flows from one job to other jobs" (Morgeson & Humphrey, 2006, p. 1324)* Received interdependence *"The extent to which a job is affected by work from other jobs" (Morgeson & Humphrey, 2006, p. 1324)*	*"The degree to which the job depends on others and others depend on it to complete the work" (Morgeson & Humphrey, 2006, p. 1324)*	What can you tell me about the reliance of employees on each other to complete their work? Can you give me an example?
	Social support Co-worker support *The degree of advice and assistance of co-workers* Supervisor support *The degree of advice and assistance of supervisors*	*"The degree to which a job provides opportunities for advice and assistance from others" (Morgeson & Humphrey, 2006, p. 1324)*	What can you tell me about support of colleagues? Can you give me an example? What can you tell me about the support of supervisors? Can you give me an example?

Table 4 operationalisation job design

	Firm-level creative capital	
Dimensions	**High**	**Low**
Relationships	Organisations have weak, external, bridging relationships with strong, internal relationships	Organisations have strong, bonding, internal relationships with strong, bonding, external relationships
Organisational creative ability	Organisations make use of the creativity of their employees and integrate this creativity in the organisation	Organisations do not make use of the creativity of their employees
Creativity	Organisations have a heterogeneous workforce that is motivated by the organisation to come up with ideas	Organisations have a homogeneous workforce that is not motivated by the organisation to come up with ideas

Table 5 characteristics of companies with high or low firm-level creative capital

	Degree	
Job design characteristics	**High**	**Low**
Autonomy	Jobs provide employees with freedom concerning scheduling their work, choosing their work methods and making decisions	Jobs does not provide employees with any of three autonomies namely work scheduling-, work methods-, and decision-making autonomy
Complexity	Jobs have complex tasks, which are challenging and mentally demanding tasks, and require employees to use several high-level skills. Due to the mentally demanding tasks and high-level skills, the jobs are not standardised and written down in procedures and instructions	Jobs have simple tasks, which are uncomplicated tasks and require employees to use low-level skills. Due to the uncomplicated tasks and low-level skills, the jobs are standardised and written down in procedures and instructions
Social support	Jobs allow employees to get support of supervisors like provision of resources and advice. Supervisors increase employee's self-efficacy and motivate their employees to come up with ideas	Jobs do not allow employees to get support of supervisors. Supervisors do not motivate their employees to be creative, do not increase employee's self-efficacy and do not provide them with resources
Interdependence	Jobs are dependent of each other. It requires employees to collaborate to fulfil their goals and tasks	Jobs are independent of each other. Employees do not need to collaborate to fulfil their goals and tasks
Interactions outside the organisation	Jobs require employees to continuously interact with actors outside the organisation to exchange knowledge and share ideas	Jobs do not require employees to interact outside the organisation

Table 6 characteristics of jobs with strong or weak job design characteristics

3.1 Sample of companies

We selected eight companies based on our judgement of which companies are most suitable. This method is also known as non-random sampling (Saunders et al., 2009). The current explorative research objective justify this approach, as to answer the research question and meet the objective we needed an in-depth study of several cases that score high and low on frim-level creative capital and we selected these cases based on this particular purpose (Saunders et al., 2009).

These cases are all situated in one region to counter for any cultural differences between Dutch regions and therefore we selected cases situated in Twente in The Netherlands. This is done for the consistency. It is possible that the situation of the companies in a certain province has influence on the implementation of certain HR practices. The selected companies are all in one region to control for nationality. To make the comparison of the companies easier and to ensure that the type of company does not affect the implemented HR practices we selected companies that produce but also assemble products, design and produce products or are responsible for the integral process around the production and design of products. In addition, the choice for companies in the production adds to the accumulation of knowledge for theories, as research by Veenendaal considers manufacturing companies and the findings of this research contribute to the accumulation of knowledge.

The selected companies in Twente fall in the group with firms that we scored high on firm-level creative or fall in the group that score low on firm-level creative capital, which are scored based on secondary data. We used the company's website and if available research documents to stratify these companies. The collecting of these documents has to do with the choices made for the data collection.

Then the companies were contacted for this research via telephone or e-mail. The e-mail introduced the research program and allowed the companies to decide whether to participate in this program or not. This resulted into the following sample with preliminary scores on creative capital, see Table 7 preliminary score on creative capital.

Company	**Creative capital score**
Company A	High
Company B	High
Company C	Low

Company D	Low
Company E	Low
Company F	High
Company G	Low
Company H	Low

Table 7 preliminary score on creative capital

The sample size of eight companies is useful and justified for the purpose of this research, because of time constraints (Patton, 2002). Although, some researchers argue that twelve interviews are sufficient for a fairly homogeneous sample (Guest, Bunce, & Johnson, 2006), others argue that s ample size is sufficient when data saturation is reached (Saunders et al., 2009). This means that if the researcher conducts additional interviews, these interviews do not provide new insights on the research. This turned out to be the case; the eight interview did not deliver any additional information about the research topic.

The sample included several companies, which are all responsible for the production, although some companies actually produce their products, while other companies outsource it and function as a trading house. The companies are all in the manufacturing, engineering and design sector to control for industry. The companies that we selected vary from companies that are responsible for the complete integral process from the development including design until the actual production or only take a part of it. In the latter scenario, there are companies that produce the products and assemble it, while other companies only assemble it. We chose only for these types of companies to compare the companies within the subgroups, as the type of company could have an effect on the implementation of HR practices. See Table 8 for the description of the companies. As a fictive example: a company in the automotive industry that produces and assembles a car will make some parts within the company like the frame but other parts like tires are made by another company and the company then assembles both parts into a car. A company that takes the integral process for its account like a trading house makes use of external parties to design, produce and assemble the car parts into a whole car, while the company itself takes the process around it for its account.

Company	**Type**	**Employees**	**Organisational vision***
A	Production and assembling	45	The company sets the norm by developing continuously new products for its industry. The company tries to be diverse by producing high quality products and providing the best service to acquire a reputation in the market. To keep the price low the company innovates in it production processes, assess the use of other materials and assess the

			opportunities of outsourcing.
B	Integral process from development until production	43	The company makes products on which people can rely on in their lives. The company develop innovative products based on the newest technologies. The company commercialises the products together with their customers.
C	Production	1800	The company is a flexible and market oriented organisation that focusses on continuous innovation and best use of skills, which allows for the improvement of the performance and development of talent.
D	Production	131	The company's view on materials, systems, models, techniques, product properties and unique view on the products lead to the company's success.
E	Integral process, trading house	40	The company distinguish itself from the competitors by providing customers a broad range of their high quality products. The core values of the company are comfort, design, quality and reliable.
F	Integral process from development until production	64	The company makes it possible for professionals to do their task accurately, simple and convenient with the products of the company.
G	Assembling	200	The company differentiate itself by providing high product quality and service to their customers. Via continuous product improvements is the company able to respond to market development. The company confirms to the newest safety, environment and quality norms.
H	Design and production	72	Their organisation focus is to surprise their customers, repeatedly via their knowledge, experience, ideas and innovative thinking within the organisation that results in their products

Table 8 description of case data (* based on vision mentioned on the website)

Company A: The market in which company A operates is stable, as is the environment. The company produces according to specifications; there is no need for creativity in terms of production. The organisation's goals are mainly on exploitation instead of exploration. The focus is more on existing products. Based on former research at the company it becomes clear that the company tries to be proactive towards the market. Most of the investments are in explorative innovation projects than in the exploitative projects. The company tries to be creative and work together with different knowledge institutes. This is the bridging social capital of the organisation. The organisation cooperates with other organisations on research and development for exploration activities. There are strong ties within the company, there is very little outflow of employees, this means there is bonding social capital. Most likely, the

company recruits applicants from the available network. Company A scores high on creative capital.

Company B: The main activity of this company is designing products. For the design of products, employees have to develop new ideas and concepts by combining existing ideas, knowledge and concepts, in other words employees have to be creative. The organisation looks at the market needs and tries to come up with a business case, the organisation creates their own products. We assume that the market is dynamic and the organisation needs the creativity. There is empirical data available that provides support that the management of the company perceives their employees as creative. The company stated in 2010 that 'creativity' is one of the selection criteria for new employees. The company is an SME and because of that, the assumption is that resources are limited. The organisation will hire external parties like subcontractors when they need the knowledge. Company B scores high on creative capital.

Company C: The organisation produces according to specifications; there is no need for creativity in the production. The company has done several investments to improve the capacity of the production. Research focusses on improvements concerning the design and performance of the products. The R&D department concerning current product focusses on improvements via the use of new materials and search for cost-saving measures. The new product department focusses on customer demands and market demands to develop products for the future. The organisation collaborates with a designer to design the products and the company collaborates with knowledge institutes like the University of Applied Science, both are bridging relationships. We expect that the market of the company is stable and that the focus is on the current products. We expect that innovation is mainly slow and incremental. Company C scores low on creative capital.

Company D: The organisation operates probably in a stable environment. The organisation does not need creativity concerning the production. The organisation uses different materials for the products, but the products are more or less the same, except for the materials used. We expect that the company focuses on the improvement of new products including the use of new materials for the products, incremental innovation. Company D scores low on creative capital.

Company E: The organisation likely operates in a stable market. The company is one of the well-known names in its sector and the company probably does not experience strong

competition. The company focusses on their own range of products and it tries to design new products that follow the latest demands concerning style and comfort. The company uses different designers, from outside as well as designers inside the organisation. We consider this external relationship as bridging capital. The company probably uses only the current competences of the employees and the organisation does not need external knowledge. Company E scores low on creative capital.

Company F: The organisation focusses on the development and design of products for its sector. We expect that the sector is more dynamical, because technological improvements affect the sector and the products of the organisation. It is likely that the organisation needs to follow the changes quickly to keep their products up to date and suitable for the sector. They have to design and develop new products by being creative. Products developers are in contact with the professionals in the sector to develop the new products. We see this contact outside the organisation as bridging capital. Company F scores high on creative capital.

Company G: The organisation likely operates in a stable environment. There is no need for creativity in the production process. The company produces products of high quality that resulted in its reputation as supplier of high quality products. The improvements of the products are likely slow and incremental, this means there is slow incremental innovation. The company is it in sector well known and they likely exploit their own internal knowledge without the need for cooperation with external parties. Company G scores low on creative capital.

Company H: Former research on company H described that the organisation operates in a market that is turbulent, and where there is strong competition. Although the competition is strong, they describe themselves as more or less a follower of the market instead of a leader in the market. They do not actively develop new products only when the organisation see fit for that. The company has mainly exploitative projects but they keep a balance between the budget for explorative and exploitative projects in comparison to the revenues. Most of the employees of R&D are on explorative projects, while the goals are mainly on exploitation as experienced by the employees. The organisation looks for employees that are willing to do new things. The company focusses on explorative collaboration and this collaboration includes mainly customers and suppliers. We see this as bridging social capital. Although, the company focuses on exploration the employees do not experience that. This means likely that there is not active promotion for innovation. Company H scores low on creative capital

3.2 Interview

We collected the data for the inquiry through semi-structured interviews and secondary sources. Secondary sources are data sources that researchers can use but that have originally another purpose than for which the researcher intent to use it (Saunders et al., 2009). Primary data are data collected by researchers specifically for the use in that inquiry (Saunders et al., 2009).

We used written materials as secondary data to stratify the companies based on the concept of creative capital into subgroups. The written materials used by us include company's website and available research papers of research project initiated by the University of Twente, in which these companies have participated in the past. This led to a preliminary stratification of the companies.

We collected the primary data through semi-structured interviews, also referred to qualitative research interviews. These sorts of interview are non-standardised interviews because the interviewer will not follow a predetermined and standardised set of question (Saunders et al., 2009). Instead, we used a list of themes and questions that covered the research subject. This interview technique made it possible for us to follow the flow of the interview and omit or add questions to the interview depending on the flow of the conversation. We had the possibility to probe questions if some answers needed clarification of the interviewee to get a rich and detailed data set (Saunders et al., 2009). It was necessary for us to be open to new insights, but with some structure in the interview. It is a technique commonly used in research that has an exploratory element (Cooper & Schindler, 2008).

The semi-structured interviews were all conducted face-to-face with the person most knowledgeable about the use of HR-practices within the organisation. The contact person within each company selected the most knowledgeable interviewee or interviewees for this task as not every organisation has an HR manager. All contact persons received a standard e-mail with information on which they could base their decision. In some cases, the contact person within the company was the most knowledgeable person and in other instances, the contact person brought us in contact with that person. In the other situations where we did not have a contact person in the organisation, we contacted the company and asked the receptionist for the HR manager. In each of these companies there was an HR manager appointed. Then the HR manager also received the e-mail with information about the topic and we asked the HR manager to cooperate and select the most knowledgeable person. See

Table 9 Job of interviewee(s) at each company for the interviewee's function at the participating companies.

Company	Job interviewee(s)	Code
Company A	Plant manager	A1
Company B	Managing director	B1
Company C	HR manager	C1
Company D	HR manager	D1
Company E	Executive Assistant / HR Officer	E1
Company F	HR manager	F1
Company G	Sales director and financial director	G1, G2
Company H	General manager	H1

Table 9 Job of interviewee(s) at each company

This interview technique led to a different interview each time, because the questions asked are dependent on the flow and the interviewers asked upfront for the approval of the recording of the interview. The recording of the interview provided certain advantages to us as this allowed us to use direct quotes, allowed us to focus on the interview, allowed us to use questions in the following interview, and allowed us to re-listen an accurate and unbiased interview (Saunders et al., 2009). To create the interview questions there needed to be an operationalisation of the variables. See Table 3 operationalisation creative capital and Table 4 operationalisation job design.

We interviewed the interviewees at the organisation's location. The interviewees that participated had different functions in comparison to each other, because it was dependent on the knowledge that a person has about human resource practices within the organisation. The interviews lasted between one hour and two hours and we taped and fully transcribed the interviews.

We used an interview protocol for the semi-structured interviews; see Appendix B interview protocol for the protocol. This interview protocol had open-ended questions that allowed the interviewees to talk about the implemented HR practices. We asked probing questions to get more information about certain HR practices. We summarised at intervals what the interviewee just said for confirmation by the interviewee. The interview protocol had four sections. The interview started with the introduction. The interviewers mentioned in the introduction the purpose and the process of the interview. We asked if the interviewee approved the use of an audio recorder. The second section concentrated on the creative capital part. We asked the interviewee to describe which of the two fictive companies fits the best to

his organisation, to what extent, and why he chose that description. See Appendix A company descriptions creative capital for the descriptions. The interviewee elaborated on that subject. The next section focused on the recruitment and selection of employees. The following section was about job design practices implemented by the organisation. The fourth section focused on the use of external labour in the organisation. The interview concluded with a debriefing including thanking the interviewee for its cooperation and describing the process after the interview. The interviews are semi-structured so the order of the sections between the beginning and end could differ between each interview.

Concerning the ethics of this research, every participant participated on a voluntary base. We did not force any of the participants to cooperate with this research. We guaranteed the confidentiality of the participating companies. Only we, as researchers on this project, are able to identify the company's responses and promises to the organisations confidentiality. Confidentiality should not be confused with anonymity, because if the researcher grants anonymity then the researchers are also not able to identify the respondents (Babbie, 2010). Although, we gave the interviewee a choice during the interview to remain anonymous, we decided to make all the responses and data confidential to protect the identity of the organisations and the interviewee.

3.3 Data analysis

We transcribed every sentence of the interview, word by word exactly as how the interviewee said it. We left out most of the times the "euhm" and "euh" to keep the transcripts readable for us and to allow for a better flow in the transcript. We explicitly chose to transcribe the whole interview instead of only the sections that are relevant to the inquiry to prevent a loss of important information in the transcripts. That technique is called data sampling (Saunders et al., 2009), but the disadvantage and the reason why we did not choose for data sampling is that we have to listen again to certain parts of the audio-file, which in the end are relevant, but were left out during the transcription. Semi-structured interview does not guarantee a specific order, which means that dependent on the flow of the interview the interviewer discusses parts of sections without order in it.

We first transcribed the interviews and then summarised the main findings in these transcripts. The summary compressed the long statements in more shorter versions where the main sense of the content is rephrased into several words (Kvale, 1996). These summaries were sent to the interviewees for feedback to increase the validity. Another advantage of

summarising is that we were able to find already some preliminary relationships between themes. This made it possible to ask questions concerning these themes.

The operationalisation of the variables formed the start of the analysis. The literature review resulted in categories and formed the theoretical framework for the inquiry. We chose not to stick to these a priori codes and categories, but we also used the codes and categories that arrived from the data that formed the conceptual framework. Miles and Huberman (1994) also state that these predetermined categories can be useful, but subjected to change. The process lies between interpretations and formalised, structured and loose, and deductive and inductive. These categories are actually codes that we used to group the data. Both preliminary categories and inductively created categories were included in the codebook. As argued by Dey (1993) developed categories need to be internally and externally meaningful. It should be internally meaningful in relation to the data, and externally meaningful in relation to the other categories. The categories formed a well-structured analytical framework for the analysis. We attached units of data to the categories via coding processes.

We assigned during the coding process codes to parts of the transcript. These codes clustered together into categories on similarity and regularity that made it possible for us to find patterns as we analysed their connections (Saldana, 2009). To code the data we used hypothesis coding and initial coding techniques for the first coding process. We applied hypothesis coding to code the data based on a predetermined list. The literature review resulted into the list with predetermined codes (Saldana, 2009). The problem with hypothesis coding is that it could prevent us to see new ideas, divergent explanations (Saldana, 2009). We countered for this closed view by using the latter coding technique and divided the data into discrete parts and examined them for differences and similarities, so that we were able to be open towards new directions in the data (Charmaz, 2006; Saldana, 2009). The second coding consisted of focused coding. With this coding technique we searched for the significant initial codes and then coded these into more salient categories followed the initial coding technique (Charmaz, 2006). See for the coding process figure 3. The codes were then discussed within the group until consensus was reached about the assigned codes.

We used these codes for the analysis of the data. One of the analytical procedures used by us is the pattern matching as part of the deductively based procedures. Pattern matching is about predicting a pattern in the inquiry based on theoretical propositions (Saunders et al., 2009). If the pattern corresponded with the data then we were able to explain this pattern based on the theory. If certain job design characteristics play a role in firm-level creative

capital in the expected direction then that explanation is correct when it is found in other similar cases (Yin, 2003). It is important to note that we used the multiple-case study design.

One of the analytical procedures we used is the template analysis as part of inductively based procedures. The template is a list with codes and categories that presented the themes that comes from the data (Saunders et al., 2009). This analysis combines both inductive as deductive approach as the codes were predetermined, adjusted and added during the analysis. We inserted codes into the hierarchy, deleted from the hierarchy, changed level in the hierarchy and reclassified into a different category when needed (King, 2004). This analysis is differently from the grounded theory approach as this strategy is less prescribed and do not allow for prescription of any codes (Corbin & Strauss, 2008; King, 2004; Saunders et al., 2009). The template changed continuously as we collected and coded the data. This framework helped to explore the relationships between the categories.

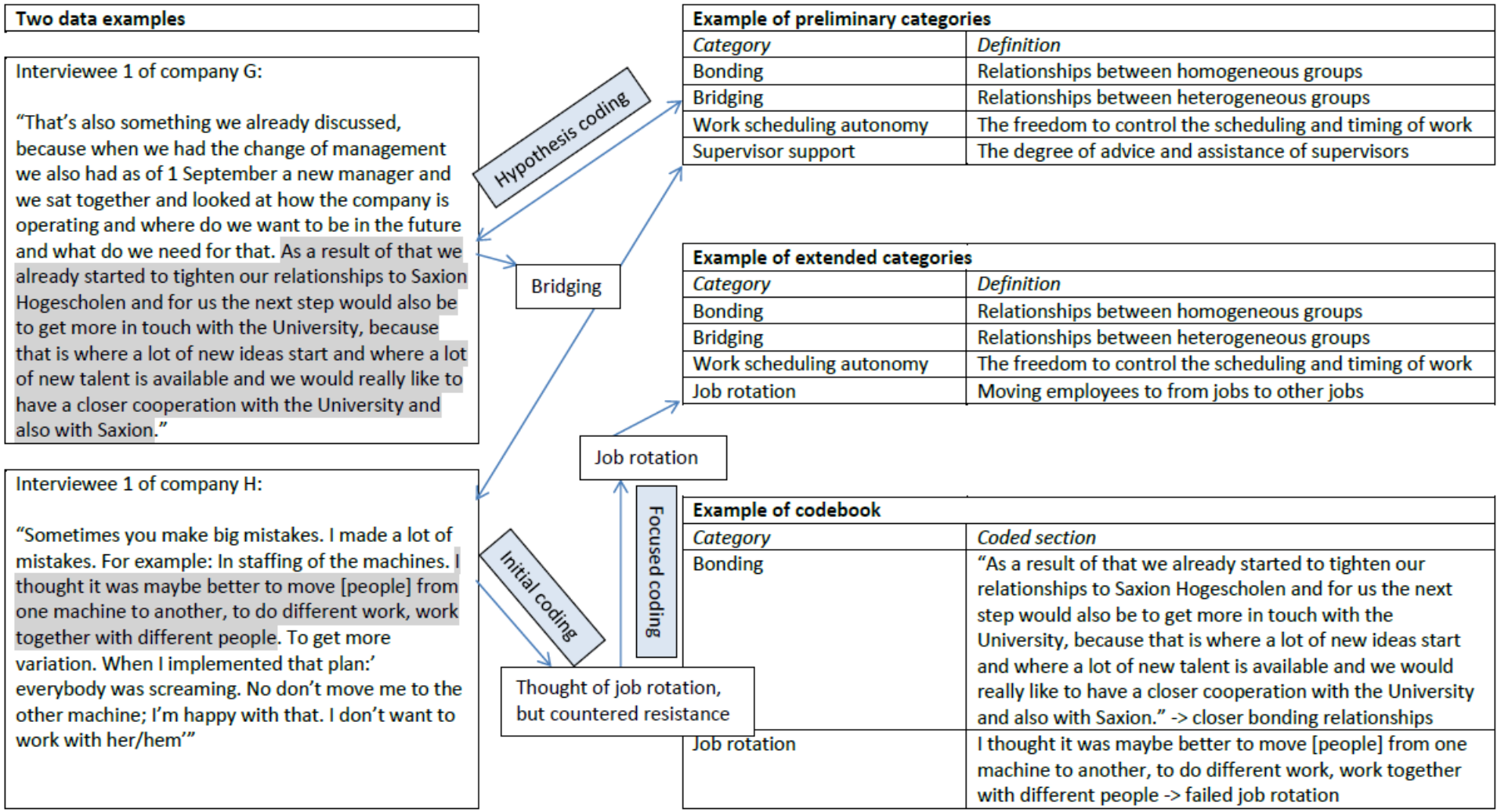

Figure 3 coding process

We organised the generated categories and examples of the unit of data in a matrix to recognise the relationships between categories. The relationships found by us are only as good as the quality of the research.

3.4 Trustworthiness

Concerning the accuracy of the transcript, we send the summary of the transcript to the interviewees to check the transcript to get a true view of the reality needed for the analysis. Transcripts need this validation as interviewees can change their mind, misremember certain parts, or we misunderstand the transcripts (Gibbs, 2007). Interviewees had in general no comments on the summaries and they agreed with the written summary. We only changed one summary based on the response of the interviewee.

Concerning the validity of the answers of the interviewees, we used probing techniques, like asking for clarification or asking for examples, to get more information about certain topics. The semi-structured interview allowed for a deep understanding about certain subjects and allowed the interviewee to give clear examples. At certain parts, we summarised the answers given by the interviewee that enabled the interviewee to approve the summarisation and otherwise to elaborate more about that topic.

We tested the clarity of the firm-level creative capital concept measure used in the interview protocol by subjecting different employees at different companies to the two descriptions of companies. These employees are all familiar with one of us. We asked them to apply it to their current organisation. Parts that were unclear or not well-understood or raised questions by the employees were changed. For the validity of the measure of the creative capital concept, we discussed the measure with an expert on creative capital. The measure seemed a reasonable measure for firm-level creative capital. With regard to the job design concept, we discussed the questions within the research team and we allowed for feedback by the expert on creative capital. Both measures scored well on face validity.

To counter for participant bias we asked during the interview for examples of interviewee's statements. We asked for evidence for the statement of the interviewee. This is one of the probing techniques used during the interview.

We subjected ourselves to two interview-training sessions in which the interviewers played a session against an experienced interviewer to get feedback on how to improve the interviews. These training sessions led to the realisation that we needed to watch carefully at how we conducted our interviews and we used it for our own interviews. We used open

questions to encourage the interviewees to give extensive answers and to preclude leading questions from the interviewers. We did this to counter for interviewer bias.

We countered for observer bias through intercoder-agreement. We did this by discussing the codes that each researcher assigned to an unit of data until the group reached consensus about the assigned codes (Harry, Sturges, & Klingner, 2005). We subjected the codes to this intercoder-agreement technique to test for clarity and reliability of the categories and codes. Kvale (2007) referred to this as the dialogical intersubjectivity in which we reached an agreement on a phenomenon trough reciprocal criticism and rational discourse.

One of us checked the transcriptions of the interviews made by another group member to assess the reliability of the transcription. This was necessarily as the interviewee used sometimes another language or did not speak clearly. The interviewee used at some parts of the interview Dutch or German words instead of English words so we had to change it to an English word. Another researcher than the first translator or transcriber checked the translation and transcription of the first researcher to correct for any possible mistakes.

4 Results

Creative capital of company A

We scored company A high on firm-level creative capital, because the company likes to be creative and the company stimulates creativity, see for the preliminary score Table 7. The secondary documents also mentioned that the company makes use of external bridging relationships, like the relationship with the University of Twente.

When we asked the interviewee for the best fit, the interviewee doubted seriously between the two company descriptions, see for descriptions Appendix A company descriptions creative capital. The interviewee acknowledges that creativity is important and that they try to be creative by combining concepts, which corresponds with a high score on firm-level creative capital, while the interviewee explained that their intention is to improve the current processes and products continuously, which corresponds with a low score on firm-level creative capital. When asked to give the description that fits the company best, the interviewee chose for company X, which stands for an organisation with high firm-level creative capital. It becomes clearer during the interview that the focus of the company is on the improvement of processes and products and not necessarily on the development and introduction of new products to the market. The interview indicates that the company scores more low on firm-level creative capital, as we will outline.

Interviewee A1: *"We like to improve our current products and processes continuously. That is what we are devoted to"*

The company does not only correspond on the improvement of current products and processes with organisations with low firm-level creative capital, but the company also corresponds with the relationships of organisations that score low on firm-level creative capital. The internal relationships appear strong as the interviewee said that employees support each other and are willing to make overtime for someone else. Based on the low turnover, we argue that employees are able to develop trust between each other. While the relationships between employees characterise trust, the relationships between the management and the employees on the work floor also characterise trust, as it appeared that employees have quite some responsibilities. These characteristics indicate a strong bonding culture within company A.

Interviewee A1: *"They (i.e. employees) see each other really as a team, he (i.e. employee) said: 'I (i.e. same employee) cannot drop the others, together we said that we will finish it, together and nothing else'"*

Interviewee A1: *"Around one of the older people works a group of employees with children. In one of the weeks that it was necessary to make some extra hours, he said to the others that he will adjust his schedule to the others, because they have children"*

It seems that the company has strong external relationships. The company has external relationships with only a few other organisations. The interviewee explained that they chose for few external relationships, so that they know how the other company functions, and how good they are. These fixed relationships are limited to a small number of partners. All the relationships with other organisations, are in the view of the interviewee, informal relationships and the contact between the organisations vary between once in the month to every day. These relationships characterises trust between the organisations, as the interviewee expressed that he does not like to work with contracts. The company built strong relationships with organisations that supplement the company. These relationships, as outlined below in the citation, provide the company with competences that are not within the company and characterises bridging relationships. The company searches for organisations that have the same view, but are doing something completely different.

Interviewee A1: *"All collaborations are informal collaborations. We have the best relationships with people, as these relationships are informal. We always have a challenge with companies that sent us contracts"*

Interviewee A1: *"Make sure you have a good network around you, also with specialists and who complement the organisation"*

Interviewee A1: *"I am really embedded in networks. I always try to see if it provides value, is it valuable or not. You see that when you speak to many people you get ideas. There (i.e. meetings) you also find a partner who is open towards the idea. One who also thinks it is a good idea. There has to be a bond. You should be able to talk well to each other. You have to share the same vision, while you are doing something completely different"*

It appears based on the interview that the company is exposed to new knowledge via the interviewee who takes seat in boards, he goes to network meetings, and has contact with the university. As the interviewee noted, the boards are responsible for knowledge exchange and organise meetings. The interviewee takes a seat in these boards. The plant manager uses the network meetings to learn and to apply that knowledge in practice. The interview shows that the interviewee tries to make use of the knowledge in those meetings. An example is that of BMW, this organisation invited the company several years ago and the plant manager used the information from that meeting in their company. The interviewee described that they used that knowledge to improve their own processes.

Interviewee A1: *"Two years ago, the owner and I were invited at BMW München to see their production chain. They invited us, because these companies learn a lot from smaller companies and this time they turned it around. They explained everything in detail, how and why they did it like that. I have seen things there that I applied within our company"*

Although, the plant manager comes up with ideas for improvements like the welding cell, for which he combined robot technology, RFID and software technology, he also tries to get his engineers more in contact with other engineers. The interviewee noted that the organised meetings make it possible for the engineers to meet other engineers. The manager organises these meetings to promote the exchange of knowledge. Based on the goals of the meetings, we argue that this could lead to new ideas. Another way that the company tries to promote the creativity is the use of teams as the quote outlines. When someone comes up with an idea, the company makes a team for that. The team discusses the ideas within the group and the team executes that idea, except in the situation where one person guards his idea and thereby blocks the ideas of others. The interview showed that the company does not have formal practices in place to stimulate the creativity of employees, but according to the interviewee, employees affected by the implementation of an idea take a seat in the project group. The interviewee felt that this motivates the employees to come up with ideas, because the implementation of the idea affects their work. We argue that they are then more willing to come up with ideas.

Interviewee A1: *"You see that a team is a good way to promote the creativity and to improve the processes. When someone says, "let's go left" and someone else say, "no let's go right, because when we go left you end up with the following result", and the other acknowledges that the idea gives the best result, then they go right"*

Interviewee A1: *"When someone has an idea, the organisation makes a team around it to discuss the idea. The team constitutes owner, manager, engineers and the employees who are affected by the implementation of that idea"*

Based on the interview, we score company A as a firm with medium firm-level creative capital. We make this conclusion based on the use of external, bridging relationships of the company that are strong as the manager does not like to work with contracts and reveals a sign of trust between the partners. The company only works with a few organisations based on trust between the members. These relationships are fixed. Although the relationships are bridging, it is still more bonding. The company cooperates with organisations that share the same view and stand open towards certain ideas. The company uses relationships based on trust to get access to complementary competences. However, these fixed, bonding relationships may limit the exposure to different knowledge fields, as the relationships are more homogeneous than heterogeneous. Although, the company promotes knowledge exchange for engineers via the meetings organised by the manager, the manager comes up

with most ideas. These ideas come from the meetings the manager attends. The company does not have active motivation practices in place to stimulate employees to be creative, with the exception to the participation of employees in project groups. The company does not make actively use of the creativity of its employees and their relationships. The creativity is more on the managerial level than on the work floor level. Consequently, we score company A medium on firm-level creative capital. Our score based on the interview does not correspond with our preliminary score.

Job design-in-practice by company A

The interviewee mentioned that the complexity of the job is rather dependent on someone's function. When looking at the jobs in the production, where most of the people work, there are jobs that vary from employees that put material in a machine to employees that work with complex machines. This variety does not make it easier to make a good review about the complexity of the jobs within the company. The interviewee cannot say that the job becomes less challenging or less complex due to the use of complex machines. The interviewee mentioned that when people talk about the complexity of the machines, the employees behind these complex machines could feel less valued, so he cannot state much about the complexity of jobs. However, he acknowledges that making holes into products is simple and that he therefore looks if it is possible to do these tasks with machines. This is also necessary as the plant manager felt it difficult to find craftsmen on the current labour market. The interviewee mentioned that sometimes customers come with requests for products that the interviewee doubts at the process of producing that product. This request is only periodically and not every week.

> Interviewee A1: *"There are companies, I will not say every week, but there are indeed companies that have every week a challenge that I think, how are we going to make that?"*

It appears that company A gives their employees freedom to decide at what day they like to start, at what time they like to start, and how long they like to work. The interviewee gives the example that it is possible that the employees start at six in the morning and work until five in the afternoon and the following week start at five in the morning and work until nine in the evening. The company provides autonomy to their employees in scheduling their work.

> Interviewee A1: *"It is diverse and every day it is different, everyone works each day at different hours"*

The freedom in work scheduling is not the only freedom, as the interview showed that the company provides their employees freedom concerning work methods. It seems that

employees can decide which work they do and how they do it. Employees have autonomy in deciding which work methods they use. This finding emerges as in the view of the plant manager employees are able to think for themselves and that there is no need for supervisors who says what they need to do. The interviewee mentioned that only when the customers tell them in which sequence they have to make the product, then the company discusses it with their employees, but they are still free how they do it.

Interviewee A1: *"Employees are able to think for themselves, why should there be a supervisor who tells them what to do!"*

It looks that employees are in a certain way free to create their own goals as long as these are in line with the goals of the company. The interviewee clarified that employees are able to decide if they like to go on a course, as long as they discuss this with the manager. The company allows employees to discuss these personal goals, but the plant manager expressed that deadlines set by customers are deadlines that are fixed. The interviewee explained that employees need to realise that deadline, there is no freedom in that, so employees can choose to schedule their work as long as they meet the deadlines of the customers. Another freedom becomes visible for employees as the interviewee said that employees could discuss how they think to receive the bonus for improvements, and the company allows them to realise the improvements as long as the employee discuss it. Based on this, we determine that the employees do have a voice within the company, but not necessarily freedom in decision making, as they have to discuss it with the manager.

Interviewee A1: *"Of course the goals should be in line with the organisational goals, so taking a course on sailing is not one of them"*

With regard to the interaction outside the company, the interview gives the expression that mainly the interviewee has contact outside the company. The interviewee expressed that he goes to network meetings to see if there is something valuable to learn, and sometimes this attendance results in a meeting with a partner that is also open towards a certain idea. It appeared that this interaction of the interviewee outside the company results into process improvements as the interviewee uses the information of these meetings to improve the company's processes, like the improvement based on the meeting with BMW München. The interviewee acknowledges that these meetings provide him with ideas for improvements. Besides the contact of the interviewee with persons outside the company, some employees do also have contact outside the company. The interviewee stated that only employees of company A that are responsible for contact with other companies have contact with persons in those companies. These persons speak with each other regularly, but employees in the

production department of both companies do not speak with each other. Another form of interaction is revealed as the interviewee mentioned that it sometimes happens that the company lend its craftsman to importers to help each other out. The interviewee tries to exchange employees temporary to other organisations, but that happens also only occasionally. It also happens that employees, not necessarily for a project or product, have contact with other employees in the same sector. This happens only occasionally. The interviewee mentioned that he organises meetings for the exchange of knowledge and dependent of the subject engineers or employees of the production are obligated to join these meetings. It seems that only the interviewee, the craftsman and the contact person have contact outside the company, while others are obligated to join the meetings, but that is not likely to be needed for their jobs.

Interviewee A1: *"I am an advocate to temporary exchange employees and I have been busy with it, but it is difficult (i.e. as most companies are not open towards exchanging employees)"*

The interviewee points out that the supervisor's role is a facilitating role. Its task is to motivate employees to perform their tasks. When something goes wrong, or a supplier delivered the wrong product, then that person is responsible to help the employees. Company A chose for this role, because as the interviewee declared they have confidence in their employees that they know when they do not perform up to expectations. The interviewee mentioned that there is no need for supervisors above them who tell them if their work is good or not. The employees themselves know best as the employees are all good craftsmen. The interviewee explained that the company tries to be creative and one way the interviewee provides support towards employees is by exposing them to different knowledge. The interviewee organises meetings devoted to the exchange of knowledge, where employees of the company are obligated to join these meetings. He acknowledges that it is important for the company that employees encounter other employees to share knowledge, and to learn from it. We argue that this support can result in creativity, as employees are able to combine new ideas. It looks like there is another possibility to share ideas and provide support by supervisors and that is the use of teams. The interviewee mentioned that teams are good for the support towards ideas of other team members, because they discuss their ideas with each other.

Interviewee A1: *"That person has a facilitating role in the sense that when someone is not able to get further, or there is wrong with the delivery, or they are not feeling well, it does not matter what the problem is, her job (i.e. supervisor's job) is to help them"*

The interviewee pronounced that the company forms teams to discuss the ideas and to implement the ideas in the company. It gives the impression that the company uses these teams to act on the creativity of the employees, although this is mainly the creativity of the plant manager. These disciplinary teams consist of the owner, the plant manager and the employees for whom the implementation of the ideas affect the jobs. The employee that does not take a seat in the team is the financial employee as the interviewee explicitly leaves that person out of the team. The interviewee explains that these teams are good for sharing ideas because every employee can bring in ideas and that within these teams every discipline bring in ideas. In the view of the interviewee, the person that needs to work with the machine looks differently to the idea than someone of finance. The employee that needs to work with the machine can bring his ideas towards the meetings and the interviewee acknowledges that this creates ownership for that employee, which in turn results in better performance. Based on this we argue that this form of interdependence allows the members to share ideas, which results into discussions how they should advance with the ideas.

Interviewee A1: *"The person behind a certain machine has the experience with that machine and therefore looks differently towards ideas than the financial employee"*

Creative capital of company B

We scored company B high on firm-level creative capital because for the design of their products employees need to be creative. The employees need to have ideas for the design of products that fulfils the needs of the market, see for the score Table 7 preliminary score on creative capital.

The interviewee chose the description of the company with high firm-level creative capital, because company B mainly focusses on the development of new products, although the interviewee also sees room for incremental innovation to realise long-term success. He explained that in the past, company B did the development for other companies, but their strategy changed more towards the development of their own products. The interviewee stated that company B worked with large companies with an international business, SME's with an international focus and start-up companies. The interviewee mentioned that they provide the biggest value for SME's with international focus for which they can do the integral innovation process and for start-up companies that have the finance, but are not skilled in the development of the products. The focus of company B is more on the development of new products and the interviewee therefore chose for company with high firm-level creative capital.

"Creating products that people rely on, so creating a product means looking at the needs in the market and trying to find a concept that meets the need and create a real demand. Second, is to develop fully that concept to a ready product and doing the manufacturing management. We look for commercial products that actually sell to the end-user"

"We have changed the last few years, because when you bring new products in the market, it's also important to maintain products and to do more incremental innovation and improvement. So I would say our core competencies are on X, but we have realised that to have structural success, we also need to be more Y"

According to the interviewee, company B still makes use of these relationships, because company B needs organisations in the market that provide the company with market information. It appears that the company needs these strong relationships to get the market intelligence. This sounds logical to us, because for the product development the company needs to discover the gaps in the market to come up with a business case for that gap. The interviewee noted that professionals in the field provide the company with feedback about how they think about products and what products they need. Based on this, we conclude that the company use these relationships to improve products, but also to develop new products.

"Yes, we still use many of the relationships, because first of all you need to have market intelligence and you need to know about the market, but especially you need to have friends in the market, who are really standing in the market"

Company B also cooperates in teams with organisations that complement the company like the University of Twente and the Rehabilitation clinic. In these teams, there is likely more interaction between members and we see this relationship as a strong, external bridging relationship. The interviewee mentioned that the company uses these organisations to discuss about the gap in the market and the possible solutions for the gap. It appears that the company does not only use the relationship with the University to discuss the gap in the market, but company B also uses the University of Twente for testing concepts. The interviewee acknowledges that company B is not able to have all the knowledge in house that means knowledge starting from the design until commercialisation of the concept. The interviewee expressed that the company uses different external parties that have specific knowledge, which they can use in case they need specific knowledge. The company tries to build and keep this network to make use of it when needed.

"We need to have some key players in our boat, because we will never be able to have every music instrument played by the team in house, so we need to have the network of people that have specific knowledge. Therefore, we have this network and we try to maintain this network so we can use this network if we have to play a certain piece. The network constitutes research institutions, specific service providers, also often a single person, maybe part of a company or not"

Besides the use of external parties in teams, the company also has internally two teams namely the production- and innovation teams in which the innovation team consists of employees with diverse backgrounds. The interviewee explained that in the innovation team market- and technical employees participate of which the market people keeps the others in the team updated on the changes in the environment and then they discuss with the rest of the team on which gap they are going to focus, which project they like to do. This results in a common focus according to the interviewee. Based on the common goal within the team, we argue that this likely result in a bond between the members of the team. The interviewee acknowledges that the success is dependent on the team. We therefore dispute that it is necessary to have trust, as trust is needed to allow for idea sharing and this idea sharing results in whether a team is successful or not.

"If you don't have a team working successfully, the team won't win. Therefore, there is almost a one to one connection with success of projects and a successful team. Failing projects did not have a successful team"

With regard to sharing of ideas and its effect on creativity, the interviewee perceives challenging projects as a motivational factor for employees to be creative. He explained that challenging projects is especially motivating for the production team, while freedom and an own business focus is motivating for the innovation team. It seems that the company motivates teams to be creative by confronting them with the results of the other team to create a competition between the teams; this likely challenges the team to be more creative. When the challenge gets too big for the team, because they lack certain competences, the company makes use of external sources that have the missing-, or higher competence as noted by the interviewee. This creates, in the view of the interviewee, feelings of security within the team and motivates them more. This cooperation with external resources benefits also the company, because as the interviewee noted the company discusses with the people how they can learn from this cooperation. We argue that this exposure to different competences affects the creativity of employees, because they encounter different views and are able to combine it into new knowledge. The company allows the employees to get outside the company to test their concepts when they think the concept fills a gap in the market and the interviewee sees this as motivating for the employees.

"Yes there is, and we also stimulate it a little bit, because we have two teams and if one is doing better than the other, we tell them, "Hey, they are doing really good". So it's a challenge for the other (i.e. team) to improve their performance, or we try to find out why one team is performing less"

"We don't have in every area the highest competence. Therefore, if the project has some challenging questions we would involve early external resources at a higher competence. This is needed, because we just know that people in the company feel motivated if they can work with a higher competence so they feel more secure"

"So when we cooperate, we also discuss with our people how they can learn from that cooperation"

To get the higher competence they make use of their suppliers, or intermediaries with which they collaborate often, or consultants. They make use of these strong external relationships to get someone in the team with the required competence. The interviewee explained that company B first tries to create a preferred relationship between the company and the supplier so that the supplier sees them as a preferred customer from which the supplier can learn and then the company can ask for their supplier's best engineers on the project. Based on this we debate that the company creates a strong relationship to acquire higher or new competences. The use of the intermediary who knows the company results in a better fit between the chosen people by the intermediary and company B as experienced by the interviewee. When the company needs certain competencies, the interviewee acknowledges that they can rely on consultants with who the company has done business over the years and know that the consultant is available for the company. That person enhances the creativity, because they bring in new ideas as outlined in the quote below.

"What you see is that if you bring-in outside competences (i.e. through external labour), they (i.e. external labour) can actually broaden the picture. They say, "Okay you take this decision here, here and here, but you can also do this or that and that way you can come more quickly to a solution", and that actually kicks their (i.e. current employees) thinking also. So they think they actually have to be more creative and thinking about what they can do"

The interviewee acknowledges that the core competence of the company is to be creative. The company sometimes creates products that are ahead of the market. The company commercialises these products later on in the future. For this, the company needs creative employees, because according to the interviewee quick thinking and a good level of thinking affects innovation. The company tries to select employees during the recruitment on their creative thinking skills.

"The core thing we do in-house is being creative in finding concepts to fit market needs and to see whether we have a business model with this concept"

"Many products you see are what we call a leap innovation, because they are ahead in the market three to five years"

Based on the interview, we score company B as a firm with high firm-level creative capital. We make this conclusion because the company uses its relationships with professionals and friends in the field to acquire market intelligence, requests for

improvements and new products. For discussions on gaps in the market and for the design as well as the development of products, the company uses bridging relationships like the relationships with the University of Twente, Thales and the rehabilitation clinic. The company needs these external relationships, because the company does not have all the competences within the company. The company makes use of bridging, external and internal relationships. The external relationships are loose, which allows the company to benefit from the value provided of these loose bridging relationships. The company tries to get strong relationship with the supplier so that they receive engineers in their teams with the needed competences. In addition, the company motivates the internal teams to be creative by providing them with challenging projects and to create a competition between the two teams. These teams consist of employees with different backgrounds, which refer to internal, bridging social capital. The company does have a certain level of bonding social capital that allows employees in these teams to share ideas. The employees can get motivated when they work on a concept for which there is a demand, the company then allows the employees to test the concept in the field. When the company lacks certain competences, they make use of intermediaries and consultants and discuss with their employees how they can learn from that collaboration. Consequently, we score company B high on firm-level creative capital. Our score based on the interview does correspond with our preliminary score.

Job design-in-practice by company B

The interview showed that the company motivates technical employees to be creative by giving them challenging projects. The interviewee mentioned that employees are committed to the company through challenging projects, though employees only stay within the company if they receive enough salary and have those challenging projects. We debate that these challenging projects form also the complexity of the work as the employees try to come up with a concept for a gap in the market. We think that employees perceive this process as uncertain, because they do not know if the concept fits the gap in the market and if it eventually leads to a business case. According to the interviewee the projects are broken down into parts and for every part, they assess whether it is a normal or challenging level. The electronic engineer has a competence breakdown of the teams and when the company does not have the highest level in a needed competence, they search outside the company for that competence. The interviewee mentioned that employees in these teams feel more secure when someone with a higher competence works within the team. Based on this we conclude that the projects can create uncertainty, because of the challenging parts, but when someone with the

right high competence is in the team, the rest of the members feels more safe. The projects are challenging and the employees likely perceive it as complex.

Interviewee B1: *"Therefore, if the project has some challenging questions we would involve early external resources at a higher competence. This is needed, because we just know that people in the company feel motivated if they can work with a higher competence so they feel more secure"*

It seems that employees within the innovation team have certain freedom within the company. They have freedom to schedule their work as the company allows employees to set their deadlines. The interviewee mentioned that this freedom with regard to setting deadlines is motivating for employees with an entrepreneurial business orientation. He explained that employees with an entrepreneurial business focus like to have their own business focus and this freedom, while the production team is more bound to rules. The innovation team can have breaks at their moments, while the production team is more bound to rules.

Interviewee B1: *"People that are more entrepreneurial business orientated want to have their own room to manoeuvre. So it can be promoting for them to create their own targets and to have their own business focus"*

The company has an innovation and production team, where the former team is freer in choosing their working methods to realise their goal, while the latter team is more bound to rules. The interviewee acknowledges that employees need this freedom, as this is positive for their creativity. The interviewee mentioned that the innovation team works with a quality innovation system with different gates that the team needs to pass to progress from an idea towards the actual production. The company has written down this process. The interviewee describes that within this process with milestones, the innovation team is free in how they get there, but they have to stick to the process flow. The company makes use of a format to describe the business case and the innovation team have to fill in the different parts. The operation manager also look at the results at the different gates, the company does this to see whether they continue with the project. The innovation team describes what the production team needs to do to develop the product successfully and this includes things like which supplier the company uses. Members of the production team also take a seat in the innovation team. The innovation team, including the production engineer, discusses how the organisation can develop the product. Thus, we discuss that the production team is less free to choose which methods they use to realise the development of the product, because the innovation team already have chosen what things the production team needs.

Interviewee B1: *"The innovation team write down where things need to be bought, and the production team has to stick to that"*

Interviewee B1: *"People are walking around and standing at the coffee machine when it's not even break, but as the innovation-team you should be doing that, because maybe the best idea will happen at the coffee machine"*

It looks that the innovation team has also freedom in decision-making. The interviewee mentioned that it is not possible to manage the teams from top down, because that demotivates employees and the team feels more limited. This is especially the case for entrepreneurial business orientated employees, because as explained by the interviewee they like to have their own room for decision-making. It appears that the supervisors of the innovation teams have certain freedom in decision-making as the company allows them to hire someone externally for the project. The interviewee gives the example that when the supervisors have a need for a person and it fits within the strategy then the company allows the supervisors to make its own decisions. As the quotation below outlines, the company allows their supervisors to make these decisions within the budget and plan. The innovation team is mainly responsible for deciding on which new projects the company is going to focus, which the company needs according to the interviewee to keep the gross margin. The team discusses the topics for new projects and they come up with ideas and possibilities in current projects as noted by the interviewee.

Interviewee B1: *"We have a number of supervisors and they are managing the team. They have […] a year plan and budget so supervisors can take […] decisions within their own budget and year plan"*

Employees also go outside the company to test the concept when they are motivated and think that people really need their products as is outlined in the quotation below. We argue that it is likely that employees then receive feedback on their concept, which allows them to improve the product. The interviewee mentioned that interaction about the concept also motivates their employees to be creative and that this is the best way of motivation. The company allows their employees to go outside the company and calls this method the USEIT industrial design.

Interviewee B1: *"People have a tendency to get motivated and to really get out there (i.e. into the field) and test concepts if they feel that it is something people that want to have. That also motivates them. So talking to the market is the best way of motivation"*

Concerning the support of supervisors, the interviewee sees the supervisors as responsible for the alignment of personal goals with the company. That means that they are responsible for the fit between organisational-, team-, and individual goals. The interviewee mentioned that often there is no alignment and then they have to look how to solve that. The company makes use of key performance indicators as a more formal way of checking the progress.

Second, the interviewee explained that supervisors are responsible that every employee has a coach within the company who discusses periodically with the seniors how employees are doing, and discusses it with the person himself, to see if there is a fit between the different goals. Concerning the goals, the interviewee noted that for the manager it is important to create the best team to have success and that therefore the focus should be on creating the right team, to create focus in the team and to meet the deadlines. When the teams miss certain competences and the company hire external workers to work within the teams, the supervisors discuss with the employees how they can learn from the cooperation. It appears that the supervisors not only create an innovative focus by aligning the goals of individuals with the company, the creation of a focus within teams, and to allow the teams to meet and realise their deadlines, but they also discuss how employees can learn from the cooperation.

Interviewee B1: *"So we always have a supervisor that has to take care that people also have a company coach that sit down at regular basis and ask a senior how somebody is doing and ask the person himself how he's doing and see if that is still aligned"*

The company calls their innovation team also the product, market and technology team, as both commercial and technical employees form together the innovation team. This interdisciplinary team is responsible for the selection of projects based on the market. This team comes up with ideas and possibilities for new projects, but also comes up with ideas and possibilities in current projects. The interviewee explained that employees like to participate in these teams as this creates a common focus within the company. Although the team constitutes employees with different backgrounds with varied level of knowledge, it happens that certain projects have challenging questions for which they hire external resources to cope with this deficiency. According to the interviewee, this not only allows the team to meet the deadline, but also creates a feeling of safety within the team, as people feel more secure. The interviewee expressed that it is important to meet the deadline, as time on market is important considering the costs associated with overtime. The company also tries to get the best engineers of their suppliers to work within the team by becoming a preferred customer of the supplier. The interviewee explained that this also means that their suppliers can get the knowledge, but that they have to cooperate to make use of the knowledge of their supplier. The interviewee mentioned that they prevent in general a loss of knowledge by working with a core team that is bigger than needed. They choose for this as it allows the company to transfer the knowledge between the members in case an employee leaves the company.

Interviewee B1: *"It's one way or the other; if you keep everything with yourself then I cannot get the benefit, so I have to share in the drawback that people will also use that knowledge for their areas"*

Creative capital of company C

We scored company C low on firm-level creative capital because we expect that the company's environment is stable, and the company does not need creativity. See for the score Table 7 preliminary score on creative capital.

When asked, the interviewee chose for company Y that is the organisation with low firm-level creative capital, because it is important for the company to improve continuously their current products to keep up with the competition. The company's R&D department consists of a new product department and a current product department, whereas the latter is bigger than the former. According to the interviewee, the choice is therefore more for the organisation with low firm-level creative capital, than the one with high firm-level creative capital, as their focus is more on current products. Although, the interviewee mentioned that without investments in new products the company cannot survive.

Interviewee C1: *"I think we are focusing more on our current products, because we are big production plant. What we are mainly producing products that we know. […] New products are just as important for us to maintain and to stay competitive, but a lot less people are focusing on that. So that is why I strongly agree with Company Y and more than with Company X, but without company X we cannot survive in the long term"*

The company also makes use of external bridging relationships. The company makes use of a well-known designer to give their products a designer touch, though the interviewee acknowledges that the focus of the company is on the performance of the product and not so much on the design. It seems they make use of the competences outside the company to give it a design edge. The company also cooperates with the University of Twente and the National Rubber Group to research the use of new materials for the product. They need to make use of these bridging relationships, because as the interviewee explained the company does not have the knowledge within the company concerning the compounds. The interviewee gave the example that they use these relationships to explore the use of a flower for their products.

Interviewee C1: *"We work together with him, not to let the product be a design product, but to give our product a design edge"*

Interviewee C1: *"We need universities and we maybe also need other companies and specialists in the field"*

The relationship with the National Rubber Group (NRG) is a tight relationship, because there are monthly or quarterly meetings between the marketing employee and the other members of the NRG. Although the company makes periodically use of the relationship with

the NRG, the interviewee argues that relationships between the company and recruitment agencies are rather loose. These relationships are loose, because the interviewee does not like to have a fixed relationship with one recruitment agency as he prefers flexibility, and dependent on the situation to be able to choose what he thinks is best.

Interviewee C1: *"I also say to agencies I don't want to collaborate with you but in a good way"*

It looks like the company also makes use of bonding relationships besides the use of external bridging relationships. The interviewee makes use of relationships with other HR colleagues to learn from them, to get up to date on what is going on in the field and to see where the other HR colleagues are. Based on this we consider that the HR manager uses the bonding relationships to increase its knowledge and consequently the manager can use this knowledge for its creativity. The interview gave the impression that another use of external relationships leads to new insight and that is the use of auditors' offices. As the quotation below outlines, employees of the finance department came to new insights when someone of the auditor's office gave them new ideas. We see this contact between the finance department and the auditor's office as a contact between homogeneous groups and considered as bonding social capital.

Interviewee C1: *"It is necessary for me to go outside and network with other colleagues in the field to make up my mind to see where we are at with HR in our company and to make up my mind to see where others are and to learn, but that's another thing"*

Interviewee C1: *"When somebody from Deloitte is coming, our finance guys are thinking, yeah good point I didn't see that, and they all didn't and then we are starting to work on that (i.e. idea). That happens a lot, yes"*

In addition to the external relationships, we regard the internal relationships as strong ones. We built it on the notion of the interviewee who mentioned that it is a challenge to keep new employees with fresh ideas from drowning in the current culture of working. Based on the low employee turnover, we argue that new fresh ideas do not easily flow into the company as employees work for quite some time in the same manner. Because colleagues work together for quite some time it is likely that there is a bond between them. This reasoning is in line with the interview as the interviewee describes the culture as very informal and open. He elaborated on it and described a culture where employees can give their view during appraisals. We argue that because they can answer those questions openly during appraisals, there is likely trust between employees.

Interviewee C1: *"When someone is coming from another company and brings in a lot of new fresh ideas and then we always have the challenge to not let him drown in our way of working and culture"*

Interviewee C1: *"I think on average there's a lot of trust. People are very happy here on average"*

It seems that the company also motivates their employees to come up with ideas for process improvements by providing them with incentives. The company makes use of an idea box where employees can deposit their ideas. The quarterly personal magazine discusses the best ideas and the savings realised by that idea. For the personal magazine, the director of production invites all the idea winners and they get together on the photo. It looks like the employees actually get recognition throughout the company instead of only a monetary reward. We argue that this recognition could lead to more ideas on the improvement of the processes.

Interviewee C1: *"Well one example is to give them also a stage, […] so the best ideas are rewarded"*

The company makes use of interdisciplinary teams to assess the ideas and take it further into the company. The interdisciplinary team keeps contact with the person that generated the idea, but that person does not have a seat within the team. The team discusses the ideas with leaders and when that idea is implementable then the team puts the idea into practice.

Interviewee C1: *"We have an interdisciplinary team that assess the idea and that takes it further into practice. So, they're (i.e. members of the team) discussing it with leaders on the higher levels and if they (i.e. leaders on higher level) see that this can be done it will be put into practice"*

Based on the interview, we score company C as a firm with medium firm-level creative capital. We make this conclusion because company C makes use of external bridging relationships like the relationship with the University of Twente, national rubber group and a designer. We see these latter two relationships more as tight relationships, because the interviewee mentioned that contact with the rubber group is periodically and company C used the designer for several years. Some of the relationships are tight, which prevents the company to have the benefits of loose and bridging relationships. The interviewee makes use of meetings with other HR professionals to keep him updated on what is going on in the field. The internal relationships are strong, as employees work together over several years that allow for the development of trust, but it also results into a homogeneous workforce, due to socialisation and low employee turnover. This makes it difficult for new knowledge to flow into the company. Company C actively promotes creativity of employee by providing them with incentives, idea box and mentioning them in the magazine. An interdisciplinary team

assesses the idea with leaders higher in hierarchy and then if it is useable then the team takes the idea further. Consequently, we score company C medium on firm-level creative capital. Our score based on the interview does not correspond with our preliminary score.

Job design-in-practice by company C

The interviewee described the jobs as technical complex as the company educates their operators during a three to five year program at a level four of the intermediate vocational education. He explained that the company does this to allow the employees to grow with the developments. As outlined in the quotation below, the employees know the machines very well; they know how to use the control panels and how the machine works. The tasks of the employees include both simple and more complex tasks, whereas the tasks associated with innovation as tasks that are more complex as described by the interviewee. He elaborated on it and dependent on the job, employees have to perform one task at the same time or more.

Interviewee C1: *"Employees know each machine from the inside as well as the outside and they also know the different control panels and how it works"*

It seems that the company provides work-scheduling autonomy as the company has flexible working hours for indirect personnel, while the employees in the production have more strict hours. As the quotation below outlines, the company makes use of five shifts and employees in the dayshift are able to decide at what time between 07:00 and 09:30 hours they like to start working.

Interviewee C1: *"Yes we have flexible working hours, so for example I can start between 7:00 and 9:30"*

Based on the interviewee we conclude that the company provides less freedom in deciding which methods the employees may use to realise the goal. The interviewee noted that employees are able to decide on which way they perform their tasks, within predetermined frames, the standard procedures. However, every employee in the production gets a 3 to 5 years education program so that employees know every position, know every machine and know every product. Based on this we argue that employees are knowledgeable about the tasks within the company instead of heaving work methods autonomy. In addition, the interviewee acknowledges that the leaders are responsible for the product and the employees are responsible for the machines. A further elaboration by the interviewee on this notion shows that leaders decide who stands at what machine and at what time. As the quotation below outlines, they do the planning. The interviewee noted that employees are able to stand at every machine, because of their education and this creates flexibility, but the

leaders decide who rotates. The employees within the production have less autonomy with regard to work methods.

Interviewee C1: *"The leaders are responsible for that (i.e. which employee stand at what machine at what time) and he has the planning and his computer, but of course it's really flexible"*

Concerning decision-making autonomy the interviewee outlined that employees are only able to make decisions without consulting the supervisors if their job allows that. Otherwise, employees have to consult the supervisors. We argue based on this notion and in comparison with the procedures that the company scores low on autonomy concerning decision-making.

Interviewee C1: *"Employees are able to make decision without consulting the supervisors as long as their function allows that freedom, for example the first line breakdown service, they do not need approval"*

Employees on the work floor, employees that are of the production department, do not have direct contact with actors outside the company as the interviewee stated. He explained that the disciplines within the company that have contact with actors outside the company are R&D, M&S, logistics and HR. One of the marketing employees, who work on the agriculture tires, is a member of the national rubber group and goes to their monthly or quarterly meetings. He elaborated that he also interacts with actors outside the company to make up his mind, to see what is happing in the field of HR and to learn. As the quotation below outlines, this contact outside the company does lead to new ideas and insights. The interviewee gives the example that the cooperation with the University of Twente leads to new ideas and insights.

Interviewee C1: *"The interaction outside the organisation leads to new insights and ideas for example the cooperation with the UT"*

Concerning the support of supervisors, the company makes use of an idea box and supervisors stimulate their subordinates to use the idea box and to come up with ideas as the quotation below outlines. The interviewee mentioned that they give all the support that is necessary and desired. The interviewee gave as example that the company allows the employees to use the office of the supervisors to think about the ideas.

Interviewee C1: *"We have an idea box and employees are stimulated by the supervisors to come up with ideas"*

The company makes use of an organised interdisciplinary team that assess the ideas and takes it further into the company. The team discusses the ideas with managers higher in the hierarchy and if they agree with the idea, then the team executes the idea. In addition to the

interdisciplinary teams, the interviewee mentioned that there is a lot of collaboration between interdisciplinary teams and between departments. We argue that this in turn allows for the transfer of ideas between the actors. The interviewee outlined that employees within the company know that they can start interdisciplinary teams to execute their ideas and to get the rewards. It seems based on the interview that the company creates a culture within the company that motivates employees to act on their ideas, and to execute their ideas. It appears that the company uses interdependence like interdisciplinary teams to look at the feasibility of ideas and for the execution of ideas as the interviewee outlined that they use the teams to assess the ideas and to take it into practice.

Interviewee C1: *"There is a culture within the company, that you have a good idea you could do a lot of things, like starting an interdisciplinary team"*

Creative capital of company D

We scored company D low on firm-level creative capital because the company's environment is rather stable and the company does not need creativity. See for the score Table 7 preliminary score on creative capital.

The interviewee confirms our assumed score, as the interviewee sees the current situation at company D corresponding with low firm-level creative capital. The interviewee explains the choice for company Y, which is the organisation that scores low on firm-level creative capital, as that they currently do not make good use of the creativity of employees and that their core business is mainly on their current products. The interviewee explained that if one of the employees comes up with a good idea, which is outside their current core business, but if the idea is good then the company is willing to think about that. It appears that the company likes to move more towards organisation X, which is the organisation that scores high on firm-level creative capital, but currently as explained by the interviewee the company focusses more on their current products, which corresponds with organisation that scores low on firm-level creative capital.

Interviewee D1: *"Our core business is […] decency screens, but he (i.e. the director) says that if someone comes up with an idea, I just say something, for example that we go into business for coffins as we are very good at wood, then it (i.e. that idea) can be discussed"*

Concerning the relationship dimension, we argue there is a strong bonding internal culture. The interviewee stated that the tenure of employees is high and there is low employee turnover. Based on this notion, we reason that colleagues work together for a long time and

that this time together can result in trust between the employees. We debate that because of the long tenure, no new knowledge flows into the company. Therefore, employees cannot benefit of these inflows for their creativity. The culture between departments is even stronger as the interviewee stated that there are islands within the company. However, as the quotation bellows shows, the company tries to change this island culture within the company, because this works against innovation, as people work in the same way for several years.

Interviewee D1: *"We have employees with a long tenure and we have a really low employee turnover within the organisation. Then you easily get that people rust up"*

It seems that the company also has strong external bonding relationships. The company takes a seat in the association for Dutch inner walls industry. The interviewee explained that directors of different competitors attend this association and they discuss during the meetings how they can help each other, and what sort of developments takes place in the environment. These meeting are once in the month. As the quotations outlines the attendance at these meetings resulted in collaboration between the company and a competitor in which the company took a part of the production over from the competitors, because that production was too big to handle.

Interviewee D1: *"I see that when for example a competitor received a big assignment from Swiss, and that he cannot handle himself then he asked our company to do a part of the production. So that is some sort of collaboration"*

It appears the company also makes use of strong external bridging relationships. The R&D department of the company takes seat in the cradle-to-cradle café where different persons and organisations have a seat in. There are architects, interior designers, contractors and someone of the government in this café. We argue that although these relationships are between different groups and therefore characterised as bridging, there is a bonding aspect in the relationship. As the quotation below shows, the parties involved have different expertise, but with a common denominator namely decency screens. There are once in the two months meetings of the cradle-to-cradle café. The interviewee mentioned that the contact with other architects and designers keeps the R&D department updated. She elaborated that the company uses the ideas that come from the meetings, but does not collaborate with the other organisations on these ideas.

Interviewee D1: "*We are also the founders of the cradle to cradle café. There are many architects, our R&D department and interior designers take a seat in the cradle-to-cradle café. So all people who are involved in building the movable decency screens, and who are involved at the completion of the interior within the building"*

Besides the strong external relationships, it seems that the company also makes use of loose external relationships. The interview showed that the company looks to external organisations for competences it lacks, but it looks that the collaborations are not fixed to certain companies. The interviewee noted that the company discusses with other companies on their price of collaboration, as the director likes spread their relationships. Based on this notion, we conclude that the company takes a more business-like approach to external relationships and these relationships lack emotional closeness.

Interviewee D1: *"The new board would like to spread the cooperation with parties and to discuss the price every time"*

The company also motivates their employees to come up with ideas. The company uses an idea box where employees can put their ideas in. The interviewee noted that when the idea suits the company then the lean teams takes the idea further, if it does not suit the company then the employee receives the reason why the idea is not developed. If the company implements the idea, then the employee gets a reward for his idea. Although employees get a reward for their ideas, she explained that these situations do not happen often. The manager asks employees during meetings what they would do when they are in the lead of the company. It looks like they can give advice and ideas during those meeting. The lean team also asks employees on the work floor for improvements in the processes. It looks that the company improve their processes in another way by using projects. The interviewee expressed that the organisation makes projects based on the reports of project groups in which they mentioned what went wrong in the past. The interviewee then chooses which persons takes a seat in such a project group, assigns a project coordinator and gives the project a deadline.

Interviewee D1: *"As lean trajectory project group we are also physically at the people on the work floor to discuss it (i.e. ideas) with them. You see that people flourish in the sense that they have the feeling that they can talk along and we may think along. If we do something with that, that is another thing, but we at least give them the possibility to have an opinion about it and to come up with their own ideas"*

Based on the interview, we score company D as a firm with low firm-level creative capital. We make this conclusion because the company makes use of strong bonding and strong bridging relationships. The bridging relationships are more with organisations that have the inner walls as common denominator, but have their own expertise and backgrounds. These relationships are more bonding social capital. The company uses the ideas that are discussed during the cradle-to-cradle meetings, but does not collaborate with these organisations. These relationships are tight as there are periodically meetings. The company is

currently trying to make more use of loose, bridging relationships as they discuss about the price each time before they make use of the service of other companies. If the company lacks certain competence, the company makes use of external organisations and discusses with these organisations on their price. That means that they take a more business attitude towards these organisations. For improvements in processes, the company makes use of the lean team, idea box and the company asks during meetings for ideas on improvements. The number of times that the company rewarded employees for their ideas is low. The company is open towards ideas and is willing to consider the ideas given by the employees. The high tenure within the company probably causes the low ides as this creates a homogeneous workforce. Consequently, we score company D low on firm-level creative capital. Our score based on the interview does correspond with our preliminary score.

Job design-in-practice by company D

As the quotation below shows, the company standardises the work to create efficiency. She elaborated that this efficiency should allow the company to reduce its costs. Based on this, we argue that job complexity in the company is low, because the company is able to standardise and likely write down most tasks within the company. It is likely that standardisation of complex jobs is not possible, as the complexity of the job does not allow the company to write it down. We debate that complex jobs ask the employee for different approaches. We therefore scored the company low on job complexity.

Interviewee D1: *"Everyone (i.e. the employees) has its own way of working and that must be standardised to create the efficiency. That means that everyone works in the same manner, everyone handles problems in the same way. Also when there are mistakes, which trajectory do you have to take to have it visible for everyone"*

Concerning the freedom with flexibility in working hours, it appears that the company allows flexible hours for the office, while the employees of the production have fixed hours. The interviewee stated that the office employees can start between 07:45 and 08:45 hours and work until 16:30 or 17:30 hours, but that is dependent on the time that the employees started to work. In addition, the hours for the production employees are less flexible, they have to start at 07:45 and work until 16:30. Based on this we conclude that only the office employees have certain flexibility with regard to their hours.

The interview showed that employees could not choose their own work methods to realise the goals. The interviewee pronounced that the company decides about the tasks of employees. She went into detail that the company makes use of signs at the glass division and employees can read on the signs with whom they work, and these signs make clear who

rotates that week. Based on the idea that the company currently standardises the working methods to create efficiency and every employee works in the same manner and handles every problem in the same way, we argue that there is low work methods autonomy.

Interviewee D1: *"Leaders decide where employees stand"*

The interviewee revealed that employees of the R&D department interact with other architects and interior builders outside the company and keep in good contact with them to keep their knowledge up to date, but they also interact with other actors once in the two months in the cradle-to-cradle café. The company established this cradle-to-cradle café to become cradle-to-cradle within five-year. There are architects, interior builders and other persons that are responsible with the production of decency screens in this café. She pointed out that people can discuss about the future; about designs; and how to progress. Based on this we argue that the company uses this interaction outside the company to exchange ideas. It seems that other interactions outside the company are on the director's level. The interviewee explained that the company unites with other companies in the NEBIVA, that is the Dutch decency screens industry, and the director meets there their competitor's directors to discuss once in a month how they can help each other. This also leads to new orders, when competitors are not able to do the production on their own. Consequently, we dispute that the company uses these monthly meetings and every two months to discuss and exchange ideas.

It looks that supervisors try to release the creativity of employees by asking them during meetings how they will deal with certain problems, or how they will improve processes, to have them engaged at the meetings. It appears that they encourage employees to give their view during the meetings. The interviewee mentioned that this gives the employees a voice in the company, they have the feeling that the company allows them to think along and this comforts employees. She went on; another way that results in employees to flourish is the engagement in the lean trajectory. The lean team asks employees about their ideas for process improvements and discusses this directly with employees on the work floor.

We see another form of interdependence within the company and that are the departments. The interviewee describes that departments are dependent on each other; first comes the material like glass into the company, the department checks the quality of the glass and cleans the glass, and then it goes to the next department that makes the frame around it. Another form of interdependence is that of the lean team. The interviewee states that this commission assesses the idea and if the idea is feasible then the company executes the idea, if

it turns out that the idea is not feasible then the employee receives the reason for that. The company uses an external advisor to help the lean team with the implementation and execution of lean within the company. The interviewee explains that the cooperation with the external advisor is really a revelation and that the advisor gets things done within the company that normally is not possible, as employees are inclined to execute their normal day activities first. The company also forms team when things are not going as expected. The interviewee forms teams, based on the descriptions of the project groups on what went wrong, and assigns a coordinator to the teams. This becomes a project.

Creative capital of company E

We scored company E low on firm-level creative capital because the company's environment is stable and the company does not need creativity. See for the score Table 7 preliminary score on creative capital.

The interviewee chose for the company Y, which is the low firm-level creative capital, because the company cannot innovate endlessly with their products, but they try to combine concepts and ideas. The interviewee chose for the organisation with low firm-level creative capital, because the market is more stable and they cannot innovate their current products endlessly.

> Interviewee E1: *"I think that in the business where we are in, of course you try to develop new concepts and ideas, but I think garden furniture is more stable. It is not a product, which you can innovate endlessly. That is why I think its organisation B and it is not an unstable environment"*

It seems that the company makes use external relationships to bring new models to the market. As the quotation outlines, the company tries to get the exclusive selling rights on their supplier's models in Europe or the Netherlands. The interviewee explains that the company also try to commercialise the models in addition to the models designed by designers external to company E. The interviewee mentioned that all designers are external to the company and that they hire them for their projects. This includes both designers as companies as well as persons. We consider these relationships to be bridging relationships, because these relationships connect the company to different groups of expertise. The interviewee mentioned that the relationships are only short-term relationships and that the company does not have any long-term relationships with designers. We see these relationships with designers as external, bridging and loose relationships. It appears that the relationships with designers are dependent on the required competences and the market of company E, and because of that, they do not have long-term relationships. Based on the recently started

collaboration with a company on the use of nanotechnology for the products we note that the company makes use of other companies with specific expertise to innovate their products through that collaboration. The interviewee notes that the collaboration on the use of nanotechnology is only in its first phase, as the collaboration just started.

Interviewee E1: *"We have suppliers, which have their own models and then we try to get the exclusive selling rights for Europe or the Netherlands"*

Interviewee E1: *"As far as I know, we do not have long-term relationships with any designer or design company"*

Interviewee E1: *"We try to do some technical innovations, but it also takes a lot of time to do that, so for example we now try to use a coating with nanotechnology"*

In addition to these loose relationships with designers, it looks like the company tries to have more tight relationships with suppliers, as they need reliable partners. As the quotation outlines, they need to be sure that the quality and the delivery time are good. Based on this we conclude that the company searches for fixed and strong relationships, where they can rely on and trust their supplier to meet their expectations. The interview shows that although they have tight relationships they still check the quality of the products. This is done by their office in China who checks the quality of the products at the supplier's location. It seems that they cannot completely rely on their suppliers to deliver the right quality. We reason that the relationships with suppliers are tight ones, but these are not strong, as they need to send their employees of quality control to check on the quality of the products. Grounded on the notion that the planning department of company E has regularly contact with the office in China, we see the relationship between the office and company E as a tight and bonding relationship. We regard the relationship between the office in China and company E is strong, because company E sent sometimes their quality team to educate their counterpart in China on some quality issues, which is needed according to the interviewee because their perceptions are different. However, we debate that they trust their Chinese office to do the checking correctly, because the suppliers deliver the products directly to the customers.

Interviewee E1: *"We try to have stable relationships and especially with suppliers, because you try to look for reliable partners as in the Far East […] they have a […] different culture and working attitude"*

Interviewee E1: **"***They (i.e. employees of the office in China) visit the several suppliers over there for us and they are there to check the quality on the spots in the factory"*

Interviewee E1: *"We have a warehouse here, but a lot of stuff is going directly from China or from our suppliers to our customers"*

In addition to the external relationships, we claim that the culture of the company is open, because employees who meet problems can ask the director for advice how to deal with the problem. The interviewee describes it as easy communication within the company. In addition to the open culture of the company, we see that the company also has strong bonding social capital, as there is a certain level of trust and delegated responsibility to the managers. Because of the high tenure of employees, we reason that there is strong social capital, as this high tenure allows for development of trust between the employees. As we maintained before, this high tenure also prevents new knowledge to flow into the company. This becomes clearer when we consider that the company hire new employees that have the same background and skills. We argue that this results in a rather homogeneous workforce, which in turn leads to bonding social capital within the company.

Interviewee E1: *"So if you face something then you can go to the director and ask how you should handle this, so it's really easy communication"*

Concerning the motivation of employees, the interview shows that company E does not actively motivate employees to come up with ideas to improve processes and products. The interviewee mentioned that the current management style is the reason for this lack of motivation. She explained that management is open for ideas, but does not actively reward it or actively promote idea generation. As the quotation below outlines, when an employee has an idea and the idea suits the managing director, then the employee can execute its idea. The interviewee mentioned that it also depends on the money involved and the strategic value for the company. However, she elaborated that employees can execute their ideas to a certain degree, because there is some freedom within the company.

Interviewee E1: *"I think they are not really into this. So it's not that they stimulate it actively"*

Interviewee E1: *"Of course management is open for ideas, but they do not really say, "Hey, you have the best ideas so you get a reward or something like that""*

Interviewee E1: *"If the managing director thinks it's a good idea then she can proceed and if he thinks that it's not a good idea then no chance"*

We score company E as low on firm-level creative capital, which we will outline. The organisational creative ability is low, because the company does not have need for the creativity in the organisation, as they are responsible for the integral process and rely on other companies for their creativity and they do not make use of the creativity of employees. The company makes use of external bridging relationships, for example, the relationships between

the company and designers, suppliers and a firm specialised in nanotechnology. The relationships with designers are rather loose relationships, as it is dependent on the market if the relationship exists longer. The relationships with the suppliers are strong relationships, as the company need to trust their suppliers to deliver the right quality and to meet delivery time. To ensure that there is some control on the quality, the company makes use of their office in China to check on the quality of the products. Apparently, there is no full trust between the company and the suppliers. The relationship with the office in China characterises a more bonding and tight relationship. The company trusts that their office in China checks the quality of the products on spot at the supplier. That means that the suppliers are able to deliver directly to the customer. The organisation does not promote the creativity within the organisation via incentives, recognition or an idea box. The organisation has strong bonding internal relationships. Consequently, we score company E low on firm-level creative capital. Our score based on the interview does correspond with our preliminary score.

Job design-in-practice by company E

It appears that the company grants their middle managers certain freedom as they can decide on their activities and tasks. The interviewee explained that the tasks are broad, as the company does not have many employees. She mentioned that they therefore need generalists. We reason that because of the freedom and broad tasks the company does not work with written procedures and instructions. We argue that the jobs for the middle management are complex, because the company is not able to write down these tasks. However, the interviewee stated that the jobs on the work floor are not complex. She elaborated that employees on the work-floor get a clear assignment of the supervisor, then execute their task and then start on a new task.

Interviewee E1: *"Because we do not have specific job descriptions you do have a lot of freedom here to determine your own priorities and activities"*

Interviewee E1: *"Who can work in a not so structured organization, that's important because some people like to work with procedures and protocols and that's not something we have"*

With regard to the freedom of employees, the company has fixed office hours, which are from 08:30 to 04:30. The interviewee stated that the company allows their employees to work at home if their job is suitable for working at home. She elaborated that it is possible for employees to work one day longer and leave the other day more early. Thus, there is some flexibility with regard to the working hours, but as the interviewee noted the employee has to discuss it. It appears that in addition to the flexible working hours, the company provides also

more freedom concerning work scheduling to middle management. As the quotation below outlines, company E allows their middle management to determine their own priorities and activities. The interviewee mentioned that the board makes the employees very responsible so that they have the responsibility and have a free role in the company. She went that for employees on the work floor there are more direct roles than for the middle management. Concerning the roles on the work floor, the interviewee explained that she perceives those jobs as not complex. These employees get a clear assignment of the supervisor, then execute their task and then start on a new task.

Interviewee E1: *"You do have a lot of freedom here to determine your own priorities and activities, because we do not have specific job descriptions"*

Interviewee E1: *"The most common job is that of the warehouse employee. These employees get a clear assignment, fulfil their tasks and then start on their next assignment"*

The interviewee thinks that employees like marketers within the company have contacts outside the company, but she is not completely sure about it. The interviewee mentioned that the company listens to their customers. She gave the example that the company let their customers review their collection and customers can give their input about the colour, the price tag, and if there are any improvements. It appears that the company makes a collection of garden furniture and asks their customers for feedback, and not necessarily bases their products on inputs from their customers. We argue there is no co-creation with the customers. As the quotation outlines, the company does not actively promote their employees to go to seminars or congresses. It becomes clear that if employees are willing to go to seminars and the company sees the benefit of that then the company allows their employees to go.

Interviewee E1: *"It's not that we sent them (i.e. to seminars or congresses), but it's more that it's their initiative. If they ask, "I would like to go there is that okay?", then they are free to go if we see the benefit. But it's not that we say to all employees, "this and that is going on would you like to go there?""*

The interview shows that management does not support or motivate employees to be creative. The interviewee explained that it is simply not the style of their management; it is not their focus nor in their minds to stimulate creativity. She went on that the management is open towards ideas. It seems that the organisation do not stimulate employees to release their creativity through for example incentives. The interviewee stated that employees can discuss their ideas with the managing director and when approved by the director they can proceed with their ideas, but when it is disapproved then there is no chance that the employees can execute its idea. She continued that it also depends on the money that is involved and of the

strategic value. The middle management do have a certain freedom to make decision, but when it involves money and strategic value, they need to get approval.

Creative capital of company F

We scored company F high on firm-level creative capital. We assumed that the company scores high, because the environment is likely dynamic and to keep up with the competition, the company needs creativity to design and produce new products. See for the score Table 7 preliminary score on creative capital.

Although, we expected that the company score high on creative capital, the interviewee doubted between company X and Y. The interviewee chose eventually for organisation Y, which is the description of the organisation that scores low on firm-level creative capital. The interviewee chose for the low firm-level creative capital, because looking at the current market the company focusses more on incremental innovation that is the improvements of current products. As the quotation outlines, the company created new products some time ago, but focusses now more on the improvements of the current portfolio.

Interviewee F1: *"We recently developed new products and we continuously improve our current products. If I have to make a choice, then I talk about the current situation, then it is Y"*

Concerning the relationships within the company, it appears that the company has strong bonding relationships. The interviewee explained that she selects applicants on the feeling that they are suitable for the company; that they fit within the company. The interviewee sees the employees within the company as a special kind of employee. The HR manager chose these employees, as the employees need to work quite many hours together, so there is need for a bond between the applicant and the other employees within the company. That the relationships are strong is also something we see in the activities that are undertaken by the colleagues and the barbeque at the owners' house. Based on the activities and the selection of candidates, we argue that there is emotional closeness within the company and a rather homogenous workforce, which means there are strong bonding relationships within the company.

Interviewee F1: *"But especially how we are, as an employee of company F that is a certain type of person, which is a real company F-er"*

Interviewee F1: *"You have to work with that group, you work for eight hours or longer, and then it is important to have that match"*

Interviewee F1: *"Then we have as women from company F our yearly females trip, that is a nice silly movie and before that something to eat. Those things happen spontaneously, or that colleagues meet with each other. Every year there is a barbecue organised by one of the owner in his backyard, then all colleagues including family, man, female, children are invited. Sint Nicholas is celebrated with the children"*

It seems based on the interview that internal relationships are bridging, when there is an idea that needs to be developed. The company uses interdisciplinary groups to see if a certain idea can become a business case. They look if it is financially possible and whether there is demand for the product. The interviewee mentioned that the project group comes together at certain intervals. She continued that the group makes deadlines, do-dates, and after a certain period the group comes together to see their results. If it eventually turns-out that the project is not valuable, then the company cancels the project as the quotation outlines.

Interviewee F1: *"The committee that assess the idea constitutes employees with different disciplines. It is often the same group. Then you have people from R&D, product management, marketing and sales, and often one of the directors"*

Interviewee F1: *"You have to be honest when the project does not have potential, than we have to cancel it"*

It appears that the relationships within the company are not the only strong relationships, but also the relationships with organisations external to the company are strong ones. The company works for quite some time with the same temporary work agency. As the quotation states that organisation does know the company best and is able to deliver a real company F-er. The interviewee explained that the persons of the temporary work agency received a tour through the company and they talked to many persons to get familiar with the company.

Interviewee F1: *"I notice that the organisation that often helps me, a temporary work agency, with who I do business for a long time, they know right away that is a company F-er. That works great"*

We perceive that the company uses external bridging relationships for the improvements of the products. The market managers and product managers have continuously contact with professionals in the field that uses the products of the company. The professionals in the field provide the company with suggestions for improvements in the current products. During the recruitment, the company also asks if engineers are willing to go outside the company and see how the products work in the field, but also if they like to become a stand employee. Engineers also visit congresses and markets. We argue that this exposure can also lead to creativity as they hear things at those markets that they can use. The company also uses other organisations to find out how their products work and if it is feasible. The interviewee explained that they need these organisations to think along and to see if certain things are possible or not.

Interviewee F1: *"Market managers and product managers have continuous contact with professionals (in the field) and they say what they like to have. That is the demand from the market"*

Interviewee F1: *'"They do not need to be motivated all the time, people can have that in themselves, they can be motivated through the things they have read, heard or seen. Ideas that are shared with each other"*

Interviewee F1: *"Our hardware department has contacts with Thales for example when they have designed something to discuss how does it works, is it possible, let's try it, and so on"*

Besides bridging external relationships, it looks like the company also uses external, bonding relationships. As the quotations shows the company also cooperates with the University of Twente and Demcon on certain projects to discuss how they can do it the best. Based on the quotation we conclude that the company collaborates with organisations that have the same competences; they work all in the same discipline. The interviewee explained that the hardware department cooperates with technical persons of the other organisation, but both have the same knowledge.

Interviewee F1: *"We work together, as I heard, with the University of Twente (i.e. to counter for the lack of certain knowledge, technology, capabilities). We also worked with Demcon to discuss about the progress. Those are all people who are employed in the same direction"*

It appears that the company does not actively motivate the employees to be creative. The interviewee explained that instead of motivating employees, employees can be motivated via an article they have read, via things they heard, or because of a conversation with another employee. She mentioned that when employees have ideas, the company invites them to share their ideas with colleagues, and if the company perceives it is a good idea then they act on it. That is also according to the interviewee something what they pronounce within the company. The company also asks during recruitment if the applicants like to go outside the company, some agree with that, others do not. We see this as an opportunity for employees to get new views that could stimulate their creativity. The interviewee also acknowledges this notion. The interviewee clarified that it is because of their own interest that they are going to different congresses.

Interviewee F1: *"In first instance, people are motivated by themselves to go to congresses. When people start to work here we ask them, dependent on their function, if they agree to go outside the organisation, in the sense that they are going to visit congresses, and even to become a stand employee"*

Based on the interview, we score company F as a firm with high firm-level creative capital. We make this conclusion because the company uses external bridging relationships to improve their current products. Their product managers are in contact with the professionals

in the field that give them suggestions for improvements. The company uses bridging relationships within the company to see if the new idea can become a business case, to assess whether there is a demand in the market. If there is a business case then it is possible that they make use of their external bonding and bridging relations to see if the developed product works as planned. For this, they cooperate with Thales, University of Twente and Demcon. The former is a bridging relationship and the latter two are bonding relationships. The company also has internally a bonding culture, which allows for the sharing of ideas between employees. Although, the strong, bonding social capital within the company allows for idea sharing, it can prevent the flow of new knowledge into the organisation, but the company prevents that by creating a culture where the company actively makes use of the ideas outside the company. The company does not actively promote idea generation within the company. They passively promote it by saying that if someone has an idea the company invite them to share it with the others in the company. The company does not have formal procedures in place, but creates a culture in the organisation for creativity. They sent their employees to congresses that lead to new insights for the employees. Consequently, we score company F high on firm-level creative capital. Our score based on the interview does correspond with our preliminary score.

Job design-in-practice by company F

With regard to the complexity of jobs, the interviewee mentioned that the complexity of the jobs depend on the education, knowledge and capabilities of the employees. There are at the R&D department mainly employees who finished University of Applied Science, and there are at the production department mainly employees who finished Intermediate Vocational Education or Junior Secondary Technical School. She elaborated that the biggest difference between these departments is the level of education and because of the current levels of education the job is challenging.

> Interviewee F1: *"Level, I mean education with that, every software engineer is schooled HBO or higher and in comparison with the employees of the production then that is really lower, that is LBO, MBO. That is already a big difference. The main difference is the education, the capabilities and knowledge"*

Concerning employees' freedom to decide which time they start, the interviewee mentioned that employees have some flexibility in deciding which time they start. Employees are able to start until 09:30. It is not possible for employees to start later, because sometimes colleagues have questions that need to be answered, and therefore has the company chosen for a maximum starting time of 09:30. Employees are not able to choose on which project they

work at the production because the company needs to send their shipments on time to meet customer's demand and the company decides on which projects employees work. It seems that the production department is managed top-down. The interviewee mentioned that software-engineers are mainly busy with their own project and are not able to takeover someone's project, because that is more or less specialised. Based on this, we argue that employees of the R&D department likely have more freedom to choose on which project they work. The members of the project group discuss the delivery dates of the projects during the project meetings. Grounded on this notion, it seems that the company allows their employees to choose their deadlines in consult.

Interviewee F1: *"We have to finish business before a certain date. The company needs to send the shipment, and so on. It is the customer demand, the customer likes to have his product on time, so you do everything to realise that"*

The interviewee explained that, employees in the production department need to follow the procedures and work instruction, because of the company's quality requirements. It seems that employees do not have freedom to choose their working methods to realise their goal, but for the R&D department this is different. As the quotation outlines, the company has written the overall product development in procedures that fit with the required medical quality system. It describes what the R&D needs to deliver for example product draws, testing requirements, software, production tools, specifications, assembling instructions etc. CAD programs, programming languages and software are also predetermined and employees make use of software libraries of the company. She elaborated that the company grants their employees within this frame freedom to come up with the solution.

Interviewee F1: *"Employees of the R&D department are freer, but they have to work within a certain frame. The product development is written down in procedures that fit with the required medical quality system"*

It looks like the company does not grant their employees freedom in decision-making, as the company have written down its work procedures and instructions for their employees on the work floor. The interviewee explained that employees make decisions in consultation with the supervisors. The interviewee gives as example that there are procedures when employees need tools.

Interviewee F1: *"Employees are not allowed to make decisions without consulting the supervisors. Tools that are needed are written down in procedures"*

The interview shows that the company provides employees with the possibility to interact with actors outside the company. The company asks during recruitment if applicants,

dependent on their function, are willing to visit congresses and become a stand employee. The interviewee explained that the company allows the employees to have a voice in this, as some employees embrace this opportunity, while others prefer to stay within the company for example; software engineers get the possibility to talk with a doctor and to see how their products work. The interviewee mentioned that some employees stay within the company, while others go outside. She elaborated that they have a choice, because the company then has a fixed group within the company, while they give others the opportunity to go. It appears from the interview that the company exposes employees to other knowledge sources, which they can use for creativity. This becomes clear as the company designed the jobs of market managers and product manager is such a manner that they have continuously contact with the professionals in the field. According to the interviewee, this contact allows the employees to hear from the professional in the field what they would like to have. This results in the view of the interviewee in improvements in the current portfolio.

Interviewee F1: *"(Employees are able) to visit, if it is allowed, a hospital, be there during an investigation. Just to see what does our product do, how does it look like, because it can happen that there is a bug in the software and that the patient is already nervous, because she has an investigation, and then the system does not work, that is really difficult"*

Interviewee F1: *"We do have an MT and a middle management, but again we have an open door policy, the door of the general manager is always open and also walks around"*

Concerning the social support, we argue that the company takes a more passive approach towards social support. The interview shows that the company does not actively stimulate or motivate employees to start with projects. The interviewee explained that employees can be (intrinsically) motivated via what they hear, what they read, and what they see. The company allows employees to share their ideas with colleagues and with supervisors, and employees know that, as stated by the interviewee. It seems that the company creates a culture around sharing ideas with colleagues, as employees know they can share ideas with their colleagues. The company has an open door policy and the interviewee mentioned that the door of the general manager is always open. Based on this we argue that managers are open for questions concerning new projects, ideas, or any problems within the company. It is reasonable to assume that employees perceive their managers as open towards new ideas and projects because of this open door policy.

Interviewee F1: *"And to stimulate, if you have an idea then everyone is very welcome to share it. You can share it with your colleague, with your supervisor, and when it turns out that it is eventually a good idea, then you have to do something with that. That's how it is communicated within the company"*

When one of the employees comes up with an idea then an interdisciplinary group assess the idea of the employee. Members of the group are employees of the R&D department, employees from product management, employees of marketing and sales, and one of the owners. The interviewee explained that the group assesses the idea as it should be feasible, financially possible and there should be a demand in the market. This team investigates these points and when the group approves the idea then the group executes the idea. The group comes periodically together, to discuss the progress. This group places deadlines, do-dates, and who is responsible for what assignment. The interviewee explained that you have quickly those small projects up and running.

Creative capital of company G

We scored company G low on firm-level creative capital. The company operates in an environment that is likely stable and there is no need for creativity. See for the score Table 7 preliminary score on creative capital.

The interviewee explained that the company focusses mainly on improving their current products and that the numbers of new products are rather limited. It seems that the company is currently undergoing a transition towards a more creative focus than in the past. The interviewee mentioned that currently the company corresponds with company Y, which is the organisation that scores low on firm-level creative capital, but that they are trying to be more company X that is the organisation that scores high on firm-level creative capital.

Interviewee G1: *"We are currently more working on improving our existent products if you look at our product ranges and I think the number of completely new products developed is quite limited"*

Concerning the external relationships of the company, it seems that they like to have in the future more tight, bridging relationships. The interviewee mentioned that they did not need external bridging relationships in the past as the company did have the knowledge within the company. However, the company tightens their bridging relationship with Saxion Hogescholen and would like to tighten their bridging relationship with the University of Twente, because they changed their focus. The interviewee explained that these organisations could provide the company with fresh ideas. Students are allowed to execute their projects within the company if their projects are of a certain level. If that is the case then the student gets a job offer. The company does this to ensure the implementation of the project. In addition, the interviewee stated that they like to make more use of the government, as the company can use government's programs to expand their sales network into other countries. It

appears based on the quotation below that when certain competences are missing, the company uses external companies or consultants that can help the company, so that the company does not waste time and efforts to do it on their own. When needed, the company also makes use of recruitment agencies with which they have good experience.

Interviewee G1: *"If I look at it from my perspective, that is the front end of the sales team, then there are a lot of possibilities (i.e. collaboration with other parties) for example the possibilities that the government can provide"*

Interviewee G1: *"I know from my experience that it is extremely important to find the right partner and if you don't find the right partner then you spend a lot of time and a lot of effort but it will not bring you anything. So why not use a company that has a lot of experience"*

Interviewee G1: *"Some of the agencies also deliver very good quality persons. […] for example for the production, they have the experience for that. And we even have an in-house agency, in-person is doing that for us, and that's working out fine to what I'm experiencing"*

In addition to the external bridging relationship, it seems that the company also has external bonding relationships. The company is part of a group that are responsible for the production of the same kind of products. The company needs to apply for the production of new products to this head office and explain the market demand and costs. The company also makes use of the suppliers within this group. They also subcontract work to other companies in the group. The interviewee sees this relationship as stable and as an on-going relationship. Based on this we argue that the relationships are characterised as external, bonding and tight.

With regard to the development of products, the company uses a product development group. This group meets once in the month or every two months to propose ideas and asses the ideas. Within this group, everybody can bring in ideas. These ideas range from new certificates to complete new products. In this fixed group, one person of every sales segment, the general manager, sales manager, engineering manager and production manager take a seat. We see this relationship as an internal, bridging, tight one, because employees from different departments take a seat in the group. This interdisciplinary team investigates the potential of the product. The interviewee explained that the ideas mainly come from the sales persons that are in direct contact with the customers, but also inspectors share their experience that leads to new ideas. They pronounce that the company is more market driven instead that they bring their own new products to the market. They elaborated on it and stated that there is a R&D department, which designs the products based on the demands of the market instead of bringing new products to the market. The interviewees mentioned that the R&D department is changing in that they are now more willing to share ideas with each other and to share ideas

between the R&D department and sales department. When the company needs a specific competence for a project then the company hires persons with the needed competence and places them within the project group. Sometimes these persons take over a lower part that another employees does so that the employee can focus on the project. The interviewee is not sure if the use of external labour also leads to new ideas.

Interviewee G1: *"Sometimes it's a new test for a product or a new certificate on a product and sometimes it's also a complete new product to let say open up a new market, which is close to what we are already doing but which is not in our current scope of supply"*

Interviewee G2: *"Their position (i.e. R&D) is changing a little bit, but in the past it was that they do a lot of engineering, but there was always some internal fight or competition. So they were never willing to share thoughts with each other (i.e. production and R&D)"*

The interviewee described the culture as one in which people share ideas with each other, where employees are willing to work together, but also some people does not like that. Based on the quotation we debate that the relationships within the company are strong as most employees grow with the company and have a long history within the company. We argue that this high tenure makes it possible to realise trust between the employees. The interviewee confirms this notion, because the interviewee experienced it as a tight community. He mentioned that employees grew with the company and the employees are close to each other. We see the internal relationships as strong, bonding internal ones. There is bonding social capital as this high tenure leads to a high degree of knowledge within the company, but this high tenure also results in a rather homogeneous workforce.

Interviewee G1: *"A lot of people grew with this company and people have a long history here"*

Interviewee G1: *"So they started here and the company grew grew grew and they grew with it, so it has been a family business and so we have a family culture, which is really close and close to each other"*

It seems that although everyone is able to contribute ideas via the segment managers, employees are not motivated to come up with ideas. The company does not make use for example of an idea box. The interviewee explained that the company used to give individual rewards for improvements in internal processes but not for product ideas, and currently there are no individual rewards for ideas. He went on and described that the company just started to use group rewards for ideas instead of individual rewards. They hope to realise that employees are more willing to share the ideas within the group so that the group develops the idea further instead that it stays at the individual. Based on the interview we argue that it looks like that the company's focus is more on the motivation of employees to share their

knowledge and ideas to improve the products and processes within the company than to realise radical innovation. We see the use of group rewards as a way that the company tries to promote bridging relationships as the company rewards employees to exchange knowledge in groups. Nevertheless, the generation of ideas by groups is not currently working as the interviewee explained that they do experience an increase in ideas. This, we expect, is possibly due to this homogenous workforce.

Interviewee G1: *"There is no real motivation, but I think we have or had a reward for that"*

Interviewee G2: *"Yes in the past, but that was mostly related to improvements of internal processes, so we had a reward for that but never for products that were designed for […] markets. So it has not been that a guy had a good idea and it worked out and we gave him a reward"*

Interviewee G2: *"We do this to get people more motivated to share ideas, because sometimes people have something in mind, but they don't know how exactly to formulate it and then it get stuck, because they cannot express their idea. Just by talking to your fellow colleagues, it might overcome the barrier. They can say, "This is how we as a department see it""*

Based on the interview, we score company G as a firm with medium firm-level creative capital. We make this conclusion because the company uses bridging, external relationships like the relationship with Saxion Hogescholen. The company makes use of Saxion Hogescholen to get students with fresh ideas into the company and let them implement their ideas when the company perceives it as a good idea. In the future, the company like to make more use of the relationship with the University of Twente. These relationships are loose, external, and bridging. They make use of the external, tight, bonding relationships for the supply of parts. For the further development of ideas, the company makes use of a fixed interdisciplinary team that comes together once in the month or once in the two months and everyone is able to discuss his ideas. The culture within the company is a strong, bonding culture as most of the employees worked together for several years and they grow with the company. Employees work in a culture where people are willing to help each other and to share ideas. The company does not actively motivate employees to come up with ideas. They just started to use group rewards to improve the sharing ideas within the company. The company likes to be more innovative and to act on the ideas of employees, and therefore scores high on the creative ability. The organisation currently has a homogeneous workforce as many employees work together for some time and as discussed before this prevents creativity, but that is also going to change in the future, as the managers are aware that the organisation needs a more diverse workforce. Consequently, we score company G medium on

firm-level creative capital. Our score based on the interview does not correspond with our preliminary score.

Job design-in-practice by company G

The interviewee mentioned that the complexity of jobs is dependent on someone's function. The complexity ranges from jobs with low complexity towards high complexity. The interviewee explained that jobs in both the production and sales are not complex. However, the interviewee argues that on the other hand the jobs in the production are complex concerning the oil and gas products, because there is a higher complexity in what the customers wants and it is challenging with regard to the production requirements. The interviewee elaborated that the oil and gas products are also for the sales department more complex, because there are more stakeholders involved, while it is less complex for someone who sends the same order every day. There is a range of complexity within the company.

Interviewee G1: *"We have a mix of everything here. So depending on where you are acting and what your role is, it can from high complexity to low complexity, but the variance is quite wide in this respect"*

It looks like that the indirect employees have flexible working hours because as explained by the interviewee, they are able to start between 07:00 and 09:00 o'clock, while the employees in the production work in two shifts and do not have this flexibility. The interviewee stated that they need employees in the production to prevent a gap in the production planning. There is a lot of capacity planning. Based on this, we argue that there is no freedom concerning the working hours within the production. The employees in the production are not able to decide which work they are going to do, because, as the interviewee explained, the employees first choose the work they like and the other work will not finish. It appears that the indirect personnel, the sales employees, have more freedom concerning their work methods. The interviewee explained that employees of the sales department work with goals and those employees needs to be creative, because if they are not able to realise the goal in their current manner then they have to try it in another way. As the text above shows, the employees of the sales department are freer in the way they realise their goal.

Interviewee G1: *"There is a lot of capacity planning, and then you know exactly how much time you have available. If they have flexibility in the production and suddenly the sun is shining and everybody says, "Okay I do not work eight hours today but I want to work seven", then we have a big gap in the production and then the customer will not be very happy and we are also not happy because we cannot invoice"*

It becomes clear during the interview that employees of the sales department get their ideas from the market and this is mainly the reason how the company receives ideas for

products. The sales persons bring these ideas into the group. It seems that employees of the R&D department also interact with actors outside the company, because the employees also visit customers to provide support on projects. This leads also to new ideas according to the interviewee. Employees of the R&D department also go to seminars and exhibitions. The interviewee acknowledges that the company should make more use of the creativity of all employees, as service employees are active in the field and deal with different practical problems when they install valves or do maintenance. The interviewee argues that they can use this experience for product improvements. This is currently not the situation.

Interviewee G2: *"I think most of the time it's created by the sales force that comes into contact with the market and says this is what we need"*

Concerning motivation, the interviewee mentioned that the company does not really motivate their employees to come up with ideas. The company used to have individual rewards for employees that come up with ideas for improvements in internal processes, but as mentioned by the interviewee they changed it to group rewards, because the company received only a few ideas. They experience that the company still receives a few ideas and that supervisors are the reason for it. The interviewee mentioned that it likely depends on how their supervisors encourage their employees to think about ideas for improvement and that it depends on how they formulate this. The interviewee elaborated that some of the employees are willing to share ideas and to work together with others, while some other employees feel threatened to share ideas or are not capable of that. One of the examples given by the interviewee is that of an employee who is afraid to talk in front of the group about its idea. The interviewee explained that when he hears that someone has an idea, but the person does not share that idea, then the manager directs the supervisor to that person for a conversation. We argue that there is apparently no support like encouragement from supervisors towards their employees to come up with ideas.

Interviewee G2: *"So I think it also depends a little bit on how it is formulated by the floor managers and how they (i.e. floor manager) encourage people to think about it"*

The product development group meets once in the month or every two months and everybody is able to bring in their ideas in this group. The ideas constitute certificates for current products, new tests for current products or completely new products. This group covers different departments as one person from every sales segment is in the group. The general manager, engineering manager, production manager and sales manager are also in this group. This interdisciplinary group assess the ideas. Employees are able to contribute their

ideas to the segment manager, which will take it then to the group. The company promotes the idea sharing by giving group rewards to motivate employees to share ideas and to develop the ideas further. Mainly the sales employees come up with ideas; we argue that this is because of their interaction outside the company. The interviewee explained that the company changed their focus more towards a more market-driven approach company, and therefore tries to have the sales- and production departments share ideas with each other. It appears there is another form of interdependence, which is the collaboration with external advisors for the implementation of programs. The interviewee mentioned that the sales department has a consultant that helps the sales manager implement a sales program. The interviewee acknowledges that they do not use the consultants to get new knowledge within the company and they do not use the collaboration to learn anything new. They make use of consultants only for the implementation of the program. Based on the interview, we argue there is another form of interdependence that is the cooperation between engineers and sales people, who cooperate to develop a product.

Interviewee G1: *"No, no [it is not used to get new knowledge within the company]"*

Creative capital of company H

We scored company H low on firm-level creative capital. The company operates in a competitive environment, but they follow the market instead of being a leader in the market. Employees experience the goals of the company to be more exploitative than explorative. We expected that the company does not need creativity, and does not actively promote innovation, which means that the company scores low on the creative capital. See for the score Table 7 preliminary score on creative capital.

When we asked the interviewee to choose between the company descriptions, the interviewee chose for company Y, which is the organisation that scores low on firm-level creative capital. The interviewee chose for company Y, because the processes for the production of the products are the same, only the shape of the product is different, but it is still the same product.

Interviewee H1: *"Processes are the same, the service should be better, but are the same. The product is the same"*

The company supplies certain products to other members of the group, because according to the interviewee company H is the specialist in producing these specific products. The interviewee mentioned that they are the supplier of specific products within the group, while another company in the group does the design of the products. It is stated by the interviewee

that there is weekly contact with between the organisations to share ideas. We consider these relationships as tight, bridging and external to the company, though it is within the same group. We argue for this because the relationships are bridging as the other organisation within the group has the competences for the design and company H has the competences to produce the products. In addition, as the quotation below outlines, when the creative employee goes to the customers and decides, based on that conversation, that there is need for other materials then he places it in the virtual factory and from there it goes to another organisation within the group who purchases these other materials. Based on this we argue that the organisation makes use of tight, bridging relationships.

Interviewee H1: *"If there is a question for one of the customers about one of these products, then they (i.e. members of the group) cooperate with us because we are the specialist. We are making the models for that"*

Interviewee H1: *"There is Martijn, a designer and he has weekly Google hangout with the team, to share ideas"*

Interviewee H1: "*We have the virtual factory so we have question from the customer, goes to London to the virtual factory and they purchase all over the world those kinds of products. So that we don't have to say no to the costumer"*

It appears based on the interview that company H also relies on other bridging relationships, but not necessarily tight relationships. The interviewee mentioned that the company also collaborates with the local authorities on a project to get workers within the company so that the company can provide extra services to the customers, while the worker get experience and the former unemployed persons got work. They also get two students from Saxion Hogescholen, one experienced in marketing and one in design. The marketing student does the market research for company H. The interviewee clarified that in this case, it is not about the lack of competence, but more the extra help and the fresh ideas that they bring in from outside the company. As the quotation outlines, they also make use of an external company that has the knowledge on finding the right companies in other markets, so the company cooperates with an external company that does the phone calls in name of company H, to get in touch with the right person.

Interviewee H1: *"The company makes good appointments with the right costumers. So, we now focus on the German market. […] they do the phone calls in the name of company H and they are making appointments for us"*

In addition to the external bridging relationship, the company shares ideas about the products for a big customer with a member of the group in the US. The interviewee explained that company H would like to deliver products for that customer and discusses with the member about quality issues, training and quality agreements. We see this relationship as a

bonding, external relationship, because the other company also produces the same products for the customer. It seems that company H mainly rely on the group to get new ideas, to improve processes and quality standards. For example, there is a blackbelt within the group for the lean improvements at every plant, but company H got their own blackbelt for improvements. Once in the two month there is a meeting with all the general managers in Europe. At that meeting, the managers show the results, share ideas and improvements with each other.

Interviewee H1: *"We want to start to produce the same products over here. We are sharing the ideas together on training, quality issue and quality agreements. If we want to start working for L'Oreal, these are the targets. So we make use of the internal network"*

The management and middle management check ideas and suggestions mentioned in students' reports and if their ideas suit the company then the company continuous with these ideas. It appears that there is another way the company gets new ideas and this is through the monthly departmental meetings where according to the interviewee everyone of the department is able to give its idea for improvement. This group for example handles for example complaints and discusses about ideas how to improve it. The company makes a project around the ideas. The interviewee forms a project group of different disciplines and includes the person with the idea in the group. That person has some time off from the machine to work within the group. During middle management meetings, the HR manager, the interviewee and operational manager decide which persons are in these project teams. The company also rewards employees for their ideas. We argue that these points can be motivating for employees to come up with ideas. The company has once in the two months a meeting with all employees in the canteen where ideas are discussed and results of the ideas are given. The interviewee sees this sharing of successes also as rewarding for their employees. The company does not work with an idea box because of bad experience. The company started recently with a lean team. From every department takes one person a seat in the lean team, while there are two persons from the office that take a seat within the team. Every two months there is a meeting with the complete staff only about lean. The interviewee mentioned that they try to create a culture for continuous improvements.

Interviewee H1: *"I always want the person with the idea in the project group. In most cases […] also costumer service, finance etc. are involved and we make a project group"*

Interviewee H1: *"If somebody from the production floor has an idea it is also a reward to take him in the project group, not to work on the machine but to do the project, visit other companies to discuss the idea with other people"*

Interviewee H1: *"Every two months, we have a meeting in the canteen for the complete company and there we also mention the new ideas and products and I mention who came with this idea. That was the result"*

As the quotation outlines, employees have a long tenure within the company and work together for quite some time. We argue that because of the long tenure there is probably trust between the employees. Based on that, we assume that there are strong internal relationships. The interviewee supports this idea as the interviewee describes the group as a very close one. Based on this discussion it appears that the company has strong bonding social capital.

Interviewee H1: *"It is a very close group, working a long term over here"*

Based on the interview, we score company H as a firm with medium firm-level creative capital. We make this conclusion because the organisation uses both bridging and bonding external relationships within the group. The company uses these relationships to share ideas about product manufacturing and to make use of the design expertise of the other organisation. The relationship is tight, bridging and external to the company, because the design expertise is with another company within the group, while the production expertise is with company H. There is some bonding as both companies are in the same group. The company has other bridging relationships with University of Twente, Saxion Hogescholen and the local government. In addition to the bridging relationships, the company has a more bonding relationship with another company in the group, as they are both manufacturers and company H would like to produce the same product as their colleague for a big customer. Because of that, they share knowledge about that customer. However, the relationships are mainly with organisations in the same group, which means that there is strong bonding social capital and does not provide the value that loose, bridging relationships provide. Concerning the motivation of ideas, during departmental meetings employees can share their ideas for improvements. The company motivates employees to come up with ideas by using rewards like bottles of wine or financial rewards, allowing them in project teams, mentioning the improvements made during canteen meetings, which are once in the two months. Consequently, we score company H medium on firm-level creative capital because they make use of bridging relationships for their ideas, but the company does not look outside the group for other collaborations. This score does not correspond with our preliminary score.

Job design-in-practice by company H

The complexity of the jobs varies. The interviewee mentioned that there is almost no need for education for the function of packers in the production, but the company needs employees with technical skills for the function of operators. There is also a difference in job

complexity between operators, as operators in the finishing do not need a high technical level, while operators at the printing machine require a higher technical level. The skills differ between each of the roles and the interviewee describes the requirements of different skills and education to the complexity of the job. Based on this, we argue that the complexity of the jobs varies within the company.

Interviewee H1: *"In the finishing is the technical level not so high, than at the printing machine"*

It appears that the company decides on the flexibility of employees in the production. The interviewee explained that employees can ask the company to be free at a certain moment, because the employees have build-up plus hours, but the company decides dependent on the workload whether it is possible or not. In the other situation, the company can give their employees up to three hours free on the same day. When the company needs to give their employees more hours than three hours free then the company has to announce that three days upfront. Based on this we conclude that employees are not free to decide on their working hours. It seems that employees in the production department like operators and packers are not able to schedule their work, because the operational manager is responsible for the production plan. Apparently, the packers and operators are not able to decide which method they use, because the operational manager places them at the machines. As the quotation shows, the operational manager has autonomy in decision making concerning the use of external workers. If necessary, the company allows the manager to call in extra packers if needed.

Interviewee H1: *"No, the operational manager has a production plan with machine and operators"*

Interviewee H1: *"The operation manager is allowed to phone Randstad: I need two extra packagers on the late shift or for the rest of the week I need ten extra packers"*

The creative employee within the company has contact with actors outside the company for its work. The creative employee goes to customers, discusses with them about the products, and reflects the outcome of the meeting back to the company. The employee visits expeditions and invites every week one or two suppliers to be up to date on the developments. The interviewee mentioned that the creative employee also makes contact to get more knowledge on the development of the market and the materials. It appears that the operational manager also interacts with actors outside the company as the interviewee mentioned that the manager has contact with current suppliers and new suppliers, mainly on the products. The creative employee also shares ideas with employees of other organisations within the group

during the weekly communications. These weekly communications happen via Google Hangout, as this allows them to show their products. Based on the interview it seems that the general manager also interacts with actors outside the company to receive ideas for improvements. Every two months the general managers of the different companies in the group meet to show the results on illness rates, safety and continuous improvements. The interviewee mentions that they share their ideas during these meetings.

Interviewee H1: *"He (i.e. the creative employee) goes out for the customer, comes back, and says the best solution is not board or paper, but the best solution is plastic or wood"*

The interviewee mentioned that supervisors support ideas of employees by discussing the ideas for continuous improvement projects during the department meetings. During these meetings, the supervisors also ask if there are suggestions for improvements. The supervisors ask if there are any suggestions when there are problems. The company does this to get employees more involved with improvements as the interviewee explained that they try to get a culture where everyone is involved. The supervisors provide employees time to execute their ideas by giving them a position in the project group. That person does not have to operate the machine, but can share his ideas within the project group. The interviewee mentioned that this is also motivating for employees. The interviewee thinks that the most important thing for employees to come up with ideas is the support of their supervisors. The interviewee explained that supervisors should push, coach and train the employees to come up with ideas. The interviewee feels that the follow up of the department head is important, as they have to give feedback after the employee shared his idea, because otherwise the employee does not come up with ideas in the future. Apparently, this is what the interviewee thinks is important to get ideas, but probably that is not the current way of working. An example is that the interviewee acknowledges that temporary workers are at this moment not strongly enough motivated to come up with ideas. The interviewee experiences that the department heads do not actively ask and discuss ideas with employees even though the interviewee mentioned that after their working hours, employees discuss openly about ideas.

Interviewee H1: *"You are in this room for the project, with the beamer, a lunch with sandwiches. They feel great about that, because they do not have to work at a machine, they can share their knowledge with other people and finally to come to the project statement. To be in the project group is also reward for them"*

Interviewee H1: *"Not strong enough, I think"*

The interviewee explained that the ideas are discussed during monthly departmental meetings and they discuss how these ideas fit within the lean, kaizan and current projects. The

company makes a project to take the idea into practice. The project group consists of the idea generator, employees of finance, and employees of customer service. It looks like that the group constitutes different disciplines. The interviewee and the operational manager select employees for these groups. Employees are able to pronounce their preferences about taking a seat in these groups during the yearly meetings with the HR manager, operational manager and interviewee. According to the interviewee, the project group discusses the idea, but the group also goes to other companies to discuss the ideas with actors outside the company. It seems there is another form of interdependence and that is the lean team. The company recently started with the lean team and from every department there is one person responsible for the implementation of lean within its department, and from the office are two employees responsible. The company tries through this lean team to change its culture so that everyone is involved.

4.1 Results on job design-in-practices by the different groups

We divided the companies into three groups for the analysis on the role of job design practices as this makes it easier to compare the groups with each other. An extensive discussion took place between two researchers that eventually led to the grouping of the companies. The result of the discussion is that companies B and F form a group that scores high on firm-level creative capital. Companies C, G, H and A form a group that scores medium on firm-level creative capital and companies D and E form a group that scores low on firm-level creative capital. See Table 10 for the grouping.

Companies	Grouping
D + E	Low firm-level creative capital
A + C + G + H	Medium firm-level creative capital
B + F	High firm-level creative capital

Table 10 grouping of companies

4.1.1 Companies with low firm-level creative capital

Company E and company D both scores low on job complexity. Company D standardises their work to create efficiency, which is in line with their implementation of lean management, and in company E employees on the work floor get a clear assignment of the supervisor, then execute their task and then starts on a new task. Employees on the work floor of company E have rather simple tasks, while they do not work with written procedures and instructions for the middle management. Instead, the company works with broad tasks, which give and allow employees to take their responsibility. Company D writes down their tasks to have every employee work in the same way, which means that the jobs are not that complex,

while company E cannot write down the tasks for the middle management but does so for the employees on the work floor. Thus, company E scores high concerning the job complexity of the middle management, while company D scores low on job complexity.

Both companies have fixed working hours. The indirect personnel of company D has some flexibility as the organisation allows them to start between a spread of one hour. Company E grants their employees some flexibility as long as the employees discuss their working hours with the supervisor. Both companies vary on decision-making and working methods autonomy. Company E allows their middle managers freedom concerning the working methods, as the organisation gives them responsibility; this allows them to decide what their priorities and activities are. In turn, company D does not allow their employees to choose their working methods, as these methods are standardised and the organisation decides about the task of employees. Decision-making autonomy in company E is high, because the middle managers have responsibility and free roles. The autonomy is different for the employees on the work-floor as they get a clear assignment. It is likely that therefore they do not have autonomy in working methods and decision-making. It should be made clear that the interviewee of company E mainly talked about the design of jobs of the middle management, while the interviewee of company D talked about the employees in the production. Thus, company D scores low on all dimensions of autonomy, while company E scores high on all dimensions of autonomy.

With regard to the interaction outside the organisation, both companies design their jobs differently. Company E does not have jobs designed that require employees to interact outside the organisation to allow employees to build relationships or get new ideas through these interactions. The company does work with organisations and external persons for the design of the products and they do sent their employees of quality control to China to educate the employees of quality control in the office in China. The company does not actively promote their employees to go to seminars or congresses. Company D allows their employees of the research and development department to interact with other actors outside the organisation during periodically meetings of their cradle-to-cradle café, and the director meets periodically the directors of competitors at meetings of the NEBIVA. The employees of the R&D department participate in the cradle-to-cradle café to keep their knowledge up to date and to exchange ideas, while the director participates in the meetings of the NEBIVA to see how organisations can help each other. Both forms of interactions are only periodically. Company D scores medium on interaction outside the organisation and company E scores low.

The support for ideas within both organisations is also different. Company E does not stimulate idea generation, as that is not their current management style. The organisation takes a more passive approach, as management is open towards ideas, but do not actively support employees to be creative. The opposite is company D as the supervisors do stimulate their employees to come up with ideas by asking them during meetings if they have any suggestions. In addition, the lean team asks employees directly on the work floor for process improvements and discusses ideas with them. Although, it should be made clear that company D changed management and the interviewee acknowledges that the new management is different as they to motive their employees to come up with ideas to improve processes.

Concerning the interdependence within the organisations, company D has jobs where different departments are dependent on each other. The company makes use of a lean team for the implementation of lean and they assess ideas. The employee receives the reason for the rejection if the lean team rejects the idea. The company forms project teams based on the descriptions of the project group on things that went wrong during the project. The company then assigns a coordinator to these project teams. Company E does not likely have interdependence between members, as it happens that some employees start working at the same time at the same task without knowing it of the other. There is cooperation between an external organisation specialised in nanotechnology and employees of quality control and product development directors of company E. See Table 11 for the summary on the job design practices.

	Company D	Score	Company E	Score
Job complexity	Standardisation of work by having everyone work in the same way to create efficiency, means also that job complexity is rather low as the company can write down the instructions and procedures.	Low	Tasks are broad, which allows the middle management to take their responsibility, and do not work with procedures and instructions, therefore the jobs are rather high on complexity.	High
Autonomy	Fixed working hours for employees on the work floor, spread of one hour for the indirect personnel. Employees are not free to decide which methods they use to realise the goals, as the company decides which tasks they perform and these tasks are standardised.	Low	Fixed working hours, but there is flexibility as employees can discuss about the hours. The middle management can decide on their priorities and activities, as the company provides them that responsibility. They also have a certain degree of freedom to take decisions, dependent on the money involved or strategic value.	High
Interaction outside the organisation	Employees of the R&D department and the director interact periodically with actors outside the organisation. The employees of the R&D department interact to keep their knowledge up to date and exchange ideas, while the director uses the interaction to look for possibilities of cooperation.	Medium	The company does not make use of interaction outside the organisation to exchange ideas or to build new relationships. They do send their employees of quality control to educate their counterpart in the office in China.	Low

Supervisors support	Supervisors actively approach employees during meetings by asking employees for suggestions for improvements. Lean team also actively discusses ideas for improvements on the work floor.	Medium	The focus of the management is not on creativity and the stimulation of it. Passive approaches towards creativity as management is open towards ideas but do not promote it.	Low
Interdependence	Company forms project teams based on things that went wrong during projects. They make use of a lean team that is responsible for the implementation of lean within the organisation.	Medium	The company provides freedom for the middle management so they take their responsibility and choose their activities, but also have low interdependence as some perform the same activities in the company.	Low

Table 11 summary of job design practices of companies with low firm-level creative capital

4.1.2 Companies with medium firm-level creative capital

The complexity of the jobs in organisations that score medium on firm-level creative capital depends on the function of the employee. Company C educates their employees with a training program to allow their employees to operate every machine. The tasks are simple as well as complex, whereas tasks associated with innovation are more complex. The interviewee of company G described the jobs of production and sales as not complex, of which only jobs for the production and sales of valves for oil and gas are complex. The complexity of the jobs in company H varies in the production as it is dependent on the function. The required technical level at the printing machine is higher than at the finishing, but likely the tasks are simple to perform. This is also likely for company A as workers at the production places material in the machines and work behind complex machines. These tasks are likely simple to perform. These companies score all low on job complexity.

Company C has strict hours within the organisation as the company works with shifts. Only the day shift has some flexibility to choose at what time they start, but within the range of ninety minutes. The supervisors decide when the employees stand at what machine. Thus, there is low autonomy concerning working methods and work scheduling. Company G also works with shifts and does not allow their employees to choose which work they are going to do within production. The interviewee explained that the sales persons have more flexibility in their work, because they can choose how they reach their targets. Company H also does not grant employees freedom to choose their working hours and the organisation decides on their working methods, as the operational managers decide at which machine the operators work. Compared to the other organisations, company A provides more freedom concerning working methods and scheduling the work. Employees at company A can decide at what time they work, how long they work, and they can choose themselves how they realise their goals. Companies C, G, H score low on autonomy concerning work methods and work scheduling, while company A scores high on both autonomies. Employees of company C do have freedom in decision making if their job allows that, for example the breakdown service, but

otherwise employees need approval of their supervisors. It is likely that there is low decision-making freedom, because of the procedures within the organisation. The operational manager of company H has certain freedom concerning decision-making, as he is allowed to call in temporary work employees when necessary. This is likely only the case for the operational manager. In addition, employees in company A have to discuss matters with the supervisor for example they have to discuss how they realise improvements, so to receive bonuses for improvements. To conclude all the companies with the exception of company G scores low on decision-making autonomy.

Concerning the interaction outside the organisation, company C has several departments that have contact outside the organisation, these departments includes R&D-, M&S-, logistics-, and HR department. The interviewee mentioned that this leads to new insights and ideas. This is also the case for company A where engineers and the plant manager go periodically to meetings, but this interaction is not continuously required for their jobs. The company also uses these meetings to exchange knowledge and share ideas. These meetings attended by the plant manager lead to improvements in processes. Company G and company H have both employees that are continuously in contact with the market and this leads to new ideas. Company G makes use of their sales employees to bring in ideas for product improvements and employees of the R&D department of company G go to seminars and exhibitions that results in new ideas. The creative employee in company H has also a lot of interaction outside the organisation to keep his knowledge up to date and to share ideas. The creative employee has weekly meetings with different suppliers, goes to customers to discuss about the products and visits exhibitions. The operational manager also shares knowledge with suppliers about products. The general manager shares ideas with other general managers within the group during their periodically meetings.

With regard to the support of supervisors, supervisors of company C stimulate their employees to make use of the idea box. In addition, supervisors provide their employees with the necessary resources to discuss about their ideas, like the possibility for them to make use of the office to discuss about their ideas. Supervisors of company G do not support their employees to come up with ideas or they do it likely wrong, because the ideas generated are low. The interviewee explained that the number of ideas generated is likely dependent on how supervisors motivate their employees. If an employee has an idea, but does not share it and the financial director hears that, then he directs the supervisor to that person for a conversation. Supervisors of company H ask their employees during departmental meetings

for improvements on ideas and they give their employees the opportunity to execute their ideas by participating in the project team. Company A exposes their engineers to knowledge via the meetings that the plant manager organises. The manager does this so that the engineers can share their knowledge.

Company A forms interdisciplinary teams around ideas to discuss it. These teams consist of the plant manager, the owner and the employees that experience a change because of the idea. This gives these employees a voice as they can discuss about the improvements, which in turn positively influences employee's performance as experienced by the interviewee. The plant manager explicitly leaves the financial manager out of this project group. In addition, company C makes use of an interdisciplinary team that assesses the idea and takes it further into practice. The company creates a culture in which employees can start interdisciplinary teams to act on their ideas. The organisation rewards employees for their ideas and mentions them in the magazine. Company G makes use of an interdisciplinary team to assess the ideas. This team constitutes the general manager, engineering manager, production manager, sales manager and of every sales department one employee. Company H allows their employees that came up with the idea in their team in addition to the employee of finance and employee of customer service. They discuss internally within the team about the ideas, but they also go to other organisations to discuss about it. Every company starts or already has an interdisciplinary team to discuss about the ideas and to take it further into practice.

	Company C	Score	Company G	Score	Company H	Score	Company A	Score
Job complexity	Tasks are simple and complex , whereas the innovation tasks are complex, but in general the tasks are likely simple	Low	The jobs in the production and sales are not that complex, whereas the jobs for the valves for oil and gas are more complex	Low	The jobs are technical complex whereas the jobs at the printing machine are more complex, but we assume that the jobs are not that complex	Low	The tasks are likely simple as it consist of placing materials in machines and working behind complex machines	Low
Autonomy	No use of work scheduling-, work methods autonomy as the company works with shifts and the supervisor decides who stands where, no decision-making autonomy	Low	No use of work scheduling- and work methods autonomy as the company works with shifts, the sales department have work-method autonomy	Low	No use of work scheduling- and work methods autonomy as the operational manager makes the planning, no decision-making autonomy	Low	The company provides work methods- and work scheduling autonomy to its employees, no decision-making autonomy	High
Interaction outside the organisation	Departments R&D, M&S, logistics and HR interacts periodically outside the company to receive new insights and ideas	Medium	Continuously interaction of sales employees with actors outside the company that leads to new ideas for product improvements and employees of the R&D department go to exhibitions and seminars that results in new ideas	High	Creative employee continuously interacts with actors outside the organisation to keep his knowledge up to date and to share ideas. The operational managers share also knowledge about products with suppliers and general manager shares periodically ideas within the group	Medium	Plant manager and engineers interact periodically outside the organisation to exchange knowledge and share ideas, the ideas of the plant manager leads to process improvements	Medium
Supervisors support	Supervisors stimulate employees to make use of the idea box, and if requested gives them the office to discuss about the ideas	Medium	No real support, like stimulation by supervisors, as the number of ideas generated is low. Financial director steps in when an employee has an idea but does not share it	Low	Supervisors ask during departmental meetings whether there are ideas for improvements to keep them engaged	Medium	Plant manager organises meetings dedicated to knowledge exchange. Dependent on the topic, members of the organisation are obligated to join the meetings	Medium
Interdependence	The company has an interdisciplinary team that assesses the idea and takes it further into practice when leaders higher in the hierarchy approve the idea. There is also a culture in which employees can start interdisciplinary teams to act on their ideas	Medium	The company has an interdisciplinary team that assesses ideas. Employees can hand in their ideas through the segment managers which are in these teams	Medium	The company forms an interdisciplinary team to assess the idea and act on the ideas. The person with the idea is in the team, as this creates ownership	Medium	Company forms an interdisciplinary team to discuss about the ideas, but excludes the financial employee. The employees affected by the implementation of the idea are also in the team, as this results in better performance	Medium

Table 10 summary of job design practices of companies with medium firm-level creative capital

4.1.3 Companies with high firm-level creative capital

The complexity of jobs for both organisations are high, because both organisations design and develop new products for the market for which they do not know if it turns out to be a successful business case. Company B has challenging projects for their employees as they try to come up with a concept for the gap in the market. This challenge is also motivating for employees to be creative. Company F bases their complexity of the jobs on the education, knowledge and capabilities needed. Employees in the R&D department need to have a University of Applied Science degree. With that level of education are jobs still challenging. Consequently, both companies score high on job complexity.

Both companies grant their R&D employees freedom with regard to scheduling their work. Company F allows their employees the freedom to decide which time they would like to start before a certain time. They allow their employees of the R&D to set their deadlines in consult. The organisation also has R&D members that work on their own projects, this means likely that they have certain freedom to choose on which project they work. Company B allows their innovation team to set their deadlines and decide on their breaks. They have some freedom in scheduling their work. The companies score both high on work scheduling autonomy.

Both companies allow their employees of the R&D to choose their working methods to realise their goals as long as it is conform the medical quality system. This system describes which things the employees need to deliver and employees are free to come up with solutions within that frame. The interviewee of company B acknowledges that employees need this freedom, as this is positive for their creativity. Both organisations score high on autonomy concerning working methods for the ‘innovation’ teams. For the production teams and the production department both companies have less freedom. In company F, employees have to follow the procedures and instruction, because of quality requirements, which the production team in company B needs to follow the format given by the innovation team.

Both companies differ on the decision-making autonomy. Company B allows their innovation team freedom in decision making, because as described by the interviewee managing this team top down will not work and the organisation allows them to choose for example on which projects they work. Employees of company F need to discuss with their supervisors before they make any decisions, because the organisation makes use of work

procedures and instructions. Company B scores high on decision-making autonomy, while company F scores low.

Both companies have employees or teams that interact with actors outside the organisation on improvements of current products or new products. Company B makes use of an innovation team that monitors the market for potential opportunities and, as mentioned by the interviewee, the organisation needs friends in the market for market intelligence. It is likely that this innovation team interacts with actors outside the organisation. Employees of company B also interact with actors outside the organisation to test their concept in the market and the company calls this 'USEIT industrial design'. This method of interaction is motivating for the creativity of employees as explained by the interviewee. Company F grants their employees the opportunity to go outside the organisation and see how their product functions in the field. They go to hospitals or become a stand employee. The organisation has jobs that require continuous contact with professionals in the field that in turn results in suggestions for improvements.

There is a difference in the support of supervisors, because company F takes a more passive approach, while company B has a more active approach. Company B tries to have the personal goals of the employee aligned with the organisation and the supervisors sit down regularly to see if there is still a fit between these goals. If there is no fit, the organisation takes steps to improve it. The company provides a clear vision and expectation towards the employees. Concerning the vision, the management tries to create the best teams to realise innovative success. For this success, they create a focus on deadlines in the teams. Moreover, the supervisors discuss with employees how they can learn from collaboration with external parties. While company F takes a more passive approach by not supporting ideas actively but through having an open door policy. This policy allows employees to ask questions and to discuss ideas with supervisors. The employees likely perceive their supervisors to be open. Company F scores low and company B scores medium.

Company B has a permanent innovation team that tries to come up with new projects. This team consists of different disciplines and scouts the market for possibilities. This team continuously search the market for opportunities of new products, but they also come up with possibilities in current projects. Participating in these teams creates a common focus and allows the sharing of ideas including discussions about which project to start. Moreover, the organisation also makes use of external persons in these teams when a needed competence is missing. They discuss how they can learn from that cooperation, to integrate new knowledge

and ideas in the organisation. Company F also makes use of project teams in which persons of different disciplines cooperate. This team discusses the feasibility of the ideas, if it is financially possible and if there is a demand. However, company F starts these teams when one of the employees has an idea and does not have a team like company B that is responsible to come up with idea.

	Company B	Score	Company F	Score
Job complexity	Challenging projects to fill gaps in the market for which it is not sure if the project turns out successful. The company creates challenging projects, as this is motivating for the creativity of employees.	High	The complexity of jobs is dependent on the education, knowledge and capabilities needed for that job. The required education for jobs means that the jobs are challenging at that level of education.	High
Autonomy	Employees are able to decide on their deadlines and their breaks, there is autonomy in work scheduling. The innovation team is free to choose their methods to realise the goals, as this is motivating for their creativity. The production team has less freedom, as they need to stick to the format given by the innovation team. The innovation team has freedom to decide which projects they like to work on. The company chooses for this freedom, as managing top down will not work.	High	Employees are able to decide at which time they start before a certain fixed time. In addition, employees are able to work on their own projects, and to set their deadlines in consult, which means work scheduling autonomy. The project team is free to choose their methods to realise the goals. The employees of production have to stick to procedures and instructions. Employees within company F have less freedom in decision-making as they have to comply with procedures and instructions.	High
Interaction outside the organisation	The innovation team monitors the market for potential opportunities and they likely interact with the 'friends' in the market for market intelligence. Employees also test their concepts on the market and interact with actors outside the organisation. This is motivating for the creativity of employees.	High	The jobs in the organisation require continuous interaction with professionals in the field that results in suggestions for improvements of the products. Employees also become stand employees and interact with doctors, which create an extra challenge for employees.	High
Supervisors support	Supervisors align the goals of the employees with that of the organisation to create a focus. The management is also responsible for the creation of the best team and focus towards the deadlines. In addition, they discuss with employees how they can learn and integrate the knowledge embedded in cooperation with external actors.	High	The supervisors have their doors open, and this open door policy allows employees to ask questions and shares thought with their supervisors. They do not actively stimulate employees to be creative, but they create a culture where employees can share ideas through pronouncing that possibility.	Medium
Interdependence	The company has a permanent innovation team that consists of different disciplines and of a production team. These teams create a common focus within the organisation. The innovation team shares ideas about potential projects and ideas for current projects.	High	The company forms multidisciplinary teams when an employee has an idea, to assess it feasibility.	Medium

Table 12 summary of job design practices of companies with high firm-level creative capital

4.1.4 Comparison of job design practices across groups of companies

The findings on the use of job design practices by companies in the low-, medium- and high firm-level creative capital shows a pattern.

Job characteristics / Company	Firm-level creative capital							
	Low		Medium				High	
	Company D	*Company E*	*Company C*	*Company G*	*Company H*	*Company A*	*Company B*	*Company F*
Job complexity	Low	High	Low	Low	Low	Low	High	High
Autonomy	Low	High	Low	Low	Low	High	High	High
Interaction outside the organisation	Medium	Low	Medium	High	Medium	Medium	High	High
Supervisors support	Medium	Low	Medium	Low	Medium	Medium	High	Medium
Interdependence	Medium	Low	Medium	Medium	Medium	Medium	High	Medium

Table 13 score on job design practices

The companies that have more complex jobs are the companies that score high on firm-level creative capital namely companies B and F. The other companies in the categories of low- and medium firm-level creative capital have less complex jobs; these are the companies A, C, D, G and H. The only exception to this is company E that scores high on job complexity, but falls in the group of companies with low firm-level creative capital. Thus, companies that score high on firm-level creative capital have more complex and challenging jobs than companies that score low or medium on firm-level creative capital.

What becomes clear is that organisations that score high on firm-level creative capital namely company B and company F allow more autonomy to their employees than some of the organisations that score medium or low on firm-level creative capital namely companies D, C, G and H. These high firm-level creative capital companies provide their employees with the possibility to schedule their work and choose their working methods. There are only two other companies, one company in low firm-level creative capital namely company E and one company in medium firm-level creative capital namely company A that provide their employees with freedom concerning work scheduling and work methods. Two companies also give their employees freedom concerning decision-making, namely company E and company B, while other companies do not allow their employees freedom in decision-making. Thus, companies that score high on firm-level creative capital allow their employees autonomy concerning work scheduling and work methods.

The companies that score high on firm-level creative capital namely company B and company F have either employees or teams that continuously interact with, and monitor the market for improvements on current products, or they come up with new projects. Employees go outside the organisation to experience the working of the product in the field. Both of the

companies use this job design practice either to create an extra challenge for the employee or as a motivator for creativity. While companies in the other groups, namely companies C, A, D have employees that only interact periodically with actors outside the company to share ideas or to keep their knowledge updated. Company H is the only organisation in the group of companies with medium firm-level creative capital that has an employee that continuously interacts with suppliers and customers to share ideas and to keep his knowledge updated. Although, company G have sales employees that continuously interact with actors outside the organisation for their jobs and this sometimes leads to ideas for improvements, but the generation of ideas is not their core function. Company E, as part of the organisations with low firm-level creative capital, do not have jobs that require employees to exchange knowledge or share ideas.

The difference between the groups on the support of supervisors is less clear. This is mainly because there is a difference within the group of companies that score high on firm-level creative capital. The supervisors of company B create a focus for their employees and teams, through aligning the personal goals with that of the company and they create a focus towards deadlines, while company F takes a more passive approach by having an open door policy where employees can discuss their ideas with the supervisors. In comparison with the group of companies that score low- and medium on firm-level creative capital, the supervisors of the companies D (low), H (medium), and C (medium) stimulate their employees to come up with ideas by asking during the meetings for their ideas (companies D and H) and stimulate to make use of the idea box (company C). The supervisors of the companies E (low) and G (medium) do not actively support their employees, while the supervisor of company A (medium) exposes their employees to other knowledge sources through the organised meetings of the supervisor.

In addition, the difference in the role of interdependence across groups is less clear. The companies in the group with medium firm-level creative capital namely companies C, G, H and A create or have interdisciplinary teams to assess and to integrate the ideas of employees. Within this group, both companies H and A include the idea generator or the employee for who the implementation of the idea affects its job in the interdisciplinary team. In comparison to the firms that score high on firm-level creative capital, only company F creates an interdisciplinary team to discuss about ideas, while only company B has the innovation team that consists of employees with different functional backgrounds that discusses about new concepts for the market and for improvements on existing products. This team is continuously

looking for incremental- and radical innovations. Company D of companies that score low on firm-level creative capital creates a team to act on the findings of the project teams, while company E provides their middle management with the responsibility; they can choose their activities, but that leads to the problem that managers are doing the same activity at a certain moment.

5 Discussion and conclusion

5.1 Results in comparison with the propositions

The literature research led to the development of several propositions on the role of a few job design practices on firm-level creative capital. The first proposition is about the role of autonomy. We expected that organisations with high firm-level creative capital design jobs that allow for autonomy, while organisations with low firm-level creative capital do not design jobs with autonomy. Our findings partly correspond with the proposition, as the findings do not provide evidence on all three dimensions of autonomy. The findings of this research show that companies, which score high on firm-level creative capital indeed allow more autonomy for their employees. The companies B and F grant autonomy towards employees in choosing their working methods and scheduling their work and only company B grant autonomy towards employees in decision-making. The companies grant their employees this freedom as this is motivating for their employees and it results in creativity. This is in line with reasoning of Amabile et al. (1996), who assume that autonomy results in creativity. However, two companies namely companies A, and E, fall outside this category of firms that score high on firm-level creative capital, but they do allow their employees to schedule their work and choose their working methods. Company A, which falls within the medium category, scores high on both autonomies. The plant manager acknowledges that employees know what they do and that therefore there is no need for supervisors to tell them how they should perform their tasks. Another possible reason that the company allows this autonomy is that the plant manager likes to have an innovative organisation. It is likely that the plant manager has implemented these practices to innovate, because these practices relate positively to creativity (cf. Amabile et al., 1996; Ohly et al., 2006). In addition, company E, which scores low on firm-level creative capital, gives their employees work methods autonomy and decision-making autonomy. The possible reason that company E scores high on autonomy is that the interviewee mainly discussed job design practices that are implemented for the middle management, while the other interviewee of company E discussed job design practices on the work floor. These managers of company E have in general more freedom than the employees on the work floor have. Thus, the findings indicate that organisations that score high on firm-level creative capital have two of the characteristics of autonomy namely work methods autonomy and work scheduling autonomy to release the creativity of employees. Therefore, the findings partly correspond with proposition 1.

The second proposition is about the role of the job complexity. We expected that organisations with high firm-level creative capital design complex jobs, while organisations with low firm-level creative capital do not design jobs that are complex. Our findings correspond with the proposition. The findings of this research show that companies that score high on firm-level creative capital namely companies B and F, have jobs that are complex, while the companies that score low- or medium on firm-level creative capital, namely A, C, D, G and H, have low complexity. The only exception is company E that scores low on firm-level creative capital, but has complex jobs. The interviewee of company B explains that the jobs are challenging as this motivates employees to be creative. This is in line with research by Tierney and Farmer (2002) and Oldham and Cummings (1996) who show that job complexity relates to creativity and creative performance. The company does not only design complex jobs for motivational reasons, but also to give employees a challenge to keep them committed to the organisation. The company that falls outside the pattern is company E, but as mentioned before the interview mainly talked about the middle management. Thus, the findings indicate that organisations that score high on firm-level creative capital have jobs that are complex and challenging to release the creativity of the employees. Therefore, the findings partly correspond with proposition 2.

The third proposition is about the role of the supervisors support. We expected that organisations with high firm-level creative capital design jobs that provide support from supervisors, while organisations with low firm-level creative capital do not design jobs with support from supervisors. Our findings do not correspond with the proposition. The findings of this research show mixed results as the companies within the different groups try to release the creativity of the employees in different ways. Both company F, which scores high on firm-level creative capital, and company E, which scores low on firm-level creative capital do not have supervisors that support their employees to release their creativity. The supervisors of company D, which scores low on firm-level creative capital, and company H, which scores medium on firm-level creative capital, try to get their employees engaged in sharing ideas during periodically meetings. That this is important becomes clear as supervisors need to show interest in employees' ideas to defy the crowd (Sternberg, 2006). The supervisors of company C, which scores medium on firm-level creative capital, stimulate their employees to make use of the idea box. Employees likely perceive this stimulation by their supervisors as an expectation of their supervisors for them to be creative and this in turn creativity (Carmeli & Schaubroeck, 2007). The plant manager of company A, which scores medium on firm-level creative capital, release the creativity of employees by providing them with knowledge

sources through organising meetings dedicated towards knowledge exchange. This is in line with other research that shows the importance of resources for creativity (cf. Amabile & Gryskiewicz, 1987; Carmeli et al., 2010). Company B, which is the organisation that scores high on firm-level creative capital, provides support towards the innovation team by creating a vision and a focus towards goals. The important of a goal becomes clear in the research of Amabile and Kramer (2007) who shows that supervisors should set clear goals as this is motivating for employees and motivation is one of the building blocks for creativity (Amabile, 1998). In addition, the supervisors discuss with their employees how they can learn from the cooperation with external labour. The company actively try to increase the KSAO's of employees through actively discussing with them how they can learn from the cooperation instead of only using the external labour for temporary required KSAO's. In general, companies try to release the creativity of employees by stimulating them to be creative, to get them engaged during meetings, exposure to knowledge sources or by creating a team focus towards goals. The possible reason that only supervisors of company B provide this kind of support towards their employee to release their creativity is that company B is the only organisation that currently tries to come up with new products and is the only company that operates in a dynamic market. A focus on deadlines is important for them, as the main driver of a good business case is getting the product on time on the market. The interviewee explained that the focus is more on time to market, than on development costs, because a product on time on the market brings more revenues. Thus, the findings are mixed and do not clearly indicate any pattern. Therefore, the findings do not correspond with proposition 3.

The fourth propositions are about the role of the job design characteristic interdependence. We expected that organisations with high firm-level design interdependent jobs, while organisations with low firm-level creative capital do not design jobs that are interdependent. Our findings do not correspond with the proposition. The findings of this research show that companies, independent of the group, create interdisciplinary teams to assess the ideas and to integrate the idea of the employees within the organisation. These companies are found in each group. These companies are company D in the group with low firm-level creative capital, companies C, G, H and A in the group with medium firm-level creative capital, and company F in the group with high firm-level creative capital. The company that differs is company B, which scores high on firm-level creative capital, the company has an interdisciplinary team that actively looks to the market for potential business cases, the team discusses the ideas and decides on which projects to focus. As becomes clear, most of the companies make use of interdisciplinary teams to assess and integrate the ideas in

the organisation. Company E, which is the firm that scores low on firm-level creative capital, does not act on the creativity as that is not the current focus of the management. Thus, the findings are mixed and do not clearly indicate any pattern. Therefore, the findings do not correspond with proposition 4.

The fifth proposition is about the role of interaction outside the organisation. We expected that organisations with high firm-level creative capital design jobs with interaction outside the organisation, while organisations with low firm-level creative capital do not design jobs with interaction outside the organisation. Our findings do correspond with the proposition. The findings of this research show that companies that score high on firm-level creative capital, namely companies B and F, have either teams or employees that continuously interact with the market to release the creativity of employees. This interaction leads to product improvements for both companies, while this interaction also leads to new business cases for company B. This finding corresponds with literature on creativity (cf. Zheng, 2010). The companies that score medium- or low on firm-level creative capital have employees that interact only periodically with actors outside the organisation. Although, with the exception of company H, which scores medium on firm-level creative capital, that has a creative employee that continuously interacts with customers, suppliers to keep his knowledge updated and to exchange ideas. Thus, the findings indicate that organisations that score high on firm-level creative capital have jobs that have continuously interaction outside the organisation to release the creativity of the employees. Therefore, the findings partly correspond with proposition 5.

Several of the findings correspond with the propositions made, based on the literature review, while others do not correspond. Although, these findings extend the literature on firm-level creative capital, these findings only correspond partly with our propositions. The findings are mixed and do not give clear results. It appears that the role is more complicated. Concerning proposition one, firms that score high on firm-level creative capital do correspond with our proposition as these organisations have jobs that provide autonomy in work methods and job scheduling. However, firms that score low on firm-level creative capital do not correspond with our proposition as one of organisations has jobs that provide autonomy. With regard to the second proposition, firms that score high on firm-level creative capital do correspond with our proposition as these organisations have jobs that are complex and challenging. However, firms that score low on firm-level creative capital do not correspond with our proposition as one of the organisations has jobs that are complex and challenging.

With regard to the third propositions, firms that score high and firms that score low on firm-level creative capital do not correspond with our proposition. It seems that organisations in both groups have jobs that provide different supervisors support, and there is no clear pattern. Concerning the fourth proposition, firms that score high on firm-level creative capital do correspond with our proposition as these organisations have jobs that are dependent on each other. However, firms that score low on firm-level creative capital do not correspond with our proposition as one of the organisations has dependent jobs. Concerning the fifth proposition, firms that score high on firm-level creative capital do correspond with our proposition as these firms have jobs that requires interaction outside the organisation. However, firms that score low on firm-level creative capital do not correspond with our proposition as one of the firms has jobs that require periodically interaction outside the organisation.

There is one reason for the difference between the findings and propositions and the reason concerns the methodology of the research. The semi-structured interviews with managers allowed the managers to elaborate on topics without the interruption by the interviewers to maintain the flow of the interview. The interviews related mostly to firm-level creative capital and external labour as we tried to keep the flow in the interview without interrupting the other interviewers or interviewee. This led to valuable information about external labour, but we recommend making more open and closed questions especially for inexperienced researchers as ourselves based on the theoretical framework discussed in this paper, but. We encourage other researchers to test our findings with a quantitative research design instead of explorative qualitative research design and use these findings as the basis for their research.

5.2 Contributions to the literature

According to Florida (2002) the creative class, as holders of creative capital, is the main force behind the economic growth and regional development of a city or region. The reason for this is that regions with a high share of creative people generate more innovations. Florida (2004b) divided the creative class in separate groups of creative occupations. He makes a distinction between the creative core, creative professionals and bohemians. The creative core consists of members "whose economic function is to create new ideas, new technology and/or new creative content" and can be found "in science and engineering, architecture and design, education, arts, music and entertainment" (Florida, 2004b, p. 8). The creative professionals "engage in complex problem solving that involves a great deal of independent judgment and requires high levels of education" (Florida, 2004b, p. 8) and work in "business and finance,

law, health care and related fields" (Florida, 2004b, p. 8). If we can translate these findings of the share of the creative class towards the organisational level then organisations that score high on firm-level creative capital have a high share of creative class. This looks indeed the case as companies B and F, which scores high on firm-level creative capital, both operate in the health care as these companies design, and produce medical devices. Based on the definition of Florida, employees of these companies are part of the creative class.

Florida (2003, 2004b) identified three critical factors which places should possess to make creativity and the attraction of creative class members happen at the regional level. These three conditions are Technology, Talent and Tolerance (3Ts) (Florida, 2003). Technology is the function of both innovation and high-technology concentration. Talent includes the people with a bachelor's degree and above, while tolerance stands for the openness, inclusiveness, and diversity to all ethnicities, races and walks of life of the people within the specific city or region (Florida, 2003). That technology, talent and tolerance are important for the creativity at a regional level is clear, but our findings also provide evidence that these factors are present at an organisational level. There is clear difference between organisations that score high on firm-level creative capital and organisations that score low on firm-level creative capital. Organisations that score high on firm-level creative capital, namely company B and company F, both possess these conditions, while organisations that score medium or low do not. Company B and company F are both situated in the medical devices sector and both are devoted to innovation, where company B focussed more on radical innovation, while company F is currently more focussed on incremental as they recently brought new products to the market. With regard to talent, both companies have highly qualified employees for their core activities, as these activities are complex. The findings provide also evidence that tolerance is an important aspect, as both companies focus on the inflow of new external knowledge. As an example, company B discusses with their employees how they can learn from cooperation with others, while company F encourages their employees to make use of their external relationships. Contradictory to this are the organisations that score low on firm-level creative capital. These companies did not actively focus on integrating external new knowledge into the companies.

As just mentioned before, regions that fulfil the conditions technology, talent and tolerance (3Ts) are able to attract the creative class and allow for creativity, which in turn allow regions with a high share of creative people to generate more innovations (Boschma & Fritsch, 2009; Florida, 2003, 2004b). Tolerance affects regional development, because

tolerance, measured with gay- and bohemian index, increases the productiveness and efficiency of local resources, which happens through certain mechanisms (Florida et al., 2008). Florida et al. (2008) argue that regions with these populations are associated with creativity and innovation, because regions with these populations reflect the open-mindedness of a region. The diversity of the region reflects the tolerance and open-mindedness of a region, which in turn leads to innovation and creativity. This finding also corresponds with the results at the organisational level, although the diversity at the organisational level is not about the share of gay-, bohemian or foreign-born, but about functional diversity. Organisations bring employees of different functions together in teams to discuss about ideas and exchange ideas. A good example is company B that scores high on firm-level creative capital and that employs a functional diverse team that comes up with ideas and possibilities for both current projects as well as for new projects.

We argued based on literature that firms that score high on firm-level creative capital have a focus on exploration and achieves radical innovation, while firms that score low on firm-level creative capital have a focus on exploitation and achieves incremental innovation. The firms that score high have therefore weak network ties, as this allows for exploration purposes (Pullen et al., 2012). This differentiation is also included in our operationalization of firm-level creative capital, as we stated that firms that score high on firm-level creative capital focusses on developing new products, services and processes. Though, we expected based on the literature and according to our assumptions that organizations, which score high on firm-level creative capital, focus on exploration, but our findings prove differently as interviewees of different companies acknowledge that a combination of both is needed for survival in the future. Companies focused more on ambidexterity instead of either on exploration or exploration.

This differentiation between exploration and exploitation had also during the interviews the most attention of the interviewees. Interviewees based their choice for high or low firm-level creative capital mainly on this differentiation instead of basing their choice on the other dimensions namely creative ability, creativity and relationships. This becomes most clear when we take company C as an example. The interviewee of company C chose for the description of company Y that is the organisation with low firm-level creative capital, as interviewee explained it is important for the company to improve their current products continuously to keep up with the competition. If we compare their choice with the other dimensions of firm-level creative capital then it becomes clear that the company scores more

towards high firm-level creative capital. The organisation makes use of loose and bridging relationships for innovations and motivates their employees to come up with ideas for improvements. Creative capital relates not only to exploration, but also to exploitation.

Although, Veenendaal et al. (2012) argued that social capital mediates the relationship between human capital and incremental innovation, and creative capital mediates the relationship between human capital and radical innovation, our findings proves differently. For example, company F has a strong, bonding culture within the organisation, because of the socialisation process and the selection of applicants that is based on whether someone is a company F-er or not. The organisation has strong, bonding relationships and a rather homogeneous workforce within the company, but they are still able to produce radical innovations as they brought recently new products on the market. Thus, a homogeneous workforce with strong ties within the organisation does not necessarily relate to incremental innovation or exploitation. Company F is apparently able to use their connections outside the organisation to get new knowledge in the organisation, which they in turn use for new products. Although, there is a strong, bonding culture, jobs with interaction outside the organisation allow for creativity and innovation. This finding is in line with research on creativity and external ties. Research by Perry-Smith (2006) shows that members of the organisation should have not too many strong relationships based on trust, but "should maintain and cultivate weaker relationships" (p. 98). Employees at the peripheral of the organisation should have a high number of ties outside the organisation to realise creativity, as it appears that individuals at the peripheral of the organisation feel freer to develop unusual ideas based on the interaction outside the organisation. That is also the case at company F as members have connections outside the organisation that results in idea generation.

5.3 Limitations and future research

One of the possibilities for future research is to test our findings with a quantitative research design, as our research is a qualitative research in which we made use of a qualitative, multi-case study research design for exploration purposes, but this design also gives some shortcomings. There is need for quantitative analyses, because this design does not make use of probability sampling. The findings are not generalisable to a certain population (Babbie, 2010). Nevertheless, that is not the intention of this explorative study. The potential of explorative studies is to open up qualitative descriptions of new phenomena (Kvale, 2007). Consequently, it is more about the question if the findings in this research are applicable to other situations that are relevant. We therefore encourage other researchers to

test quantitatively the findings in this study and to come up with quantitative findings on a possibly causal relationship between these job design practices and firm-level creative capital. Researchers can use for this a quantitative research design based on random sampling and a larger sample.

Another possibility for future research is that researchers use longitudinal designs to see whether the organisations indeed uses the job design practices to act on ideas of employees. This notion of a longitudinal design is especially relevant, as interviewees could have given social desirable answers during the interviews. A possibility to counter for this and highly encouraged for future research is the use of triangulation where researchers use more than one data collection technique within one study. In general, researchers use this technique to ensure that the emerging insights of the data are really what they are (Saunders et al., 2009). It is about the merging, matching and validation of data generated from two sources (Greene, Caracelli, & Graham, 1989). In that case is the researcher able to compare the findings of one interviewee with the findings of another interviewee. That we are not able to compare our data with other sources is a shortcoming of our study. Especially taken into account that the document analyses revealed that every company tries to be innovative and creative, and this could influence the interviewee to give answers towards creativity and innovativeness. We tried to counter for this by asking for clarifications and examples during the interviews.

Because the job design practices are rather extensive topic, we recommend future researchers to take a more closed approach towards the research on the role on firm-level creative capital. To take a less open minded approach towards the exploration of the job design practices and focus on one job design practice to extensively investigate its role. In addition, this research takes some of the social and motivational characteristics into the explorative research, while we encourage researchers also to take the broader context of the organisation into consideration; more specifically, we encourage them to look at the role of formal properties in creative capital. These formal properties could include the centralisation, formalisation, control systems and technology of the organisation.

Although, we stated that the creative ability is about the active use of the creativity of employees, that it is about the integration of the creativity in the organisation, but we did not include it in our operationalisation of firm-level creative capital. We operationalised organisational creative ability as the organisational focus on exploitation or exploration and thereby having their organisational activities focused on incremental or radical innovation. We recommend researchers to embed the active use in the operationalisation, as we argued it

is not about the possession of creative people, but about the use of it. This is in line with the reasoning of Florida (2004a) who stated that it is not about what people can do, but what they are actually doing. The importance of it becomes also clear as the interviewee of company H mentioned that when the organisation does not provide feedback on ideas of employees, while these employees shared their ideas in the organisation, then employees would not come up with ideas in the future. This stifles the creativity of employees.

Another limitation is that the categorisation of companies into the groups is rather subjective. Although we based the categorisation on an extensive discussion, this categorisation is still based on the subjectivity of the researchers. Therefore, we recommend researchers to use in the future scales based on our operationalisation and findings to categorise the companies into groups. This categorisation based on scales allows for a more objective approach towards the categorisation of companies into groups.

We acknowledge that the companies differ in size as the number of employees range from 43 until 1500. The companies used in our research therefore vary from small organisations to large organisations. This likely affects the internal generalisability, as literature is abundant on the effects of firm size and the use of HR practices (cf. Duberley & Walley, 1995; Strohmeier & Kabst, 2009). Based on this literature other researchers can argue that size affects the outcome of this research. However, our findings do not provide evidence that size does affect the use of HR practices. Company C with its 1500 employees does not differ much from the other smaller companies in the medium categorisation concerning the use of job design practices. Therefore, size does not affect our findings and we are still able to generalise within this sample, but taken into account the abundance in literature we recommend future researchers to consider this notion.

Our findings show that, independent of the categorisation, organisations use interdisciplinary teams to assess and discuss about ideas. The teams are characterised by their functional diversity, but our theoretical foundations shows that diversity is broader than functional diversity. Diversity also covers bio-demographic diversity that refers to the direct observable differences like age, gender, race, cultural and nationality, while task-related diversity refers to the individual acquired attributes like functional expertise, education, and tenure (Groves & Feyerherm, 2011; Horwitz & Horwitz, 2007). Although our findings provide evidence that teams as part of interdependence do not differ on functional diversity across groups, our research does not provide results on the other diversities. We already discussed reasons that caused this limitation in the former section, but we recommend other

researchers to consider the other diversities as our theoretical foundation provides evidence that heterogeneous groups score differently on creativity.

5.4 Conclusions

This thesis is part of a research program that explores the role of HRM practices on firm-level creative capital. This research thesis looked specifically at the role of job design practices. As we look into the role we do not try to explain causal relationships between job design characteristics and firm-level creative capital, but we explored the topic and looked into the characteristics of companies that both score high and low on firm-level creative capital.

This research builds further on the research of Straatman et al. (2012) by improving their conceptualisation of the firm-level creative capital and extending the current research on firm-level creative capital as the research of Florida and Goodnight (2005) is currently the only known research on firm-level creative capital. There is currently only limited research available on this topic, and because of that, there is no usable conceptualisation or operationalisation of firm-level creative capital available. Therefore, we first conceptualised firm-level creative capital as "*the aggregated creative organisational ability, which is the organisational enactment to integrate the creativity of individuals as well as the creativity embedded in their relationships.* Individual creativity is *the ability of employees to make a valuable combination of previously unrelated concepts, knowledge, ideas or experience for the organisation".* Some researchers like Glaeser (2005) argue that there is no existence for creative capital therefore we positioned firm-level creative capital in relation to the other capitals of intellectual capital like social capital, human capital, customer capital and firm-level capital. We compared for the positioning the scope and essence of the other capitals and argue that there is overlap in scope, but the difference is on the essence of firm-level creative capital. The essence is the organisational creative ability that gives the right for existence of creative capital. The organisational creative ability is one of the three dimensions of creative capital, besides relationships and creativity.

To discover the role of job design practices in firm-level creative capital we used a multi-case study design in which we stratified the companies based on a document analysis into companies that either score high or low on firm-level creative capital. The document used for this stratification are the companies' website and available research papers of research project initiated by the University of Twente, in which these companies have participated in the past. This research design allowed us to compare the job design practices between firms with high

and low firm-level creative capital. In comparison with the preliminary scores, it turned out that companies can also indeed score medium on firm-level creative capital, as they are able to score differently on the three dimensions. Although, we did not use the medium score of firm-level creative capital during the interviews, as we only used descriptions of high or low firm-level creative capital, but we have considered the possibility that firms can score medium. Thus, it is not only high or low firm-level creative capital.

We have taken this finding into account during the analysis of the role of job design practices in firm-level creative capital. The findings indicate that organisations with a high firm-level creative capital provide employees with the freedom to choice their working methods and freedom in scheduling their work. The organisations provide their employees with this freedom to release the creativity of their employees. In addition, organisations with high firm-level creative capital design jobs that are complex and challenging to keep their employees committed to the organisation and to release the creativity of their employees. The third finding is that organisations with high firm-level creative capital design jobs that have continuously interaction outside the organisation to release the creativity of employees. However, the findings do not provide concise results on the use of support via supervisors and on the use of interdependence.

The findings are also of theoretical relevance, because prior to this research program, no known operationalisation of firm-level creative capital existed; this program provides an improved conceptualisation and operationalisation of firm-level creative capital. The improved conceptualisation gives the reason for the existence of firm-level creative capital and thereby rejects critics on the use of creative capital. For this, we positioned firm-level creative capital among several other capitals. The essence of firm-level creative capital, which is the organisational creative ability, gives the concept right for existence among the other capitals within intellectual capital. In addition, we needed the operationalisation of firm-level creative capital, as the current literature lacked an operationalisation (Straatman et al., 2012). More specific, this paper gives the operationalisation of the three dimensions of firm-level creative capital, which allows future researchers to build on. Moreover, this research program with the different researchers is the first research program that provides qualitative results for the theory on firm-level creative capital in which researchers stratify companies in two groups to explore the role of human resource practices where this research paper looks into the job design practices. Therefore, this research extends the current literature on firm-level creative

capital by providing findings on the relationships between job design practices and firm-level creative capital through a comparative case study design.

The findings of this paper have practical relevance as it gives organisations a possible lead how they can improve their firm-level creative capital. Organisations interested in creative capital can therefore compare their use of job design practices with the case organisations in this thesis. The influence of job design practices on firm-level creative capital is important for organisations as it leads to creativity and innovations. The innovation in turn allows organisations to be competitive. Although, we should refer back to our statement before that the findings cannot be generalised, but they give organisation an indication of the role of job design practices. Organisations that want to realise a high level of firm-level creative capital should provide their employees with challenging and complex tasks. In addition, the organisations should provide their employees the freedom to decide on their working methods to realise the goals and to allow them freedom in scheduling their work. Third, organisations should design jobs that allow for continuously interaction outside the organisation to expose their employees to diverse KSAO's. This allows them to release their creativity and thereby to enhance the creative capital of the organisation.

6 References

Adler, P. S., & Kwon, S.-W. (2002). Social capital: prospects for a new concept. *Academy of Management Review, 27*(1), 17-40.

Agnitsch, K., Flora, J., & Ryan, V. (2006). Bonding and bridging social capital: The interactive effects on community action. *Community Development, 37*(1), 36-51.

Ahuja, G. (2000). The duality of collaboration: Inducements and opportunities in the formation of interfirm linkages. *Strategic Management Journal, 21*(3), 317-343.

Amabile, T. M. (1983a). *The social psychology of creativity*: Springer-Verlag New York.

Amabile, T. M. (1983b). The social psychology of creativity: A componential conceptualization. *Journal of personality and social psychology, 45*(2), 357.

Amabile, T. M. (1993). Motivational synergy: Toward new conceptualizations of intrinsic and extrinsic motivation in the workplace. *Human Resource Management Review, 3*(3), 185-201.

Amabile, T. M. (1997). Motivating creativity in organizations: On doing what you love and loving what you do. *California management review, 40*(1), 39-58.

Amabile, T. M. (1998). *How to kill creativity*: Harvard Business School Publishing.

Amabile, T. M., Barsade, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly, 50*(3), 367-403.

Amabile, T. M., Burnside, R. M., & Gryskiewicz, S. S. (1999). *User's Manual for KEYS, Assessing the Climate for Creativity: A Survey from the Center for Creative Leadership*. Greensboro, NC: Center for Creative Leadership.

Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 1154-1184.

Amabile, T. M., & Gryskiewicz, S. S. (1987). *Creativity in the R&D laboratory*: Center for Creative Leadership.

Amabile, T. M., Hadley, C. N., & Kramer, S. J. (2002). Creativity under the gun. *Harvard Business Review, 80*(8), 52.

Amabile, T. M., & Kramer, S. J. (2007). Inner work life. *Harvard Business Review, 85*(5), 72-83.

Amabile, T. M., Schatzel, E. A., Moneta, G. B., & Kramer, S. J. (2004). Leader behaviors and the work environment for creativity: Perceived leader support. *The Leadership Quarterly, 15*(1), 5-32.

Anand, N., & Daft, R. L. (2007). What is the Right Organization Design? *Organizational Dynamics, 36*(4), 329-344. doi: http://dx.doi.org/10.1016/j.orgdyn.2007.06.001

Andersen, K. V., & Lorenzen, M. (2005). The geography of the Danish creative class: A mapping and analysis, Copenhagen Business School.

Anderson, C. J., Glassman, M., McAfee, R. B., & Pinelli, T. (2001). An investigation of factors affecting how engineers and scientists seek information. *Journal of Engineering and Technology Management, 18*(2), 131-155.

Babbie, R. (2010). *The Practice of Social Research*: Cengage Learning.

Baer, M. (2010). The Strength-of-Weak-Ties Perspective on Creativity: A Comprehensive Examination and Extension. *Journal of Applied Psychology, 95*(3), 592-601.

Baer, M., Oldham, G. R., & Cummings, A. (2003). Rewarding creativity: when does it really matter? *The Leadership Quarterly, 14*(4), 569-586.

Bailey, T., Berg, P., & Sandy, C. (2000). Effect of High-Performance Work Practices on Employee Earnings in the Steel, Apparel and Medical Electronics and Imaging Industries. *Industries and Labor Relations Review, 54*, 525.

Bakker, M., Leenders, R. T. A., Gabbay, S. M., Kratzer, J., & Van Engelen, J. M. (2006). Is trust really social capital? Knowledge sharing in product development projects. *Learning Organization, The, 13*(6), 594-605.

Batabyal, A. A., & Nijkamp, P. (2010). Richard Florida's creative capital in a trading regional economy a theoretical investigation. *The Annals of Regional Science, 44*(2), 241-250.
Betsch, T., Haberstroh, S., Glöckner, A., Haar, T., & Fiedler, K. (2001). The effects of routine strength on adaptation and information search in recurrent decision making. *Organizational Behavior and Human Decision Processes, 84*(1), 23-53.
Beugelsdijk, S. (2008). Strategic human resource practices and product innovation. *Organization Studies, 29*(6), 821-847.
Bontis, N. (2004). National Intellectual Capital Index: A United Nations initiative for the Arab region. *Journal of Intellectual Capital, 5*(1), 13-39.
Boschma, R. A., & Fritsch, M. (2009). Creative class and regional growth: empirical evidence from seven European countries. *Economic Geography, 85*(4), 391-423.
Boselie, P., Dietz, G., & Boon, C. (2005). Commonalities and contradictions in HRM and performance research. *Human Research Management Journal, 15*(3), 67-94.
Breaugh, J. A. (1985). The measurement of work autonomy. *Human relations, 38*(6), 551-570.
Brown, J. S., & Duguid, P. (2001). Knowledge and organization: A social-practice perspective. *Organization Science, 12*(2), 198-213.
Buchanan, D. A. (1979). *The development of job design theories and techniques*: Saxon House Aldershot.
Burt, R. S. (1992). *Structural holes: The social structure of competition*. MA: Harvard University Press.
Burt, R. S. (2004). Structural holes and good ideas. *American journal of sociology, 110*(2), 349-399.
Cabrera, A., Collins, W. C., & Salgado, J. F. (2006). Determinants of individual engagement in knowledge sharing. *The International Journal of Human Resource Management, 17*(2), 245-264.
Camelo-Ordaz, C., Hernandez-Lara, A. B., & Valle-Cabrera, R. (2005). The relationship between top management teams and innovative capacity in companies. *Journal of Management Development, 24*(8), 683-705.
Capaldo, A. (2007). Network structure and innovation: The leveraging of a dual network as a distinctive relational capability. *Strategic Management Journal, 28*(6), 585-608.
Carmeli, A., Gelbard, R., & Reiter-Palmon, R. (2013). Leadership, Creative Problem-Solving Capacity, and Creative Performance: The Importance of Knowledge Sharing. *Human Resource Management, 52*(1), 95-121.
Carmeli, A., Reiter-Palmon, R., & Ziv, E. (2010). Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. *Creativity Research Journal, 22*(3), 250-260.
Carmeli, A., & Schaubroeck, J. (2007). The influence of leaders' and other referents' normative expectations on individual involvement in creative work. *The Leadership Quarterly, 18*(1), 35-48.
Chandy, R. K., & Tellis, G. J. (2000). The incumbent's curse? Incumbency, size, and radical product innovation. *The Journal of Marketing*, 1-17.
Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*: Sage Publications Limited.
Choi, J. N. (2004a). Individual and contextual factors of creative performance: The mediating role of psychological processes. *Creativity Research, 16*, 187-199.
Choi, J. N. (2004b). Person–environment fit and creative behavior: Differential impacts of supplies-values and demands-abilities versions of fit. *Human Relations, 57*, 531-552.
Chow, W. S., & Chan, L. S. (2008). Social network, social trust and shared goals in organizational knowledge sharing. *Information & Management, 45*(7), 458-465.

Chua, R. Y.-J., & Iyengar, S. S. (2006). Empowerment through choice? A critical analysis of the effects of choice in organizations. *Research in Organizational Behavior, 27*, 41-79.

Clark, M. A., Amundson, S. D., & Cardy, R. L. (2002). Cross-functional team decision-making and learning outcomes: A qualitative illustration. *Journal of Business, 8*(3).

Coleman, J. S. (1990). *Foundations of Social Theory*. Cambridge: Belknao Press of Harvard University Press.

Connelly, C. E., & Kelloway, E. K. (2003). Predictors of employees' perceptions of knowledge sharing cultures. *Leadership & Organization Development Journal, 24*(5), 294-301.

Cooper, D. R., & Schindler, P. S. (2008). *Business research methods* (10 ed.). London: McGraw-Hill

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research* (3 ed.). Thousand Oaks, CA: Sage.

Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management, 26*(3), 435-462.

Csikszentmihalyi, M. (1975). *Beyond Boredom and Anxiety*. San Fransisco: Jossey-Bass.

de Souza Briggs, X. (1998). Doing democracy up-close: culture, power, and communication in community building. *Journal of Planning Education and Research, 18*(1), 1-13.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Dey, I. (1993). *Qualitative data analysis: A user-friendly guide for social scientists*. London: Routledge.

Diliello, T. C., Houghton, J. D., & Dawley, D. (2011). Narrowing the Creativity Gap: The Moderating Effects of Perceived Support for Creativity. *The Journal of psychology, 145*(3), 151-172.

Duberley, J. P., & Walley, P. (1995). Assessing the adoption of HRM by small and medium-sized manufacturing organizations. *International Journal of Human Resource Management, 6*(4), 891-909.

Eder, P., & Sawyer, J. E. (2007). *A meta-analytic examination of employee creativity.* Paper presented at the 22nd Annual Conference, Society of Industrial and Organizational Psychology (SIOP), New York, NY, April.

Edvinsson, L., & Malone, M. S. (1997). *Intellectual Capital*. London: Piatkus.

Eisenberger, R., & Rhoades, L. (2001). Incremental effects of reward on creativity. *Journal of personality and social psychology, 81*(4), 728-741.

Ekvall, G., & Ryhammar, L. (1999). The creative climate: Its determinants and effects at a Swedish university. *Creativity Research Journal, 12*(4), 303-310.

Ensor, J., Cottam, A., & Band, C. (2001). Fostering knowledge management through the creative work environment: a portable model from the advertising industry. *Journal of Information Science, 27*(3), 147-155.

Ettlie, J. E. (1983). Organizational policy and innovation among suppliers to the food processing sector. *Academy of Management Journal, 26*(1), 27-44.

Fleming, L., & Marx, M. (2006). Managing creativity in small worlds. *California management review, 48*(4), 6.

Florida, R. (2002). *The Rise of the Creative Class*. New York: Basic Book.

Florida, R. (2003). Cities and the creative class. *City & Community, 2*(1), 3-19.

Florida, R. (2004a). Response to Edward Glaeser's review of The rise of the creative class. Retrieved from http://creativeclass.com/rfcgdb/articles/ResponsetoGlaeser.pdf website:

Florida, R. (2004b). *The rise of the creative class* (Revised Edition ed.). New York: Basic Book.

Florida, R. (2005). *The Flight of the creative class: The New Global Compeition for Talent.* New York: Harper Business.
Florida, R., & Goodnight, J. (2005). Managing for creativity. *Harvard Business Review, 83*(7), 124.
Florida, R., Mellander, C., & Stolarick, K. (2008). Inside the black box of regional development—human capital, the creative class and tolerance. *Journal of Economic Geography, 8*(5), 615-649.
Foss, N. J., Klein, P. G., Kor, Y. Y., & Mahoney, J. T. (2008). Entrepreneurship, subjectivism, and the resource-based view: toward a new synthesis. *Strategic Entrepreneurship Journal, 2*(1), 73-94.
Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior, 23*, 133-188.
Frese, M., Kring, W., Soose, A., & Zempel, J. (1996). Personal initiative at work: Differences between East and West Germany. *Academy of Management Journal, 39*(1), 37-63.
Gallucci, N. T., Middleton, G., & Kline, A. (2000). Perfectionism and creative strivings. *The Journal of Creative Behavior, 34*(2), 135-141.
Gerring, J. (2004). What is a case study and what is it good for? *American Political Science Review, 98*(02), 341-354.
Gerstberger, P. G., & Allen, T. J. (1968). Criteria used by research and development engineers in the selection of an information source. *The Journal of applied psychology, 52*(4), 272.
Gibbs, G. (2007). *Analyzing Qualitative Data*. London: SAGE.
Gittell, R., & Vidal, A. (1998). *Community organizing: Building social capital as a development strategy*: SAGE Publications, Incorporated.
Glaeser, E. L. (2005). Review of Richard Florida's The rise of the creative class. *Regional Science and Urban Economics, 35*, 593-596.
Gong, Y. (2003). Subsidiary staffing in multinational enterprises: agency, resources, and performance. *Academy of Management Journal, 46*(6), 728-739.
Granovetter, M. S. (1973). The strength of weak ties. *American journal of sociology*, 1360-1380.
Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational evaluation and policy analysis, 11*(3), 255-274.
Groves, K. S., & Feyerherm, A. E. (2011). Leader Cultural Intelligence in Context Testing the Moderating Effects of Team Cultural Diversity on Leader and Team Performance. *Group & Organization Management, 36*(5), 535-566.
Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field methods, 18*(1), 59-82.
Guzzo, R. A., & Dickson, M. W. (1996). Teams in organizations: Recent research on performance and effectiveness. *Annual Review of Psychology, 47*(1), 307-338.
Hackler, D., & Mayer, H. (2008). Diversity, entrepreneurship, and the urban environment. *Journal of Urban Affairs, 30*(3), 273-307.
Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology, 60*(2), 159.
Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*(2), 250-279.
Hammer, M., & Stanton, S. (1999). How process enterprises really work. *Harvard Business Review, 77*, 108-120.
Hammond, M. M., Neff, N. L., Farr, J. L., Schwall, A. R., & Zhao, X. (2011). Predictors of individual-level innovation at work: A meta-analysis. *Psychology of Aesthetics, Creativity, and the Arts, 5*(1), 90.

Hansen, H. K., & Niedomysl, T. (2009). Migration of the creative class: evidence from Sweden. *Journal of Economic Geography, 9*(2), 191-206.

Harrison, M., Neff, N., Schwall, A., & Zhao, X. (2006). *A meta-analytic investigation of individual creativity and innovation.* Paper presented at the 21st Annual Conference for the Society for Industrial and Organizational Psychology, Dallas, tx.

Harry, B., Sturges, K. M., & Klingner, J. K. (2005). Mapping the process: An exemplar of process and challenge in grounded theory analysis. *Educational Researcher, 34*(2), 3-13.

Harter, S. (1978). Effectance motivation reconsidered. Toward a developmental model. *Human development, 1*, 34-64.

Hatcher, L., Ross, T. L., & Collins, D. (1989). Prosocial behavior, job complexity, and suggestion contribution under gainsharing plans. *The Journal of Applied Behavioral Science, 25*(3), 231-248.

Horwitz, S. K., & Horwitz, I. B. (2007). The effects of team diversity on team outcomes: A meta-analytic review of team demography. *Journal of Management, 33*(6), 987-1015.

Hoyman, M., & Faricy, C. (2009). It Takes a Village A Test of the creative Class, Social capital and Human capital Theories. *Urban Affairs Review, 44*(3), 311-333.

Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: a comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology, 94*(5), 1128.

Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: a meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology, 92*(5), 1332.

Inkpen, A. C., & Tsang, E. W. (2005). Social capital, networks, and knowledge transfer. *Academy of Management Review, 30*(1), 146-165.

Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A field study of diversity, conflict and performance in workgroups. *Administrative Science Quarterly, 44*(4), 741-763.

Johns, G. (2010). Some unintended consequences of job design. *Journal of Organizational Behavior, 31*(2-3), 361-369.

Kang, S. C., Morris, S., & Snell, S. A. (2007). relational archetypes, organizationa learning, and value creation: extending the human resource architecture. *Academy of Management Review, 32*(1), 236-256.

Kang, S. C., & Snell, S. A. (2009). Intellectual Capital Architectures and Ambidextrous Learning: A Framework for Human Resource Management. [Review]. *Journal of Management Studies, 46*(1), 65-92. doi: 10.1111/j.1467-6486.2008.00776.x

Karasek, R., Brisson, C., Kawakami, N., Houtman, I., Bongers, P., & Amick, B. (1998). The Job Content Questionnaire (JCQ): an instrument for internationally comparative assessments of psychosocial job characteristics. *Journal of Occupational Health Psychology, 3*(4), 322.

Kiggundu, M. N. (1983). Task interdependence and job design: Test of a theory. *Organizational Behavior and Human Performance, 31*(2), 145-172.

King, N. (2004). Using templates in the thematic analysis of texts. *Essential guide to qualitative methods in organizational research*, 256-270.

Korman, A. K. (1970). Toward an hypothesis of work behavior. *Journal of Applied Psychology, 54*, 31 - 41.

Kulkarni, U. R., Ravindran, S., & Freeze, R. (2007). A knowledge management success model: theoretical development and empirical validation. *Journal of management information systems, 23*(3), 309-347.

Kvale, S. (1996). *InterViews*. Thousand Oaks, CA: Sage.

Kvale, S. (2007). *Doing interviews*. London: SAGE Publications.

Landry, R., Amara, N., & Lamari, M. (2000). *Utilization of Social Science Research Knowledge in Canada*. Research Policy.

Larson, J. R., Foster-Fishman, P. G., & Keys, C. B. (1994). Discussion of shared and unshared information in decision-making groups. *Journal of personality and social psychology, 67*(3), 446.

Leana, C. R., & Van Buren, H. J. (1999). Organizational social capital and employment practices. *Academy of Management Review, 24*(3), 538-555.

Lee, S. Y., Florida, R., & Acs, Z. (2004). Creativity and entepreneurship: a regional analysis of new firm foundation. *Regional studies, 38*(8), 879-891.

Lim, H. S., & Choi, J. N. (2009). Testing an alternative relationship between individual and contextual predictors of creative performance. *Social Behavior and Personality: an international journal, 37*(1), 117-135.

Lin, H.-F. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower, 28*(3/4), 315-332.

Ling, Y. (2012). The influence of intellectual capital on global initiatives. *VINE, 42*(1), 129-144.

Lu, L., Leung, K., & Koch, P. T. (2006). Managerial knowledge sharing: the role of individual, interpersonal, and organizational factors. *Management and Organization Review, 2*(1), 15-41.

March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science, 2*(1), 71-87.

Marlet, G., & van Woerkens, C. (2007). The Dutch creative class and how it fosters urban employment growth. *Urban Studies, 44*(13), 2605-2626.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*: Sage Publications, Incorporated.

Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology, 91*(6), 1321-1339.

Mumford, M. D., & Gustafson, S. B. (1988). Creativity syndrome: Integration, application, and innovation. *Psychological bulletin, 103*(1), 27.

Mumford, M. D., Scott, G. M., Gaddis, B., & Strange, J. M. (2002). Leading creative people: Orchestrating expertise and relationships. *The Leadership Quarterly, 13*(6), 705-750.

Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review, 23*(2), 242-266.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.

O'Dell, C., & Grayson, C. J. (1998). If only we knew what we know. *California management review, 40*(3), 154-174.

Ohly, S., & Fritz, C. (2010). Work characteristics, challenge appraisal, creativity, and proactive behavior: A multi-level study. *Journal of Organizational Behavior, 31*(4), 543-565.

Ohly, S., Sonnentag, S., & Pluntke, F. (2006). Routinization, work characteristics and their relationships with creative and proactive behaviors. *Journal of Organizational Behavior, 27*(3), 257-279.

Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal, 39*(3), 607-634.

Oldham, G. R., & Hackman, J. R. (2010). Not what it was and not what it will be: The future of job design research. *Journal of Organizational Behavior, 31*(2-3), 463-479.

Osterman, P. (1984). *Internal labor markets*. Cambridge, MA: The MIT Press.

Parker, S. K. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology, 83*, 835-852.

Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal of Applied Psychology; Journal of Applied Psychology, 91*(3), 636.

Patton, M. Q. (2002). *Qualitative Research and Evaluation Methods* (3 ed.). CA: Thousand Oaks.

Perry-Smith, J. E. (2006). Social Yet Creative: The role of social relationships in facilitating individual creativity. *Academy of Management Journal, 49*(1), 85-101.

Perry-Smith, J. E., & Shalley, C. E. (2003). The social side of creativity: A static and dynamic social network perspective. *The Academy of Management Review*, 89-106.

Powell, W. W., Kenneth, W. K., & Lauren, S. D. (1996). Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology. *Administrative Science Quarterly, 41*, 116-145.

Pullen, A. J. J., Weerd-Nederhof, P. C., Groen, A. J., & Fisscher, O. A. M. (2012). Open Innovation in Practice: Goal Complementarity and Closed NPD Networks to Explain Differences in Innovation Performance for SMEs in the Medical Devices Sector. *Journal of product innovation management*.

Putnam, R. (2000). *Bowling alone: The collapse and revival of American community*: Simon & Schuster.

Roos, J., Roos, G., Dragonetti, N. C., & Edvinsson, L. (1997). *Intellectual capital*: Macmillan Business Basingstoke.

Rowley, T., Behrens, D., & Krackhardt, D. (2000). Redundant governance structures: an analysis of structural and relational embeddedness in the steel and semiconductor industries. *Strategic Management Journal, 21*(3), 369-386.

Saldana, J. (2009). *The Coding Manual for Qualitative Researchers*: SAGE Publications.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*: Pearson.

Schultz, T. W. (1961). Investment in human capital. *American Economics Review, 51*(1), 1-17.

Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology, 54*(4), 845-874.

Shalley, C. E., & Gilson, L. L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *The Leadership Quarterly, 15*(1), 33-53.

Shalley, C. E., & Perry-Smith, J. E. (2001). Effects of social-psychological factors on creative performance: The role of informational and controlling expected evaluation and modeling experience. *Organizational Behavior and Human Decision Processes, 84*(1), 1-22.

Shipton, H., West, M. A., Dawson, J., Birdi, K., & Patterson, M. (2006). HRM as a predictor of innovation. *Human Resource Management Journal, 16*(1), 3-27.

Simonton, D. K. (1999). Talent and its development: An emergenic and epigenetic model. *Psychological Review, 106*(3), 435.

Speier, C., & Frese, M. (1997). Generalized self efficacy as a mediator and moderator between control and complexity at work and personal initiative: A longitudinal field study in East Germany. *Human Performance, 10*(2), 171-192.

Staples, D. S., & Webster, J. (2008). Exploring the effects of trust, task interdependence and virtualness on knowledge sharing in teams. *Information Systems Journal, 18*(6), 617-640.

Stata, R. (1986). Organizational learning: the key to management innovation. *Sloan Management Review, 30*(6), 63-74.

Sternberg, R. J. (2006). The nature of creativity. *Creativity Research Journal, 18*(1), 87-98.

Stewart, T. (1997). *Intellectual capital: the new wealth of organizations*. New York: Doubleday.

Stone, E. F., & Gueutal, H. G. (1985). An empirical derivation of the dimensions along which characteristics of jobs are perceived. *Academy of Management Journal, 28*(2), 376-396.

Straatman, S. F. E. (2011). *Organisational Creative Capital: Are we there yet?* Master of Business Administration, University of Twente.

Straatman, S. F. E., Veenendaal, A. A. R., & van Velzen, M. J. T. (2012). *Are we there yet? Towards a conceptualisation of organisational creative capital*. In Proceedings of the British Academy of Management 2012 Conference, Cardiff, UK.

Strohmeier, S., & Kabst, R. (2009). Organizational adoption of e-HRM in Europe: An empirical exploration of major adoption factors. *Journal of Managerial Psychology, 24*(6), 482-501.

Subramaniam, M., & Youndt, M. A. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal, 48*(3), 450-463.

Tierney, P., & Farmer, S. M. (2002). Creative self-efficacy: Its potential antecedents and relationship to creative performance. *Academy of Management Journal, 45*(6), 1137-1148.

Tierney, P., & Farmer, S. M. (2004). The Pygmalion process and employee creativity. *Journal of Management, 30*(3), 413-432.

Tierney, P., Farmer, S. M., & Graen, G. B. (1999). An examination of leadership and employee creativity: The relevance of traits and relationships. *Personnel Psychology, 52*(3), 591-620.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British journal of management, 14*(3), 207-222.

Troy, L. C., Szymanski, D. M., & Varadarajan, P. R. (2001). Generating new product ideas: an initial investigation of the role of market information and organizational characteristics. *Journal of the Academy of Marketing Science, 29*(1), 89-101.

Van der Vegt, G. S., & Janssen, O. (2003). Joint impact of interdependence and group diversity on innovation. *Journal of Management, 29*(5), 729-751.

Van Knippenberg, D., & Schippers, M. C. (2007). Work group diversity. *Annual Review of Psychology, 58*, 515-541.

Vartanian, O., Martindale, C., & Matthews, J. (2009). Divergent thinking ability is related to faster relatedness judgments. *Psychology of Aesthetics, Creativity and the Arts, 3*(2), 99.

Veenendaal, A. A. R., van Velzen, M. J. T., & Looise, J. K. (2012). *Human Resource Management for Innovation: The role of human, social and creative capital*. University of Twente. Paper prepared for submission to 'Creativity and Innovation Management'.

Wall, T. D., Jackson, P. R., & Mullarkey, S. (1995). Further evidence on some new measures of job control, cognitive demand and production responsibility. *Journal of Organizational Behavior, 16*(5), 431-455.

Willis, R. J. (1986). *Wage determinants: A survey and reinterpretation of human capital earnings functions* (Vol. 2). Amsterdam: Elsevier Science Publishers.

Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review*, 293-321.

Wright, P. M., & Kehoe, R. R. (2008). Human resource practices and organizational commitment: A deeper examination. *Asia Pacific Journal of Human Resources, 46*(1), 6-20.

Wright, P. M., & McMahan, G. C. (2011). Exploring human capital: putting 'human' back into strategic human resource management. *Human Resource Management Journal, 21*(2), 93-104.

Yang, C. C., & Lin, C. Y. Y. (2009). Does intellectual capital mediate the relationship between HRM and organizational performance? Perspective of a healthcare industry in Taiwan. *International Journal of Human Resource Management, 20*(9), 1965-1984.

Yin, R. K. (1984). *Case study research. Design and methods*. Beverly Hills, CA: Sage Publications.

Yin, R. K. (2003). *Case Study Research: Design and Methods*: SAGE Publications.

Zheng, W. (2010). A social capital perspective of innovation from individuals to nations: where is empirical literature directing us? *International Journal of Management Reviews, 12*(2), 151-183.

Zhou, J. (1998). Feedback valence, feedback style, task autonomy, and achievement orientation: Interactive effects on creative performance. *Journal of Applied Psychology, 83*(2), 261.

Zhou, J. (2003). When the presence of creative coworkers is related to creativity: role of supervisor close monitoring, developmental feedback, and creative personality. *Journal of Applied Psychology, 88*(3), 413.

Appendix A company descriptions creative capital

Company X / high creative capital

The main activity of our organisation is developing new products, services and processes. For this activity, people have to develop new ideas and concepts by combining existing ideas, knowledge and concepts, in other words employees have to be creative. To stay competitive in the volatile environment, we constantly have to generate new ideas and think outside the box. We have a wide and diverse external network that we can use for idea generation. Besides the external network, we also have a strong internal network, which means that we give our employees the opportunity to use their creativity together.

Company Y / low creative capital

The main activity of our organisation is focusing on our current product portfolio and improving our products, services and processes. For this activity, our employees have to use their existing knowledge to improve the efficiency of our existing products. We fit in a stable environment. We have a very strong internal network and rely mainly on the skills and abilities of our employees. We also have a good external network and use the network for improving products and processes rather than for idea generation and innovation.

Appendix B interview protocol

The interviews will be conducted in conclusion with the creative capital research group, indicating that three students will together interview each respondent, which will be the HR manager. The interviews will be semi-structured and last about 60 to 90 minutes. The semi-structured nature of the interviews allows the interviewers to follow the string of thoughts of the respondents and thereby changing the order of the interview topics accordingly, based on the flow of the interview. Additionally, if a topic item has been discussed previously and no further information is required, the question might be skipped to ensure the flow of the conversation. All interviews will be recorded and fully transcribed at a later stage. In addition, handwritten notes will be taken.

The interviews will be divided into seven segments- general introduction, creative capital, selection & recruitment, training, job design and externalised labour, end of the interview. The first segment will introduce the interviewee to the research and ensure that all necessary information is provided. The second segment focuses on determining if the organisation has high or low creative capital. To do so, the interviewee will be presented with descriptions of an organisation with each high and low creative capital and is then asked to describe which description fits the organisations best and why. This will be further investigated with follow up questions. Then the individual sections will follow in which each group member asks interview questions about their approach. The final section is about the ending of the interview, this includes the provision of time for the interviewee to mention anything relevant for this topic and the process after the interview will be mentioned.

Part I- Introduction **(approx. 5 minutes)**

The interviewee will be introduced to the topic and the respondents, all formalities should be discussed.

- Test if recording device is working properly

Example introduction:

Welcome and thank you for taking part in our research. We are Roy, Celeste and Marina and as you probably know, we are students at the University of Twente studying Human Resource Management and currently working on our dissertation. The topic for our research is creative capital, also known as 'creatief kapitaal', which is introduced by Richard Florida, a Canadian professor in the urban economies. The idea of creative capital is to explain the innovative performance of regions and we are researching if this can also be applied to an organisational level (see appendix A E-mail). In addition, we will also ask questions related to 3 HR topics- selection & recruitment, job design and externalised labour. We therefore want to investigate the relationship between these HR topics and creative capital. Celeste is responsible for the recruitment section, Roy is responsible for the job design section and Marina is dedicated to external labour. Although each of us is responsible for his own section, we will ask questions during the interview if something interesting comes along. The interview will take about 60-90 minutes and it will be transcribed. Is this ok? Would it be ok with you if we use your organisation in our report or do you prefer to stay anonym? We would like to record the interview, is that ok? We will also take some notes during the interview, but that is just for administration purposes, so do not let it distract you. Do you have any questions about the interview or the process? We just introduced ourselves, but tell us something about you. For example, starting with your name and your job.

Dank u wel voor uw tijd om deel te nemen in ons onderzoek. Wij zijn Roy, Céleste and Marina en zoals u mogelijk al weet studeren wij Human Resource Management aan de Universiteit Twente. Dit onderzoek is voor onze afstuderen. Het onderwerp voor vandaag is creatief kapitaal, een term geïntroduceerd door Richard Florida, een Canadese professor in stedelijke ontwikkeling. Het idee achter creatief kapitaal is dat dit concept de regionale innovatieve prestaties kan verklaren en wij onderzoeken of dit ook toegepast kan worden op organisaties. Wij zullen vragen stellen gerelateerd aan drie HR onderwerpen, namelijk werving en selectie,

job design en externe werkkracht. Wij doen onderzoek naar het effect van elk van deze onderwerpen op creatief kapitaal. Céleste zal zich richten op werving en selectie, Roy zal zich bezig houden met job design en Marina op het gebruik van externe werkkracht. Ondanks dat ieder van ons verantwoordelijk is voor zijn eigen onderdeel zal ieder van ons actief deelnemen aan het interview. Het interview zal ongeveer 60 tot 90 minuten duren en zal vervolgens uitgewerkt worden. Kunt u zich hier in vinden? Vindt u het goed als wij uw organisatie in ons verslag vermelden of wilt u liever anoniem blijven? Wij willen graag het interview opnemen, is dat akkoord? Gedurende het interview maken wij ook aantekeningen, dat is slechts voor onze eigen administratie, laat dat u vooral niet afleiden. Hebt u op het moment vragen met betrekking tot het interview of het proces? ... We hebben ons net voorgesteld, kan u wat over uzelf vertellen? Beginnend met bijvoorbeeld uw naam en werkzaamheden?

Part II- Creative capital **(approx. 10-15 minutes)**

We have two descriptions of two different organisations that we would like you to read. Could you please tell us which description your organisation fits best? (See Appendix B Creative capital descriptions). Why?

Relationships

1. What can you tell me about the relationships of employees? Are they more internally-, externally focused or both? Could you give us an example? Is cooperation within or outside the organisation needed for creativity?

1. Wat kunt u mij vertellen over de relaties van werknemers? Zijn deze relaties meer intern gericht, extern gericht of op beide gericht? Hebt u een voorbeeld daarvan? Is samenwerking tussen werknemers of samenwerking met personen buiten de organisatie nodig voor creativiteit?

2a. Relationships internally focused (bonding versus bridging)

Are these relationships between employees similar to each other? Are these relationships mainly between employees of the same department? Do you have an example of such relationships?

2a. Relaties tussen werknemers (bonding versus bridging)

Zijn deze relaties tussen werknemers die dezelfde achtergrond hebben? Zijn deze relaties voornamelijk tussen werknemers van dezelfde afdeling? Hebt u een voorbeeld voor deze relaties?

2b. Relationships externally focused (bonding versus bridging)

Are these relationships between individuals dissimilar to each other? Are these relationships mainly between individuals similar to the employee within the organisation? Do you have examples of such relationships?

2b. Relaties tussen werknemers en actoren buiten de organisatie (bonding versus bridging)

Met betrekking tot de relaties buiten de organisatie hebben deze actoren een andere achtergrond dan de werknemers? Zijn deze relaties voornamelijk tussen werknemers en actoren met een gelijke achtergrond? Heeft u enkele voorbeelden van deze relaties?

3. Is there much interaction within these relationships or are they used only a few times a year?
And why is there (not) much interaction?
3. Wordt er veel gebruik gemaakt van deze relaties, of is dit slechts enkele keren per jaar. Waarom is er zoveel / weinig interactie?

Organisational creative ability

4. What does the organisation do when someone has an idea?
4. Wat doet de organisatie wanneer iemand een idee heeft?

Creativity

5a. Do the employees of your company develop new ideas?
5a. Komen uw werknemers met nieuwe ideeën?
5b. And are they creative within this process (think outside the box)? -> Could you give us an example?
5b. Zijn ze creatief in het ontwikkelen van nieuwe ideeën (think outside the box)? -> Hebt u een voorbeeld?
5c. And are they motivated by the company to be creative (combining different ideas, knowledge and concepts)?
5c. Zijn ze gemotiveerd door de organisatie om creatief te zijn? (het combineren van verschillende ideeën, kennis en concepten)?

Part III- Selection & Recruitment (approx. 15 minutes)

Recruitment

1) When there is a vacancy, will this vacancy be posted internally or externally?

1. Wanneer er een vacature vrijkomt, wordt deze dan intern of extern uitgezet?

When it is job dependent:

Wanneer het afhankelijk is van de baan:

1b) Can you give examples of specific jobs or does it depends on jobs with special criteria?

Zou u een voorbeeld kunnen geven van specifieke banen of is het afhankelijk van de eisen van banen?

1c) Okay, and what are the percentages of the total vacancies that are posted internal and external?

1c. Wat is de verhouding tussen vacatures die intern worden uitgezet en vacatures die extern worden uitgezet in percentages?

When it is internal:

2) For what reasons is the company focussing on internal recruitment?

2. Wat zijn de redenen voor het intern uitzetten van de vacature?

When it is external:

3a) For what reasons is the company focussing on external recruitment?

3a. Wat zijn de redenen voor het extern uitzetten van de vacature?

3b) Is the recruitment done by a recruitment agency or by the organisation itself?

3b. Wordt de werving gedaan door het bedrijf zelf of door een wervingsbureau?

4) Which channels/methods are used?

4. Van welke methoden maken jullie gebruik?

5) After the determination of the channels to be used, a job description will be published to search for new employees. How are the job criteria for this job description composed?

5. Na het bepalen van de methode, wordt er een beschrijving van de baan gemaakt om die naar buiten te kunnen brengen. Hoe worden de criteria voor deze beschrijving gemaakt?

6) What are the companies' benefits by using these criteria for the job description?

6. Waarom maakt het bedrijf gebruik van deze criteria, wat zijn de voordelen?

Selection

1) When the recruitment process is finished, the best person for the job has to be selected. What are the criteria that will be used for the selection process?

1. Na het wervingsproces is het de bedoeling dat de beste persoon voor de baan gekozen wordt. Wat zijn de criteria die worden gebruikt voor het selectie proces.
When overall competencies:
Wanneer het gaat om algemene competenties:
2) Do these criteria change over time, when new staff is hired, or does these criteria remain the same?
2. Veranderen deze criteria over tijd, wanneer er nieuwe mensen worden aangenomen of blijven deze criteria over het algemeen hetzelfde?
3a) What are the methods that the company uses for selecting the best person?
3a. Van welke methode maakt het bedrijf gebruik voor het selecteren van de beste persoon?
3b) Multiple questions when answer contains tests, group work or mix of methods?
3b) Meerdere vragen wanneer de antwoorden tests bevatten, groepwerk of a mix van methoden?
4) Why is the company using this/these method(s)?
4. Waarom maken jullie gebruik van deze methode? voorbeeld?
5) Are these methods carried out by the company itself or by an assessment centre?
5. Wordt de selectie procedure door het bedrijf zelf gedaan of door een assessment center?
6) What are the reasons for carrying out the methods this way?
6. Waarom hebben jullie voor deze methode gekozen?
7) Who is responsible for the final decision?
7. Wie is verantwoordelijk voor de uiteindelijke beslissing? (hr manager, directeur, assessment center).

Part V- Job Design (approx. 15 minutes)

The interview starts with a general question regarding job design. Then during the interview the interviewer asks follow-up question concerning the dimensions of job design namely contents, methods and relationships. Each dimension starts with a general question about the topic and if needed the interviewer asks leading questions regarding the sub-dimensions.

General

1a. How do you design tasks?

1a. Hoe ontwerp je taken?

1b. How do you design work?

1b. Hoe ontwerp je werk?

Contents

2a. More specific, what can you tell me about the contents of the job?

2a. Iets specifieker, wat kan u mij vertellen over de inhoud van het werk?

2b. What can you tell me about the difficulty of the jobs? What can you tell me about the challenge of the job? Can you give me an example?

2b. Wat kan u mij vertellen over de moeilijkheid van het werk? Wat kan u mij vertellen over de uitdaging van het werk? Kunt u een voorbeeld geven?

Methods

3a. More specific, what can you tell me about the methods?

3a. Iets specifieker, wat kan u mij vertellen over de methoden?

3b. How much freedom do the employees have in choosing their work schedule? Can you give me an example?

3b. Hoeveel vrijheid hebben de werknemers om hun eigen werktijd in te delen? Heeft u een voorbeeld?

3c. How much freedom do the employees have in choosing their methods? Can you give me an example?

3c. Hoeveel vrijheid hebben de werknemers om hun eigen methoden te kiezen? Heeft u een voorbeeld?

3d. How much freedom do the employees have in making their own decisions? Can you give me an example?

3d. Hoeveel vrijheid hebben de werknemers om hun eigen keuzes te maken? Heeft u een voorbeeld hiervan?
3e. While working on the job do they know how to progress? Are the jobs defined in such a manner that they know what is expected from them? Can you give me an example?
3e. Gedurende de werkzaamheden weten de werknemers hoe ze verder te werk moeten om het tot een succes te brengen. Zijn de taken zo ontworpen dat ze weten wat er van ze verwacht wordt? Heeft u daar een voorbeeld van?

Relationships

4a. More specific, what can you tell me about the relationships?
4a. Iets specifieker, wat kan u mij vertellen over de relaties?
4b. What can you tell me about the interaction between employees and actors outside the organisation? To what extent do employees need to communicate with these actors?
Can you give me an example?
4b. Wat u mij vertellen over de relaties tussen werknemers and actoren buiten de organisatie? In welke mate moeten werknemers communiceren met deze actoren? Heeft u een voorbeeld?
4c. What can you tell me about the reliance of employees on each other to complete their work? Can you give me an example?
4c. Wat kan u mijn vertellen over de afhankelijkheid tussen werknemers voor het voltooien van hun werkzaamheden? Heeft u een voorbeeld?
4d. What can you tell me about support of colleagues? Can you give me an example? What can you tell me about the support of supervisors? Can you give me an example?
4d. Wat kan u mij vertellen over de ondersteuning van werknemers richting andere werknemers? Wat kan u mij vertellen over de ondersteuning door leidinggevenden? Heeft u een voorbeeld?

Part VI- Externalised labour (approx. 15 minutes)

I would like to interview you regarding the topic of externalised labour. First, externalised labour includes as all non-standard labour contracts, including temporary agency workers, consultants, part-time employees, network partners and alliances.

Ik wil u graag interviewen over het gebruik van externe werkkracht. Als eerste, externe werkkracht bestaat uit alle mensen die niet in vaste dienst zijn. Hierbij moet u denken aan parttime krachten, consultants, uitzendkrachten en werknemers van bedrijven met wie jullie samen werken/ externe partners.

Strength of use

1. Do you make use of externalised labour?
1. Maak je gebruik van externe werkkrachten?

2. In how far do you make use of externalised labour?
2. Hoeveel gebruik maak je van de externe werkkracht?

3. How would you describe the ratio of externalised employees to internalised employees?
3. Wat is het percentage van eigen werkkracht ten opzichte van externe werkkracht?

Design of externalised labour contracts

4. Could you tell me what kind of types of externalised labour you use? Can you give me examples? Could you tell me why you chose for those kinds of externalised labour contracts?
4. Zou u mij kunnen vertellen wat voor types of externe werkkracht u gebruikt? Heeft u een voorbeeld? Waarom heeft u gekozen voor deze vorm van externe werkkracht?

Reasons for use

5. Could you tell me more about the main purpose for using external labour?
5. Zou u wat meer kunnen vertellen over de redenen voor het gebruik van externe werkkracht?
6. What advantages do you experience from using external labour? What disadvantages? Why?

6. Welke voordelen ervaart u bij het gebruik van externe werkkracht? Wat zijn de nadelen? Waarom zijn het nadelen / voordelen?

Externalised labour for core activities

7. Could you tell me what the core activities of your organisation are?

7. Wat zijn de belangrijkste kerntaken van de organisatie?

8. Do you use external labour for these core activities of your firm? In how far do you use it? What kind of external labour do you use? How would you describe the effect of using external labour for these activities?

8. Maakt u gebruik van externe werkkracht voor uw kerntaken? In welke mate maakt u daar gebruik van? Welke type externe werkkracht gebruikt u? Wat kan u mij vertellen over het gebruik van deze werkkracht voor de kerntaken?

9. If you are not using external labour for core activities, why is that? Did you consider it and if yes, why did you choose against it?

9. Waarom maakt u geen gebruik van externe werkkracht voor de kerntaken? Heeft u overwogen om gebruik te maken van externe werkkracht en zo ja, waarom heeft u er voor gekozen om er geen gebruik van te maken?

Labour Market intermediaries

10. When using externalised labour, do you rather hire an external employee directly for example with a short-time contract or directly contact a different organisation such as a vendor or do you use a labour market intermediary such as a work agency.

If so, what kind of intermediary do you use? Why?

Which HR functions do they fulfil?

Does that mean you only use the intermediary to get to know the employee, or do they take care of administrative tasks?

How long does the relationship between you and the labour market intermediary exist?

10. Wanneer u gebruik maakt van externe werkkracht, wordt deze persoon dan ingehuurd via een organisatie of wordt dat uitbesteed/ door een uitzendbureau gedaan?

Als er gebruik wordt gemaakt van een uitzendbureau: En van wat voor soort intermediair maken jullie gebruik (e.g. headhunters, monsterboard, randstad)? En waarom?

Hoe lang maken jullie al gebruik van een uitzendbureau?

Part VII- End of interview (approx. 10 minutes)

The interviewee gets the opportunity to provide any additional information that he/she would like to provide. After the provision of information, the interviewers provide the interviewee with information about the process after this interview including the provision of a transcript for validation by the interviewee. At this stage, the interviewee can also raise any questions about the interview itself or the process after the interview. This step concludes with discussing the experience of the interviewee with this interview.

Example ending:

At this moment, we are at the end of the interview, do you have anything else to add which you regard as important and that needs to be mentioned? ... (opportunity to provide information). The next step will be the transcription of this interview by us and this transcript will be send to you for confirmation. We can use the same e-mail address that André contacted you on? ... (opportunity to agree or disagree). Do you have any questions left that you would like to have been answered? ... (opportunity to raise questions). Then we are almost finished, how did you experience this interview, any comments? ... (opportunity for feedback). Then we would like to thank you very much for your time, for your willingness to help us on this subject.

Op het moment zijn we aan het einde gekomen van dit interview, heeft u nog wat toe te voegen waarvan u denkt dat het belangrijk is om te vermelden? ... (mogelijkheid voor extra informatie). De volgende stap is het uitschrijven van het interview door ons en deze uitwerking zal naar u gestuurd worden ter bevestiging. Kunnen wij hetzelfde e-mailadres gebruiken dat André heeft gebruikt? ... (mogelijkheid tot bevestiging). Heeft u nog vragen over die u graag beantwoord wilt hebben? ... (mogelijkheid tot het stellen van vragen). Dan zijn we nu bijna klaar, hoe heeft u dit interview ervaren, nog enkele opmerkingen? ... (mogelijkheid tot terugkoppeling). Dan willen we u hartelijk bedanken voor uw tijd, en dat u ons bij dit onderzoek wilt helpen.

E-mail

Wij zijn een onderzoeksproject gestart waarin we willen kijken of we ‘creative capital’ kunnen identificeren op organisatieniveau. Graag zouden we u willen vragen of we een aantal interviews mogen afnemen om dit onderzoek uit te voeren.

De term Creative Capital, ofwel creatief kapitaal in goed Nederlands, is tien jaar geleden geïntroduceerd om innovatieprestaties van regio’s te kunnen verklaren (door Richard Florida). De bestaande verklaringen die uitgaan van het idee dat innovatie wordt veroorzaakt door sterke relaties en netwerken, zogezegd een hoge mate van sociaal kapitaal, werden tegengesproken door nieuwe bevindingen. Regio’s leken juist innovatiever te zijn als er sprake was van lage hoeveelheden sociaal kapitaal en een hoge mate van creatief kapitaal. Wij vragen ons af hoe dit werkt voor organisaties. Creatief kapitaal past bij de benadering om menselijk kapitaal (human capital) centraal te stellen en om als bedrijf kennis te benutten die ergens voorhanden is, niet per se binnen het bedrijf zelf.

Om meer inzicht te verkrijgen over creatief kapitaal bij organisaties willen we bij bedrijven interviews afnemen om het begrip scherper te krijgen en daarmee instrumenten te kunnen ontwikkelen om potentiele creatief kapitaal in kaart te brengen en het creatief kapitaal te vergroten via human resource management.

Aan u dus de vraag of u medewerking wilt verlenen aan dit onderzoek. Als u wilt meedoen, zullen we zeer spoedig contact met u opnemen voor afspraken voor interviews. Wanneer de beginfase van dit onderzoek is afgerond zult u een rapport ontvangen over onze bevindingen. Mocht u vragen hebben, neemt u gerust contact op.

Met vriendelijke groet,

André Veenendaal
Namens het onderzoeksproject-team ‘HRM & Creative Capital’

Creative capital descriptions

Company X

The main activity of our organisation is developing new products, services and processes. For this activity, people have to develop new ideas and concepts by combining existing ideas, knowledge and concepts, in other words employees have to be creative. To stay competitive in the volatile environment, we constantly have to generate new ideas and think outside the box. We have a wide and diverse external network that we can use for idea generation. Besides the external network, we also have a strong internal network, which means that we give our employees the opportunity to use their creativity together.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
0	0	0	0	0

Company Y

The main activity of our organisation is focusing on our current product portfolio and improving our products, services and processes. For this activity our employees have to use their existing knowledge to improve the efficiency of our existing products. We fit in a stable environment. We have a very strong internal network and rely mainly on the skills and abilities of our employees. We also have a good external network and use the network for improving products and processes rather than for idea generation and innovation.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
0	0	0	0	0

Creatief kapitaal beschrijvingen

Organisatie X

De voornaamste activiteit van ons bedrijf/ onze organisatie bestaat uit het ontwikkelen van nieuwe producten, diensten en processen. Voor deze voornaamste activiteit moeten mensen nieuwe ideeën en concepten ontwikkelen, door het combineren van bestaande ideeën, kennis en concepten, of te wel; werknemers moeten creatief zijn. Om concurrerend te blijven in de veranderlijke omgeving zijn we continu nieuwe ideeën aan het genereren en moeten we 'out-of-box' denken. We hebben een breed en divers extern netwerk die we kunnen inzetten voor het genereren van ideeën. Naast dit externe netwerk hebben we ook een sterk intern netwerk, wat eigenlijk inhoudt dat we onze werknemers de mogelijkheid geven om hun creativiteit gezamenlijk in te zetten.

Zeer mee oneens	Mee oneens	Neutraal	Mee eens	Zeer mee eens
0	0	0	0	0

Organisatie Y

De voornaamste activiteit van ons bedrijf/ onze organisatie is gericht op de bestaande product portfolio en het verbeteren van de huidige producten, diensten en processen. Voor deze voornaamste activiteit moeten onze werknemers hun bestaande kennis inzetten om de efficiëntie te vergroten van onze huidige producten en diensten. We hebben te maken met een stabiele bedrijfsomgeving. We hebben een sterk intern netwerk en vertrouwen voornamelijk op de vaardigheden van onze werknemers. We hebben ook een goed extern netwerk en gebruiken dit netwerk voor het verbeteren van producten, diensten en processen, minder tot niet voor het genereren van ideeën en innovatie.

Zeer mee oneens	Mee oneens	Neutraal	Mee eens	Zeer mee eens
0	0	0	0	0