UNDERSTANDING INNOVATIVE BEHAVIOR OF EMPLOYEES: THE ROLE OF NETWORK CORENESS AND POLITICAL SKILL.

A quantitative study of the role of network coreness and political skill, separately and in conjunction, in influencing innovative employee behaviour.

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ABSTRACT

This research answers the following research question: *How do political skill and social network coreness in conjunction and separately influence the innovative behaviour of employees?* This research aims to a broader understanding of the influence of political skill and network coreness on idea generation and idea implementation. Therefore, giving theoretical implications and practical implications that help organizations survive in the increasingly competitive world. To answer the research, question a survey is conducted in a holding company consisting of four companies. Both the holding is studied as the companies separately to see if the same results would hold for every company. The results of the study show that there seems to be a positive effect between network coreness and idea implementation. However, this only holds for 2 of the 5 companies. Secondly, the results showed that political skills had a positive effect on idea generation and idea implementation in three of the 5 companies. No significant effect was found of a moderating effect of political skill on the relationship between network coreness and idea generation or implementation. Future research is needed to determine if longitudinal research and a bigger sample would lead to the same results.

Keywords: network coreness, core/periphery, political skill, innovative employee behaviour, idea generation, idea implementation.

INHOUD

1. INTRODUCTION

The competitive economic environment is increasingly turbulent, and firms have been looking for ways of managing innovation and generating competitive advantage (Blanca, 2018). Because of this change in the environment, intrapreneurship has increased in importance (Blanca, 2018). Intrapreneurship is entrepreneurship within existing organizations (Antonic and Hisrich, 2001). An intrapreneur can be defined as *"an employee who recognizes opportunities and develops innovations from within an existing hierarchy"* (Camelo-Ordaz et al., 2012, p.514).

These intrapreneurs are crucial as they think across the boundaries of organizational units (Pinchot, 1985). Therefore, these intrapreneurial employees are the foundation for innovation and the subsequent competitive advantage of firms (Guerrero and PeñaLegazkue, 2013). It is widely recognized that innovation is critical to the growth and competitiveness of organizations (Tellis & Prabhu & Chandy, 2009). Because a company needs new ideas to keep growing and stay or get ahead of competitors. As business environments getting increasingly dynamic, quickly adapt and re-modulate processes, products and services have become a key element for achieving the goals of an organization (Janssen & Van Yperen, 2004).

An increasing amount of research has been conducted on innovative employee behaviour. Because understanding the antecedents and outcomes of employee innovative behaviour is critical. Innovative employee behaviour is the extent to which an employee generates ideas and implements ideas in their organization. This is critical because these innovations are key when organizations want to improve performance and stay competitive (Grosser et al. 2018). With new knowledge, companies can learn how to manage and influence innovative employee behaviour.

Innovations can be divided into two steps, which have been done by several researchers (Amabile (1988), Kanter (1988), Scot and Bruce (1994), and Grosser et al., 2018). The first step is idea generation, the generation of new and novel ideas. The second step is idea implementation where the employee needs to successfully implement the new idea (Grosser et al., 2018). Both steps are activities of innovative behaviour an employee can show in the organization. This twofold for the innovative employee behaviour concept is important because several times it has been acknowledged that each activity may be shaped in different personal and contractual forces (Bear, 2012). A limitation of some studies is that they acknowledged it but not made this distinction in their conceptual argument or their empirical analysis (Yuan & Woodman, 2010). Therefore, in this research innovation will be divided into two activities: idea generation and idea implementation.

Social factors are important antecedents for innovative employee behaviour because the group constitutes the social context in which innovative behaviour occurs (Woodman, 1993). For example, network position is a social factor that influences innovative behaviour. The network position at a core/periphery network can be at the core or the periphery. The core exist usually out of the key members of the community and the periphery is tied to the core by looser linkages (Cattani & Ferriani, 2008). The degree of coreness is therefore how close an employee is located to the core of a network (Cattani & Ferriani, 2008). Both positions (core and periphery) have been shown to influence the innovative behaviour of employees (Cattani & Ferriani, 2008). But whether an employee is closer to the core has been shown positive as well as negative effects on innovative employee behaviour. This could be the case because network coreness has a different influence on idea generation and idea implementation. Which will be investigated in this research. There will be hypothesized that there is a core-peripheral paradox where both positions have been hypothesized to influence one step of innovative behaviour positively/negatively.

Besides social factors, also individual factors influence employee innovations within organizations (Anderson et al. 2014). Political skill is an individual characteristic that influences the innovative behaviour of employees. Employees can use political skills to get to the resources that are needed for innovation (Clarke & Higgs, 2019). Secondly, innovators often must engage in political behaviour to get the necessary support for innovative ideas (Howell & Higgens, 1990). Therefore, political skill influences the innovative behaviour of employees.

Literature suggests that there could be an interplay between the network position and the political skill of an employee which can influence the innovative behaviour of employees. Because political skill could help people overcome the downsides of the network position on idea generation and implementation. Therefore, moderates the relationship between network coreness, idea generation and implementation. This could also be the reason for the positive and negative effects of network coreness on innovative employee behaviour. This leads to the following research question:

How do political skill and social network coreness in conjunction and separately influence the innovative behaviour of employees?

First, this research starts by arguing that network coreness has a different effect on the idea generation and idea implementation phase. Secondly, the argument is made that political skill positively influences both idea generation and implementation. Third, the argument is made that political skill has a moderating role in the relationship between network coreness

and idea generation. As well as a moderating role in the relationship between network coreness and idea implementation. Therefore, this research takes an interactionist approach. An interactionist approach sees employee innovative behaviour as a combination between the social context and personal characteristics of an employee (Woodman, Sawyer, & Griffin, 1993).

This research is scientifically relevant because it enhances the literature about innovative employee behaviour. There have been studies on the influence of individual characteristics on innovative behaviour. Besides, there has also been research on the influence of social network structures on innovative behaviour. First, this research will enhance these understandings of the effect of a social network factor on innovative behaviour and an individual factor on innovative behaviour. Besides, it shows their separate effects on two kinds of innovative behaviour: idea implementation and idea generation. Secondly, there has not been a lot of research on individual characteristics along with social network structure, as Grosser et al. (2018) has been discussing there could be an interplay between the social network structures and innovative behaviour. Studying this could lead to a better understanding of the innovative behaviour of employees. In this research, one individual characteristic (political skill) will be studied along with social network structure (network coreness). With this research, new knowledge will be generated about the conjunctive influence of political skill and network coreness on innovative employee behaviour. Besides that, this research will lead to a broader understanding of the interplay between social network structure and individual characteristics that influence the innovative behaviour of employees.

The research is also relevant for management and organizations. As said innovative behaviour is key for the competitive advantage of organizations. This research sheds light on how political skills and network coreness influences innovative behaviour. With this research managers get a better understanding of what will lead to the wanted innovative behaviour. With this information, they can adjust their organization or train their employees to stimulate innovative behaviour. Because more clarity about the conditions in which innovative behaviour is facilitated can serve as a basis for developing business practices, such as development and rewards, which would stimulate innovative behaviour (Schmelter et al. 2010). Therefore, the goal of this research is to help managers and organizations create environments, which will lead to (more) innovative behaviour of employees that can lead to competitive advantages.

2. THEORETICAL BACKGROUND AND HYPOTHESES

2.1 INNOVATIVE EMPLOYEE BEHAVIOUR

An intrapreneur is an employee who recognizes opportunities and develops innovations from within an existing hierarchy (Camelo-Ordaz et al. 2012). Innovative employee behaviour is the outcome variable of this research and overlaps a lot with the behaviour of an intrapreneur. This is because the focus is also on the innovative behaviour of employees within an organization. But innovative behaviour is only one of the five dimensions of intrapreneurial behaviour: innovativeness, proactiveness, opportunity recognition/exploitation, risk-taking/tolerance of failure, and networking (Neessen et al., 2018). The focus of this research is on the first dimension: innovative behaviour of employees. Innovative behaviour of employees can be defined by Janssen & Van Yperen (2004, p.370) as:
"Intentional generation, promotion and realization of new ideas within a workgroup, workgroup or organization".

In this definition, the innovative behaviour of employees is divided into three dimensions of generation, promotion, and realization. Several other researchers (Amabile (1988), Kanter (1988), Scot and Bruce (1994), and Grosser et al., 2018) divide innovative behaviour into a two-step process. The first step is creative ideation or idea generation and is the generation of useful and novel ideas. Afterwards in the second step, idea implementation, an employee needs to successfully get the organization or unit to adopt the idea (Scott & Bruce, 1994). In this research, the two-step division is incorporated because it is used in much fundamental research. Besides that, it fits this research well with also a division at the variable of network coreness. There has been chosen for a division of innovative behaviour in separate outcomes variables because diverse research has shown that antecedents have a different effect on idea generation and idea implementation.

For example, in the research of Perry-Smith & Mannuci (2017), a similar effect has been shown. In this case, the effect of structural holes on innovative behaviour showed structural holes did not benefit the idea implementation phase but did benefit the idea generation phase. This is also research where the effect of a social, contextual factor on innovative behaviour has been investigated. This, and several other studies have shown that it is important to make the separation between the idea generation and implementation phase and therefore also a reason that this twofold is incorporated in this research as well.

This twofold innovative behaviour could therefore also be the reason that positive, as well as negative effects, have been seen when investigating the effect of network coreness on innovative behaviour. Which is the basis for this research. In the next two paragraphs, both idea generation and implementation will be explained.

2.1.1 IDEA GENERATION

Idea generation is the first phase that happens for an innovation. Because first for innovation a new idea or improvement must be found. Without new ideas, nothing else can happen (Sherwood, 2000). Producing ideas that are promising, useful, or valuable is therefore the first step in innovation (Kijkuit & Van Den Ende, 2007). In the idea generation phase of innovative employee behaviour, it is about generating new and different ideas. Therefore, idea generation can be defined in this study, following Hennesey & Amabile (2010) as:

''The first step of innovation, where novel and useful ideas are generated''

An idea does not have to be new, most of the time it is the discovery of a new pattern of parts that already exist (Sherwoord, 2000). So, it can be something new you uncover but also the selection, reshuffling, combination, and synthesis of already existing facts, ideas, faculties, and skills (Koestler, 1964).

In this research is posited that the social context influences the idea generation phase, following Mueller & Kadmar (2011) and Perry-Smith & Mannuci (2017) who state that the social environment of the employee influences idea generation. First, the knowledge and information in the social context of an employee can influence the ideas that an employee generates (Perry-Smith & Manucci, 2017). The network and other people in the network give them access to diverse knowledge, this knowledge is crucial to idea generation (Veders & Stark, 2011). Because, when communicating with other people in the social context, new knowledge comes to the mind of the employee and this new information can be formed to an idea/innovation. Without the new information, there is no input for idea generation. Idea generation happens in the mind of the employee (Perry-Smith & Manucci, 2017). So, in the mind of the employee, the idea is formed. However, without the social context, there would be no input for idea generation. Therefore, the social context influences the number of ideas that are generated.

Secondly, the knowledge in the context forms the possible ideas that can be formed. Only the knowledge that is present in the social context and communicated to each other can lead to idea generation. During this process of sharing and receiving information the elements of knowledge combine, which leads to new ideas and solutions (Tang et al., 2014). For instance, when nobody in the social context has knowledge or information about software, no ideas will be generated about software. But when someone is included in the social context with software knowledge this could lead to new ideas about software in the company. Therefore, the social context influences the kind of idea that is generated.

2.1.2 IDEA IMPLEMENTATION

After the first phase of idea generation where the employee has generated idea(s) and selected the best one, the idea also needs to be implemented in the company or organizational unit of the company. Because ‘*’ideas are useless unless used’’* (Levitt, 1963) Therefore, idea implementation can be defined as:

‘’ Idea implementation is the process of converting these new ideas into new and improved products, services, or ways of doing things (Woodman & Sawyer & Griffin, 1993 p.310).

Once the idea has taken shape it must be sold to the others in the company (Kanter, 1988). Support of the idea is necessary for the succeeding of the innovation, to get the resources that are needed to implement the idea (Delbecq & Mills, 1985). Importantly, idea implementation requires access to resources (Damanpour. 1991). These resources are needed to concert the new ideas into the products, services, or ways of doing things. Therefore, important in the second phase of innovative behaviour is to build coalitions and acquitting power by selling the project to potential allies (Kanter, 1988). Because of this, the social context is important here because employees need to find allies in their social context to get support for their new idea. This support is needed for the resources that are required (Damanpour. 1991). Where idea implementation is mostly a creative process, idea implementation is primarily a social-political process (frost & Egri, 1991).

2.2 NETWORK CORENESS AND INNOVATIVE EMPLOYEE BEHAVIOUR

The success of the innovation of employees largely depends on an employee’s network of relationships in the organization. Because these networks provide relationships that can lead to information, inspiration, resources, and support those innovators need to develop their new ideas (Wang & Fang & Quresh & Jassen, 2015). Relations are at the core of innovation, in their work context, employees share content with their social surroundings. Therefore, also the place in the network and the relations alongside influence innovative employee behaviour.

Therefore, an important aspect of the network that influences innovative behaviour is the network position of an employee (Cattani & Ferriani, 2008). A person can be at the core of the peripheral of a network. How close an employee is located to the core of a network is the degree of coreness of an employee in the network (Cattani & Ferriani, 2008). Therefore, network coreness can be defined in this research as:

‘’Network coreness is the degree to which the employee is close to the core of the network’’.

This research will look at the influence of network coreness on the idea generation and idea implementation phase of innovative behaviour. This will be done because there is a

suggestion that both dimensions (core and peripheral) influence the two innovative behaviour activities (idea generation and implementation) differently. In the next two paragraphs, this will be explained.

In this research, the network coreness of the employee decides upon how close an employee is to the core, the degree of coreness of an employee. Besides, it can be divided into two opposites on a continuum. An employee can be at the peripheral continuum of the network or the core continuum. When an employee is at the core of the network, the degree of coreness is high. Most of the time these are the people that are key members of the network. The people in the core have dense connections with each other (Cattani & Ferriani, 2008). This position in the network has shown upsides and downsides for the innovative behaviour of employees which will be discussed more in paragraph 2.2.1.

On the opposite side, when an employee has a peripheral position in a network, their degree of coreness is low. They have connections with diverse other persons in the network, and sometimes even out of the network (Cattani & Ferriani, 2008). This position in the network has shown upsides and downsides for the innovative behaviour of employees as well which will be discussed more in paragraph 2.2.2.

2.2.1 NETWORK CORENESS AND IDEA GENERATION

For the idea generation phase of innovative employee behaviour, it is important to have diverse stimuli (Cattani & Ferriani, 2008). People at the core of a network mostly have strong connections with other people in the core. Because of this they mostly speak to each other which makes it more difficult to get new knowledge and therefore new ideas. So, people at the core mostly share knowledge and information with people at the core and less with other people. Therefore, people at the core have more homogeneous knowledge and almost no connections with people outside the network. Therefore, less new knowledge is combined and fewer new ideas are generated in the mind of employees. Therefore, a high degree of coreness has downsides for idea generation.

However, the diverse connections for an employee at the peripheral continuum of the network can facilitate creativeness and innovativeness through exposure to different sources of inspiration or stimulus (Cattani & Ferriani, 2008). People who participate in multiple intellectual domains are more likely to generate new ideas (Schilling, 2005). Because the heterogeneous knowledge of the different people leads to new combinations of knowledge which can lead to new ideas. So, the employees in a peripheral position of the network have a

bigger chance to come up with new and creative ideas. Therefore, a low degree of coreness (periphery) has upsides for idea implementation. The following hypothesis can be stated:
H1: The degree of network coreness will negatively influence idea implementation

2.2.2 NETWORK CORENESS AND IDEA IMPLEMENTATION

When looking at idea implementation the reverse effect seems to be present where a higher degree of coreness has a positive influence and a low degree of coreness a negative influence. This statement is made because, when an employee is closer to the core this gives them more chance that their generated idea will be readily recognized and legitimated (Cattani & Ferriani, 2008). Their ideas will gain faster recognition and acceptance. Secondly, they are at the core of the network and therefore have close connections with the other people at the core. Therefore, they can more easily get the consensus that is needed to get the resources for their new idea. They can use their position to gain the support needed for the exploitation and implementation of new ideas (Hargadon 2005). So, the employees at the core of the network can make better use of their position to implement new ideas and therefore a high degree of coreness has a positive influence on idea implementation.

In contrast to the people at the core, the employees at the peripheral find it harder to get the support and resources needed to implement these ideas. The people at the core most of the time are the key members of the network. Therefore, they are the ones that have the biggest influence on resource allocation and the choice of implementing new ideas. The people with a low degree of coreness do not have these strong connections with core people. Therefore, people with a low degree of coreness find it more difficult to get the support of core people needed for the idea implementation (Cattani & Ferriani, 2008). So, a low degree of coreness has a negative influence on idea implementation. The following hypothesis can be posited:

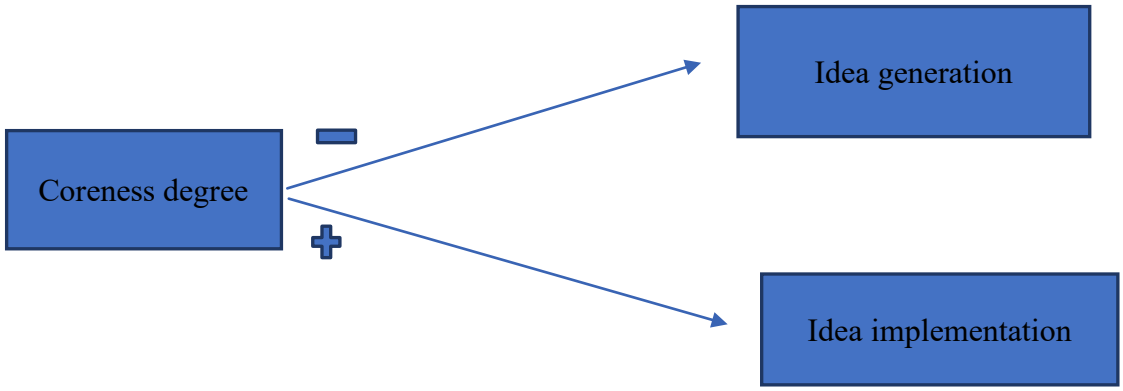
H2: The degree of network coreness will positively influence idea implementation

So, therefore it looks like, there is a core-peripheral paradox where both positions have been hypothesized to positively influence one step of the innovation and negatively influence the other step of the innovation.

2.2.3 CONCEPTUAL MODEL PART 1

So, the conceptual model for the influence of network coreness on idea generation and idea implementation can be pictured as follows:

Figure 1: conceptual model part 1



2.3 POLITICAL SKILL AND INNOVATIVE BEHAVIOUR

Foundational work on how resources within a firm are divided for innovation initiatives shows that the process is highly political. Accordingly, innovations are conceptualized as a socio-political process in organizations (Woodman, 1993). The successful generation and implementation of innovation are dependent on an employee's skills to obtain the necessary resources for the innovation and receive the needed support of others (Grosser et al. 2018). Therefore, the political skill of an employee has a great influence on the process of innovation.

Political skill is defined by Ferris et al. (2005, p. 291):

''The ability to effectively understand others at work and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives''.

The variable political skill consists of four dimensions: social astuteness, networking ability, apparent sincerity, and interpersonal influence (Ferris et al. 2007).

Social astuteness is how astutely individuals observe and i

nterpret others' behaviour and how attuned they are to the social environment. *Networking ability* is one's effectiveness to build coalitions and alliances with others and forging relationships. *Apparent sincerity* is the degree to which an individual is genuine, sincere, and authentic in their social interactions. And the last one is *interpersonal influence* which is the ability to get desired responses from others (Grosser et al. 2018). In the next two paragraphs, the relationship between political skill and the two outcome variables will be hypothesized.

2.3.1 POLITICAL SKILL AND IDEA GENERATION

To create new ideas, new knowledge is needed. This knowledge can steam from relations in the social network of the employee. To get to this knowledge of other people in the network relations are needed. One of the political skill dimensions is networking ability which helps

people with building new, qualitative relations (Hochwarter, 2012). These new relations can lead to new knowledge which then can lead to idea generation in the mind of the employee. Therefore, networking ability positively influence idea generation.

Secondly, political skills enable individuals to influence others. They can use the influencing methods to get the information from other people that they need to create new ideas (Miao & Wang, 2016). Therefore, not only relationships can lead to the generation of new ideas also using political skill to get new information can help idea generation. This new sharing of knowledge can enhance opportunities to get new knowledge and get novel insights from other people, which can lead to the creating of new ideas (Miao & Wang, 2016). Taken together political skill is hypothesized to positively influence idea generation.

H3: Political skill will positively influence idea generation

2.3.2 POLITICAL SKILL AND IDEA IMPLEMENTATION

Political skill also influences the idea implementation part of innovative behaviour. First, pollical skill helps to gain the support needed to implement the newly generated ideas (Clarke & Higgs, 2020). Especially the interpersonal influence is important here, with the interpersonal influence they can get the desired responses from others. People can use this ability to gain the support they want from other people. Besides this political skill also helps in overcoming other's resistance to their newly generated ideas (Clarke & Higgs, 2020). Therefore, interpersonal influence has a positive influence on idea implementation.

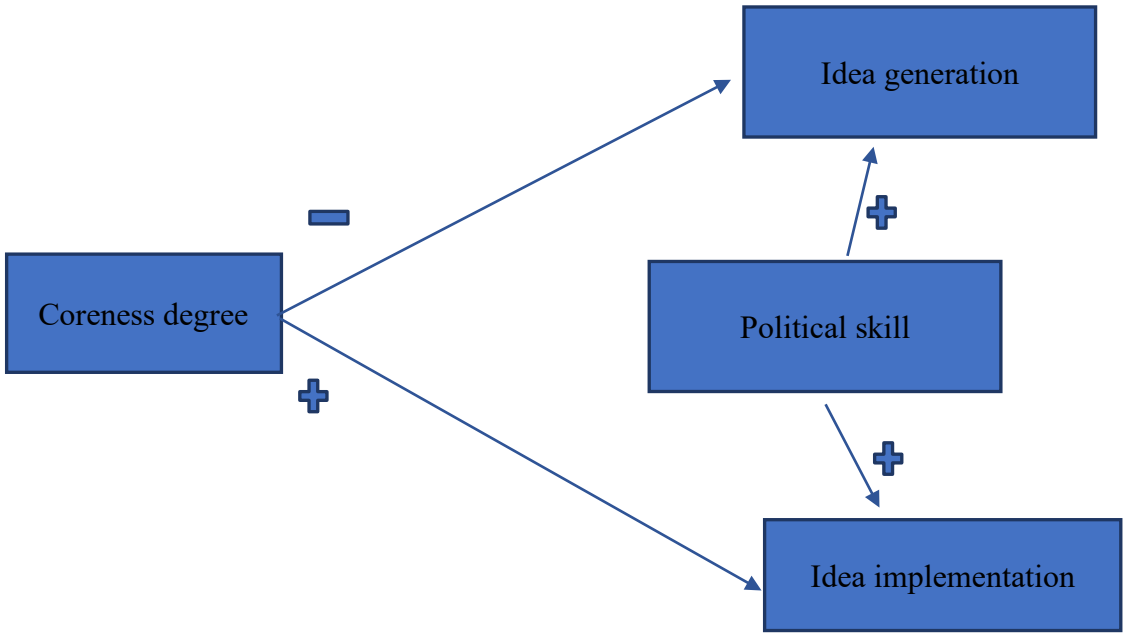
Secondly, their network ability can help them to build the coalition and alliances that are needed to implement the ideas. Building coalitions is crucial to get the ideas implemented (De Jong & Den Hartog, 2010). Because to get the idea implemented an employee needs enough people standing behind the idea. Network ability helps the employee to build relations and persuading others to join the coalition or implement the new idea (Hochwarter, 2012). Therefore, also network ability has a positive influence on idea implementation. Thirdly political skill can help employees to get the critical resources that are needed for the implementation of ideas (Kimura, 2015). With the relationships that they have built, they can get access to the resources they need to implement their idea. All together political skill is hypothesized to positively influence idea implementation.

H4: Political skill will positively influence idea implementation

2.3.3 CONCEPTUAL MODEL PART 2

In the new conceptual model in figure 2 hypotheses 3 and 4 are included.

Figure 2: conceptual model part 2



2.4 NETWORK CORENESS, POLITICAL SKILL AND INNOVATIVE EMPLOYEE BEHAVIOUR

Employee innovation can be seen as an interaction between an individual's personal characteristics and their social context (Woodman, Sawyer, & Griffin, 1993). Therefore, it is important to look at the interactions between individual and contextual characteristics in influencing the innovative behaviour of employees. There has not been a lot of research on individual characteristics along with social network structure in influencing innovative employee behaviour yet (Grosser et al. 2018). Besides previous literature of Grosser et al. (2018) has suggested that there could be an interplay between the network position and the political skill of an employee which can influence the innovative behaviour of employees. Therefore, in this research also the conjunction between network coreness and political skill on the two innovative behaviour outcomes will be studied.

2.4.1 THE INFLUENCE OF POLITICAL SKILL ON THE RELATIONSHIP BETWEEN NETWORK CORENESS AND THE IDEA GENERATION PHASE

Because the persons at the peripheral positions in a network have a more diverse connection, they have a bigger chance of coming up with innovations and creative ideas. But it could be argued that political skills can help the people at the core to quickly get innovations and creative ideas from their peripheral contacts. It can help them to have strong connections with the peripheral players so that when they have new ideas, they get told them very fast. Because pollical skill can help them to persuade others (Hochwarter, 2012). They

can use this persuasion to tell them the information and knowledge needed for new ideas. With their political skill, they can overcome the downside of their core position by influencing others to get the information needed for the creation of new ideas (Miao & Wang, 2016). Secondly, they can use their political skill to receive ideas from people at the peripheral. Therefore, they can benefit from the idea generation of peripheral players when their political skills are high.

The argumentation is made that political skill will lessen the negative effect that network coreness has on idea generation. Because people in the core of the network with high political skill can use their political skill to receive new information, knowledge, and ideas. People with low political skill will not get these advantages and so then the relationship between network coreness and idea generation is the strongest. Therefore, political skill is hypothesized to moderate the negative relationship between the coreness degree and idea generation (Grosser et al. 2018).

H5: Political skill will moderate the negative relationship between network coreness and idea generation.

2.3.2 THE INFLUENCE OF POLITICAL SKILL ON THE RELATIONSHIP BETWEEN NETWORK CORENESS AND THE IDEA IMPLEMENTATION PHASE

People in the core have an easier opportunity to find the resources and support needed than people in the peripheral position. Due to the position in the network persons at the core exploit their ideas more easily. But when political skills come into play, another situation could occur. Because when peripheral persons have political skills, this will help them to gain legitimacy for their new ideas (Grosser et al. 2018). Because people with political skills have been found to have greater abilities to network and therefore can create strong relations (Li, sun & Cheng, 2017). They can use their political skill to create strong relations with the core and get the support and resources needed from the core to exploit their ideas. Secondly, when people with a low degree of coreness have high political skill this could help them build coalitions and finding core sponsors to get their ideas implemented (Scott & Bruce, 1944).

To conclude, when people have a high degree of coreness, they already could get the resources and support of the other people at the core. But people at the peripheral (low degree of coreness) do not have this opportunity from their network position, but when an employee with a peripheral position has high political skills, they can use these skills to gain legitimacy and resources for their new ideas. So, with political skill into play, the argumentation is made that the positive relationship between network coreness and idea implementation is weakened

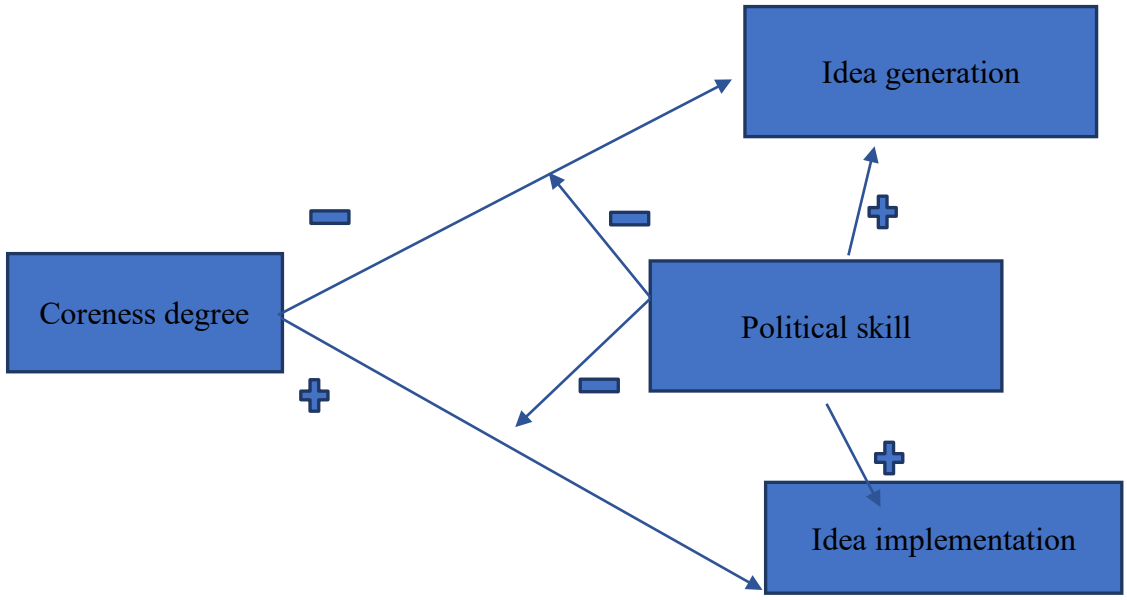
when people have high political skill. Because the people at the peripheral can use their political skill to implement a new idea. Therefore, political skill will moderate the relationship between network coreness and idea implementation. When people have high political skills, the relationship is expected to be less strong, because periphery players can better implement their ideas. When people have low political skills the relationship is expected to be the strongest because people at the periphery can't make use of their political skill to overcome the downsides of the position.

H6: Political skill will moderate the positive relationship between network coreness and idea implementation.

2.3.3 THE FINAL CONCEPTUAL MODEL

With the four-hypothesis included this leads to the following conceptual model:

Figure 3: final conceptual model



In both cases, there will be hypothesized that political skill moderates the influence of network coreness on both phases of innovative employee behaviour. Depending on their political skill, it could be the case that people are better to utilize their position and can conquer the disadvantages within it. This is what will be tested in this research, figure 2 is therefore the final conceptual model.

3. METHODOLOGY

3.1 METHOD

To measure the relationships between network coreness, innovative behaviour, and political skill a quantitative method is chosen. A quantitative method is chosen because of the deductive approach regarding the relationships. There is already a proposed theory and conceptual model been made in chapter 2 of this thesis, so these are ready to be tested, A deductive approach is about testing theories and is especially done by quantitative research methods (Bryman, 2012). Therefore, a quantitative research strategy has been chosen to measure the relationships between the variables.

3.2 RESEARCH DESIGN

For this research, a cross-sectional research design will be used. A cross-sectional design is following Bryman (2012) used when the following elements are present in a research

1. When there is more than one case: researchers of a cross-sectional design study are interested in variation. This is the case in this research because the study will be conducted to see if the theory will hold for a multitude of people in a different environment.
2. At a single point of time: the data on the variables of interest are collected simultaneously. Which is the case for this research.
3. Quantitative or quantifiable data: this is the case in this research because a quantitative method is chosen
4. Patterns of association: with a cross-sectional design it is possible to examine relationships only between variables, not over time. Which is the case in this research where we look at the relationship between the three variables: network coreness, innovative behaviour, and political skill.

The typical form of a cross-sectional research design is survey research or are structured observation. In this research, survey research will be conducted.

3.3 RESEARCH SAMPLE

The research is conducted within multiple companies within one holding in the Netherlands. This choice has been made to see if the theory holds within diverse situations. By using these multiple company's diverse environments are surrounding the employees. Therefore, a conclusion can be made about a multitude of environments. The companies differentiate in growth, years of existence, management style, and industry (table 1).

This is a good research setting to test the hypothesis because there are multiple companies included in this research. Therefore, directly can be shown if holds for every company, some companies, and the entire holding. During the measurement, the four

companies will be analyzed individually and together as a whole. Because of this interesting information can come to the surface about the theory and whether it holds for all companies, none, or some.

Table 1: industry of the companies in this study

Software company
Marketing agency
Flooring company
Secondment bureau
24-hour care company

The sample used for this research will be the employees working in the companies. In total 142 employees are invited to fill in the survey. This sample size is suitable because a smaller sample could be too low for statistical power (Hair et al., 2019). Besides that, a bigger sample brings the risk of finding significant relationships that may be practically of less meaning (Hair et al., 2019). Because of the diversity of companies, the sample is generalizable to a broader scope than would be the case when only one company would be used. To get a complete view all the people of the companies are invited to join the research, therefore, trying to get a clear as possible view of the population.

3.4 MEASURES

The variables, idea generation, idea implementation and political skills will be measured with a survey. The ground for this survey is diverse validated questionnaires used by other scientific work. In table 2 there is an outline of where the questionnaires are derived from. Together they are bundled in one survey to measure the constructs for this research. The measurement scale in this survey is a 7-point Likert scale with the following possible answers (1 = strongly disagree, 2 = disagree, 3= slightly disagree 4 = neutral 5= slightly agree 6= = agree, 7 = strongly agree).

Table 2: roots questionnaires

Variable	Validated questionnaire

Idea generation	Dorenbosch, van Engelen and Verhagens (2005) 10 items for idea generation
Idea implementation	Dorenbosch, van Engelen and Verhagens (2005) 6 iteams for idea implementation
Political skill	Ferris et al. (2005) 18-item Political Skill Inventory (PSI)

Only the independent variable network coreness will not be measured with a seven-point Likert scale but with a name generating/name interpreting technique. Following Maoret, Tortorielle & Lubattie (2020) this method will be used. This method is common in sociometric studies to measure network variables (Maoret, Tortoriello & Lubatti, 2020). First, some deeper explanation will be given about the independent variable network coreness because first to measure network coreness a network analysis must be done.

3.4.1 INDEPENDENT VARIABLE: NETWORK CORENESS

3.4.1.1 NETWORK ANALYSIS APPROACH

For the independent variable, network coreness there first must be a network analysis. During this analysis, it becomes clear how the network is structured. For the network analysis, a name-generating/name-interpreting technique is used. This measurement is done in two steps:

First using a name generator, following (Aalbers & Dolfsma, 2017), respondents indicate all colleagues which whom they regularly collaborated (Maoret, Tortoriello & Lubatti, 2020). There is made a complete separate list for every company. Thereafter using a name interpreter, respondents are asked: "How often do you generally go to this person for information or knowledge on work-related topics?'' Which can be answered by once a day, once a week, once in two weeks or once a month. To make it easier for the respondents the answers of the name generating technique directly transfer to this question. Besides, every respondent gets asked with whom they work together from the three other companies and how often. Therefore, an analysis can be done for the company as a network and the holding as the network to see if the same results hold.

With this name generator and/name interpreting technique, every person gets inbound and outbound scores. The inbound scores are the score they receive from other people: 1 when people say they work together with them every day, 0,75 when other people say once a week, 0,5 when other people say once in two weeks, 0,25 when people say once a month and 0 when someone else does not indicate that they work together. Secondly, the outside scores

are how much the person itself indicates that they work together with other people, with the same scoring as with the outbound score (Borgatti & Everett, 1999). This information is placed in a excel matrix for every company. This excel file can be used in Ucinet to do the necessary analysis for the network. First will be looked at the visualized network to get a first impression of the network situation. Afterwards the two network measures are calculated.

3.4.1.2 NETWORK CORENESS MEASUREMENT

To measure the network coreness after the network analysis has been done. The Ucinet program will be used to measure the coreness of each respondent. This program can measure the degree of coreness of every employee. Then they decide upon the closeness to the core of each factor by finding a Vector C such that the product of C and C transpose is as close as possible to the original data matrix. In the end, the values will be normalized. A score of 1 means that someone is very close to the core and a score of 0 means that someone is far away from the core and in the periphery (Borgatti & Everett, 1999).

Another way to measure network coreness is to divide the group into a network with people who belong to the core and people who belong to the periphery. Therefore, the division will be made between the respondents in a network and a dichotomous variable will rise. This is also done by The Ucinet program. With this measurement, they simultaneously fit a core/periphery model to network and identifies which belong to the periphery and which to the core. This will be done with an algorithm that seeks to find the minima of the cost function (Borgatti & Evertett, 1999). This measurement will be used in an additional analysis to check if the same results withhold when using this measurement instead of the coreness degree measurement. These are the two measures that can be used to measure coreness so, therefore, using both measurements will lead to a complete understanding of the influence of the variable.

This will be done 5 times, once for every company and once for the whole holding. Every respondent gets two scores: their network coreness score when viewing the company as the network. And a network coreness score viewing the holding as the network. The boundaries of the network for the holding are the people that are on the wages sheet of the holding. The boundary for the companies is the division of the people along the companies.

3.4.2 DEPENDENT VARIABLES: IDEA GENERATION AND IDEA IMPLEMENTATION

The dependent variables of this research are two innovative behaviours of employees: idea generation and idea implementation. The measurement of the innovative behaviour of

employees will be measured using Dorenbosch, van Engelen and Verhagens (2005) measurement of innovative behaviour. Which is a measurement with two dimensional: 10 items for creativity-orientated work behaviour which influences the idea generation phase of innovative behaviour and 6 items for implementation-oriented work behaviour which measures the implementation phase of innovative behaviour. So, idea generation is measured with the 10 items and idea generation with the 6 items.

The 16 items can be found in appendix 1. An example of an item of the idea generation phase: ‘’I generate new solutions to old problems’’. An example of the idea implementation phase is: ‘’I mobilize support from colleagues for my ideas and solutions’’. All statements can be answered on the seven-point Likert scale used in the questionnaire.

3.4.3 MODERATING VARIABLE: POLITICAL SKILL

The moderating variable for both relationships in this research is the political skill of employees. Political skill will be measured by the Political Skill inventory. Which is an 18-item list developed and validated by Ferris et al. (2005). Within this scale four subscales are present, these subscales are the four dimensions of political skill: interpersonal influence, networking ability, social astuteness, and apparent sincerity (Ferris et al. 2007). The 18 items of the PSI can be found in appendix 2. An example question for the interpersonal influence dimension is: ‘’I am able to make most people feel comfortable and at ease around me’’. Another example question is a question of the dimension of social astuteness: "I am particularly good at sensing the motivations and hidden agendas of others".

3.4.4. CONTROL VARIABLES

In this research also several control variables are included. There will be controlled for two demographic variables: age, education, and company. Because in this research a wide diversity of people in different roles and industries are in the sample. To make sure that these differences are not the reasons for the relationship they are included in the survey, thereby following Grosser et al., 2018). This will be measured with a couple of questions about demographic variables at the start of the survey.

Another variable that will be controlled for is intrinsic motivation because in earlier research this has been shown (Grant and Berry, 2011). This will be measured by four questions on a seven-point Likert scale on the reasons why the respondent’s work. The following four reasons will be stated about why people work: (1) I work because enjoy the work itself (2) I work because working is fun (3) I work because I find the work engaging (4) I work because I enjoy it. These four items are adapted by Grant and Berry (2011).

3.5 SURVEY PROCEDURE

The directors of the different companies serve as intermediaries for sending out the survey. Therefore, from every company, the names of the employees will be asked. Also, the names of the person will be tracked to see who has filled in the survey and who has not. With the e-mail to the different directors, an instruction will be sent that they can communicate to their employees. There is chosen to send out the survey via the directors because 2 of the four directors wished to it in that way. The positive side of this method is that it leads to a bit of pressure which is assumed to positively influence the response rate of the survey.

The survey is transformed to the Dutch language because all the respondents are Dutch. Besides that, the survey will be checked by fellow students and a scientific researcher. After the received feedback, the survey will be discussed with one of the shareholders of all companies. In this way fit with all the companies will be checked and if necessary, modifications will be made. Only thereafter the survey will be sent to the directors.

A couple of days after sending the survey the directors receive a reminding e-mail. After a week, the directors will send a reminder to all employees to fill in the survey so that the response rate gets higher. In this way, the probability of the highest response rate will be ensured. Besides the exact names and numbers of every company are present so the exact response rate per company can be measured.

3.6 DATA ANALYSIS PROCEDURE

In this research 3 variables are included: network coreness, innovative behaviour, and political skill. The dependent variable is innovative behaviour but is divided into two metric dimensions of idea generation of idea implementation, so there are two metric outcome variables. There is one independent metric variable of the degree of network coreness. And there is one metric independent and moderating variable, political skill. Besides the additional analysis, there is one independent dichotomous variable core/periphery.

To analyse the data, it is important to choose a suitable analytical method (Field, 2016). When there are multiple metric/categorial independent variables and a metric outcome variable multiple regression is the right data analysis technique (Hair et al., 2019). The moderator variable can also be included in the regression as well as the control variables (Hair et al., 2019). However, two separate multiple regressions need to be executed, one for both outcome variables: idea generation and idea implementation. Stepwise regression is used to see if the independent and moderator variables explain more of the variance in the outcome variable when included in the model. Therefore, in the first model, only the control variables

are included. In the second model, the independent variables are included. In the last model, model three the moderator variable is included. Therefore, can be seen if included the extra variables will lead to a significant improvement of the model.

The data is analysed in SPSS, where the program Ucinet is used to calculate the respondents' coreness degree value and whether they are in the core or periphery. These numbers are carefully extracted from the corresponding respondents in SPSS. This has been done one for one so no mistakes could be made here. Later, this is checked by a fellow researcher.

For every company, holding a separate dataset is made with for every respondent a coreness value for the holding and a coreness value for the company. Besides, they can be at the periphery for the total holding but at the core in their holding, so also there everyone gets two scores. The start will be made with the whole holding because this has the biggest number of respondents and therefore leads to the biggest power (Hair, 2019). Afterwards, the other companies will follow to see if this leads to different results. At least an additional analysis will be done with the dichotomous measurement. This will be included in the regression with a dummy variable and afterwards, this variable will be used to make a new moderator variable with political skill.

3.8 RESEARCH ETHICS

In this research, research ethics were taken into consideration in several ways. First, the whole survey is anonymous. In the instruction of the survey, this is made clear to all the respondents. Besides that, when the respondents did not feel comfortable with the research, they had the option to not participate. The respondents also had the option to step out of the research at any time they wanted. This is also described in the introduction of the survey.

At the end of the survey, the respondents get the chance to give feedback on the survey and make comments when they did not feel comfortable with something. When such a comment will appear, these comments will be taken into consideration, and when necessary, adjustments will be made.

The last thing that is used to make the respondents feel comfortable and to make sure research ethics are sufficient, is the explanation of the purpose of this research. In the introduction mail of the researcher and the survey, a clear explanation is made on why this research is conducted and what will happen with the results. Besides that, they all have the chance to receive the results from their director to which the results are sent.

4. RESULTS

The results begin with the total network analysis. Because the network can be seen as the network of analysis but also the companies. Also, the companies are studied. For all the networks an additional analysis has been done with the dichotomous measurement: core or periphery instead of the metric measurement to see if this leads to the same results.

4.1 OVERALL DATA

4.1.1 RESPONSE RATE

In total 108 employees of the holding were invited for the survey. There were quite diverse response rates per company.

Table 3: response rates

Company	Amount people invited	Amount filled in	Response rate	Amount filled in complete
Flooring company	27	22	81,48%	16
Marketing agency	21	20	95,24%	20
Software company	51	33	64,71%	25
24-hour care company	9	9	100%	9
Holding	108	84	77,78%	70

4.1.2 RELIABILITY ANALYSIS

First, a reliability analysis of the scales has been conducted to make sure that the measured items in the scales form a reliable scale. Therefore, the Cronbach's α of every scale has been studied. First, the independent scale political skills have been studies. The 18 items in this scale together have a Cronbach's α of,876 which is >0.8 and therefore a good score that shows internal consistency (Field, 2018).

One of the control variables is also measured with a scale: motivation. This is measured with a four-item scale of motivation and has a Cronbach's α of,740. This is more than the minimal value of 0,7 and therefore this is an acceptable score for internal consistency (Field,2018). At least the two outcome variables are analysed for internal consistency. Idea

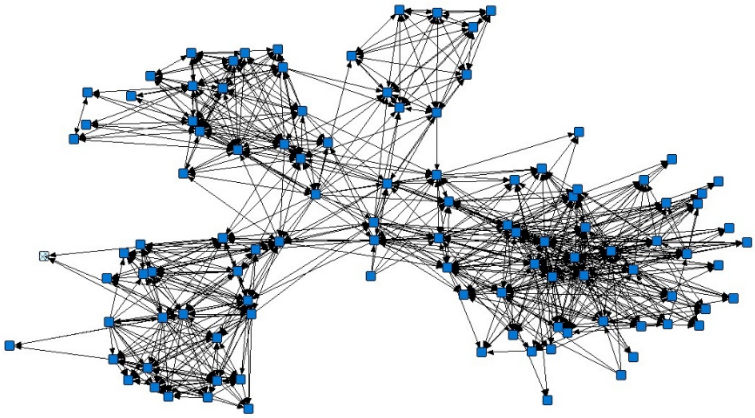
generation is measured with a 10 item scale this scale has a Cronbach's α of,888 which is a good score and shows internal consistency (Field, 2018). The other outcome variable is idea implementation and measured with 6 items, this scale also has a Cronbach's α of,888 which therefore also is a good score and shows internal consistency (Field, 2018).
Therefore, can be said that all the scales show internal consistency and therefore are reliable scales to use in further analysis.

4.2 RESULTS TOTAL NETWORK: HOLDING

4.2.1 NETWORK ANALYSIS TOTAL NETWORK

In appendix 3 the coreness value and core/periphery division of all the respondents in the network can be found. Every respondent has a separate score for their coreness in the total holding and their company. To decide upon every score of the employees the Ucinet software has been used.
First, a look at the visualized network which can be found in figure 4 underneath will be made.

Figure 4: network total holding



The network looks as expected with a clear division of the four companies but also quite some connections between the companies. There even are some employees placed in the middle with a more central role between the companies. There are also quite some people which are clearly at the periphery of the holding with almost no connections with people of the core and only some connections with people of their own company.

With this information for every employee, a coreness value is calculated. Besides also is decided upon which people are in the core and which are in the periphery. This information will be used in an additional analysis. These two values are used to represent the network

coreness of each employee in the analysis. In total 25 employees are at the core and 83 people

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11

are at the periphery. The division can be found in appendix 3.

4.2.2 REGRESSION ANALYSIS TOTAL NETWORK

First, we need to see which variables are correlated: Table 4 present the means, standard deviations, and correlations among the variables for the total network sample. For the correlations, the original scores are incorporated in the table. As there can be seen quite some correlations between the variables are present. Much of the correlations can be explained. For instance, the negative correlation between 24 care company and average man because there only works one man. More important are the correlations with the dependent variables of the theoretical model. Two of the control variables seems to correlate with an outcome variable. There is a negative correlation between the flooring company and idea implementation ($r = -3{,}05$ $P<0.05$). So, the people at the flooring company score significantly lower on idea implementation. Therefore, it is a good choice to also look at the companies individually to see if the results of the whole holding still stand when looking at the companies individually.

Besides a second variable correlates with both the outcome variables. Namely, the variable motivation. Motivation significantly positively correlates with idea generation ($r= ,241$ $p = <0.05$). Secondly motivation significantly correlates with idea implementation ($r = ,304$ $p= <0.05$). As expected, there is a correlation between political skill and the outcome variables. Political skill has a significant positive correlation with idea generation ($r= ,590$ $p<0.01$) and a significant positive correlation with idea implementation ($r= ,589$ $p<0.01$). However, the other independent variable, coreness does not seem to significantly correlate with idea generation or idea implementation.

Table 4: Total network Sample means, standard deviations, and correlations

1. C: flooring company	0,23	0,423	-										
2. C: software company	0,36	0,483	-,406**	-									
3. C: care company	0,13	0,337	-,209	-,286*	-								
4. C: marketing company	0,29	0,455	-,344**	-,471**	-,243*	-							
5. C: gender (m)	0,63	0,487	0,207	,326**	-,411*	-,234	-						
6. C: Education	4,09	1,282	-,518**	,161	,075	,255*	-,180	-					
7. C: Motivation	23,97	2,50	-0,062	-,147	,331*	-,031	-0,045	-,144	-				
8. I: Coreness	0,098	0,0726	,342**	-,333**	-,281*	-,463**	,322*	-,109	-,091	-			
9. I: Political skill	100,64	10,46	-,152	-,055	,206	,046	-,115	,088	,355**	-,013	-		
10. OV: Idea generation	53,07	8,95	-0,062	,061	,160	-,126	,006	-,143	,241*	,190	,590**	-	
11. OV: Idea implementation	31,31	5,055	-3,05*	,155	,155	-,017	-,081	0,92	,304*	,013	,589**	,770*	-

Notes: *p<0.05 **p<0.01 C: control variable I= independent variable OV= outcome variable

4.2.2.1 TOTAL NETWORK: IDEA GENERATION

In table 5 the results of the regression analysis of the total network with the dependent variable idea generation can be found. In model 1 only the control variables are considered. The control variables together have an R squared of,104 which means that they explain 10,4% of the variance in idea generation. None of the control variables is significant. So, despite the correlation between motivation and idea generation, it is not significant in the regression analysis.

In model 2, table 5 the independent variables are included. This leads to an R square of model 2 of,451 which means that with including the independent variables the model accounts for 45,1% of the variance in idea generation. The change has an F change value of 19,303 which is significant (p<0.000). Therefore, the model is significantly improved. Hypothesis 1 posited that network coreness would negatively influence idea generation. Network coreness did show a significant effect, but this effect was not negative but positive (B = 31,37, β = ,254 P = <0.05). Therefore hypothesis 1 is not supported. In this sample network coreness positively influence the idea generation phase. Hypothesis 3 posited that political skill would positively influence the idea generation phase. This hypothesis is

supported, there is a significant influence of political skill on idea generation that is positive (B=,496, β=,579 P<0.000) therefore hypothesis 3 is supported. Political skill has β is more than 2 times bigger than that of network coreness. So political skill has the bigger influence on idea generation, but both have a significant positive influence.

A strange thing to see in model 2, table 5 is the changing effect of education. With the two independent variables included the control variable education shows a significant negative effect (B= -1,883, β=-,270 p<0.05) on idea generation. This is an interesting result, when people in the network have a higher education this negatively influences idea generation. This only happens when political skill and coreness are included so there could be an interaction between those variables that influence idea generation.

In model 3, table 5 the interaction is included. This leads to an R square of model 3 of ,453 which means that with including the moderator the model accounts for 45,3% of the variance in idea generation. The change has an f change value of,185 which is not significant. Also as shown in table 5 model 3, the moderator has no significant influence on idea generation. Hypothesis 5 posited that political skill would moderate (weaken) the effect of idea generation which is not supported. There can be seen that the effect of coreness on idea generation is not significant anymore in model three, with a p-value of,051. Besides the B value of the moderator is negative as expected but as this is not significant the hypothesis cannot be supported. Besides the effect of political skill (B= ,490, β=,573 p<0.000) and education (B= -1,846, β=-,264 p<0.05) on idea generation are still significant.

4.2.2.2 IDEA IMPLEMENTATION

In table 5 also the regression results with the dependent variable idea implementation can be found. In model 1, table 5 only the control variables are included. This leads to an R square of,184 which means that this model can explain 18,4% of the variance of idea generation. This model is significant

improvement from no model because the F change value is significant (F= 2,366 p<0.05). Also, two of the control variables are significant. First, the control variable at which company someone works at is significant, namely, the people of the flooring company significantly have a negative effect on idea implementation. So, when an employee works at the flooring company there is a negative effect on idea implementation (B= -4,009), β=-,335 p<0.05). Secondly, motivation significantly positively influence idea implementation (B= -,598, β=-,296 p<0.05).

In model 2, table 5 the indirect variables are included. This leads to an R square of,425 which means that the model can explain 42,5% of the variance in idea implementation. In comparison with model 2, this is a significantly better amount (F= 12,811 p=<0.000). Hypothesis 2 posited that network coreness would positively influence idea implementation. This hypothesis cannot be supported because no significant effect of coreness on idea implementation has been found (p>0.05). Secondly, hypothesis 4 posited that political skill would positively influence idea implementation. Table 5, model 2 shows that this effect is significant (B= ,251, β=-,530 p<0.000). Therefore hypothesis 4 is supported with the data.

Besides table 5, model 2 shows that with including the independent variables the effect of motivation is not significant anymore. The effect of the flooring company is still significant. Therefore, it is interesting to see what will happen if the companies separately would be studied, what has been done in the next paragraphs.

In model 3, table 5, the moderator is included. This leads to an R square of,425 which means that this model can still explain 42,5 of the variances which is no improvement with model 2. Hypothesis 6 posited that political skill would moderate the relationship between coreness and idea implementation, this cannot be supported. Table 5, model 3 shows that there is no significant effect of the moderator on idea implementation. Besides when including the moderator, the flooring company variable and the political skill variable are still significant.

4.2.3 ADDITIONAL ANALYSIS

Additionally, the same regression has been done but with the dichotomous variable network coreness as the independent variable and part of the moderator variable to check if another measurement for the same variable would lead to the same results.

For idea generation incorporating the different variable, takes the effect of the coreness variable away. The other results stay the same with significant results of education and political skills but no significant effect of the moderator. For idea implementation, this leads to the same results with no effect of the core variable and no effect of the moderator variable (p<0.05). For both models the adjusted R-square is lower and including this variable instead of the coreness continuous carriable does not led to a better model.

Table 5: Total network sample: Regression results

	Idea generation			Idea implementation		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	53,071***	53,071***	53,066 ***	31,314 ***	31,314 ***	31,315***
C: flooring company	-3,722 (0,176)	-3,854 (-,182)	-4,112 (-,194)	-4,009 (-,335) *	-3,838 (-,321) *	-3,791 (-,317) *
C: care company	1,371 (,052)	3,094 (,117)	2,696 (,102)	-,924 (-,062)	-,855 (-,067)	-,783 (-,052)
C: marketing company	-2,360 (-,120)	,100 (,005)	-,056 (-,003)	-1,252 (-,113)	-,811 (0,073)	-,783 (-,070)
C: gender (m)	,216 (,012)	,507 (,028)	,535 (,029)	-,553 (-,053)	-,362 (-,035)	-,367 (-,035)
C: Education	-1,249 (0,179)	-1,883 (-,270) *	-1,846 (-,264) *	-,061 (-,122)	-,303 (-,077)	-,310 (-,079)
C: Motivation	,658 (,184)	-,104 (-,029)	-,074 (-,021)	,598 (,296) *	,227 (,112)	,222 (,110)
I: Coreness		31,371 (,254) *	30,635 (,248)		6,508 (,093)	6,641 (,095)
I: Political skill		,496 (,579) ***	,490 (,573) ***		,251 (,520)***	,252 (,522) ***
M: Coreness x Political skill			-,568 (-,045)			,103 (,135)
R-Squared	,104	,451	,453	,184	,425	,425
F Change	1,221	19,303***	,185	2,366*	12,811***	,018

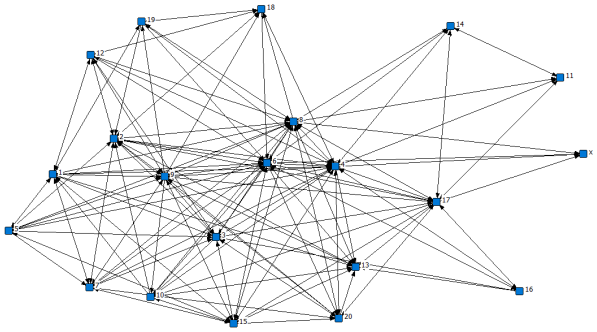
Notes: *p<0.5 **p<0.1 ***p<0.00 (β

4.3 RESULTS MARKETING COMPANY

4.3.1 NETWORK ANALYSIS MARKETING COMPANY

First, the network of the company needs to be visualized and the network scores need to be decided upon. Underneath in figure 5 the visualized network can be found.

Figure 5: network marketing company



In the visual network of the marketing company, it seems like there is a clear division of core and periphery. Also, when looking at the coreness scores there is quite some diversity between the scores of the employees in the marketing company. The table with the coreness value and if respondents are in the core or not can be found in appendix 3. In total 12 people belong to the periphery and 8 people belong to the core.

4.3.2 REGRESSION ANALYSIS MARKETING COMPANY

For each company also a correlation matrix is made. To only difference with the total correlation matrix is that within the company the dummy factor of kind of companies is not sufficient anymore. Besides, every person received new coreness values and can have a different place in the network as within the holding. Now the company is the reference and not the holding. The correlation matrix of the marketing company can be found in table: 6.

None of the control variables significantly correlate with the outcome variables. Only the independent variable political skill significantly correlates with both the outcome variables. Political skill positively correlates with idea generation (r= ,632 p=<0.01) and idea implementation (r =, 598 p=<0.01) which is expected with our hypothesis. However, there also was hypothesized that coreness would influence both the outcome variables. However, in the correlation matrix in table 6 no significant correlations between coreness and the outcome variables are present.

Table 6: Marketing company sample: means, standard deviations and correlations

	Mean	SD	1	2	3	4	5	6	7
1. C: gender (m)	,45	,510	-						
2. C: Education	4,60	,940	-,154	-					
3. C: Motivation	23,85	2,433	,227	-,327	-				
4. I: Coreness	,20	,109	,176	,268	,042	-			
5. I: Political skill	101,4	9,506	-,148	,019	,453*	,144	-		
6. OV: Idea generation	51,3	10,678	,148	-,134	,362	,139	,632**	-	
7. OV: Idea implementation	31,45	4,617	-,046	,032	,367	,061	,598**	,747**	-

Notes: *p<0.05 **p<0.01 C: control variable I= independent variable OV= outcome variable

Table 7: Marketing company: Regression results

	Idea generation			Idea implementation		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	51,300***	51,300***	50,932***	31,450***	31,450***	31,716***
C: gender	1,427 (,068)	4,124(,197)	4,309(,206)	-1,110(-,123)	,662(,073)	,528(,058)
C:: Education	-,133 (-,012)	-1,835(,162)	-1,734(-,153)	,778(,159)	,604(,123)	,531(,108)
C: Motivation	1,505 (,343)	-,144(-,162)	-,011(-,002)	,847(,447)	,223(,118)	,149(,078)
I: Coreness		13,644(,140)	9,117(,094)		-8,460(-,200)	-5,239(-,124)
I: Political skill		,707(,629) *	,724(,644) *		,301(,621) *	,289(,596)
M: Coreness x Political skill			1,102(,074)			-,795(-,123)
R-Squared	,136	,487	,490	,175	,403	,411
F Change	,839	4,792*	,079	1,127	2,672	,190

Notes: *p<0.5 **p<0.1 ***p<0.00 (β)

5.3.2.1 IDEA GENERATION

In table 7 the results of the regression analysis can be found with the dependent variable idea generation. Model 1 has an R squared of,136 which means that model 1 explains 13,6 % of the variance in idea generation. In model 1 only the control variables are included. The F chance compared with no model is,839 and not significant (p<0.05). Besides also none of the control variables is significant as can be seen in Table 7, model 1.

Secondly, in model 2 the independent variables are included. This leads to an R squared of,487 which means that model 2 can explain 48,7% of the variance in idea generation. The F change compared with model 2 is significant (F=4,792 P=<0.05). Therefore, including the independent variables lead to a significant improvement. Hypothesis 1 posited that network coreness would negatively influence idea generation. This hypothesis is not supported because no significant relationship has been found between coreness and idea generation (p>0.05) as showed in table 7, model 2. In hypothesis 3 the statement was made that political skill would positively influence idea generation. Model 2, table 7 shows a significant positive relationship (B= ,707, β=-,629 p<0.05). Therefore hypothesis 3 is supported by the data in the network company.

At last, in model 3, table 7 the moderation variable is included. This leads to an R squared of,490 which means model 3 can explain 49% of the variance in idea generation. The F change compared with model 3 is,079 and not significant (p>0.05). Therefore, no significant improvement has been made by including the moderating variable. In hypothesis 5 is stated that political skill would moderate the relationship between coreness and idea generation. Model 3, table 7 shows that there is no significant relationship between the moderator and idea generation (p>0.05). Therefore hypothesis 5 is not supported by the marketing company data. Besides political skill is still significantly influencing idea generation in model 3 (p<0.05).

5.3.2.2 IDEA IMPLEMENTATION

In the second part of table 7 also the results for the regression with the outcome variable idea implementation can be found. In model 1 only the control variables are included. Model one has an R square value of,175 which mean the control variables can explain 17,5% of the variance in idea implementation. Compared with no model this has an f change value of 1,126 which is not significant. So it is no significant improvement. As can be seen in table 7, model 1 none of the control variables is significant.

In model 2 the independent variables are included. This leads to an R squared of model 2 of,403 which means model 2 can explain 40,3% of the variance. This is an improvement in comparison with model 1 with an F change of 2,672 which is not significant. So, the improvement of model 2 in comparison with model 1 is not significant. Hypothesis 2 posited that coreness would positively influence idea implementation, this relation has not been found significant as can be seen in table 7, model 2. Therefore hypothesis 2 cannot be supported. Hypothesis 4 posited that political skill would positively influence idea

implementation. Table 7, model 2 shows that the relationship between political skill and idea implementation has been found significant (B=,301, β=-,621 $p<0.05$). Therefore, the positive relationship between political skill and idea implementation is also supported in the marketing company. Besides no control factors have been found significant in this model.

In the last model for idea implementation, model 3 the moderator variable is included. This leads to an R squared of,411 which means it can explain 41,1% of the variance in idea implementation. This is a small improvement compared with model 2 with an F change value of,190 which has not been found significant. When looking at the regression of model 3, in table 7 no significant relationship can be found anymore. The positive significant relationship between political skill and idea implementation disappeared. Secondly, the moderator variable also does not have a significant effect. Therefore hypothesis 6, cannot be supported. The hypothesis stated that political skill would moderate the relationship between network coreness and idea implementation., but no significant effect has been found.

5.3.3 ADDITIONAL ANALYSIS

The same additional has been done as with the holding. Therefore, the coreness value has been changed with the dichotomous variable: core or periphery. Also, the moderator variable has been changed with the new variable. For idea generation, this showed quite the same results as with the coreness value. Only hypothesis 3, political skill positively influences idea generation is again supported with the analysis. Again, no control variables have a significant effect on idea generation, as well as the moderating variable and the core variable.

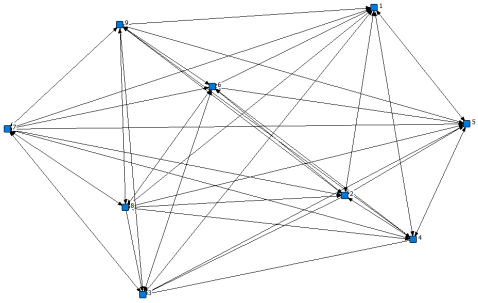
For idea implementation, there are no significant relations found in the regression analysis. So, when the change is made to the dichotomous measure no relationship could be supported. Even the political skill measure is not significant in this case.
Besides, for both idea implementation and idea generation, the R square of the model becomes lower when using the other measure, therefore the coreness value measure has more explanatory power.

5.4 RESULTS 24 CARE COMPANY

5.4.1 NETWORK ANALYSIS 24 CARE COMPANY

First, the network of the company needs to be visualized and the network scores need to be decided upon. Underneath in figure 6 the visualized network can be found.

Figure 6: network 24 care company



When looking at this network it looks like there are no clear core members and periphery members. But when looking at the values there are quite some differences to be found. There are diverse scores. In total of the 9 employees, 6 people belong to the core and 3 to the periphery. The scores can be found in appendix 3.

5.4.2 REGRESSION ANALYSIS 24 CARE COMPANY

First, the correlations need to be inspected. The correlation matrix, means, and standard deviations of the 24-care company can be found in table 8 underneath.

Table 8: 24care company: means, standard deviations and correlations

	Mean	SD	1	2	3	4	5	6	7
1. C: gender (m)	,11	,333	-						
2. C: Education	4,33	1,225	-,102	-					
3. C: Motivation	26,11	1,764	-,236	,849**	-				
4. I: Coreness	0,31	,126	-,916**	,052	,269	-			
5. I: Political skill	106,22	11,713	,473	,238	,283	-,178	-		
6. OV: Idea generation	56,78	9,935	,122	-,158	-,055	,207	,606	-	
7. OV: Idea implementation	33,33	5,612	,111	,182	,236	,206	,839**	,797*	-

Notes: *p<0.05 **p<0.01 C: control variable I= independent variable OV= outcome variable

Table 8 shows that no control variables are correlating with the outcome variables. Only one variable correlates with an outcome variable and that is political skill. Political positively significantly correlates with idea implementation (R=,839 P<0.01). A correlation between political skill and both outcome variables was expected, for the 24hour care company, only idea implementation correlates with political skill. Besides, also a correlation

between coreness and the outcome variables was expected, however, the correlation table in table 6 does not show a correlation between coreness and the outcome variables.

Note: as the sample is very small for the 24care company the changes of a significant effect in the regression analysis is very small. Therefore, it is not expected to find significant results here but to give a complete image the 24hour care company is incorporated in the analysis.

5.4.2.1 IDEA GENERATION

In table 9, model 1 the model with only control variables can be found. This model has an R Squared of,071 which means this model can only explain 7,1% of the variance. Besides none of the control variables are significant. In table 9, model 2 the model is expanded with the two independent variables. This leads to an R square of,697 which means that model 2 accounts for 69,7% of the variance in idea generation. This is a big improvement in comparison with model 2, however, the F change value of 3,106 is not significant. None of the variables in model 2 is significant which means that hypothesis 1 and hypothesis 3 are not supported. Hypothesis 1 posited that coreness would negatively influence idea generation, this is not found to be significant. Hypothesis 3 posited that political skill positively influences idea generation, also for this hypothesis no significant relationship has been found in the regression analysis.

Model three can be found in table 9, model 3. This model has an R squared of,871 which means it can account for 87,1% of the variance in idea generation. The F change in comparison with model 2 is 2,705 which has not been found significant ($p<0.05$). Also, the moderator variable does not have a significant relation with idea generation in model three. Therefore hypothesis 5 is not supported. Hypothesis 5 posited that political skill would moderate the relationship between coreness and idea implementation.

5.4.2.2 IDEA IMPLEMENTATION

Above in table 9 also the results of the regression of idea implementation can be found. In model 1 all the control variables are included. This model leads to an R squared of,090 which means it can account for 9% of the variance in idea implementation. This model compared to no model has an F change value of,164 which is not significant. In table 9, model 1 can be seen that none of the control variables in the regression is significant.

In model 2 the independent variables are included. With this variable included model 2 can account for 87,2% of the variance and has an R squared value of,872. This score in

comparison with model 1 has an F change value of 9,160 which is yet not significant (p=,053). In table 9, model 2 the regressions can be found. None of the variables are significant. Therefore hypothesis 2 and 4 are not supported. Hypothesis 2 posited that network coreness would positively influence idea implementation and hypothesis 4 posited that political skill would positively influence idea implementation. Both relations have not been found significant so therefore they cannot be supported.

Table 9: 24care company: Regression results

	Idea generation			Idea implementation		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	56,778***	56,778***	59,424**	33,333***	33,333***	33,319***
C: gender	4,829(,162)	43,629(1,464)	67,842(2,276)	3,211(,191)	6,603(,392)	6,473(,384)
C:: Education	-3,664(-,452)	1,284(1,58)	-1,811(-,233)	-,605(-,132)	1,407(,307)	1,424(,311)
C: Motivation	2,063(,366)	-2,139(-,380)	-3,805(-,676)	1,250(,393)	-1,218(-,383)	-1,209(-,380)
I: Coreness		133,954(1,693)	69,275(,875)		35,783(,800)	36,129(,808)
I: Political skill		,242(285)	,556(,656)		,398(,831)	,397(,828)
M: Coreness x Political skill			11,372(1,971)			-,061(-,019)
R-Squared	,071	,697	,871	,090	,872	,872
F Change	,127	3,106	2,705	,164	9,160	,000

Notes: *p<0.5 **p<0.1 ***p<0.00 (β)

In model 3 the moderating variable is included. This leads to an R squared of,872 which is the same as model 2. So, no improvement has been made when including the mediator variable. Therefore, the change is also not significant. Table 9, model 3 shows that also in the regression analysis the moderator variable is not significant. Therefore hypothesis 6 cannot be supported. Hypothesis 6 posited that political skill would moderate the relationship between coreness and idea implementation.
(As expected with the small sample no significant results are found in this analysis.)

4.4.3 ADDITIONAL ANALYSIS

Also, for the 24care company, the additional analysis with the core/periphery dichotomous variable has been done. This leads for idea generation to the same outcomes with no improvements on the R squared value. The R squared value is even lower when including this measure of coreness value for model 3. For idea implementation as well, the same results

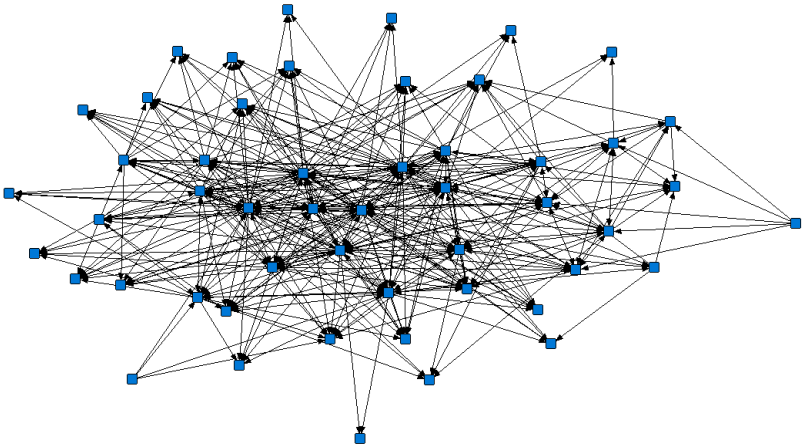
show when using the other measure. No relations are significant and both models 2 and 3 have lower R squared with the core/periphery measure.

4.5 RESULTS SOFTWARE COMPANY

4.5.1 NETWORK ANALYSIS SOFTWARE COMPANY

Underneath in figure 7 the visualized network of the software company is shown.

Figure 7: network software company



There is a clear core at the software company with quite some people at the periphery. Of the 25 respondents that filled in the survey 16 belong to the core and 9 belong to the periphery. Also, the coreness scores are calculated and can be found in appendix 3.

4.5.2 REGRESSION ANALYSIS SOFTWARE COMPANY

First, the correlations in this sample are inspected. The correlations of the variables in the software company sample can be found in table 10 underneath.

Table 10: Software company sample: means, standard deviations and correlations

	Mean	SD	1	2	3	4	5	6	7
1. C: gender (m)	,84	,374	-						
2. C: Education	4,36	1,114	-,056	-					
3. C: Motivation	23,48	2,124	,206	-,217	-				
4. I: Coreness	,20	,123	,111	-,148	,224	-			
5. I: Political skill	99,88	11,33	-,142	-,013	,212	,224	-		
6. OV: Idea generation	53,8	7,995	-,359	-,399*	,126	,487*	,576**	-	
7. OV: Idea implementation	32,28	3,714	-,206	-,279	-,297	,361	,573**	,844**	-

Notes: *p<0.05 **p<0.01 C: control variable I= independent variable OV= outcome variable

There is one control variable correlating with one of the outcome variables, namely education. Education has a negative correlation with idea generation (R=-,399 P<0.05) in the software company. Besides as expected political skill positively correlates with both idea generation (R=,576 P<0.01) and idea implementation (R=,573 P<0.01). Also, coreness correlates with idea generation, it is expected that it correlates with idea generation but negatively. However, Table 10 shows that coreness positively correlates with idea generation (R=,487 P<0.05). Which was not expected within the hypothesis.

4.5.2.1 IDEA IMPLEMENTATION

After looking at the correlations the regression analysis has been done. Model 1 is the model with only control variables. This model has an R square of,319 which means the control variables can explain 31,9% of the variance in idea generation. Compared with no model this model has a significant F change value (F=3,283 P<0.05) which means that it is a significant better explanatory model. Looking at table 11, model 1, 2 control variables are significant. First, gender has a significant negative influence on idea generation (B= -8,696, β=-,407 p<0.05). As men are 1 and woman are 1 it means that men significantly score lower on idea generation as the woman within the software company. Secondly, education negatively influences idea generation (B= -2,833, β=-,395 p<0.05). This means that people with a higher education score significantly lower.

In model 2 also the indirect variables are included. This leads to an R square of,709 which means that 70,9% of the variance in idea generation can be explained with this model. In comparison with model 2, this is a significant change (F=12,742 P<0.000). Therefore model 2 significantly better explains the idea generation variable. Looking at the regression results in table 11, model 2 there can be seen that gender ((B= -,7,378, β=-,345 p<0.05) still has a significant negative influence on idea generation. Also, education still has a significant negative relation with idea generation (B= -,2653, β=-,370 p<0.01). Besides the two independent variables have a significant relation with idea generation. Hypothesis 1 posited that coreness would negatively influence idea generation. There has been found a significant effect of coreness on idea generation, however, this effect is positive (B=24,975, β=-,384 p<0.01). This positive effect was not expected so hypothesis 1 cannot be supported. Hypothesis 3 posited that political skill would positively influence idea generation. In table 11, model 2 this effect is shown. Political skills have a significant positive effect on idea generation (B=,317, β=,450 p<0.01). Political skills have the biggest influence on idea generation with β=,450.

In model 3 also the moderating variable is included. This leads to an R squared value of 0,739 which means the model can explain 73,9% of the variance in idea generation. This compared with model 2 is not a significant improvement (F=2,077 P>0.05). Therefore, model three is no significant improvement. When looking at model 3 in table 11 no significant effect of the moderator variable is found (B= 1,456, β=,193 p>0.05). Within the rest of model three al the variables that were significant in model 2 were still significant in model 3.

4.5.2.2 IDEA IMPLEMENTATION

In table 11 also the results of the regression analysis of the software company with the outcome variable idea implementation can be found. Model 1, with only the control variables, has an R Square of,165 which means it can explain 16,6% of the variances in idea generation. This jas am F change value of 1,384 which is not significant (p>0.05). In table 11, model 1 the results of the regression analysis can be found. In this table, no significant control variables can be found. So no of the control variables significantly influences idea implementation.

Table 11: software company: Regression results

	Idea generation			Idea implementation		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	53,800***	53,800***	53,364***	32,280***	32,280***	31,933***
C: gender	-8,696(-,407) *	-7,378(-,345) *	-7,604(-,356) *	-2,549(-,257)	-1,753(-,177)	-1,933(-,195)
C:: Education	-2,833(-,395) *	-2,653(-,370) **	-2,981(-,415) **	-,916(-,275)	-,890(-,267)	-1,151(-,345) *
C: Motivation	,467(,124)	-,242(-,064)	0,379(-,101)	,299(,171)	,000(000)	-,109(-,062)
I: Coreness		24,975(,385) **	26,811(,412) **		6,893(,231)	8,444(,279)
I: Political skill		,317(,450) **	,359(,509) **		,162(,492) *	,195(,595) **
M: Coreness x Political skill			1,456(,193)			1,159(,331)
R-Squared	,319	,709	,739	,165	,482	,570
F Change	3,283*	12,742***	2,077	1,384	5,805*	3,694

Notes: *p<0.5 **p<0.1 ***p<0.00 (β)

In model 2 the independent variables are included. By including the independent variables, the R square changes to,345 which means 34,5% of the variance can be explained with this model. This change is significant in comparison with model 1 (F=5,805 P<0.05) and therefore significantly better explains the variance. Hypothesis 2 posited that network coreness would positively influence idea implementation. As shown in table 11, model 2 no significant effect between network coreness and idea implementation has been found. Therefore hypothesis 2 cannot be supported. Secondly, hypothesis 4 posited that political skill would positively influence idea implementation. Table 11, model 2 shows that the relationship between political skill and idea implementation is positive and significant (B=,162, β=,493 p<0.05). Therefore hypothesis 4 is supported in the software company data. None of the other control variables has been found significant in the model 2 regression analysis.

In model 3 the moderator variable is included. With including the moderator variable, the R square change to,570 which means it now can explain 57% of the variables. Despite the improvement, the change is not significant (F= 3,694 P=>0.05). Model 3 in table 11 shows that the moderating variable does not have a significant effect on idea implementation. Hypothesis 6 posited that political skill would moderate the relationship between network coreness and idea implementation. With no significant relation between the moderator and idea implementation, this hypothesis cannot be supported. By including the moderator variable in model 3 the influence of political skill becomes even stronger (β =,595). Besides the control variable education becomes significant with a negative relation on idea implementation (B=-1,151 β=-,345 P=0,050).

4.5.3 ADDITIONAL ANALYSIS

Also, for the software company, also additional analysis has been done. When the measurement for the coreness variables has changed these leads to lower R squared levels for model 2 and 3 with the dependent variable idea generation. Therefore it has less explanatory power than when including the coreness value. Besides the control variables, gender and education are also significant in model 1. In model 2 only education and political skill is significant. The significant result of the coreness variable is not present here. In model 3 the political skill value is as well significant, and the education level is significant in model three. Therefore, the only big difference is the coreness value that is not significant in model 2 with the new coreness variable. But overall, no other results on the hypothesis have been shown with the additional analysis.

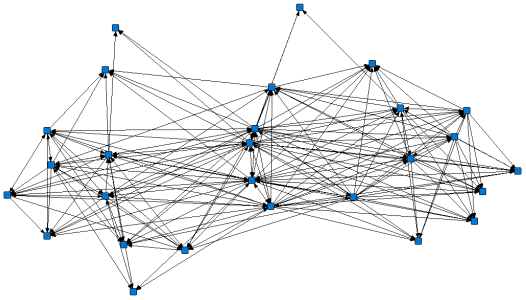
When looking at the results on idea implementation lower R squared levels for models 2 and 3 are also found. Therefore, including the other core/periphery measure does not have more explanatory power. Besides political skill has also been found significant in model 2 and 3 with the inclusion of this variable. The only change is that the control variable education does not become significant in model three. So also for idea implementation, nothing changes in the eye of the hypothesis.

4.6 RESULTS FLOORING COMPANY

4.6.1 NETWORK ANALYSIS FLOORING COMPANY

For the last company, the flooring company also a network analysis has been done. The visualized network can be found in figure 8 underneath.

Figure 8: network flooring company



When looking at the visualized network above, there are quite some people in the middle of the company, and they are kind of spread throughout the middle of the network from left to right. There is not a clear core in the middle of the network. However, when looking at the coreness values in appendix 3 there are diverse coreness value scores and 9 people are at the core and 8 at the periphery.

4.6.2 REGRESSION ANALYSIS FLOORING COMPANY

First, as with all companies, the correlations will be examined. The correlation matrix of the flooring company can be found underneath in table 12. There are no correlations between control variables and both outcome variables. Besides, there is no correlation between the variable coreness and the outcome variables, which is expected by the hypothesis. Also, political skill is expected to correlate with both outcome variables. Political skill however only correlates with idea generation for the flooring company as shown in table 12.

Table 12: Flooring company sample: means, standard deviations and correlations

	Mean	SD	1	2	3	4	5	6	7
1. C: gender (m)	,81	,403	-						
2. C: Education	2,88	1,258	-,049	-					
3. C: Motivation	23,69	3,027	,058	-,449	-				
4. I: Coreness	,20	,153	-,304	,707**	-,394	-			
5. I: Political skill	97,75	9,015	,261	-,097	,354	-,215	-		
6. OV: Idea generation	52,06	7,416	,428	,-,013	,233	-,069	,587*	-	
7. OV: Idea implementation	28,5	6,261	,172	-,076	,366	-,096	,491	,892**	-

Notes: *p<0.05 **p<0.01 C: control variable I= independent variable OV= outcome variable

4.6.2.1 IDEA GENERATION

First, the regression analysis has been done with idea generation as the outcome variable. The results can be found in table 13 underneath. In model 1 only the control variables are included. This leads to an R squared of,239 which means it can explain 23,9% of the variance in idea implementation. In comparison with no model this change is not significant (F=,1257 P>0.05). Besides as can been seen in table 13, in model 1 none of the control variables is significant.

In model 2 the indirect factors are included. This leads to an R squared of,455 which means it can explain 45.5% of the variance of idea generation for the flooring company. However, this change looks quite big it is not significant (F=1,986 P>0.05). When looking at the regression analysis in table 13, model 2 no significant variables are found. Only political skill is almost significant (P=,082) but not enough to say it is a significant result. This could be the result of the small sample (N=16). Hypothesis 1 posited that network coreness would negatively influence idea generation. No significant relationship between coreness and idea generation has been found in the regression analysis (P>0.05). Therefore hypothesis 1 is not supported. Hypothesis 3 posited that political skill would positively influence idea generation. The effect of political skill on idea generation has just not been significant. Ther

In model 3 also the moderating variable is included. This leads to an R squared of,455 which is the same amount as model 2. Therefore, it still can explain 45,5% of the variance in idea generation. Therefore, there is no improvement with model 2 and no significant change (F=,000 P>0.05). Also when looking at the regression results in table 13 model 3, no

significant effect of the moderator can be found. As well as no variables that are significant in this model.

Table 13: flooring company sample: Regression results

	Idea generation			Idea implementation		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	52,063***	52,063***	52,047***	28,500***	28,500***	28,626***
C: gender	7,703 (,419)	6,606(,359)	6,583(,358)	2,407(,155)	1,332(,086)	1,074(,069(
C:: Education	,743(,126)	-,419(-,071)	-,424(-,072)	,487(,098)	-,072(-,015)	-,124(-,025)
C: Motivation	,649(,265)	,232(,095)	,219(,089)	,767(,371)	,465(,225)	,313(,152)
I: Coreness		11,467(,236)	11,348(,233)		4,847(,118)	3,502(,085)
I: Political skill		,414(,503)	,417(,506)		,287(,413)	,320(,461)
M: Coreness x Political skill			,040(,006)			,453(,086)
R-Squared	,239	,455	,455	,144	,283	,286
F Change	1,257	1,986	,000	,671	,973	,035

Notes: *p<0.5 **p<0.1 ***p<0.00 (β)

4.6.2.2 IDEA IMPLEMENTATION

In the second part of table 13, the results of the regression analysis with outcome variable idea implementation can be found. In the first model, only the control variables are included. This leads to an R squared value of,144 which mean it can account for 14,4% of the variance in idea implementation. Comparing with no model the improvement is not significant (F=,671 P>0.05). Secondly, when looking at model 1, table 13 no significant results of the control variables are found.

In model 2, table 13 the independent variables are included, which leads to an R squared of,283 which means this model can explain 28.3% of the variance in idea implementation. Which is the lowest score of models 2 in all the samples. The improvement in comparison with model 1 is not significant (F=,973 P>0.05). Besides all the variables are not significant in the model. Therefore hypothesis 2, network coreness positively influence idea implementation, is not supported because no significant relationship is found in the regression analysis. Secondly, also hypothesis 4, political skill positively influence idea implementation, is not supported. Because also for that influence no significant effect has been found.

In model 3 the moderating variable is included. This leads to an R squared value of,286 which means it can explain 28,6 % of the variance in idea implementation. This is only a small improvement in comparison with model 2. This change is not significant (F=,035 P>0.05). Besides when looking at the regression analysis, model 3, table 13 the moderating effect has not been found significant. Therefore hypothesis 6, political skill moderates the relationship between coreness, and idea implementation is not supported.

4.6.3 ADDITIONAL ANALYSIS

Also, for the last sample, the flooring company the coreness variable has been changed to the core/periphery variable. Also, the moderator again has been changed to the core/periphery variable and political skill. For idea generation, this leads to the same results with kind of the same R squared values for model 2 and 3. Besides again no variables are significant in the regression analysis. When changing the outcome variable to idea implementation also no significant relationship in the regression analysis have been found. However, when including this variable for idea implementation the model 2 and model 3 R squared scores improve when compared with the coreness value. This is the only time this had happened.

4.7 SUMMARIZING THE RESULTS

In table 14 a summarization of the results can be found.

Table 14: summarizing the results

	Holding	Marketing	Care	Software	Flooring
Hypothesis 1	No (sr) (no)	No (no)	No (no)	No (sr) (no)	No (no)
Hypothesis 2	No (no)	No (no)	No (no)	No (no)	No (no)
Hypothesis 3	Yes (yes)	Yes (yes)	No (no)	Yes (yes)	No (no)
Hypothesis 4	Yes (yes)	Yes (no)	No (no)	Yes (yes)	No (no)
Hypothesis 5	No (no)	No (no)	No (no)	No (no)	No (no)
Hypothesis 6	No (no)	No (no)	No (no)	No (no)	No (n)
Other sig loadings idea generation	Education (-,123)	x	x	Gender (-,123) Education (-,123)	x
Other sig loadings idea implementation	Flooring company (-123) Motivation (-1)	x	x	Education (-3)	x
Improvement core/periphery	No	No	No	No	IG no II:yes

Notes: () = additionally analysis for the hypothesis. () significant loadings, which models and which directions.

5. CONCLUSION AND DISCUSSION

5.1 THEORETICAL IMPLICATIONS

This research contributed to the existing literature by providing insights into the way network coreness and political skill separately and in conjunction influence idea generation and idea implementation. This has been done by answering the following research question: *How do political skill and social network coreness in conjunction and separately influence the innovative behaviour of employees?* Innovative employee behaviour is critical for companies in the current competitive economic environment to improve organizational performance and competitiveness (Grosser et al. 2018). Without innovation and innovative employee behaviour, organizations cannot survive. Therefore an increasing amount of literature has been conducted on innovative behaviour. This research contributes to the existing literature in several ways.

Firstly, this study looked at the influence of network coreness on idea generation and idea implementation. While the established literature claims that network coreness negatively influence idea generation (Cattani & Ferriani, 2008), this study shows nuances for that claim. This study even shows a reversed effect in two samples. In the case of the total network and the software company a reversed effect is found, where network coreness positively influences idea generation. Therefore, it contributes to the literature by showing that the established relationship about the influences of network coreness on idea generation is not always the case. When using the additional measure for network coreness, no relationship has been found in the samples. Therefore, also with the core/periphery dichotomous measure the current literature is nuanced.

Besides, also the effect of network coreness on idea implementation has been studied. In the established literature the claim has been made that network coreness would positively influence idea implementation (Cattani & Ferriani, 2008). This study also did not find such effect, therefore also this claim is nuanced with this study. In every company and with both measures no significant effect has been found between network coreness and idea implementation. Therefore, contributing to the literature with showing that this relationship could not be always the case. Therefore, both relations show to the literature that in some settings network coreness could have no effect or a reversed effect. Which is a contribution to the theory by showing that it could be possible that in some cases the theory does not withhold for the relationship between network coreness and innovative behaviour. Therefore, giving new insights into what could be the relationship between network coreness and innovative behaviour.

Secondly, this study looked at the influence of political skill on idea generation and idea implementation. The established literature claims that political skill would positively influence both idea generation and idea implementation (Anderson et al. 2014, Clarke & Higgs, 2019, Howell & Higgens, 1990). This claim is partly confirmed by this research. In the total network, marketing company and the software company the positive effect of political skill on both idea generation and idea implementation has been found, therefore confirming the established literature. However, in the care company and flooring company, no such effects have been found. This could have several reasons. First, it could be the case that no significant results have been found because the sample was too small, both companies have the smallest sample of the five. Secondly, it could be the case that in some industries or companies' political skills does not influence innovative behaviour. Therefore, this study contributes to the ligature by partly confirming the established literature. Besides, it shows that there could be a possible nuance in the literature, that there could be an influence of the kind of organization on the relationship between political skill and innovative behaviour. Which is an insight in the literature about the relation between political skill and innovative behaviour.

Thirdly and lastly, the literature suggested that there could be an interplay (Grosser et al. 2018) between network coreness and political skill in influencing innovative behaviour. In this research a moderating effect of political skill on the relationship of network coreness and idea generation, idea implementation has been tested. However, no effect has been found. This contributes to the literature because this was the first time this relationship has been studied. Besides, in the literature, there is a growing importance of combining both individual characteristics with social network structure in influencing innovative behaviour (Grosser et al. 2018). This research looks at such conjunction between political skill and network coreness on both idea generation as idea implementation. Therefore, contributing to the theory by showing insight in that there could be no conjunction between network coreness and political skill.

5.2 PRACTICAL IMPLICATIONS

As innovative behaviour is key for survival and competitive advantage for organizations (Blanca, 2018). Therefore, it is more and more important for companies to have innovative employees who show innovative employee behaviour. This research gives some practical implications for managers and organizations in how to influence the innovative behaviour of employees.

Firstly, this study shows that there are inconclusive results on the influence of network coreness on idea generation and idea implementation. Where established theory told managers and organizations that for idea generation it would be better to have a lower coreness degree and for idea implementation a higher, this did not turn out in this study. Even in two cases a high coreness degree positively influences idea generation. Therefore, managers and organizations can use this information for placing the people in the company. For instance, when they want somebody to generate ideas, they do not have to place them at the periphery following this research. They even, in some cases could be better placed at the core. Therefore, a practical implication can be made that following the results of this study managers can place employees in both core and periphery when they need to implement ideas. When they need to generate ideas, it could be better to place them more to the core. However, the established literature must not be forgotten. Therefore, the recommendation is made to take all research into account carefully when deciding upon the network coreness of a wished-for innovative employee.

Secondly, this study shows that political skill positively influences both idea generation and idea implementation. Therefore, for managers and organization when the goal is an innovative employee, they can take political skill into account. For instance, when selecting a new R&D employee they can take some psychological test to measure the amount of political skill. When this is a high result, following this study and established theory, this is a positive sign for idea generation and idea implementation. Besides for current employees that show less employee behaviour they could give them training in political skill to improve their change op innovative behaviour, Summarizing can be said that it is important for managers and organization to look at the political skill when innovative employee behaviour is the goal.

Thirdly and lastly this research looked at the conjunction of both network coreness and political skill in influencing innovative behaviour. No significant results have been found in de moderating effect of political skill. Therefore, the practical implication can be made, following this research that managers and organizations do not need to think about the network coreness and political skill in conjunction for their employees.

5.3 LIMITATIONS AND FUTURE RESEARCH

In this research some limitations are present. These limitations could be improved in further research. The most substantial limitation within this research is that due to feasibility it is not possible to investigate the whole population. To make sure that the research is as generalizable as possible there have been chosen to research multiple companies. However,

accompanying this limitation is that the companies are not chosen by chance but are selected. The companies are not chosen by chance but are falling under one holding. Due to feasibility, the searching of multiple companies would lead to time constraints. Therefore, multiple companies under one holding were the best option for this research. In future research, the research could be conducted in other settings to see if the same results withhold there.

Secondly, a limitation of this research is the sample size when looking at the companies in their own. The sample size of the separate companies where small, therefore it could be that there was not enough statistical power to find significant results. This could also be the reason that for the two smallest samples (flooring and care company) no significant results were found. In further research, it would be interesting to look if the same results withhold when using a similar but bigger sample of people in the same kind of company. Therefore, to see if there are still no significant results found.

Third, another limitation of this research is time. Because there has been only a specified amount of time for this research, the researcher is restricted to very strict deadlines. This could lead to choices that were not be made when there was no time constraint, for instance, the choice of researching one holding. And another choice to do the data collection at one point in time. Because of this, there cannot be control if the results did not depend on other characteristics, like the emotions of people at that moment. In future research, it could be interesting to look at a longitudinal study to see if the results change over time.
Fourth, a limitation of this study is that the research is conducted in the Netherlands. This has two disadvantages. The first disadvantage is that no conclusions can be made about the generalizability to other countries. The second disadvantage is that the survey needed to be translated to Dutch. It could be possible that this has been led to mistakes in the survey. But to make this change as small as possible the researcher has asked several other people to control the translations. In future research it would be interesting to test the results in other company, for instance, the same study in another country within the same kind of companies to see if the results still hold.

Lastly, a limitation of this study is that the behaviours of the employees are self-reported. Motivation, political skill, idea generation and idea implementation were all self-reported elements of the study. However, people could wrongly judge their innovative behaviour, motivation, and political skill. Therefore, providing misleading results. In further research, it would be interesting to see if the same results withhold if another type of measurement would be used. For instance, idea implementation with the number of ideas someone has implemented in the company.

5.3.1 ADDITIONAL FURTHER RESEARCH

Two other suggestions for further research could be made. Firstly, the influence of education could be studied. This research showed that in two samples education negatively influences idea generation. Besides, in one sample it negatively influences idea implementation. This is an interesting result for further research. In further research the question could be answered of there is a significant direct effect of education on idea generation or motivation. Or if there could be an interacting effect with another variable. However, it is an interesting result which further research could deepen out.

Secondly, an interesting path for future research is to look at different kind of companies and the effect of the relationships. For instance, in two companies was found that network coreness has a positive effect on idea generation and in three samples it was not found. Besides in 3 companies, a positive effect of political skill on both idea implementation and idea generation is found, and in two samples this effect has not been found. Therefore, it would be interesting to see in further research if this also holds in another sample within the same kind of companies. The study could give insights into the differences in the relationships within different companies. This study is suggesting that maybe some relations only hold for companies which would be interesting to study in further research.

5.4 CONCLUSION

Innovative behaviour of employees is necessary to survive and have a competitive advantage in the nowadays competitive environment. To help managers and organizations survive and influence the innovative behaviour of employees, this research studied how network coreness and political skill separately and in conjunction influence types of innovative behaviour. The following research question has been answered: *How do political skill and social network coreness in conjunction and separately influence the innovative behaviour of employees?* This has been done by conducting a survey within a Dutch holding consisting of four companies. Based on the results of this research can be concluded that especially political skill a positive effect on innovative behaviour. Also, network coreness seems to have a negative effect on idea generation which is the opposite of the claim of established theory. However, the results need to take into careful consideration with the kind of company managers have, because the diverse companies in the holding showed different results.

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APPENDIX 1: INNOVATIVE BEHAVIOUR 16 ITEMS

Creativity-oriented work behaviour:

1. I actively think along concerning improvements in the work of direct colleagues
2. I generate ideas to improve or renew services that my department provides?
3. I generate ideas on how to optimise knowledge and skills within my department
4. I generate new solutions to old problems
5. I discuss matters with direct colleagues concerning my/their work
6. I suggest new ways of communicating within my department
7. I generate ideas concerning the distribution of tasks and work activities within my department
8. I actively engage in the thinking on which knowledge and skills are required within my department
9. I try to detect impediments to collaboration and coordination
10. I actively engage in gathering information to identify deviations within my department

Implementation-oriented work behaviour:

11. In collaboration with colleagues, I get to transform new ideas in a way that they become applicable in practice
12. I realize ideas within my department/ organization with an amount of persistence?
13. I get to transform new ideas in a way that they become applicable in practice
14. I mobilize support from colleagues for my ideas and solutions
15. I eliminate obstacles in the process of idea implementation
16. I make my supervisor enthusiastic for your ideas

APPENDIX 2: POLITCAL SKILL 18 ITEMS

1. I spend a lot of time and effort at work networking with others. (NA)
2. I am able to make most people feel comfortable and at ease around me. (II)
3. I am able to communicate easily and effectively with others. (II)
4. It is easy for me to develop good rapport with most people. (II)
5. I understand people very well. (SA)
6. I am good at building relationships with influential people at work. (NA)
7. I am particularly good at sensing the motivations and hidden agendas of others. (SA)
8. When communicating with others, I try to be genuine in what I say and do. (AS)
9. I have developed a large network of colleagues and associates at work whom I can call on for support
10. At work, I know a lot of important people and am well connected. (NA)
11. I spend a lot of time at work developing connections with others. (NA)
12. I am good at getting people to like me. (II)
13. It is important that people believe I am sincere in what I say and do. (AS)
14. I try to show a genuine interest in other people. (AS)
15. I am good at using my connections and network to make things happen at work. (NA)
16. I have good intuition or savvy about how to present myself to others. (SA)
17. I always seem to instinctively know the right things to say or do to influence others. (SA)
18. I pay close attention to people's facial expressions. (SA)

APPENDIX 3: NETWORK CORENESS VALUES

3.1 TOTAL COMPANY

Respondent	Core yes or no	coreness value
1	No	0.032
2	No	0.088
3	No	0.051
4	No	0.078
5	No	0.039
6	No	0.053
7	No	0.033
8	No	0.051
9	No	0.064
10	No	0.016
11	No	0.017
12	No	0.054
13	No	0.025
14	No	0.029
15	No	0.040
16	No	0.010
17	No	0.041
18	No	0.136
19	No	0.025
20	No	0.019
21	Yes	0.226
22	Yes	0.134
23	Yes	0.120
24	Yes	0.135
25	Yes	0.236
26	Yes	0.175
27	Yes	0.166
28	Yes	0.166
29	Yes	0.215
30	Yes	0.172
31	No	0.179
32	No	0.056
33	No	0.049
34	No	0.076
35	No	0.041
36	No	0.022
37	No	0.120
38	Yes	0.229
39	Yes	0.211
40	No	0.043
41	Yes	0.192
42	Yes	0.234

43	Yes	0.123
44	Yes	0.092
45	Yes	0.226
46	No	0.077
47	No	0.054
48	Yes	0.226
49	Yes	0.178
50	Yes	0.161
51	Yes	0.222
52	Yes	0.109
53	No	0.019
54	No	0.054
55	No	0.026
56	Yes	0.184
57	Yes	0.117
58	No	0.099
59	No	0.099
60	Yes	0.144
61	No	0.065
62	No	0.026
63	No	0.044
64	No	0.049
65	No	0.023
66	No	0.047
67	No	0.045
68	No	0.053
69	No	0.044
70	No	0.053
71	No	0.047

3.2 24-HOUR CARE COMPANY

Respondent	Core yes or no	Coreness value
1	Yes	0,373
2	Yes	0,381
3	No	0,005
4	Yes	0,354
5	No	0,267
6	Yes	0,3
7	No	0,309
8	Yes	0,43
9	Yes	0,386

3.3 MARKETING COMPANY

Respondent	Core yes or no	Coreness value
1	No	0.183
2	Yes	0.221
3	Yes	0.214
4	Yes	0.515
5	No	0.201
6	Yes	0.308
7	No	0.175
8	Yes	0.298
9	Yes	0.319
10	No	0.089
11	No	0.088
12	No	0.212
13	No	0.107
14	No	0.159
15	Yes	0.240
16	No	0.044
17	Yes	0.245
18	No	0.097
19	No	0.100
20	No	0.188

3.4 SOFTWARE COMPANY

Respondent	Core yes or no	Coreness value
1	yes	0,311
2	yes	0,195
3	no	0,056
4	yes	0,273
5	yes	0,33
6	yes	0,157
7	no	0,144
8	yes	0,314
9	no	0,108
10	no	0,047
11	yes	0,313
12	yes	0,242
13	yes	0,232
14	yes	0,319
15	yes	0,16
16	no	0,031
17	no	0,08
18	no	0,037
19	yes	0,249
20	yes	0,167
21	yes	0,154

22	yes	0,154
23	yes	0,201
24	no	0,091
25	no	0,032

3.5 FLOORING COMPANY

Respondent	Core yes or no	Coreness value
1	yes	0,404
2	yes	0,2
3	no	0,121
4	yes	0,259
5	yes	0,433
6	yes	0,237
7	yes	0,324
8	yes	0,273
9	yes	0,377
10	yes	0,341
11	no	0,042
12	no	0,009
13	no	0,007
14	no	0,11
15	no	0,006
16	no	0,013