A Female Network That Grows on Trees  
- A Quantitative Case Study Examining Members’ Engagement in KVIST

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Abstract

Many people may view Sweden as one of the most gender equal societies in the world. Owing to historical aspects, many industries still suffer from gender segregation. The forest industry is an illustrative example as it only has 16% female employees. One way to empower women within the forest industry has been for them to organize in networks, which is seen as a platform where they can identify with other females. Prior research has focused on female networks within the forest industry, however the participating individual’s perspective has been overlooked.

Our ambition is to study the individual’s perspective. The purpose of this thesis is to investigate factors that impact members’ engagement in a female network. KVIST is a female network within the forest industry, and seeks to facilitate the members’ competences, while inspiring them to become future role models. By reviewing existing literature, three independent variables have been established namely; self-determination, knowledge exchange, and perceived usefulness. A conceptual model is created in an attempt to contribute to existing research. The created conceptual model and three hypotheses, examining positive effect on the members’ engagement, are usable tools in order to answer the research question being:

What are the effects of the variables; self-determination, knowledge exchange, and perceived usefulness on the members engagement in KVIST?

To facilitate our purpose, an objective approach and a quantitative research strategy were chosen. The data was collected through a survey asking questions, replicated from previous research, to a representative sample in KVIST. In order to examine the data generated from the created model, analysis tools are used such as, Cronbach’s Alpha, Pearson’s correlation, and multiple regression analysis. The Cronbach’s alpha test showed that all the variables were reliable thus they could all be used for further investigation. Pearson’s correlation indicated that all the independent variables had a positive relationship with the engagement. However, the test also showed that the correlation between the independent variables was high. Since all the independent variables were internally reliable, they could be used in a multiple regression analysis. The regression performed showed that the independent variables are responsible for 53.4% of the variance in engagement. By looking at other indicators within the multiple regression analysis, the conceptual model is considered to be valid thus empirical support was found. Therefore, it can be concluded that all three independent variables have a positive effect on the members’ engagement in KVIST.
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1. Introduction

Until the 1850’s, when the industrial revolution began, Sweden was a relatively poor agrarian country. However, due to a more efficient usage of the harvest, capital became accessible for investments in industries such as mining and forestry, which employed many workers (Schön, 2010, p. 33, 64, 67-68). In addition, the demand for iron, iron ore, steel, timber, wood- and paper pulp, amplified from other parts of Europe (Magnusson, 2014. p. 281). From these export opportunities, Swedish economy continued to grow stronger, with high demand for Swedish natural resources (Schön, 2010, p.33, 66-67, 263). In these transformations, men were, in general, segregated into the heavier industries, such as mining and forestry and females into the welfare sector (Schön, 2010, p. 33, 277,).

According to a report conducted by the Swedish Official Investigation (SOU 2004:43 p. 16), the current labor market continues to be one of the most static and gender-segregated in Europe. As a result, women tend to be employed in sectors and positions of both lower rank and with lower salaries (Abrahamsson, 2009, p.138; SOU, 2004:43, p. 23, 25). Nonetheless, one can observe a small change of females entering male dominated industries (SOU, 2004:43, p. 9). Adding to the social issue generated from unequal income distribution, females that are already employed in male dominated sectors might have difficulties to identify themselves with colleagues. Abrahamsson (2009, p.154), acknowledges this as jargons and ways of socializing, which can create an exempting work environment. Ironically, the perception might differ from how Sweden as society views gender equality, and also as it is ranked as one of the most equal societies in the world (World Economic Forum, 2013, p. 8).

A way of handling an individual’s weak position is by creating networks, in which individuals receive social and professional stimulus (Dobrow et. al., 2012, p.212; Higgins, 2001, p. 598; Janssen et al., 2013, p. 25). These kind of networks are seen as a career boost and a source of personal growth. This leads us to the concept of “developmental networks”. According to Higgins and Kram (2001, p. 268) a developmental network is defined as a group of individuals actively engaging in an activity to benefit from career advancement. This concept of a network will be emphasized throughout this research paper.

Joseph, (2013, p. 136) emphasizes that a network is a highly sustainable initiative and that diversity among networks are of importance. According to Joseph, a female network is an initiative to encourage female employees to join a company and develop their careers. It is recognized that, by promoting the role of women in business and in leadership, their perceptions are changed. In turn, this is seen as a supportive effort, to further improve gender equality across a company (Joseph, 2013, p. 136). In conflict with Joseph’s point of view, Smith (2000, p. 529) has addressed the practice of informal hiring, as the way of finding out about job information. In other words, people’s social network is a critical link to accessing job opportunities. Further, Hanson and Pratt (1991, p. 231-232) argue that most social networks have a homogeneous composition. Within these groupings, men seem to learn about job opportunities from men and women from women. Smith (2000, p. 529) reasons that the inequality between genders is a reproduced phenomenon through the social networks. In line with these arguments, McDonald et al. (2009, p. 397-399) have researched further and compared how the distribution of job information differs between the genders. They found that men receive, on average, more job related information and have wider access to contacts in prestigious positions. Hence, they address that “researchers should also examine the extent to which inequality in access to job information is unique to specific occupations, industries, sectors, or geographical regions” (McDonald et al., 2009, p. 399).
1.1 Problem Background

One industry that has been identified as being one of the most gender unequal is the forest industry. From a historical perspective, the forest industry has had great importance for the growth of Sweden as an economy. In comparison to other industries, in 2014, the forest industry contributed with 11% of Sweden’s export (Skogsindustrierna, 2015). On the other hand, in the County Administrative Board report, “JämLYS; An equality analysis of the forest industry in Västerbotten”, the forest industry was said to have a gender distribution of 16% female actors and 84% males (Länsstyrelsen i Västerbotten, 2012, p. 8). Therefore, it can be identified as a male dominated industry.

In Sweden, women hold 38% of the private forest ownership, but as mentioned earlier, there is a minority of female workers within the forest industry (Länsstyrelsen Västerbotten, 2012, p. 8). Even though the gap has diminished females are still a minority of the students in faculties of forest science. In numbers, 2015 only 36% of the students were females (SCB, 2015, p. 316). Due to the unequal distribution, the Government established a team of specialists on gender and forestry, tasked with mapping the forest labor market, forest ownership, and the abilities to use the resource capacities (Prop. 2007/2008:108, p. 26). In addition, to specifically target the issue of gender inequality in the forestry sector, the Council of Europe introduced “The Gender Equality Strategy” (Council of Europe, 2013).

According to Lidestav et al., (2011, p. 31) the attitude of the forest industry being a heavy and dangerous workplace, is based on a historical view. However, a lot has changed in the industry in the recent years. As the industry has become more technology and knowledge intensive, it now offers a wider variety of worksites. Nowadays, the sector provides work tasks related to deforestation and valuation of the forest, machinery manufacturing, logistics, wood processing, and sales. Besides these sort of jobs, the industry also has a demand for employees within communication, education, research, environmental care, administration, law, and recruitment (Skogsstyrelsen, 2009). In addition, many scientists, such as Lidestav et al. (2011), claim that the industry has to interconnect, the practical forest tasks with the administrative tasks. This in order to frame the industry and thereby create a demand for new and different competences (Lidestav et al., 2011, p. 29).

Due to a historical association between forest work and masculinity, Lidestav et al. (2011, p. 31) argue that females, who are not identifying themselves to the sector or the image of being a “forest worker”, might not even consider that work path. Also, when worksites have a majority of one gender, employees tend to form informal groupings, jargon and ways of socializing, which might create an excluding environment (Abrahamsson, 2000, p. 154). The formation of networks only for women, has become a strategy for females to access the forest industry (Ds, 2004:39, p. 222). In these kinds of networks, Lidestav & Andersson (2011, p. 4) argue that the traditional culture is less present, which enables alternative environments that might suite and give space for individuals capacities. Lidestav & Andersson, (2011), have studied networks for females within the Swedish forest industry, by comparing their activities and purposes among female forest owners. Their investigation was carried out by using focus group interviews in which the females discussed e.g. strengths, weaknesses, opportunities, and threats with their networks (Lidestav & Andersson, 2011, p. 8). However, Lidestav & Andersson (2011, p. 4) call attention to the lack of academic research investigating Swedish female networks within the forest industry, looking at how the participating individuals and the society perceive network membership.
Bearing Lidestav & Andersson’s (2011, p. 4) suggestion in mind, to be able to study an individual’s perception on engagement in an organization, one has to consider what influences a person to be a member. According to Kahn (1990, p. 694), engagement is defined as “the harnessing” of the self to one’s role at work. The self is expressed “physically, cognitively, and emotionally...”. A network is seen as an initiative to generate a higher level of engagement within the workplace (Shuck et al., 2011, p. 317). In addition, a female network can provide a feeling of belongingness and identification with other female workers in the forest industry (D, 2004:39, p. 222). Thereby, strengthening the individual woman, in her role as an actor in the industry. The intention of knowing others, with the same experiences and interests, provide confidence. Also, other factors which contribute to the members of networks growing confidence are the learning process, and knowledge development. In other words, knowledge and participation are the focus. Hence, the basic idea of a network is to generate knowledge, which in turn, generates more confidence (Ds, 2004:39, p. 222).

When reviewing the current situation, one of the established female networks found in the forest industry is KVIST. The network consists of approximately 150 paying members from all over Sweden. The organization is independent of a company, but requires that the females are employed in the forest industry. The purpose of the network is to enable female actors in the industry to interact and exchange knowledge and experiences. For instance, to facilitate the female’s competitiveness, KVIST hosts seminars about different areas of the industry. Likewise, they aim to empower and inspire each other as employees, to become role models for the next female generation (KVIST, 2014). We view KVIST in line with Higgins and Kram (2001, p. 268) definition of developmental networks, as a group of individuals actively engaging in an activity to benefit from career advancement. As a support to the definition, KVIST’s purpose is to support female employees’ competitiveness, which can be seen as a career boost. Lastly, only by its existence, KVIST values’ and beliefs’ can be seen as that females are in need of a forum which supports them in the forest industry.

With assistance from previous research, this case study will have the opportunity to examine what may influence the members’ to engage in the network. The procedure will be managed by constructing a model, which will cover engagement from three angles. The assembling of the model will be explained below.

1.2 The Conceptual Model

The contribution of this study will be demonstrated in a conceptual model. The model includes a dependent variable, engagement and three independent variables, namely; self-determination, knowledge exchange and perceived usefulness. By constructing the model, this thesis will investigate the independent variables impact on the dependent variable. When examining the dependent variable, engagement, individual's’ physical, cognitive and emotional needs have to be considered (Kahn, 1990, p. 694). In regard to the members’ of KVIST, can similar factors, explain their physical, cognitive, and emotional needs? Therefore, we will view engagement, as to which extent the members spend time and energy on KVIST. For instance, by participating in yearly meetings, length of membership, being a board member, and/or being active in social media. Also, their attitudes to represent and discuss KVIST with non-members, will be considered. To examine this in detail, three independent variables will be identified below.

Firstly, a person’s motivation to engage tend to depend on how self-determined the person is to an activity (Gagné & Deci, 2014, p. 44). According to Gagné & Deci (2014, p. 182-183), one’s self-determination depends on three factors namely; autonomy, competence and relatedness. “Autonomy” refers to the extent an individual either chooses to engage in an
activity because of its compatible with her own values, or if the choice is motivated by others. The first one explains one's intrinsic motivation and the second one's extrinsic motivation. Furthermore, “competence” explains an individual's feeling of managing its responsibilities, and contribute to a positive impact on its surrounding. Finally, “relatedness” concerns an individual's feeling of interdependency with other people engaged in the same activity. Throughout this study, self-determination will be viewed in consistence with Gagné & Deci’s (2014, p. 182-183) perception of intrinsic motivation, competence and relatedness. What should be notified is that the other half of the factor autonomy, extrinsic motivation, will receive attention in our last variable. In support, Vansteenkiste et al. (2007, p. 254) emphasize the limited empirical studies that have examined the influence of relatedness on work outcomes within the organizational domain. Influenced by Gagné & Deci (2014, p. 44), the focus will be to measure the relationship between the members’ perceived self-determination and their engagement in KVIST.

Secondly, the opportunity of knowledge exchange is seen to affect the engagement of an organization's members. According to Lockett et al. (2008, p. 673-675), knowledge exchange is defined as the iterative cycle of sharing ideas, research findings, expertise or skills between interested parties. A knowledge sharing environment will enable creation, transfer, adoption and exploitation for new knowledge to occur (Lockett et al., 2008, p. 673-675). By putting together individuals, who do not traditionally exchange or share knowledge in one or another setting, it is said to create significant value in the organizational performance (Wang & Wang, 2012, p. 8905). For instance, it might be unusual for women to discuss forestry with other female colleagues, as they are a minority. According to Wang et al. (2014, p. 560), a knowledge sharing environment is highly influenced by to which extent the individual feel identification with the surrounding. When individuals feel similarity to a group of people, their attitude of sharing knowledge will increase. In line with Wang et al. (2014), we will view knowledge exchange, as the members’ attitudes of sharing knowledge and experience within KVIST.

Thirdly, an individual's ability to see the usefulness in other’s values and beliefs, has a large impact on one’s acceptance into social networks (Gagné & Deci. 2014, p. 146). This deals with the extrinsic motivation which derives from the factor autonomy in Self-determination theory (Gagné & Deci, 2014, p. 182-183). Extrinsic motivation is defined by Gagné & Deci (2014, p. 3) as “the doing of an action that is not interesting or enjoyable to get a separate consequence”. However, these beliefs can become “taken in” by the individuals, depending on the person’s internalization process. The process regards one’s adaptability to norms and behaviors are seen as essential for coexistence with others. Gagné & Deci (2014, p. 3) point out that humans are social beings, which makes us motivated to sometimes accept a behavior as it may be good for us and good for the collective. Furthermore, Deci & Ryan (2000, p. 238), claim that if a person internalizes other’s beliefs of an activity, in other words, perceive it as of their own belief, the activity is recognized as valuable and useful for the person (Gagné & Deci. 2014, p. 144). Therefore, people tend to be more engaged in activities, which are experienced as valuable for themselves. By looking at the members’ perceived usefulness of KVIST, we will examine whether KVIST’s values and beliefs corresponds to the members’. In compliance with Deci & Ryan (2000), we will define perceived usefulness, as if the members internalize the values and beliefs of KVIST to become their own values and beliefs.

Accordingly, previous research has shown that degree of self-determination, knowledge exchange, and perceived usefulness have importance to individuals’ engagement in networks.
1.3 Research Gap
Previous research has found social networks to be a critical link to access job information and that social networks tend to be homogeneously shaped by dividing men and women (Hanson and Pratt, 1991, p. 231-232; Smith, 2000, p. 529). Adding to this, men tend to receive, on average, more job related opportunities and have more ties to employees in prestigious positions (McDonald et al., 2009, p. 399). From another perspective, a female network can be seen as a participational context, in the forest area (Ds, 2009:34, p. 222). Also, networks have become a strategy for females, in order to get access to opportunities in the forest sector. Adding to this, a network might be seen as a supportive platform, where females have the opportunity to work toward equality at the workplace. From previous research of this subject, the existing female networks within the forest industry have received attention. However, Lidestav & Andersson (2011, p. 4) highlight the lack of research studying female networks in the forest industry from an individual and society perspective.

As previously emphasized, the National Board of Forestry’s report of gender distribution in Sweden shows that females represent only 16% of the workforce, making it a present issue (Länsstyrelsen i Västerbotten, 2012, p. 8). To impose clarity, the aim of this thesis is not to investigate whether or not a network can create more job opportunities for female workers or if a network can diminish the inequality gap within the forest industry. Instead, by taking a theoretically based perspective of engagement, this thesis will investigate, what may have influenced females’ to engage in the network KVIST’s, and if they themselves perceive the network to be of value for the forest industry.

1.4 Purpose
The purpose of this study is to investigate the impact of the variables; self-determination, knowledge exchange, and perceived usefulness on the engagement in a female network within the forest industry. This study will contribute to the current research by examining if the members in KVIST perceive themselves to be self-determined to participate. Also, if the network is an atmosphere where members want to share knowledge. Lastly, if the members perceive the network to be of use for them, as well as for the forest industry. Even though, this thesis is not written on commission, we will aim to contribute as an external source. Depending on the findings, we will identify strengths and weaknesses, in order for KVIST to improve the network’s climate to generate increased engagement.

1.5 Research question
What are the effects of the variables; self-determination, knowledge exchange, and perceived usefulness on the members engagement in KVIST?

1.6 Delimitations
In order to make this research manageable, the focus on KVIST limits the results applicability, and thereby contributes less importance for the society as a whole. For instance, the issue of gender segregation and inequality are present in many industries. Since, this study is looking into the females’ situation within the forest industry, it might not correspond to the situation in another industry. Also, this thesis central point is to explore KVIST as a network and thereby restraining it down to an explanatory case study. Thus, it will be difficult to generalize the findings to other female networks within the forest industry.
1.7 Disposition

Theoretical Framework
The objective with the chapter is to give you, as the reader, a review of the academic field of the topic, which will stand as the foundation for the established conceptual model.

Scientific Methodology
This chapter will provide what kind of binoculars this study is viewed through. Additionally, evaluations of why the research is conducted in the way it is.

Practical Methodology
In order to conduct this thesis in line with our philosophical standing, the purpose of this chapter is to explain and motivate the different practical tools used.

Empirical Findings and Analysis
Firstly, the objective of this chapter is to present the findings in this thesis, which will be the foundation of the argumentations made in the analysis.

Conclusions and Recommendations
In the last chapter, our objective is to determine if our purpose has been fulfilled and answer our research question. Also, the contribution of this study will be discussed. Furthermore, we will evaluate upon this study’s credibility and suggested what would be interesting to study further. Furthermore, we will look at social and ethical issues that are of relevance in our research.
2. Theoretical Framework

In this chapter, previous literature on engagement is presented. Also, theories related to the subject are explained. Furthermore, relevant theories from previous research have been used to establish a conceptual model for further investigation. The model consists of a dependent variable, engagement, and three independent variables namely self-determination, knowledge exchange and perceived usefulness. Also, it is described how these factors are seen to effect engagement of the members in the studied network.

We will create a conceptual model, with the aim to enhance this study’s contribution to the academic field. As a consequence, the literature below will introduce the concepts and definitions of engagement. However, the dependent variable will not be based on a specific theory. Instead, several scholars have had an impact on this study’s definition and understanding of engagement. As was discussed in the Problem Background, the opportunity to study engagement, arose from the lack of scientific investigation of individuals’ perspective, when engaging in a female network, in the forest industry (Lidestav & Andersson 2011, p. 4).

2.1 Engagement

According to Saks, (2008, p. 40) engagement is related to some constructs in organizational behavior but distinct from others. Engagement has been compared extensively with constructs such as, organizational commitment, job involvement, and job satisfaction (Macey & Schneider, 2008, p. 5). However, the question has been asked whether engagement has any additional value for these. Kahn (1990, p. 694), is seen as the first scholar examining engagement and he defined it as “the harnessing” of the self to one’s role at work. Explained differently, the self is expressed “physically, cognitively, and emotionally…” (Kahn, 1990, p. 694). In 2004, May et al. (2004, p. 23) conducted an empirical study to test Kahn’s three components. In line with Kahn’s research, availability, safety and meaningfulness were seen to be highly related to engagement. When they explained availability, coworker norms and self-consciousness were negative predictors, whereas resource availability was a positive influence of psychological availability. To impose clarity, psychological availability assesses the confidence that an individual feels when engaging in the role given (May et al., 2004, p. 17). In regard to safety, their finding indicated that rewarding coworkers and supportive supervisors had a positive effect on safety and thereby engagement. A safe environment is an atmosphere that is rewarding to individuals when expressing their true selves. This can be expressed as a feeling of interdependency with others and also trust based on emotional relationship between individuals (May et al. 2004, p. 16). Lastly, a feeling of meaningfulness seemed to have an effect on job enrichment and role fit. In other words, the employees saw their responsibility as useful, both as it gave them a greater impact and that their own beliefs’ were satisfied (May et al., 2004, p. 14).

From another point of view, Schaufeli et al. (2002, p. 74), Macey and Schneider (2008, p. 18) describe engagement as, when a person feels passion and pride, as well as, easily adapting to the appropriate behavior, to serve and defend an organization’s purpose. Furthermore, Meyer et al. (2010, p. 64) highlight the fostering of the engaged in an organization due to a facilitating climate, in which the organization’s beliefs’ become the individual’s own “proactive value-directed behavior”. The individuals have to feel that the organization's purpose and culture are being internalized into the individual’s own values. In other words, the employee’s emotional connection toward the organization, the feelings of passion and enthusiasm, and motivation towards supporting the organization’s goals, are all important
concerns of engagement (Hicks et al., 2014 p. 12). Even though this case study does not focus on a company, the principal of engagement is seen to be applied in all kinds of organizational constellations. We argue that the members’ engagement in KVIST, could be seen as a part of their working life. Although they leave their regular office, the conventions still consists of debates about the forest industry and all meetings’ are arranged at weekdays.

The engagement in the chosen network is assessed to rely on concerns such as, the members’ length of membership, attempt to participate in yearly meetings, being a member of the board, being active in social media, and discussing the operations of KVIST in contexts beyond the members. In line with the definitions of Kahn (1990, p. 694), Macey and Schneider (2008, p. 18), May et al. (2004, p. 14), Schaufeli et al. (2002, p. 74) the level of engagement can be seen as an adoption chain. In the first phase, a female attending the yearly meetings can be seen as a member in KVIST. In the second phase, a member who obtains pride when representing KVIST, can be seen as committed to the network. Lastly, if she also talks in a positive manners about KVIST’s purpose to non-members or “defend” the network's existence, she can be perceived as engaged.

As previously discussed, a network can be seen as a platform for its members to meet and engage in line with the purpose and common goals of the network (Hicks et al., 2014 p. 12). Wang et al. (2014, p. 554) argue that the engaged employees commit high levels of passion and creativity. This since they believe these contribute to the business management and created value. When examining characteristics of networks, Higgins and Kram (2001, p. 268-269) introduced the concept of developmental networks, and pointed out that it is not necessarily tied to an organization. They define it as a group of individuals actively engaging in an activity to promote career advancement. They further distinguish between an individual’s entire social network and one’s “developmental network”. The latter contains the most important contacts, at a particular point in time, for one’s opportunities of career advancement. What are seen as factors shaping developmental networks, tend to depend on one’s work environment, perceived need, and the ways the person interact with others. Firstly, a job in a fast changing industry, where improving know-how is crucial, tends to drive people to socialize with important contacts. Secondly, a person’s previous experience of receiving helpful support, could be a key for an individual to continuously seek assistance. Lastly, in order to create valuable relationships, a person has to understand others by using her social competence (Higgins & Kram, 2001, p. 273-277). When evaluating KVIST as a developmental network it could be perceived as one as the objective with their existence is to promote the members’ role as employees (KVIST, 2014).

In terms of valuable relationships, individuals’ tend to favor groupings where they feel belongingness, but also one that provides them with a better self-image (Clement et al., 2001, p. 567). Thereby, people sharing an attitude when striving for a common goal tend to feel more motivation to engage. However, it is of importance to reflect upon the effect of a disengaged member in an organization. Instead of seeing one’s tasks as stimulating, it may be considered as time and effort put into something just to get compensation, in term of salary (Jauhari et al., 2013, p. 163). Also, disengaged individuals may have an impact on the others by spreading negative energy. In regard to a network such as in this case, members who do not feel engagement toward the network may not just participate to get compensation, but rather because of a “have to” feeling.

On the contrary, when succeeding to obtain employee engagement, Jauhari et al. (2013, p. 163) point out several advantages. Firstly, engagement among the employees might work as a
tool, which deploys the talent effectively. Secondly, it contributes to commitment among the employees, which in turn helps each employee to perform better in their roles. Thirdly, focused efforts and better outcomes are other contributors to employee engagement. In brief, greater commitment to the organization, positive energy, and increased productivity, are seen as consequences of higher engagement (Jauhari et al., 2013, p. 163). To achieve these advantages, an organization has to adapt to what motivates individuals to engage in their work. Hence, an interest in which factors may have the largest impact on an employee's attitude to engage, seems to be of relevance to study further.

In line with Kahn's definition of engagement, three components namely; availability, safety and meaningfulness are of importance (May et al. 2004, p. 14). Availability evaluates if the individual feels confident when engaging in the role given (May et al. 2004, p. 17). Further, a safe environment is seen as a forum which rewards the individuals when expressing their true selves and where they feel interdependency with others (May et al. 2004, p. 16). Lastly, engagement tends to increase when individuals perceive their responsibilities as useful and in line with their own beliefs (May et al. 2004, p. 14). Other definitions of engagement have been presented which in turn have the common beliefs of serving and defending an organization’s purpose (Schaufeli et al., 2002, p. 74; Macey & Schneider, 2008, p. 18). Also, the importance of a climate in which the organization’s purpose and culture have the potential of being internalized into an individual’s own values, is highlighted (Meyer et al., 2010, p. 64). With these arguments as the foundation, the engagement in KVIST is seen to be in line with the engagement in any organization. Along with this, the members’ might perceive the network to be a part of their working life. We recon this to be the case, as the yearly meetings are arranged at weekdays and the seminar hosted deals with different topics in the forest industry.

On view of engagement can be the members’ action of serving and defending KVIST’s existence (Schaufeli et al., 2002, p. 74; Macey & Schneider, 2008, p. 18). A reflection, if only attending the yearly meetings, she can be seen as a member in KVIST. If also obtaining pride when representing KVIST, she can be seen as committed to the network. However, by talking about KVIST in a positive manner to non-members or defending the network's existence, she can be perceived as engaged. Guided by literature discussing engagement, an individual’s internal process seems to be relevant and will be the first variable examined.

2.2. Self-Determination
An individual’s feeling of being self-determined by an activity is an important factor to achieve high engagement (Gagné & Deci, 2014, p. 44). In Self-determination theory (SDT), developed by Deci and Ryan during the last 40 years, the authors’ are examining how an individual interpret an environment or one’s engagement, whether as an experience of well-being or ill-being (Gagné & Deci, 2014, p. 144). The ability to reach one's well-being stage, it is empathize that intrinsic needs have to be fulfilled (Gagné & Deci, 2014, p. 182-183). Deci and Ryan (2000, p. 233) identify intrinsic motivation as a concern of have active engagement in something that is perceived as interesting. However, the level of engagement depends on if an activity can fulfill the experienced need satisfaction demanded, which can be categorized in to three factors. Firstly, “autonomy” refers to if the individual chooses to engage in an activity because it is compatible with her own values, or if it is motivated by others. Secondly, “competence” is seen as an individual's belief that she has the capability to complete her responsibility and also have a positive impact on her surroundings. Thirdly, the factor “relatedness”, is viewed as the ability to feel interdependency with the environment, or with the other people engaged. When discussing the women in this case study, the aim is to
evaluate if the three factors are satisfied by engaging in KVIST. Firstly if their participation in the network is due to their own choice or not. What should be mentioned when dealing with human behavior is that a person does not always feel intrinsic motivation when doing an activity. However, Gagné & Deci. (2014, p. 152) argue that the goal is to maximize the individual's experience of the activity as being aligned with her own values. An evaluation has been made regarding if the females perceive their engagement to be an action influenced of their surroundings. In other words, whether KVIST’s values and beliefs have been accepted into the members’ own values and beliefs. This has received extensive attention and will be further discussed in the variable perceived usefulness. Furthermore, regarding the factor competence, we will examine if the females feel competent and skilled enough when interacting during the KVIST conventions. Lastly, talking about forestry within a female setting is seen as alternative environment that might give space for the women (Ds, 2009:34, p. 222). In turn, this might integrate more relatedness among the members (Gagné & Deci, 2014, p. 182-183).

Also, Janssen et al. (2013) conducted a study, which investigated developmental networks and mentorships, from a self-determination perspective. They examine whether, and how protégé’s need for autonomy, competence and relatedness, when engaged in developmental networks and mentorships, are being fulfilled. They studied how mentors can give enhanced support by understanding the protégé's choices and perspectives, which could facilitate the protégé's self-motivation and performance (Janssen et al., 2013, p. 21). In short, their results demonstrated that the protégés' basic needs for autonomy, competence, and relatedness were fulfilled, when taking part in developmental networks (Janssen et al., 2013, p. 27).

When examining the theory in more detail, Gagné & Deci. (2014, p. 182-183) believe that a high fulfillment of these needs; autonomy, competence and relatedness, will create a feeling of intrinsic motivation and less need of extrinsic rewards. The first refers to a person’s own values and the latter is outcomes that are expected to satisfy values and beliefs outside the individual’s own (Gagné & Deci, 2014, p. 2-3). In previous studies, Gagné & Deci. (2014, p. 2), examine that if an activity is partly driven by the individual’s intrinsic motivation, but also depends on a potential extrinsic reward, the person’s intrinsic motivation and enjoyment of doing the activity will then to some extent be reduced. Thereby, Gagné & Deci. (2014, p. 182-183) argue that the individual’s focus on a goal, when she was self-determined, is changed by receiving a reward, even though the intrinsic ambition was not reached.

On the contrary, Cameron and Pierce (1994, p. 372) disagree, by acknowledging that extrinsic rewards could trigger motivation when individuals are in a learning and developmental phase. Thereby, rewards would not decrease an individual's internal motivation. Deci et al. (1999, p. 630) counteract by claiming that problems with their meta-analysis can be identified, making Cameron and Pierce’s research conclusions invalid. However, Deci et al. (1999, p. 653) acknowledge the importance of distinguishing verbal (e.g. positive feedback), and tangle rewards (e.g. money). In other words, positive feedback can increase intrinsic motivation, whereas money would change the focus on getting the reward, and therefore decreases the individual’s internal motivation. Iyengar & Lepper (1999, p. 350) have criticized the variable “autonomy” in the Self-Determination theory to represent independence, individualism and detachment. With this perspective, an autonomous person would neglect other’s needs and only concerns her own beliefs. In response, Chirkov et al., (2003, p. 107) claim this to be a misunderstanding of a person’s internal motivation. Hence, autonomous behaviors allow others’ needs to influence, but in contrast, independency refers to not relying on external influences at all.
As mentioned, Meyer et al. (2010, p. 64) state that one’s adaptation to an organization's climate is highly dependent on one’s self-determination. In turn, when combining Gagné & Deci. (2014, p. 182-183) and Meyer et al. (2010, p. 64) findings, an individual who feels self-motivated, perceiving oneself to have positive impact and relatedness to one’s surrounding, will be more open to adjust. Thus, a member of KVIST who is engaged because of her own will, perceives that she is competent enough, as well as has a sense of belonging toward the network, may adapt easily to the network’s climate and feel greatly engaged in the network. In addition to this, other scholars have discussed the importance of organizational climate and the underlying factor of a comfortable environment. This leads us to the matter of exchanging former experiences, and knowledge.

2.3 Knowledge Exchange

In regard to the fundamental elements of a comfortable environment, one factor widely discussed is knowledge exchange in relation to engagement within an organization. (Shiau & Luo, 2012, p. 2432) extend the view by applying the Social exchange theory in regard to investigate information and knowledge sharing. Social exchange theory proposes that human relationships are the result of an exchange process, where the purpose of the exchange is to maximize the benefits and minimize the costs. Both economical and psychological needs are driving the exchange behavior. Through the exchange process each individual weighs the experienced benefits and risks of its social relationships, and if the rewards outweigh the risks, the individual continues the relationship. As knowledge exchange is part of the human interaction within the society, an evaluation of self-interest seems to be made before the individual engage in any activity (Wang et al., 2014, p. 555). On the other hand, a factor which might encourage individuals to exchange knowledge are tangible rewards (Hall, 2001, p. 143).

Sheng et al. (2013, p. 462) state that, a source of a long-term competitive advantage for an organization is the development of “know-how”. However, depending on how well knowledge is shared within an organization, it contributes more or less to success (Howell & Annansingh, 2013, p. 33). In addition, knowledge sharing is seen as a key element of the creation of behavior in an organization (Alavi & Leidner, 2001, p. 110). In order to develop a successful knowledge management system, knowledge sharing is a crucial factor to consider. Also, to improve employees’ knowledge sharing attitudes and behaviors, a motivation mechanism has to be established (Wang & Wang, 2009, p. 107). In line with the purpose of KVIST, the yearly meetings are sources in order to improve the females’ know-how. Therefore, a concern would be to measure the members’ knowledge sharing attitudes within the current atmosphere of KVIST.

In contrast, few studies have looked into the negative aspects of knowledge sharing. One suggestion is that individuals, might be inclined to withhold or hid knowledge, which might be of importance for others. This in turn, might be an obstacle for the social knowledge construction (Lin & Huang, 2010, p. 188). Nevertheless, Wang et al. (2014, p. 548) argue that an individual with a strong personal motivator, is seen to be more likely to share its knowledge with others. Also, Ipe (2003, p. 345) continues by stating that the perceived value of knowledge has an influence on people’s motivation to share it. Hence, the difference of individual’s perception of valuable knowledge, might influence the members’ willingness to contribute to the knowledge exchange within the social setting. Within a network, such as KVIST, the level of work experience and field of education varies among the females. Members that have been in the industry for several years, might have another view on
knowledge than younger generations. The different views might depend on what had influenced their obtained know-how. Additionally, the females’ educational background contributes to what they perceive as valuable to learn more about. Therefore, when evaluating what effect knowledge exchange has on engagement, the females’ backgrounds and the related perceptions are of concern. The members’ attempt to put effort into their engagement in KVIST is mirrored by their self-determination, and level of knowledge sharing. In hand with these two matters, do the females perceive KVIST as useful for themselves, as well as for the forest industry?

2.4 Perceived Usefulness

Individual’s perceived usefulness to engage in activities have been discussed in scientific literature. Gagné & Deci (2014, p. 152), emphasize that personal values are seen as the drivers of what is meaningful and thereby what individuals’ perceive as usefulness. Also, the gain of desired external outcomes will differ. From another angle, Malhotra et al (2008), use Organismic integration theory (OIT), to identify the underlying causes of motivation on engagement. This theory is an extension concerns autonomy, which is one of the central pillars of Self-determination theory, and views individuals as being in charge of their own behaviors. According to the OIT, a stimulus is treated as an opportunity, which can be utilized in order to satisfy needs. Therefore, the theory may help to recognize what individuals experience or feel and what affect these have on intentions and behaviors (Malhotra et al., 2008, p. 271). In other words, OIT provides the theoretical understanding of how one's values are internalized to self-regulate behavior. For instance, to which degree the members in KVIST perceive their membership of value to themselves, and if this value enhance their future attitude to engagement in the network.

The internalization process is highly dependent on the extent to which the process is driven by the individual’s own beliefs’ or the one’s of others’ (Gagné & Deci (2014, p. 3). This is a concern of one’s autonomy, which is one of the central pillars in Self-determination theory. The theory empathizes that an individual’s intrinsic motivation is a stronger force, than when the action is influenced by others (Deci and Ryan, 2000, p. 235). However, due to the fact that we are social animals, the OIT highlights the extrinsic motivation, by showing the importance of individual’s integration of the beliefs’ of her surroundings (Gagné & Deci, 2014, p. 3). In more detail, Deci and Ryan (2000, p. 236) identify the internalization process as what regulates people’s behaviors, and facilitates their engagement with tasks, which is driven by their extrinsic motivation. There is two ways that internalization can occur, either if the social context is pushing, or if the person can identify herself with the beliefs (Gagné & Deci (2014, p. 3). The internalization process can generate an outcome in a wide spectrum. In specifically, an internalization process that functions well will enable a person to integrate and accept the social regulations that come from engagement in an activity. In other words, the activity will be an extrinsic motivation for the individual. On the contrary, the internalization process can also stay as an external regulation were individuals attain a behavior to receive a tangible reward such as money, or to avoid punishments from others (Deci and Ryan, 2000, p. 236). Although, the members in KVIST reasonably do not feel forced to participate in KVIST it would be of value to examine if they have internalized KVIST’s beliefs to become their extrinsic motivation.

Expanding the internalization concept, Cross et al., (2001, p. 101) emphasize that effectiveness and sustainability of a network’s function, is determined by the members’ perceived usefulness of the network. If the process of acquiring value is too difficult, or time consuming, the perceived meaningfulness will decrease (Xerri & Brunetto, 2011, p. 968).
When taking an external view, acceptance into social networks might be largely impacted by the degree an individual is able to internalize other’s values and beliefs (Gagné & Deci, 2014, p. 146). Obviously, the engagement of one individual will increase the more value it has to the individual itself. Though, the complexity is a concern of how one’s own perceived value is matched to groups’ or networks’ integrated values. Only by its existence, KVIST values’ and beliefs’ can be seen as that females are in need of a platform that supports them in the male dominated industry. In the long run, this initiative are said to empower these women, to be role models for the next female generation, entering the industry (KVIST, 2014).

2.5 Conceptual model
To enable an investigation of different factors possible impact on engagement, as well as contribute to existing knowledge within the field of study, a conceptual model is created. The created conceptual model consists of three independent variables, namely self-determination, knowledge exchange and perceived usefulness, and the dependent variable of this model is engagement.

The independent variables included in the conceptual model have been gone through in a fruitful manner in order to amplify the best potential composition of the variables. Even though we have experienced similarities between the variables chosen, we will argue for the independence of each of the variables selected. Hence, they view the causes of engagement from different angles. As mentioned, Self-determination theory focuses on the importance of individual’s engagement being an intrinsic driven activity instead of being fostered by others expectations. In contrast, Social exchange theory which supports the variable knowledge exchange, encourage extrinsic rewards as a carrot to increase engagement. Also, the theory is proposed to identify individuals’ perceived benefits and costs in an exchange process in order to gain as much as possible from the interchange. From another angle, perceived usefulness holds a unique characteristic which takes into account the importance of internalizing beliefs which are not one’s own. The reason behind this is that one’s approval into social networks depends on an individual's capability to understand a social setting’s values and beliefs. Therefore, it stands independent from the remaining independent variables. These three angles explain, from independent standings, the underlying drivers for engagement and together embraces the causes for individuals to engage in social settings.
Figure 1. The Conceptual Model

To be able to support findings of previous research as well as test the created model, a regression will be carried out. By testing the created model, it will be showed if the independent variables have a positive effect on the dependent variable. The following hypotheses will be tested:

\( H1: \) There is a positive effect of self-determination on the engagement

\( H2: \) There is a positive effect of knowledge exchange on the engagement

\( H3: \) There is a positive effect of perceived usefulness on the engagement
3. Scientific Methodology

The main objective of this chapter is to link the thesis purpose with our research philosophies and the research approach, which will be the foundation of this study. This is of great importance, as every strategic choice, whether concerning method or analysis, we will be guided by our philosophical standing.

3.1 Ontology

We view the world as an existing reality, regardless of how we perceive it to be. Thereby, this study will be written from an objectivistic perspective. In line with this opinion, one has to consider the concern of social ontology, in other words, social entities relation to reality. Social ontology extends into either constructivism or objectivism. According to Bryman & Bell (2011, p. 21), “the central point of orientation here is the question of, whether social entities can and should be considered objective entities that have reality external to social actors, or whether they can and should be considered social constructions built up from the perceptions and actions of social actors” (Bryman & Bell, 2011, p. 21). Research based on a constructionist viewpoint, believes that social actors create the reality by using their own perceptions and consequent actions. On the other hand, an objectivist viewpoint indicates that the reality exists independently on how observers perceive it to be (Saunders et al., 2009, p. 110-111). Since, this study aims to explain relevant factors relationships with the social actors engagement, it does not take the author’s’ perceptions of engagement into consideration (Bryman & Bell, 2011, p. 20). Furthermore, we believe that a network, in this case KVIST, signifies a social order in itself since it applies pressure on the members to follow the constraints of the network. Therefore, external actors’ interpretation are of no relevance and objectivism is the appropriate ontological standing for this paper.

Moreover, the aim of the study is to gauge to which degree the variables have a relation with the social actors’ engagement in the network. In contrast, from a constructionist stance, the aim would be to deepening the understanding of why and how the members’ are engaged in KVIST (Bryman & Bell, 2011, p. 22). The reality studied in this case, is in fact that the network itself exists independently of the external reality. Hence, the formation of a network is seen to be a naturally occurring phenomena, as individuals tend to seek identification in groups consisting of homogeneous humans (Hanson and Pratt, 1991, p. 231). As networks are developed by a number of actors during a particular period of time, and in a particular place, it is treated as if it has an objective existence. When moving further, leaving the ontological section with objective binoculars, this can only be further studied through a process method, and a positivistic approach. Therefore, this leads to the epistemological stance, which will be described in more detail in the following section.

3.2 Epistemology

In accordance to our objectivistic ontology, knowledge is seen to be trustworthy, if it is generated and measured neutrality of the one studying it. Epistemology concerns the issue of whether or not, the method of collecting and analyzing data from social studies, should be approached independently of who is conducting the research (Bryman & Bell, 2011, p. 15). In other words, it focuses on what process of learning is seen as acceptable knowledge (Saunders et al., 2012, p. 132).

According to Bryman & Bell (2011, p. 15), three epistemological approaches exist, namely positivism, interpretivism, and realism. Positivism emphasizes that the function of research is to test established theories and deliver facts from a frequency of the social world (Saunders et
al., 2012, p. 134). In addition, researchers taking a positivistic angle can reflect upon the collected data regarding the observed reality, and in turn generalize to a population (Saunders et al., 2012, p. 132-134). In contrast, an interpretivistic approach advocates that one has to get insight in the social world of the research subject. This will enable the researcher to understand the world from the humans’ point of view. Therefore, knowledge is created through the researcher’s interpretation of the social world (Saunders et al., 2009, p. 116).

Lastly, a realistic approach first identifies, with her own judgement, what seems to be the effect of one variable against another. Afterwards the link is measured through a credible process method (Saunders et al., 2012, p. 136). Bearing these approaches in mind, since the aim of the study is to create knowledge by measuring theoretically based variables effects, this can only be studied further by taking a positivistic stance.

3.3 Research Strategy
Guided by our ontological and epistemological standings, as well as to manage to answer the research question, the strategy of this thesis will be of a quantitative characteristic. Accordingly, Bryman & Bell (2011, p. 27) indicate that objectivism and positivism are generally pledged to a quantitative research strategy. This approach will give us the possibility to accomplish the aim of measuring the variables effect on engagement. On the contrary, if the characteristic of this study was of a qualitative approach, we would be given the role to interpret, how and why the members perceive their engagement to be as it is. Consequently, this approach would not give us the opportunity to objectively measure the network’s engagement patterns. Therefore, a quantitative strategy will be applied, and its characteristics will be further evaluated below.

A quantitative approach has specific preoccupations concerning; how the findings from research can be measured, if they have causality, if they can be generalized, as well as if they have the possibility to be replicated (Bryman & Bell, 2011, p. 163). Firstly, in a quantitative study, theories can become concepts and thereby variables, once they are measurable. From another angle, conceptualizations could explain frequencies in the social world or manifest patterns in the social being (Bryman & Bell, 2011, p. 153). Hence, all theories used in this research, have been used in other studies as tools to measure the relevant concepts and will therefore support us in how to measure the conceptual model. Secondly, quantitative researchers are mainly concerned with measuring what causes which affect. Therefore, one dependent and at least one independent variable have to be identified to be able to measure what possible cause the independent variable has on the dependent (Bryman & Bell, 2011, p. 163). When considering this research, the aim is to examine if the independent variables namely; self-determination, knowledge exchange and perceived usefulness have a causal influence on engagement and whether they have positive or negative effect.

Thirdly, the concern of quantitative research, is the one of being able to generalize the findings beyond the people participating in the study. In order to enable generalization, attention has to be paid in regard to how a representative sample can be created. In turn, one wants to be able to generalize the findings beyond the individuals who make up the sample (Bryman & Bell, 2011, p. 163-164). A probability sample, in term of a survey randomly distributed to a part of the females in KVIST, would be seen as a representative sample. However, worth mentioning, the sample is only possible to be representative of the population, which it was selected from. Applied to this case, the potential effects the independent variables might have on the engagement in KVIST, can only be generalized to all the members in the network.
A fourth issue of quantitative research is replication, which is the possibility for scientists to reproduce someone else experiments (Bryman & Bell, 2011, p. 165). In order to facilitate replication, we attempt to clearly explain the procedures involved in the research, so it is possible for this study to be replicated. In addition, since the questions used in the questionnaire are based on previous studies, our replication is only slightly adapted, to suite KVIST. Therefore, with just some modification, the same questions can easily be used in future studies. Further examination of the credibility of this study will be presented in the end chapter where Truth Criteria will be evaluated and conclusions will be drawn.

3.4 Research Approach
In correspondence to the philosophical standings of this study, a deductive approach is followed. A deductive research derives knowledge through mathematical treatments, such as a statistical survey (Saunders et al., 2009, p. 125). This approach is mainly used in quantitative research, and in an attempt to examine theories, the researcher is supposed to create hypotheses based on theories found in previous studies. In contrast with this procedure, since the purpose of this study is not to generate new theories, an inductive approach is not suitable. Since an inductive approach is used to explore a new phenomenon, it would not give us the possibility to fulfill the purpose of this study (Bryman & Bell, 2011, p. 11).

In this study, hypotheses will be tested through a created model based on existing theories. Furthermore, primary data will be collected, and the findings will be analyzed in order to conclude whether or not the hypotheses are supported (Bryman & Bell, 2011, p. 11). More precisely, hypotheses are stated, in order to analyze the significance among variables, which may affect the engagement of the members in a network. By using this approach, clear differences between theory and research can be established (Bryman & Bell, 2011, p. 15). Moreover, this separation makes it possible to gather observations through a process that is not affected of how the theories have been used in previous examinations. Instead, credible data can only be provided from the subject of concern (Saunders et al., 2012, p. 134). Therefore, independent results will be generated, even though the conceptual model will build upon existing theories.

3.5 Choice of Theories
In this thesis, existing theories lay the foundation for the creation of our conceptual model. All the theories chosen for this study have been debated upon in previous research in regard to which factors influence engagement. However, we were the ones selecting the most relevant one’s, in the ocean of theories. Throughout this section, we will discuss the theories used and why they were chosen. To enhance the reading discernment, this evaluation will be summarized in Table 1, on page 21. As the data collection is based on the variables; self-determination, knowledge exchange and perceived usefulness, these will be the ones in focus.

With the inducement of understanding what influences engagement, previous scholars have colored this thesis definition of engagement (Kahn, 1990; Saks, 2008; Hicks et al., 2014; Jauhari et al., 2013; Macey and Schneider, 2008; Meyer et al., 2010; Schaufeli et al., 2002; Wang et al., 2014). However, we will not base the dependent variable on a theory. When reflect upon this approach, we could have tested one of the engagement theories, to establish an explanation of what influence the engagement among the members’ in KVIST. When consider this approach, one could argue that the results would be more reliable, as it can be easily compared to other researchers, using that theory. However, since it already has been
conducted a rich variety of studies based on engagement theories, we believe that a conceptual model, based on relevant theories, would fill the research gap to a greater extent.

**Self-Determination**

Self-determination theory (SDT) is the chosen theory to be discussed in regard to the independent variable self-determination. The theory examines the individual’s interpretation of the environment or its own engagement, in terms of the individual’s experience of well-being or ill-being (Gagné & Deci, 2014, p. 144). The theory was initially developed by Edward L. Deci and Richard M. Ryan, but has been further developed by them, as well as by other scholars around the globe. Deci and Ryan created the theory from their interest of understanding individuals’ intrinsic motivation and defined it as “doing something for its own sake, out of interest and enjoyment” (Gagné & Deci, 2014, p. 1). In 2005, Gagné and Deci expanded SDT to the field of management and organization, which are exceedingly cited and one of the most frequently downloaded articles published by the Journal of Organizational Behavior (Gagné & Deci, 2014, p. 5). Due to the great extent of research conducted, with SDT as the base, the theory has developed into an institution (Self-determination theory, 2015). Because of SDT’s wide coverage within the area of motivation and engagement, six mini theories have been developed. One of these, Cognitive evaluation theory (CET) has been used in this study when explaining the variable self-determination. However, the theory’s name is not used as most literature still refers this theory to SDT. Hence, the reason why we call it SDT, is to exclude confusion between the interconnected theories. Also, another of the mini-theories is Organismic Integration Theory, which will be used for the variable perceived usefulness.

SDT is of importance since it call attention to the need of intrinsic motivation rather than extrinsic rewards (Gagné & Deci. 2014, p. 182-183). In the paper at hand, self-determination theory is appropriate to use, thus it helps to create a bridge between the members’ in KVIST’s self-determination and their engagement. When discussing engagement in the Theoretical framework, Kahn’s (1990) previous research and May et al. (2004, p. 23) empirical study indicated that availability, safety and meaningfulness, had significant impact on individual’s engagement. Furthermore, the relevant factors in self-determination theory is seen to go in line with the one’s Kahn and May et al. mentioned. When comparing May et al. and Deci & Ryan’s definitions of a person’s psychological needs similarities are notified. As availability is when a person feel that it has the ability to manage the role given, the SDT’s pillar “competence”, has a common meaning. Likewise, May et al. (2004, p. 21) identify safety as a feeling of interdependency between individuals, which in turn correspondence to relatedness. Lastly, a person’s feeling of meaningfulness covers the same intention as autonomy. Hence, both of them incentives that a person’s own beliefs greatly influences the degree of engagement. The mentioned similarities might work as a bridge between the members’ psychological needs and their choice of engagement. To impose realization, in an earlier paper Janssen et al.’s (2013, p. 27) have applied SDT in a network context. The outcomes indicated that the basic needs in SDT were seen to be fulfilled when individuals took part in developmental networks. This signals that SDT can also be applicable when networks are in focus. In supplementary, many previous studies have formed questionnaires based on SDT to enable measurement of the theory. Further illustrations will be highlighted in the section Design of the Questionnaire.

**Knowledge Exchange**

When discussing the concept of knowledge exchange further, Social exchange theory is applied. The Social exchange theory was initially developed by George Homans in 1958
Furthermore, Social exchange theory is based on three propositions; success, stimulus, and deprivation-satiation. These three schemes contribute to the assumption that an individual’s behavior is based on rewards, as well as costs related to different social exchange set-ups (Wang et al., 2014, p. 551). The social exchange theory proposes human relationships as the outcome of an exchange process, where the purpose of the process is to maximize the benefits and minimize the costs (Shiau & Luo, 2012, p. 2432). Correspondingly, this theory fits the purpose of our study, thus the emphasis is to explain different factors, including knowledge exchange’s impact on members engagement, toward a network. Depending on the members perceived benefits and risks of exchanging their knowledge and experience with other members, the exchange process is to a more or less extent perceived as successful. According to Alavi & Leidner (2001, p. 110), in the creation of behavior in an organization, knowledge sharing is seen as a key element. Since knowledge sharing is seen as a key factor it is assumed that knowledge exchange is of the same importance in order to enhance the engagement in a group. Likewise, a member in a group will be more open of sharing knowledge if the person feel belongingness and identification with the others in the group (Wang et al., 2014, p. 560).

The application of Social exchange theory, has increased within the setting of knowledge-sharing research. Previous studies have looked into knowledge as an exchange resource, and supported the usage of Social exchange theory in order to investigate knowledge, and information sharing (Shiau & Luo, 2012, p. 2432). When reflecting upon the application of Social exchange theory, Higgins and Kram (2001, p. 273-277) concept of developmental networks interrelates the exchange process and engagement in a network. Higgins and Kram (2001, p. 273-277) define it as where individuals are seeking for career advancements by actively engaging in a network context. In accordance with the Social exchange theory, one of the elements shaping developmental networks is the way people interact with each other (Higgins & Kram, 2001, p. 273-277).

Keeping in mind, one of the aims of KVIST is to empower the females as employees by increasing their know-how regarding the forest industry (KVIST, 2014). As simple as sharing what they already know, they could achieve the outcome, in term of being more competitive employees. Hence, this is seen to be in line with Shiau & Luo’s (2012, p. 2432) proposal of human relationships as the result of an exchange process aims to weigh the benefits against the costs. What Social exchange theory consent is, if the exchange process is taking place in an atmosphere that enhances the interests of sharing “know-how” (Shiau & Luo, 2012, p. 2442). From the social exchange perspective, the concept of knowledge exchange examines the perceived benefits and risks. This will be mirrored in our questionnaire, by asking questions, in a manner to examine the members’ attitude, during interaction with the others. The composition of the questions asked regarding the exchange process, will be discussed further in the section Design of the Questionnaire. From the reasoning above, Social exchange theory seems to enable us to reach the objective of answering what effect “knowledge exchange” has on the members’ engagement in KVIST.

Perceived Usefulness

The third variable included in our created model, perceived usefulness, is explained by the Organismic integration theory (OIT). As mentioned above, OIT is one of the six mini-theories evolved from Self-determination theory. OIT evaluates the concept of extrinsic motivation in its various forms, namely properties, determinants, and consequences (Institute of Self-Determination theory, 2015). According to OIT, the higher degree of internalization, the more autonomous will an individual experience when undertaking a behavior (Institute of Self-
Determination theory, 2015). Another concern of OIT is the social context, where the internalization will be either enhanced or prevented depending on the social setting (Deci and Ryan, 2000, p. 235). The importance of this theory has been indicated in previous research, focusing on identifying an individual’s perceived usefulness. For instance, Malhotra et al. (2008, p. 271) suggest that this theory might assist in order to identify individuals experiences and feelings, and the effect of these on their intentions and behaviors.

The Organismic integration theory is of relevance as it helps to grasp how social values, from one’s surrounding, are being internalized to self-regulated behaviors (Malhotra et al., 2008, p. 271). However, if a person wants to “internalize” dependent on the extent to which the process is driven by the individual’s own beliefs’ or the one’s of others’ (Gagné & Deci (2014, p. 3). On the other hand, acceptance into social network is said to be largely impacted by the degree an individual is capable to internalize the network’s values and beliefs (Gagné & Deci. 2014, p. 146). When considered what values and beliefs to internalize, KVIST values’ and beliefs’ signalize that female employees are in need of a network that empowers them in the male-dominated industry. Guided by the OIT, if the females’ perceive KVIST’s values to be one of their own, it is more likely that they will serve and defend the network’s purpose (Macey and Schneider, 2008, p. 18). In accordance with Meyer et al. (2010, p. 64), engagement in an organization is highly dependent on the climate, which fosters individuals’ to obtaining a “proactive value-directed behavior”. Consequently, the OIT will support us in the search for a relationship between the members’ perceived usefulness of KVIST and their level of engagement. Grounded in the purpose of this study, the questions asked in the survey are in concern of measuring the members’ perceived usefulness of KVIST as a network. Nonetheless, this will be further discussed in the section Design of the Questionnaire, which is found in the practical methodology chapter.
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| Engagement    | Engagement is defined as “the harnessing” of the self to one’s role at work. The self is expressed “physically, cognitively, and emotionally…” (Kahn, 1990, p.694). Engagement is when a person feels passion and proud, as well as, easily adapting to the appropriate behavior, to serve and defend an organization’s purpose (Macey and Schneider 2008, p.18) | Hicks et al., 2014  
Jauhari et al., 2013  
Kahn, 1990  
Macey and Schneider, 2008  
Meyer et al., 2010  
Saks, 2008,  
Schaufeli et al. 2002  
Wang et al., 2014 | - Creates a foundation of what can be seen as engagement                |
| Self-determination | Autonomy; an individual chooses to engage in an activity because it is compatible with his or her own values, or if it is motivated by others. Competence; an individual's belief that she has the capability to complete own responsibility and also have a positive impact on one’s surrounding. Relatedness; an individual’s feeling of interdependency with the other people engaged (Gagné & Deci. 2014 p.183) | Deci, 1971  
Deci and Ryan, 2000  
Gagné & Deci, 2014  
Janssen et al. 2013  
Meyer et al. 2010 | Enable measurement for: Individual’s internal perception of their engagement. |
| Knowledge exchange | An individual’s exchange process, where the purpose of the exchange is to maximize the benefits and minimize the costs. Both economical and psychological needs are driving the exchange behavior (Shiau & Luo, 2012, p. 2432). Individual’s attitude to share knowledge within a social setting (Wang & Wang, 2009, p. 107). | Alavi & Leidner, 2001  
Howell & Annansingh, 2013  
Ipe, 2003  
Lin & Huang, 2010  
Sheng et al., 2013  
Shiau & Luo, 2012  
Wang et al., 2014  
Wang & Wang, 2009 | Enable measurement for: Individual’s attitude of sharing knowledge in a specific social setting. |
| Perceived usefulness | An individual’s perception of an activity, if they see a value for themselves to engage (Deci and Ryan, 2000)  
The internalization process is highly dependent on to which extent the process is driven by the individual’s own beliefs’ or the one’s of others’ (Ryan and Deci, 2002). | Cross et al., 2001  
Deci and Ryan, 2000  
Deci and Ryan, 2000  
Malhotra et al., 2008  
Xerri & Brunetto, 2011 | Enable measurement for: Establishing how an individual internalization her social surrounding. |

Table 1. Summary of the choices of theories
3.6 Criticism of Sources
We will frame our research, by relying on six pillars, namely; scientific articles, scientific books, authority reports, methodology literature, the Institution of Self-determination as well as our own data collection. Within this section, the different pillars will be explained and motivated. Furthermore, the most critical sources will be evaluated to examine their quality by reasoning about the expertise of the sources, vested interests, corroboration and reputation (Fisher, 2001, p. 93). Also, the sources’ actuality will be collaborated.

Firstly, we will use scientific articles, from the databases Business Source Premier and Google Scholar, or journals that preferably are peer reviewed. Saunders et al. (2012 p. 84) state that peer reviewed articles are suitable, since they are evaluated by experts. What is seen as a qualified expert could be questioned, however by filtering the articles, peer reviewed one’s will hopefully increase the source's credibility. In the process of selecting relevant articles in databases, different keywords were applied, such as: engagement, network, organizational behavior, social exchange, perceived value, self-determination, job satisfaction, knowledge sharing, internalization, Self-determination theory, Social exchange theory, and Organismic integration theory. Additionally, referenced literature from earlier research were also a source of valuable information in the specific area. Scientific articles have been used in all sections, from the introduction to the discussion, to enhance and reflect upon many scholars research.

Secondly, a variety of scientific books have been used, covering both historical perspectives of the forest industry, as well as supporting the theories the conceptual model. Mostly, scientific books have been used, which have been published by what can be seen as credible sources, such as Studentlitteratur, Studieförebundet Näringsliv och Samhälle, and Oxford University Press. Studentlitteratur and Studieförebundet Näringsliv och Samhälle, were guiding us through the Swedish history and the last one, is the Oxford Handbook of work engagement, motivation and Self-determination theory.

Thirdly, the issue of the Swedish labor market segregation, in general, as well as for the forest industry, is an issue greatly discussed by Swedish authorities and also the European Commission. The issue of gender segregation has been highly debated by the authorities, enabling us to get deeper understanding of what is already investigated but also how complex this issue is. The sources used are reports conducted by the Swedish Official Investigation (SOU), the European Commission, Statistics Sweden, Country Administrative Board in Västerbotten, National Board of Forestry and reports issued by these authorities to scientists in the field. The last mentioned was of great value when finding the research gap (Lidestav & Andersson, 2011). These authors’ are not peer reviewed but have been referred to in authority investigations regarding forest industry and gender equality, (Ds, 2009, p. 220; Länsstyrelsen Västerbotten, 2015). Additionally, Skogsindustrierna which is the industry- and employers’ organization, has supported the statistics in the introduction.

Also, literature written by Bryman & Bell (2011), and Saunders et al. (2009, 2012) have been used for the descriptions of the parts Scientific Methodology and Practical Methodology. In other words, these books lay the foundation of the methodological strategies used for this study. Adding to the shelf of methodology books, Fisher (2001) is guiding us through the Criticism of Sources and Moore et al. (2011) are the authors of the statistical literature that will be used when analyzing the primary data. These books is seen to be trustworthy sources, since they are based on reviewed publishers, and written for research purposes in the field of study.
A great support for this thesis is the Institution of Self-Determination. On its webpage, ("http://www.selfdeterminationtheory.org/"), Self-determination theory and the associated mini theories are presented. The Institution provides a wide range of research conducted using SDT, and also summarizing questions that have been used in questionnaires examining individual’s self-determination. This webpage has been the source for the Organismic integration theory (OIT) used in the variable perceived usefulness. Also, when we constructed our questionnaire, we used an example questionnaire that measures individual’s self-determination and perceived usefulness. The example questionnaire will be described in detail in the section Design of the Questionnaire. This web source can be seen as credible as the Institution is founded by Deci and Ryan, which are the grounders of Self-determination theory. Finally, our own data collection will be our primary source and below we will reflect further regarding its quality.

Since we have the opportunity to contribute to the world of academic literature, it is of importance to examine the quality of the sources used. The scanning of sources are usually conducted by discussing expertise of the source, vested interest, corroboration and reputation (Fisher, 2001, p. 93). Therefore, the following argumentation will investigate the study’s quality and also validate the choice of sources. To impose clarity, “expertise of the sources” concerns if the source is a specialist on the topic and thereby is seen as authentic. “Vested interest” is instead evaluating if the source is influencing expectations of the results. When examining the meaning of “corroboration”, it deal with the sources proof behind their words. Adding to this, the “reputation” of the sources refers to how they are valued in their academic field. Lastly, we will examine the “actuality” of the sources, in other words, how relevant they are today.

Consider the sources expertise in the area of practice, primary and secondary sources have to be distinguished. Our study was conducted to test the reason behind the females’ engagement, and thereby the only qualification needed, was for the women to be aware of their own will for participation in KVIST. In other words, even though the study was based on their answers, they do not need to know anything about what affects engagement in general. Instead, considering the secondary sources, the majority have either been peer reviewed, published by a credible source or conducted by an authority. The authors are all specialists in their area of interest and should therefore be considered sources of expertise. Secondary, when discussing the sources vested interests, we will have to pay attention to what impact it may have on the study. Since the secondary sources will not have any clue that this thesis is written, they will not have an interest for certain results. On the contrary, the primary data collected from the members in KVIST, might distort the reality as they want to image the network in a positive manner. We will try to oppose this scenario by conducting a questionnaire that the respondents’ fill out alone and assured that it will be handled with confidentiality. Thereby, they will hopefully give their honest opinion.

Viewing the sources corroboration, we do not see it as an issue for either the primary- or the secondary sources. When collecting the data, the respondents will not be informed about each other’s answers. Bearing in mind, that the majority of members work at different companies and that they replied to us during working hours, we believe that their participation were done without co-operation. However, when it comes to the secondary sources, we need to be more conscious. Firstly, all of the scientific literature used was conducted with different research purposes, as well as research questions. Hopefully, therefore the corroboration will be eliminated. On the other hand, the reports conducted by authorities and reports issued by these authorities to scientists in the field, might have the issue of corroboration. Thus, all of the
reports are somehow interlinked as they all aim to understand and capture the inequality in the forest industry. Since these are used only in the Introduction chapter to give an overview, they will not have an impact on the final result. Therefore, we do not think that their corroboration will change the study significantly. When discussing the sources’ reputation, their nature of claim and their credible reasons for the claim are being contemplated. As mentioned so far in the Criticism of Sources, the sources have been evaluated with sensibility and should thereby be qualified for this study. Looking at the answers made by the females in KVIST, they do not need to justify why they answered the way they did. This issue is irrelevant as our philosophical stance, refuses us as researchers to interfere with the social actors studied.

Finally, the actuality of a source has to be evaluated as it indicates how relevant the sources are for a study conducted today in this academic field. Regarding the age when the authors’ released their claims, the majority of the sources are from 2000 and further on. However, in some cases, we have used sources that were older than that. For instance, Kahn’s (1990, p. 694) definition of engagement is used as the basis for our definition of the concept. Throughout the years, newer research papers have extended this definition (Barrick et al., 2015, p. 113). By these modifications, the definition founded by Kahn is used ever since then, and seems to continue to be used because of its general view on engagement. Another critical source is the Self-determination theory, as it was initially established in the 1970’s. However, due to the fact that the theory has been evolving, it is seen to still be of actuality in present studies (Gagné & Deci, 2014; Janssen et al. 2013; Meyer et al. 2010). Also, the Social exchange theory which has been used was found in 1958. However, in similarity with the majority of theories, they are usually old, but have been developed further since the first time they were experienced.

Moreover, Wang et al. (2014) has used this theory within their research. This indicates that a theory, no matter on when it first was established, is used in modern studies. Also worth mentioning is that we did not find any present studies using the same example questionnaire that we found at the Institution of Self-Determination webpage (See page. 32). One can question why this is the case. However, due to the fact that the institution is still suggesting that the questions are used to examine self-determination and perceived usefulness, we feel confident using the example questionnaires. Also, due to time constraints, we did not manage to find present research using these questions. However, we believe this could found if having the time allowed.

Worth mentioning, during our literature review we had serious difficulties to find credible sources exploring Swedish female networks within the forest industry. It might be various reasons for this. Moreover, the subject has not received much attention and we have been very critical to the existing sources. Throughout the scientific literature search, there were only a few findings which gave the implication of being usable. Hence, this has been a struggle for us as we aim to base all our arguments on previous research.
3.7 Preunderstandings
The research of this study is conducted in an objective manner, and therefore a distinction is drawn between how this study is conducted and what pre-understandings we as authors have. This is of relevance as Bryman & Bell (2011, p. 414) argue for the likelihood that researchers are being influenced by previous knowledge and experience during the research process. With regard to our choice of focusing on the forest industry, this was mainly influenced by one of the author’s since she has childhood experiences and also relatives’ active within the industry. Although, this gave us inspiration and confidence, the incentive to make an investigation of a forest network was not affected by her previous knowledge. Furthermore, none of us have any personal relation toward the female network KVIST. Hence, it is believed that the unfamiliarity of the network is positive for this research to be conducted in an objective manner (Bryman & Bell, 2011, p. 414). In addition, our previous knowledge concerning engagement and theories related to the concept were limited. By not having any previous knowledge or experience which might influence the research process, it is seen to facilitate the approach of being objective. Theories related to the dependent variable, engagement as well as the independent variables, namely self-determination, knowledge exchange, and perceived usefulness, have contributed to the theoretical knowledge of relevance. However, there has been a need for further theoretical knowledge, which has been accommodated by reading academic literature to acquire a deeper understanding about the research area.
4. Practical Methodology

The purpose of this chapter is to clearly demonstrate the different practical choices made, in order to conduct this thesis in line with our philosophical standing. Starting off by clarifying our choice of network, followed by explanations of the chosen research design and strategy. Moreover, the data collection method, including the design of the questionnaire and sampling approach will be outlined. Also, a demonstration of the tools used in the data analysis are motivated.

4.1 Choice of Network

The interest in studying a female network prospered from a curiosity of understanding how gender inequality can be dealt with. Adding to this, the forest industry has, due to historical aspects, attracted more men than women. This has been expressed with a gender distribution of 16% female and 84% male employees in the industry (Länsstyrelsen i Västerbotten, 2012, p. 8). Following the initial idea, our aim was to conduct a study of a network, where the initiative comes from the women themselves. In line with this, the aim was to find a network that focused on developing the members rather than advocating a radical feminist initiative. Additionally, if a network survives for a longer period of time without integration with a company, it could be seen as strong and sustainable in itself. With this said, several female networks exists in Sweden, but KVIST is the only one that fulfills our initial aim.

In more depth, KVIST started in 1993 and has since then grown to be approximately 150 members. They are located in different regions in Sweden and all females with profession associated with forestry are welcomed. Pervaded of its purposes, KVIST’s goal is to increase the knowledge in, and interest of the forest industry. Their strategy is to develop the members’ knowledge and competence in forestry, as well as enable the members to become role models, and thereby support, encourage and inspire coming female generations (KVIST, 2014). When it comes to the members’ participation in KVIST, it can be viewed as a part of their working life. This since the two scheduled yearly meetings are taking place during weekdays, when most members work. Furthermore, all seminars are discussing the forest industry, making it similar to any educational activity taking place at their companies.

4.2 Research Design

In order to establish a frame for the data collection and analysis, a research design has to be chosen. Depending on the purpose of a study, one research design might be more or less suitable (Bryman & Bell, 2011, p. 40). In line with the purpose of this study, the research design chosen is an explanatory case study. The nature of an explanatory design highlights the practice of determining causal relationships between constructs (Saunders et al., 2012, p. 72). Also, an explanatory case study is described as a study aiming to understand the chosen population in more depth. In line with this, KVIST is chosen in order to fill the gap of research looking at a female network from an individual perspective. Hence, it is of importance to map out the population and reach a broad understanding of the area, prior to only touch upon the surface of a wider population (Saunders et al., 2009, p. 146). With regard to this, a case might be either a single location, or a single organization, such as the network KVIST (Bryman & Bell, 2011, p. 59). Hence, the chosen design of this study fit a case study design thus engagement among the members of the network KVIST is examined. Moreover, to fully understand the members’ engagement toward the network, this paper examines the impact of the variables self-determination, knowledge exchange and perceived usefulness on the engagement.
4.3 Data Collection Method

Directed by our philosophical standing and research strategy, the data collection method had to be wisely considered. Moreover, collection methods associated with quantitative research are structured interviews, structured observation, and self-completion questionnaires (Saunders et al., 2012, p. 176). The latter is a form of research method, in which the respondent's answer and complete the questionnaire by themselves without any influences from the researcher's social appearance. Over and above, it has been demonstrated that the interviewers’ characteristics may have an effect on the respondent's answers. Thereby, the risk effect on the respondents is eliminated when using self-completion questionnaires. On the other hand, the other alternatives, structured interview and observation made by the researcher, might limit our possibility to stay objective (Bryman & Bell, 2011, p. 231-232).

Additionally, a self-completion questionnaire is an easy research instrument to follow thus it includes particularly straightforward questions to answer. Likewise, this strategy is convenient for respondents, thus it can be completed whenever and from wherever it is suitable for them (Bryman & Bell, 2011, p. 232-233). Even though quantitative research seems to be a respectable method to use in this case, some criticisms are raised against it. Firstly, since no one is present to assist in the answering process, attention has to be paid to ensure that the questionnaire is easy to complete (Bryman & Bell, 2011, p. 233). Secondly, a lack of supervision may lead to partially answered questionnaires or missing answers since a question might appear boring or irrelevant for the respondent (Bryman & Bell, 2011, p. 234). These issues have been considered and elaborated in the coming section Design of the Questionnaires.

To conclude, a self-completion questionnaire allows the respondents to answer without any influences of the researchers’ characteristics. Moreover, this strategy makes it possibility to investigate a network with members located in various regions in Sweden. Also, conduct a generalization from a sample of the network to explain the networks’ attitude toward engagement in KVIST. Another concern is the sample’s degree of homogeneity and heterogeneity. Depending on the aim of a study, one characteristics of a sample is more or less appropriate (Bryman & Bell, 2011, p. 189). Since the aim of this study is to analyze the engagement in a specific network, a sample of a homogeneous character is used. In comparison to a heterogeneous sample, a homogeneous sample does not have to be as large. Hence, the sample for this study is chosen to be a number of 50, which is one third of the population.

In addition, the choice of sampling method is a further concern. There are different types of sampling method, probability samples and non-probability samples (Bryman & Bell, 2011, p. 176). For this study, a probability sample has been used, namely simple random sample. More precisely, this sampling method allows each unit of the population to have the same probability of being part of the sample (Bryman & Bell, 2011, p. 179). We applied this sample method by first defining our population. As we are looking into the engagement of members in KVIST, this network is seen to be our population. The next step in devising our simple random sample, was to select a comprehensive sampling frame. In order to do so, we contacted a woman in the board of the network. She helped us out by giving a complete list of names including all members in KVIST. When we got the list of all members, we could decide the size of our sample. Due to the size of the population, we choose to include 50 members in our sample. The next step made, was that we listed all the members in the population with numbers ranging from 1 to 150. Then we generated random numbers, which lied between 1 and 150, to each member. Finally, the members which got the 50 numbers that
constitute our sample, were selected to be in the sample. However, we did not reach our sample size at first, leading us to continue to pick random number from the population until we had acquired a sample including 50 respondents.

Simple random sampling was chosen for several reasons. Firstly, by choosing a probability sample rather than a non-probability sample, it enabled us to make inferences from the information derived from the sample, to the population as a whole. Secondly, the simplicity of this method was of concern for the choice. Thirdly, by not using a non-probability sampling method, the risk of only reaching the most active members in KVIST was obliterated. In other words, not just the individuals’ who might have the most influence on the network’s operation at present time were targeted (Bryman & Bell, 2011, p. 185).

4.4 Design of the Questionnaire
In order to achieve the aim of measuring what effects self-determination, knowledge exchange and perceived usefulness may have on engagement, the data was collected through a structured questionnaire. In this part of the paper, we will justify how the design was constructed. To stimulate the reading experience and also your understanding of this section, a comprehensive table will be find below this section on page 33 and the entire questionnaire is seen in Appendix 1.

With inspiration from the scholars introduced in the Theoretical framework, we have used theories and questions explored in previous research when examining the variables. These sources provided applicable questions, designed to be answered in a closed manner. Therefore, we will replicate the same method to facilitate the analysis, of this thesis findings. Also, in line with the research purpose, closed questions would enable reply on what the study aims to measure and nothing else, which in turn will have several advantages. Firstly, the mission of processing the answers is facilitated. This since the respondents only have to tick an answer, and in turn, an appropriate code derives from the answers mechanically. Secondly, the comparability is enhanced, and potential relationships between variables are easier to determine. Thirdly, the usage of closed questions makes the completion of the questionnaires easier for the respondents (Bryman & Bell, 2011, p. 250). On the other hand, closed questions have certain disadvantages, since they leave no room for spontaneity. Therefore, possible replies of interest are excluded. Also, variation in the interpretation of the forced-choice answers may be experienced. Consequently, the validity is jeopardized (Bryman & Bell, 2011, p. 251-252). Before constructing the survey for this study, the advantages, as well as disadvantages of different types of questions were considered and weigh against each other. We concluded that closed questions were appropriate for the majority of questions in this study. Hence, the focus of this study is greatly objective, and seeks to explain what effect independent variables have on a dependent variable.

Before the self-completion questionnaires were carried out among the members in KVIST, the survey were pilot tested on six females, in representative ages, which provided valuable feedback on their interpretation of the questions. This was to ensure that the research instrument was well functioning (Bryman & Bell, 2011, p. 262). The positive feedback given, indicated that the questions were straightforward and easy to understand. Adding to this, even though they did not have access to supervision from us, no one had a problem completing the survey. As some questions may affect preceding ones constructive criticism was made, by one woman, who suggested that the questions order should be randomly organized. Also, issues regarding the presentation of the survey have been looked into with critical eyes. Due to the
fact that the survey was developed from theories in English, but presented in Swedish, some language obstacles had potential to occur. When translating the replicated questions from English to Swedish, the questions were compared and evaluated by both the authors and pilot testers. In turn, no difference in the content was experienced. Consequently, the pilot testing, as well as previously used questions is seen to increase the reliability and validity of the data collected (Saunders et al., 2012, p. 459). Nonetheless, some words in the questions, had to be slightly modified, e.g. adding “KVIST” as the subject to consider. As can be seen in Appendix 1, question 10 in the survey is an example of how “KVIST” has been included in the question.

The survey started off with an information page and followed by background questions in order to identify the demographic of the respondents’. As Appendix 1 illustrates, the next section first involved questions looking into engagement, and then a mixed design of the independent variables; self-determination, knowledge exchange and perceived usefulness.

In the background section, three open and four closed questions were issued. The three open questions asked for a specific amount of years, which could have a wide answer range, if not allowing the question to be filled out openly. Moreover, the following three were answered by picking either yes or no. The remaining sections encouraged the respondents to rank their opinion on a scale, consisting of five alternatives, named Likert-scale. A Likert-scale, allows the respondents to rank their choice on a scale with the range of strongly agree to strongly disagree. In other words, the questions were presented with a fixed set of alternatives from where the respondents had to choose their answers (Bryman & Bell, 2011, p. 248). Adding to this, the middle alternative is named neutral, making no one forced to choose side (Bryman & Bell, 2011, p. 238). Before the respondents’ reached the section where a Likert-scale were used, a clear description of the scale was presented.

Construction of the Questions
Firstly, the survey started out with an information page, which included an introduction of the study, what the purpose of the thesis is, as well as informed that participation will be dealt confidentiality. The reason for using an information page was to avoid potential ethical issues. For instance, by including an information page, we allowed the members in KVIST to decide upon whether or not they wanted to participate in our study. In other words, no one were forced to participate (Bryman & Bell, 2011, p. 136). Likewise, our e-mail addresses were given if issues would arise. Secondly, the background block involved questions regarding; age of members, years in the forest industry, and years of membership in KVIST. These demographics will be of use when comparing and identifying structures, among the members. Next section dealt with the dependent variable, engagement. The variable will be determined by the members of KVIST attempt to participate in yearly meetings, length of membership, being a board member, activity in social media, as well as engaging in discussions regarding KVIST and its operations with non-members. These concerns deals with attendance and activity within the network, but also outside the hedge of KVIST. As can be seen in Appendix 1 and on page 33, an example of a question related to the attendance within KVIST is: “I take the time to participate in the yearly meetings”. Furthermore, to extend the privacy of the members engagement in KVIST, questions such as: “I discuss KVIST in a positive way with non-members of KVIST” have been used. This sort of question will examine if the members feel proud of KVIST and are willing to defend the network if needed.
Moving on, each independent variable will be discussed, in regard to how previous studies have used questions to measure these issues. Also, reliability and validity of the questions application will be of concern.

When first examining the independent variables self-determination and perceived usefulness, questions from the Intrinsic Motivation Inventory (IMI) were used, which is developed by the Institution of Self-determination theory (Self-determination Institution, 2015). IMI is a measurement device that assess to scale the participants’ interest/enjoyment, perceived competence, effort, value/usefulness, felt pressure and tension, experiences of relatedness and perceived choice while performing a given activity. This measurement has been constructed for scaling issues from the self-determination theory, such as autonomy, competence and relatedness. The device is divided into independent categorizes and thereby “value/usefulness” can be measured without including the other categorizes. This device has been used by many scientists measuring individual’s self-determination and individual’s perceived usefulness of an activity (Deci et al., 1994; Ryan et al., 1991; Ryan et al., 1990).

Self-Determination

In regard to the independent variable, self-determination, intrinsic motivation, competence, and relatedness will be measured. Intrinsic motivation deals with whether the choice of engagement in an activity is driven by oneself, or not. In order to measure this need, questions were taken from the category “perceived choice”. In line with the two other needs, namely competence and relatedness, the corresponding categories “perceived competence”, and “perceived relatedness” were used. According to Deci et al, (1994, p. 126), results of high levels in the categories “perceived choice” and “perceived competence”, tend to have positive impact on the behavioral measures of intrinsic motivation. Furthermore, the questions in the category “perceived competence”, focus on the respondents attitudes toward their own competences, and whether or not a special social context facilitated their competences. In regard to relatedness, previous studies have used it in accordance to interpersonal interactions, and friendship creation (Deci et al., 1994, p. 123). When measuring relatedness, questions in the category “perceived relatedness” were used. These questions concerned the respondents’ attitudes toward the other individuals in the social context, and whether or not they feel trust to each other.

Perceived Usefulness

Deci et al. (1994, p. 123) is one of the previous studies that have examined the process of one’s internalization. In other words, the study focused on when a person starts to accept others’ values and preferences to become an experience of value for themselves. Since our variable perceived usefulness has the same focus, Intrinsic Motivation Inventory will be the
instrument, which provides the category value/usefulness. The idea behind this category is that people internalize and become self-regulated with respect to activities experienced as useful for themselves (Self-determination Institute, 2015). As can be seen on page 32, the questions asked in relation to perceived usefulness, concern both the individual’s stand of their own value of participation, but also the very existence of a platform for females within the forest industry. Specifically, some questions asked regarding perceived usefulness were as following; “I believe that the membership in KVIST is of value” and “I think a network, such as KVIST is important for the forest industry”. By asking these questions, having KVIST’s values and beliefs in mind, we can determine how much the members have internalized the values and beliefs of KVIST to become their own.

**Knowledge Exchange**

With regard to the last independent variable, knowledge exchange, the questions are based on a study made on students willingness to share knowledge (Wang et al., 2014, p. 560). Their findings are that individuals’, that feel highly engaged and can identify themselves with their surroundings, will be more inclined to share knowledge to its realm. Categories from Wang et al.’s (2014), survey, namely “Knowledge-withholding intention”, and “Expected associations”, have been replicated. Nonetheless, these questions were slightly modified in order to fit the purpose of the network KVIST. In regard to the opportunity of knowledge exchange, it is assumed that high ranking in these questions could correspond to a feeling of high engagement, and identification toward KVIST. In order to measure the members’ engagement from the perspective of the ability to exchange knowledge with other members, six questions were asked (see Appendix 1 and page 33) The questions applied were of the characteristic: ”My knowledge sharing creates strong relationships with members who have common interests” and “During knowledge sharing occasions with other members, I make less effort on knowledge contribution than other members”.

**Reliability**

Saunders et al. (2012, p. 431) state that questions employed by previous research are seen to be reliable and of high quality. In order to fit the purpose of this research, the questions taken from already existing studies were slightly modified. However, these modifications do not have an impact in the reliability because the constructions are not changed, just the wording so as they are in line with our chosen network. In regard to the variables self-determination and perceived usefulness, the questions have been compiled from the Institution of Self-determination. Although, we have only come across older studies using IMI, the measurement device is still applicable for determining the variables. However, we are concerned of the fact that we could not find more recent research, which we have discussed more in the section Criticism of Sources. As mentioned, questions regarding knowledge exchange was replicated from a previous study which aimed to explain the drivers for students’ knowledge-withholding intentions. Since we want to explore the concept of knowledge sharing, these questions seemed to be reliable indicators in order to measure knowledge exchange. Nonetheless, this study wanted to explain the drivers related to knowledge-withholding. According to this study, the category “Expected associations” seemed to have negative effect on knowledge-withholding. This might be an issue but other studies have off-set this argument. For instance, Bock et al. (2005, p.101) found that expected associations might bring about positive attitudes in regard to knowledge sharing. As an outcome, it is indicate that it has positive impact on knowledge sharing, and negative effect on knowledge-withholding.
Validity

A further concern is related to the issue of an instrument’s ability to gauge the concept it really is supposed to measure (Bryman & Bell, 2011, p. 159). Since the questions in our constructed questionnaire have been used in previous research, the measurements of the variables are considered to be of high quality thus the validity increases. In regard to the degree of validity these questions might have, previous studies support a strong validity. For instance, McAuley, Duncan, and Tammen (1989, p. 50) did a study to examine the validity of the IMI and found strong support for its validity. Therefore, the validity of our questions regarding self-determination and perceived usefulness must be seen as valid.
<table>
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<th>Proof Methodology</th>
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<td><strong>SELF-DETERMINATION</strong></td>
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<tr>
<td>Intrinsic motivation:</td>
<td></td>
<td>I participate in KVIST because I want to</td>
<td>Intrinsic Motivation Inventory (IMI)</td>
<td>Since the questions have been used before, the reliability of the questions is already set. The only adjustment made is some modifications of the questions in order to fit the purpose of our study.</td>
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<td>18</td>
<td>I participate in KVIST because I felt that I had to</td>
<td>Adopted to measure intrinsic motivation and self-regulation.</td>
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<td>21</td>
<td></td>
<td>Assesses i.e. the perceived choice, perceived competence and experience of relatedness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participation in KVIST activities makes me feel more competent</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceived competence:</strong></td>
<td>17</td>
<td>I feel close to the members in KVIST</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>It is likely that other members and I could become friends if we interacted a lot.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceived relatedness:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>My knowledge sharing strengthens the ties between the other members and myself</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>My knowledge sharing creates strong relationships with members who have common interests</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>My knowledge sharing helps me get well-acquainted with unfamiliar members</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>My knowledge sharing leads to smoother cooperation with outstanding members in the future</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>During knowledge sharing occasions with other members, I contribute less knowledge than I know I can.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>During knowledge sharing occasions with other members, I make less effort on knowledge contribution than other members.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>My knowledge sharing strengthens the ties between the other members and myself</td>
<td>The questions are used to measure knowledge-withholding, and are divided into different categories.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>My knowledge sharing creates strong relationships with members who have common interests</td>
<td>The questions relevant to include in our survey were taken from the categories “Expected Associations”, and “Knowledge-withholding intension”.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>My knowledge sharing helps me get well-acquainted with unfamiliar members</td>
<td>(Wang et al. 2014)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>My knowledge sharing leads to smoother cooperation with outstanding members in the future</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>During knowledge sharing occasions with other members, I contribute less knowledge than I know I can.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>During knowledge sharing occasions with other members, I make less effort on knowledge contribution than other members.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>KNOWLEDGE EXCHANGE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>I believe that the membership in KVIST is of value for me</td>
<td>Adopted to measure intrinsic motivation and self-regulation.</td>
<td>Since the questions have been used before, the reliability of the questions is already set. The only adjustment made is some modifications of the questions in order to fit the purpose of our study.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I think that participation in KVIST is useful for females in the forest industry</td>
<td>Assesses i.e. perceived value/usefulness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>I think a network, as KVIST is important for the forest industry</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PERCEIVED USEFULNESS</strong></td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Summary of the questions used to measure the independent variables.
4.5 Data Analysis
Depending on the actual data collection, it is of great importance to be aware of how the data should be analyzed. Different techniques which are used to analyze variables of different character have distinct limitations thus the actual data collection need to be consider (Bryman & Bell, 2011, p. 334). To avoid these sort of problems, we will describe how the collected data is measured and analyzed in order to fulfill the purpose of this study. The tools used for the data analysis can be seen in Table 3 on page 35. The computer program SPSS will be used to analyze the collected data. In order to make it convenient and reliable the data is automatically entered into SPSS. In this case, a web-based self-completion questionnaire and autonomic data processing eliminate the risk of human errors when the data was transformed (Bryman & Bell, 2011, p. 668).

Cronbach’s Alpha
Bryman & Bell (2011, p. 159) state that the internal reliability can be sufficiently tested by using Cronbach’s Alpha. To make it possible to use this test, the questions of a questionnaire need to be based on scale data (Saunders et al., 2012, p. 430). Since our questions were mostly based on scale data, the quality of the variables included in the created conceptual model were tested by Cronbach’s Alpha. Noteworthy, the Cronbach’s alpha coefficient varies between 1 and 0, and a variable needs a score of at least 0.7 to be reliable (Bryman & Bell, 2011, p. 159). This can also be seen in table 3 on page 35. In order to measure the internal reliability for each independent variable, the specific questions regarding each variable were combined to one construct, and then divided on the number of questions included in the combining. Then, each construct was measured in order to find out about the consistency of responses. In other words, to gauge the internal reliability by using Cronbach’s Alpha (Saunders et al., 2012, p. 430). The test results will be presented in the next chapter, Empirical Findings and Analysis.

Descriptive Statistics
The main features of the quantitative data collection are described by using descriptive statistics. Descriptive statistics enables the researchers to describe and compare the numerical information gathered from the respondents (Saunders et al., 2009, p. 444). The use of descriptive statistics in this case implies analyzing the data collected by calculating the mean, more specifically, the simple average (Bryman & Bell, 2011, p. 712). Additionally, a description of the variance around the mean, denoted standard deviation, is included in the descriptive statistics (Bryman & Bell, 2011, p. 345). By gauging the standard deviation, we are able to provide a clear picture of how different values are spread across the central tendency (Saunders et al., 2012, p. 506).

Correlation and Regression Analysis
To investigate whether or not there is a relationship between two variables, evidence for the conformity one variable have with another in regard to variation must be discovered (Bryman & Bell, 2011, p. 346). In other words, “a correlation coefficient enables you to quantify the strength of the linear relationship between two ranked or numerical variables” (Saunders et al., 2009, p. 459). In order to explore the relationship between interval/ratio variables, Pearson’s correlation (r) method can be used (Bryman & Bell, 2011, p. 347). The strength and direction of the relationship is indicated by the coefficient, and the closer the coefficient is to 1, the stronger the relationship. Likewise, the closer the coefficient is to 0, the weaker the relationship. Also, both a positive or negative coefficient can be discovered, and this in turn indicates the direction of the relationship. For instance, 1 indicates that the independent
variable and the dependent variable move identically (Saunders et al., 2012, p. 521). A summary of this test can be found in Table 3 on page 35.

Furthermore, by using the results derived from Pearson’s correlation ($r$), the coefficient of determination, R-square ($r^2$), can be calculated. R-square is also known as the regression coefficient (Saunders et al., 2009, p. 462). To calculate R-square, Pearson’s $r$ needs to be taken to the power of two and transformed into percentage (Bryman & Bell, 2011, p. 349). This indicator will be interpreted when a regression analysis is carried out. Also, it is possible to calculate a coefficient of multiple determinations where two or more independent variables are included (Saunders et al., 2009, p. 462). However, if this is the case, an extended indicator referred to the adjusted R-square has to be interpreted. This indicator presents the percentage of variation that is explained by the combination of all independent variables (Moore et al., 2011, p. 615). Hence, in order to determine how much of the variance in a dependent variable that can be explained by the independent variable, a multiple regression analysis will be carried out (Saunders et al., 2009, p. 461). To clarify, the adjusted R-square is used to assess the potential for generalization to the population from which the sample was taken. The adjusted R-square can be looked at in terms of its value in relation to R-square. In the case where the R-square is much higher than the adjusted R-square, it is seen as an indication of doing a regression analysis which may have an issue of inclusion of more independent variables than are needed. As a consequence, limitations for generalization will be experienced (Moore et al., 2011, p. 602).

<table>
<thead>
<tr>
<th>Data Analysis tool</th>
<th>Used for:</th>
<th>Indicator:</th>
</tr>
</thead>
</table>
| Cronbach's Alpha   | Measuring the internal reliability | Alpha coefficient varies between 0 and 1
                                 | Internal reliability= At least 0.7 |
| Descriptive Statistics | Describe and compare numerical information | Mean= The average
                                 | Standard deviation= Variance around the mean |
| Pearson's Correlation | Quantify the strength of a linear relationship | Coefficient closer to 1= Stronger relationship
                                 | Coefficient closer to 0= Weaker relationship |
| Regression Analysis | Determination of how much of the variance in a dependent variable that can be explained by an independent variable | R-Square= Regression coefficient
                                 | = Pearson's $r$ taken to the power of two ($r^2$) |

Table 3. Summary of the data analysis tools and application

Bryman & Bell (2011, p. 353) state that when using a test in order to determine how strong relationship two variables have, the test need to be structured in a common way. Firstly, the hypotheses must be set up. Meaning that, a null hypothesis (H0), and an alternative hypothesis (e.g. H1) must be formulated. Secondly, the level of statistical significance ($\alpha$) has to be established. In this study, the significance level is set to 5% (0.05). In other words, this
implies that “there are fewer than 5 chances in 100 that you could have a sample that shows a relationship when there is not one in the population” (Bryman & Bell, 2011, p. 353). Thirdly, in order to decide upon whether or not the null hypothesis is true, the significance level has to be compared to the p-value. To impose clarity, the p-value is the probability that the null hypothesis is true. A result lower than the p-value indicates stronger evidence against the null hypothesis (Moore et al., 2011, p. 356).

Furthermore, to be able to reject the null hypotheses, a decision regarding the measure of how much evidence against the null hypotheses one will insist on has to be made (Moore et al., 2011, p. 382). The level of risk to be accepted in order to draw conclusions from the sample about the population as a whole is referred to as the statistical significance level. Also, the significance level is associated with the risk of making either a Type I or Type II error (Bryman & Bell, 2011, p. 354). A Type I error is the risk of rejecting the null hypothesis when it should be confirmed. Using a higher significance level, the risk of a Type I error is greater. The other one mentioned, Type II error, is the risk of accepting the null hypothesis when it should have been rejected, and, has more potential to occur when the significance level is low (Moore et al., 2011, p. 382). The most commonly used significance level in quantitative research is 5% and by using this level of significance, the risk of making a Type II error is eliminated.
5. Empirical Findings
The objective of this chapter is to present the findings of the study. Guided by our research question and practical method, this chapter will be structured in accordance with the questionnaire. Findings will be presented and lay the foundation of the motivation in the argumentation for the analysis. The analysis part is constructed in such a way that the purpose of the thesis is accomplished, by using the empirical findings. Furthermore, the theoretical framework presented in earlier chapter is used to strengthen the analysis. Also, the performed regressions will be methodically revised as these lay the foundation for the discussion in the next chapter.

5.1 Demographics
In the self-completion questionnaire, which was used to collect our data, a number of background questions were included (See Appendix 1 and page 33). For instance, questions about the members’ age, years of employment in the forest industry, and years of membership in KVIST, were asked. These results will be presented with only a man value of the participants as we would like to keep their responses anonymous.

The mean age of the members were approximately 44 years. The majority of the members had worked in the forest industry less than 31 years, whereas only five of the members had been working in the industry for more than 30 years. Therefore, it can be calculated that the average years of employment in the forest industry among the members is 17 years, however, the individual years of employment is in a wide range. The years of membership is widely spread among the females, whereas the average years of membership are 9 years.

5.2 Additional Findings
In order to get a clearer picture of the members incentives in terms of engagement, questions regarding their participation in yearly meetings, participation in the board during their time as members, and if they are members in the LinkedIn group of KVIST. It was found that less than half of the participants in this study had participated in the autumn meeting last year (2014) (Figure 2).

![Bar Chart](image)

Figure 2. Participation in the last autumn meeting (2014) at KTH
Also, the findings indicated that the majority of the respondents of the questionnaire had not been a board member during their time as members in KVIST (Figure 3).

![Bar chart: Have you been a board member of KVIST?](image)

**Figure 3.** Have you been a board member of KVIST?

In contrast, 62% (31/50) of the respondents to the questionnaire were members in the LinkedIn group of KVIST (Figure 4).

![Bar chart: I am a member of KVIST’s LinkedIn group?](image)

**Figure 4.** I am a member of KVIST’s LinkedIn group?

### 5.3 Cronbach’s Alpha

In order to test the reliability of the variables, the Cronbach’s alpha test was used. Each variable tested, need to have an alpha of at least 0.7 to be internally reliable (Bryman & Bell, 2011, p. 162). In regard to our test, all variables tested were confirmed to be reliable. The dependent variable, engagement had an alpha of 0.767 while the independent variables each had an alpha of at least 0.7 (Table 4). More precisely, self-determination had an alpha of 0.722, the alpha of knowledge exchange was 0.804, and the alpha of perceived usefulness was 0.752. In consequence, all the constructs are reliable and are therefore usable in a regression analysis (Bryman & Bell, 2011, p.162).
Descriptive statistics have been used in order to generate information regarding the distribution of the constructs means and standard deviations (Moore et al., 2011, p. 26). The test result indicates that the different variables’ means range between 2.905 and 3.770, whereas the highest variable was the one of perceived usefulness (Table 5). Since the mean is used to explain the average of all responses, it can be concluded that there is room for improvement (Moore et al., 2011, p. 27).

Standard deviation is another indicator, which is usable in this analysis since it demonstrates the spread around the mean (Moore et al., 2011, p. 34). The variables included in this study have standard deviations, that varies between 0.54465 (knowledge exchange) and 0.82976 (engagement) (See Table 5). Since the standard deviations were low, we can conclude that the respondents’ answers in the questionnaires were rather similar (Moore et al., 2011, p. 35). Based on the answers of the respondents, we noticed which of the constructs was in need of improvements. Since the lowest mean was the one of engagement, this implies that there is room for improvement in the members attitudes toward e.g. regularly visiting the network’s webpage, and discussing about KVIST within different settings. This will be discussed further in the next chapter. Furthermore, the mean of the construct self-determination was 3.4733, which as well implies that there is room for improvement in the members level of self-determination (Moore et al., 2011, p. 27).

Pearson’s correlation test has been carried out. The test results are shown in table 6. By doing this test, an understanding of the relationship between the variables included in the created model has been established. As can be seen in table 6, the independent variable, self-determination, and the dependent variable, engagement have a correlation of 0.665. Secondly,
knowledge exchange, and engagement have a correlation of 0.611, while perceived usefulness, and engagement have a correlation of 0.631.

The Pearson correlation test performed also indicates that the correlation between the independent variables is high. In other words, how much the variables are explaining the same effects on engagement. As can be seen in the table below, the correlation between self-determination and knowledge exchange is 0.576, while the correlation between perceived usefulness is 0.676. The lowest correlation between two independent variables is the one between knowledge exchange and perceived usefulness, being 0.478.

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Engagement</th>
<th>Self-determination</th>
<th>Knowledge exchange</th>
<th>Perceived usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>1</td>
<td>.665**</td>
<td>.611**</td>
<td>.631**</td>
</tr>
<tr>
<td>Sig. (2-tailed) N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Self-determination</td>
<td>.665**</td>
<td>1</td>
<td>.576**</td>
<td>.676**</td>
</tr>
<tr>
<td>Sig. (2-tailed) N</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Knowledge exchange</td>
<td>.011**</td>
<td>.576**</td>
<td>1</td>
<td>.478**</td>
</tr>
<tr>
<td>Sig. (2-tailed) N</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Perceived usefulness</td>
<td>.031**</td>
<td>.676**</td>
<td>.478**</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed) N</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

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

Table 6. Pearson’s correlation

Moreover, in order to conclude the percentage of the variation in engagement that can be explained by the different independent variables, the R-square of the variables has been considered. As can be seen in table 7, 44.2 % (0.442) of the variation in engagement can be explained by self-determination. Furthermore, the table also shows that 37.3 % (0.373) of the variation in the dependent variable can be explained by knowledge exchange, and 39.8 % (0.398) is explained by perceived usefulness.

<table>
<thead>
<tr>
<th>R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-determination</td>
</tr>
<tr>
<td>Knowledge exchange</td>
</tr>
<tr>
<td>Perceived usefulness</td>
</tr>
</tbody>
</table>

Table 7. R-square

5.6 Regression Analysis

In order to examine the relationship between the dependent variable, engagement and the independent variables; self-determination, knowledge exchange, and perceived usefulness, a multiple regression analysis has been performed. The variation in engagement can be explained by the three independent variables. Hence, the adjusted R-square calculated in the regression indicates this variation (Moore et al., 2011, p. 615). In this analysis, the adjusted R-
square is 0.534, which in turn infers that self-determination, knowledge exchange, and perceived usefulness together are able to explain 53.4% of the variation in engagement. In the analysis of the adjusted R-square, the number of independent variables included in the regression are taken into account and are further adjusted independently (Saunders et al., 2012, p. 523). As can be seen in table 8, there is a slightly difference between the R-square and the adjusted R-square, which indicates that none of the independent variables, included in our created model, is redundant. As a consequence, limitations for generalization will not be experienced due to this.

Additionally, the significance level is explained as a truth criteria, and a generation of low values is an indication that the chance for each construct to occur by itself is rather low (Saunders et al., 2012, p. 523). As mentioned above, our significance level is set to be 0.05. Furthermore, beta (β), also called the estimated regression coefficient, allows a comparison of the independent variables and the dependent variable, as well as to what extent the independent variables are influenced by the dependent (Moore et al., 2011 p. 591).

Consequently, the multiple regression analysis performed shows that all three independent variables included in our created model have significant positive effects on the dependent variable engagement (Table 8). In other words, the significance level in this study is set to 5%, and since the p-values of all three variables were smaller than the significance level, they can be seen to have significant positive effects on engagement (p<0.05). In details, the first independent variable, self-determination has a p-value of 0.044 (β=0.454, p<0.05), the second independent variable, knowledge exchange has a p-value of 0.015 (β=0.462, p<0.05), and the third independent variable, perceived usefulness has a p-value of 0.039 (β=0.389, p<0.05) (See Table 8). In turn, these results indicate that the null hypotheses can be rejected in favor of the alternative hypotheses (H1, H2, and H3).
# Table 8. Regression analysis

## Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.750(^a)</td>
<td>0.563</td>
<td>0.534</td>
<td>0.56624</td>
</tr>
</tbody>
</table>

\(^a\) Predictors: (Constant), Perceived usefulness, Knowledge exchange, Selfdetermination

## ANOVA\(^a\)

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>18,987</td>
<td>3</td>
<td>6,329</td>
<td>19.739</td>
<td>.000(^b)</td>
</tr>
<tr>
<td>Residual</td>
<td>14,749</td>
<td>46</td>
<td>0.321</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>33,736</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Dependent Variable: Engagement

\(^b\) Predictors: (Constant), Perceived usefulness, Knowledge exchange, Selfdetermination

## Coefficients\(^a\)

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>-1.746</td>
<td>0.612</td>
<td>-2.854</td>
</tr>
<tr>
<td></td>
<td>Selfdetermination</td>
<td>0.454</td>
<td>0.219</td>
<td>2.075</td>
</tr>
<tr>
<td></td>
<td>Knowledge exchange</td>
<td>0.462</td>
<td>0.184</td>
<td>2.515</td>
</tr>
<tr>
<td></td>
<td>Perceived usefulness</td>
<td>0.369</td>
<td>0.183</td>
<td>2.124</td>
</tr>
</tbody>
</table>

\(^a\) Dependent Variable: Engagement
6. Analysis and Discussion

The objective of this chapter is to discuss the empirical findings in more detail, to be able in the end of this thesis to answer our stated research question. In order to gain this understanding, each regression and hypotheses are gone through and significances are explained in further detail with support of the empirical findings. Also, potential revision of the conceptual model will be discussed. Moreover, the discussion of this chapter provides the basis of the conclusions drawn in the next chapter, and practical implications for the network in focus will be outlined.

The dependent variable, engagement, as well as the independent variables, namely self-determination, knowledge exchange, and perceived usefulness, were all included in the multiple regression analysis performed. The hypotheses stated in the Theoretical Framework, implied that these three variables would have a positive effect on engagement. The outcome of the regression demonstrated that the independent variables together explained 53.4% of the variance in engagement. Therefore, the implementation of the regression indicates that the created conceptual model seemed to be reliable.

Firstly, the tools used to analyze the independent variables have shown that self-determination is of importance. First, Pearson’s correlation test demonstrated that the relations hip between self-determination and engagement was 0.665 (Table 6, p. 40). More precisely, this result indicates that there is a strong relationship between these variables. Therefore self-determination must be seen as important in the attempt to evaluate the underlying reasons of engagement. The second test, R-square of self-determination has been calculated. The result of this analysis tool also shown self-determination to be substantial for the explanation of the dependent variable. In relation to the other two independent variables, which have been tested, self-determination was the one with the highest R-square, being 0.442 (Table 7, p. 40). This denotes that 44.2 % of the variation in engagement can be explained solely by self-determination. Since the R-square was highest for this variable, it is proven that the members’ feel self-determined when engaging in the network.

In a previous study, Janssen et al. (2013, p. 27) demonstrated that individual’s basic needs for autonomy, competence, and relatedness were fulfilled, when taking part in e.g. developmental networks. In line with this argument, the multiple regression analysis carried out in our study, shows that self-determination has a positive effect on engagement. Due to the test result of this study, it can be concluded that there is empirical support for our first hypothesis: The regression analysis provides empirical support for the following hypothesis:

\[\text{H1: There is a positive effect of self-determination on engagement}\]

Since the correlating null hypothesis can be rejected, there is reason to believe that it is a relationship between the variables.

Secondly, regarding the analysis of knowledge exchange’s relevance of this study, the results indicate its importance. First, Pearson’s correlation test shows a relationship of 0.611 between knowledge exchange and engagement. This number implies evidence for the need of our second variable. Also, considering the independence of each independent variable, knowledge exchange has only 0.576 correlation with self-determination and even weaker relationship with perceived usefulness of 0.478. This in turn infers that knowledge exchange is the variable that overlaps the least with any of the other independent variables. However, knowledge exchange has the lowest R-square of the independent variables, which means that
it can explain the variation in engagement to a lesser degree than the other two variables (Table 7, p. 40).

Research findings related to our second independent variable show a relationship to engagement. For instance, Alavi & Leidner (2001, p. 110) argue that knowledge sharing is seen as a key element in the creation of behavior in social settings. Furthermore, according to Wang et al., (2014, p. 107), when a person feels belongingness and identification with the others in a group, they are more willing to share knowledge. Supported by our empirical results, and in line with Alavi & Leidner (2001, p. 110) and Wang et al., (2014) findings, KVIST seems to have an environment where the females feel belongingness and identification. Also, the multiple regression analysis signifies evidence of a positive relation between knowledge exchange and engagement. Thereby, we can conclude that the second hypothesis has empirical support.

The regression analysis provides empirical support for the following hypothesis:

\textit{H2: There is a positive effect of knowledge exchange on engagement}

Since the correlating null hypothesis can be rejected, there is reason to believe that it is a relationship between the variables.

Finally, analysis in regard to our third independent variable has been made. Considering the descriptive statistics, the mean value for all responses related to the independent variables was calculated. The one with the highest value was perceived usefulness, 3.77 (Table 5, p. 39). In other words, the sample perceive KVIST’s to be of value as they answered, on average, between agree and strongly agree on the Likert-scale. However, it was also indicated that perceived usefulness was the one with widest range of standard deviation. In other words, the members had more diverse opinions regarding KVIST’s usefulness than they had of the other variables (See Table 5, p. 39). When combining this result with the one in Figure 2 on page 37, \textit{Participation in the last autumn meeting (2014) at KTH}, the highly engaged members might increase the members perception as a whole. In contrast, several members were not participating in the yearly meetings and might therefore be the one’s ranking KVIST lower in the wide range of opinions.

Additionally, this variable’s positive influence on engagement is supported by previous research. For instance, Deci and Ryan (2000, p.235) support that the individual’s intrinsic motivation is a stronger force, than if an action is influenced by others. Additionally, Gagné & Deci (2014, p. 146) state that the acceptance into social networks is largely influenced by the degree an individual is adequate to internalize other’s values and beliefs. Also, the multiple regression analysis which was performed did examine the effect of perceived usefulness on engagement. The regression implies that there is empirical support for a positive influence of perceived usefulness on engagement (Table 8, p. 42). Therefore, it can be concluded that there is empirical support for the third hypothesis. In practice we can prove that the members’ in KVIST perceive the network to be useful for them and for the forest industry.

The regression analysis provides empirical support for the following hypothesis:

\textit{H3: There is a positive effect of perceived usefulness on engagement}

Since the correlating null hypothesis can be rejected, there is reason to believe that it is a relationship between the variables.
6.1 Revised Conceptual Model

The multiple regression analysis which has been performed, generates empirical support that it might be a relationship dependent variable and all the independent variables in the created conceptual model individually have positive effect on the dependent variable. In numerical terms, the united model is responsible for 53.4% of the variation in engagement.

Even though all the independent variables seemed to explain engagement, further discussion regarding each variable's contribution for explaining the dependent variable should be made (Table 8, p. 42). In other words, how much the independent variables are explaining the same features of engagement. Since the Pearson’s correlation test showed a substantial correlation of 0.676 between self-determination and perceived usefulness, it is seen to be a matter to consider. In other words, 67.6% of their features are of the same characteristic, and therefore they are overlapping each other’s contribution in the model. Furthermore, the correlation between self-determination and knowledge exchange is 0.576, which also implies a strong relation between the two variables. Whereas knowledge exchange and perceived usefulness has the lowest correlation of 0.478.

Even though our conceptual model can explain 53.4% of the variance in the dependent variable, the model might be in need of revision. However, the complexity of a revision is to determine which independent variable to replace. In regard to their correlation to each other, knowledge exchange and perceived usefulness has the lowest correlation of 0.478, making them contribute with more diverse features. While self-determination and perceived usefulness seemed to imbricate each other’s contributions. On the other hand, it was detected that self-determination had the strongest relation to engagement (0.665). Since the purpose of this thesis is to explain what factors influence engagement, this result makes self-determination a desirable candidate to include in the model. In order to know which one to replace, regressions were conducted in a manner of just including two of the independent variables at a time. The resulting Adjusted R-square’s for each test were separately looked at. As a result, the most harmful revision would be to remove knowledge exchange thus the conceptual model would only explain 48.2% of the features of engagement (See Table 10 in Appendix 2). When comparing the replacement of self-determination and perceived usefulness, the difference was mediocre, but in favor of perceived usefulness (See Table 9 & Table 11 in Appendix 2).

![Table 9](image)

Table 9. Adjusted R square, knowledge exchange and self-determination
From these analyses knowledge exchange seems to be the most precious variable to keep. Furthermore, the second most important variable to retain is seen to be self-determination since it has the strongest relationship with engagement. Moreover, together with knowledge exchange it has approximately the same contribution rate as perceived usefulness has together with knowledge exchange. Bearing these arguments in mind, knowledge exchange seems to be the best team member while self-determination is the strongest player on its own. Therefore, to improve the conceptual model the most, perceived usefulness is the variable to be replaced.
7. Conclusions and Recommendations
The objective of this chapter is to determine if our purpose has been fulfilled and if our research question is answered. The discussion in the previous chapter, lays the foundation of this chapter's objective. These conclusions will assess the study based on five truth criteria and consider implications derived from our research purpose. Moreover, we will identify the strengths and weaknesses of KVIST as a network, which will guide in order to improve the engagement among the members. In the end, suggestions for future research will be provided and also, social and ethical issues will be reflected upon.

The aim of the thesis written was to contribute to existing knowledge in the field of study. In an attempt to make a contribution, a conceptual model was created. Moreover, the model was formed to strengthen existing theories of the independent variables, which gave indications of having positive effects on engagement. The research conducted in this paper has enabled us to attain the purpose formulated in the first chapter. Also, the outlined hypotheses have been tested, which have enabled us to answer the research question stated in the introduction.

In retrospect, during the process of reviewing the academic field of the forest industry, research regarding the minority of female employees in the industry caught our attention. Furthermore, we found a research gap highlighted by Lidestav & Andersson (2011, p.4). They called attention to the lack of academic research investigating Swedish female networks within the forest industry, taking the individual’s perspective. From this finding we developed our purpose and a research question looking into the individual’s perspective of their engagement in the female network KVIST. Therefore, the purpose of this study was to investigate the impact of the independent variables, self-determination, knowledge exchange, and perceived usefulness, on the dependent variable engagement in a female network within the forest industry. To attain the purpose, an examination of each independent variable's impact on the dependent variable has been carried out. In other words, do the members in KVIST perceive themselves to be self-determined, does the network provide an atmosphere in which members want to share knowledge, and do the members perceive the network to be useful for them, as well as for the forest industry?

Due to the purpose, the research question stated is:
What are the effects of the variables; self-determination, knowledge exchange, and perceived usefulness on the members engagement in KVIST?

The results of the research showed that we have empirical support that it might be a relationship between the dependent and the independent variables (Table 8, p. 42). Therefore, our answer to the research question is that all independent variables; self-determination, knowledge exchange, and perceived usefulness, have a positive effect on the members engagement in KVIST.

7.1 Truth Criteria
In order to prove the quality of the research, which has been performed, an evaluation and determination in regard to specific quality criteria have to be made. In this paper, the quality criteria used are: measurement validity, causality, generalizability, replication, reliability and validity (Bryman & Bell, 2011, p. 41). Guided by the specific preoccupations, for quantitative research, we will go through the truth criteria in the same order as in the section Research Strategy to ensure that all has been evaluated. Also, the overall reliability and validity will be discussed.
Firstly, measurement validity deals with the question of to which degree a measure derived to a concept really does reflect this specific concept it is referred to (Bryman & Bell, 2011, p. 42). In regard to the measurement validity of our study, in order to measure different concepts, we have used theories which have been utilized as relevant tools in previous studies. Thereby, these have guided us in how to gauge our created model.

Secondly, the choice of an explanatory case study design implies that the causality should be considered as well. According to Saunders et al. (2012 p. 193) causality also called internal validity, is established when a causal relationship is presented by the research. In regard to causality, it is experienced when the independent variables are causing the variability in the dependent variable (Bryman & Bell, 2011, p. 43). Thereafter, the effect of the independent variables on the dependent variable are tested. This has been objectively measured by applying Pearson’s Correlation test, which examines how much causality the independent one’s have on the dependent variable. The results, which can be found in Empirical Findings and Analysis; Table 6 on page 40, show that engagement have a correlation within the range of 0,665-0,611 with the independent variables. This indicates a strong causality and therefore internal validity (Saunders et al., 2012, p. 521).

In terms of internal validity, we put our faith in this results as it enables us to stay objective in the evaluation process. However, we are aware of the difficulty to determine with certainty that the independent variables actually causing the variability of the dependent variable (Bryman & Bell, 2011, p. 43). With the ambition to increase the internal validity, we have relied on previous research that have found causality between engagement and self-determination, knowledge exchange and perceived usefulness. To impose clarity, in line with our independent variable self-determination, Gagné & Deci (2014, p. 44) claim that an individual’s engagement toward an activity tends to depend on a person’s self-determination. Whereas, Wang et al. (2014, p. 560) state that the attitude of sharing knowledge will increase if an individual feel identification to its surrounding. In turn, this is seen to be in line with our assumption of the impact of knowledge exchange on engagement. Lastly, Deci et al. (1994, p. 123) argue that individuals who are experiencing a group’s values and beliefs to go in hand with the ones of herself, tend to be more engaged in an activity. This in turn is seen to go in line with our third independent variable perceived usefulness.

The third criterion that has to be considered is external validity, also named generalization. This criterion implies that the researcher is able to apply the study to other respondents than the participants of a specific sample, in an attempt to predict what individuals will do in certain situations (Bryman & Bell, 2011, p. 165). A probability sampling method, namely simple random sample, was used in this study to allow all members within the chosen network to be included in the sample. Due to this choice of sampling method, generalization is said to be possible, however, this statement should be taken with caution (Bryman & Bell, 2011, p. 165). The underlying reason for this is because biases are likely to occur when the researcher select the sample (Saunders et al., 2012, p. 291). Due to the fact that this study is made with an explanatory case study design, a generalization is even harder to make. Also, another aspect, which might reduce the generalizability of this study, is that it is unknown how accurate the available list of respondents was. A scenario might be that the survey was sent to individuals who had not paid the annual membership fee for being a member in the network. Thus this would have an impact on the probability for the actual members to be a part of the sample. However, the risk of this is seen to be low because it was clearly stated in the cover letter of the questionnaire what the survey was intended for paid members.

Fourthly, an important aspect of quality criteria in this study is replication. Throughout this paper, we have attempted to explain the different procedures in a precise and reflecting manner in order
to facilitate replication of this thesis. One example is that the data collection process was based on
previous studies, with just some modification, which enable future studies to also replicate our
questions. Due to our philosophical standing where our perceptions are irrelevant, by replicating
from previous examinations our influence and bias have been diminished (Bryman & Bell, 2011,
p. 165).

Additionally, the indication of steadiness of a measure of a concept is referred to reliability
(Bryman & Bell, 2011, p. 169). To assess whether or not the items used in the self-completion
questionnaire were reliable, Cronbach’s Alpha was computed for each construct. The usage of
Cronbach’s Alpha ensures whether or not the variables are internally reliable. A rule of thumb for
this measure of a concept is 0.7. Constructs which not meet this requirement have to be dealt with.
Since all the constructs tested reached a Cronbach’s Alpha over 0.7, they were seen to be
internally reliable and were therefore used for further analysis (Table 4, p. 39). Also, the data
collection through a self-completion questionnaire was replicated from previous research
examining the variables, and enhances the reliability of the questions.

Lastly, validity is taken into consideration when the quality of the research is evaluated. Validity
implies the extent to which an indicator measures the concept it is supposed to measure (Bryman
& Bell, 2011, p. 159). Several types of validity can be seen. Each of the different types reflects
different ways the validity of a concept can be measured (Bryman & Bell, 2011, p. 160). In order
to increase the validity of this study, the questions measuring the independent variables are
replicated from the measure device Intrinsic Motivation Inventory and Wang et al.’s (2014) study
(See Design of the Questionnaire). Since the questions already have been used, it indicates that
the measurements of the variables are of higher quality and as a consequence the validity will
increase.

7.2 Implications
Besides making a theoretical contribution, in the form of a conceptual model, the ambition was
also to provide an explanation of members’ engagement toward the network KVIST. In turn, this
could help the network to improve its operations. The findings of this study could be used by the
network to change the message and associations communicated to the members, as well as to
improve the attitudes among the members in terms of the purpose of having such a network. Even
though our test results imply that all independent variables have a positive effect, there is room for
improvements. As discussed in the previous chapter, knowledge exchange is seemed to be the best
team member among the variables, whereas self-determination is identified as the strongest player
on its own. Thereby, to improve the created model, perceived usefulness is seen to be the variable
of least importance, and might be considered for replacement. Regarding this, an implication for
KVIST would be to consider how to improve the members internalization of the network’s beliefs
and values to become their own. As a result perceive KVIST as a more useful network for
themselves, as well as for the forest industry. In line with the purpose of this study, a strength
which has been identified during the research process is that KVIST is perceived to have a climate
that enhance the knowledge exchange among the members. Also, it is implied from our findings
that the members feel autonomy, competence, and relatedness while participating in KVIST’s
activities. We have not find any obvious weaknesses related to the existence of KVIST. However,
the perceived usefulness is seen to be the weakest variable of the three independent variables
tested, and therefore KVIST should bear this in mind in its attempt to improve the network’s
operations.

7.3 Limitations and Future Research
Throughout the process, we have discovered limitations of this study. Since this paper was carried
out among members in one network, the possibility for generalization to a broader audience is
reduced. However, since our purpose was to fill the gap of research looking at a network from an
individual perspective, an explanatory case study design seemed to be the most appropriate design to use. Nonetheless, by selecting another research design, the priority and purpose of a study could be extended. For instance, a cross-sectional research design would allow the researcher to compare different female networks in the forest industry. Hence, it would promote the detection of patterns of whether or not there are any differences in terms of engagement between the cases.

Another way of studying engagement in a female network in the forest industry, would be to measure the members’ engagement level. This approach would enhance the understanding of how the members are engaged. However, with this as a purpose, a qualitative strategy would be more suitable. Also future studies could fill the gap of research looking at female networks from the society’s perspective (Lidestav & Andersson, 2011, p. 4). Additionally, it would be interesting to explore if it exists networks which emphasizes ethnicity.

Furthermore, the regression analysis which has been performed in this paper showed that all independent variables included in our model had a positive effect on the dependent variable. However, there is room for improvements to get an even more accurate model. For instance, we recognized that the variables self-determination and perceived usefulness explained engagement in a too similar way. Therefore, by doing a deeper review of the existing literature, sources regarding other variables which have an effect on engagement could be found, and in turn improve the accuracy of the model.

7.4 Social and Ethical Considerations

This thesis started out in the 1850’s, by highlighting the historical transformation, which led to a gender segregated labor market. This division of women and men is still, according to Abrahamsson (2009, p. 138), a social issue in Sweden. By looking into a gender unequal industry, such as the Forestry, we have had the opportunity to discover how a social issue is shown and what consequence may derive from it. Also, what we see as the most interesting is, whether or not a platform such as a female network can satisfy social needs that female employees lack in their jobsites.

In addition, throughout the research process, we as researchers, have stressed the importance of staying objective, as this is in line with our philosophical standings. Notable is that we are females ourselves, with the ambition to be employed in a company where we can feel identification, and belongingness even though it is dominated by men. Due to this, our choice of research topic is mirrored by the fact that we value gender equality as a human right. Therefore, our belief is that companies and industries should take their responsibility of creating an environment in which all employees can feel identification.

Additionally, ethical issues may arise during the process of research. Hence, when gathering and analyzing data, ethical practices need to be taken into consideration. Firstly, we have tried to prevent is the lack of informed content. In order to deal with this, a cover letter accompanied the questionnaire (Appendix 1). The cover letter included information regarding the purpose of the study, as well as how the collected data would be used. The usage of a cover letter as an action to counteract this issue made it possible for the respondents of the questionnaire to get correct information about the study. Thereby, they were able to decide whether or not to participate (Bryman & Bell, 2011, p. 133). Also, the respondents were informed that their participation were treated with confidentiality. Secondly, the issue of involvement of deception has as well been considered. Deception is said to occur if researchers’ led the participants to believe that the research is something which it is not (Bryman & Bell, 2011, p. 136). In an attempt to minimize the risk of this issue to occur, we have clearly stated the purpose of this study as well as being open for further questions of
concern to the research. Lastly, the result of this study will be presented to the network in focus and recommendations based on the findings will be given to the network in order to improve its operations.
References:


Council of Europe. (2013). *Gender equality commission*


Appendix

Appendix 1:

Hello!

We are two students from Umeå School of Business and Economics at Umeå University. We are writing our Bachelor thesis with the purpose of investigating the impact of underlying factors (knowledge exchange, degree of self-determination and perceived usefulness) that might contribute to understanding the members’ engagement in the female network KVIST. The result of the survey is the basis for explaining which factors have the largest impact on the members’ engagement in the network.

We would appreciate if you could complete the survey, which takes approximately 5 minutes. The survey consists of backgrounds questions as well as questions related to your view on engagement, degree of self-determination, knowledge exchange, and perceived usefulness of KVIST.

Your participation in the survey will be completely anonymous. Please contact us if you have any further questions regarding the survey.

Thank you for your time and participation!

Sincerely,

Sara Alkelin and Anna Österberg
Background Questions
Q1: Age: _______
Q2: How many years have you been employed within the forest industry? ______
Q3: How many years have you been a member of KVIST? _______

Engagement
Q4: Did you participate in the last autumn meeting (2014), at KTH? Yes/No
Q5: Have you been a board member of KVIST? Yes/No
Q6: I am a member of KVIST’s LinkedIn group? Yes/No

For the following questions a 5-point likert-scale are used:
1- Strongly disagree; 2- disagree; 3- Neutral; 4- Agree; 5- Strongly agree

Q7: I take the time to participate in the yearly meetings
Q8: I regularly visit; www.KVIST.biz
Q9: I discuss KVIST with non-members
Q10: I discuss KVIST in a positive way with non-members of KVIST

Q11: I believe that the membership in KVIST is of value for me
Q12: I feel close to the members in KVIST
Q13: My knowledge sharing strengthens the ties between the other members and myself
Q14: My knowledge sharing creates strong relationships with members who have common interests
Q15: My knowledge sharing helps me get well-acquainted with unfamiliar members
Q16: Being a member in KVIST makes me a more confident worker in the forest industry
Q17: I feel competent when participating in KVIST activities
Q18: I participate in KVIST because I want to
Q19: It is likely that other members and I could become friends if we interacted a lot.
Q20: My knowledge sharing leads to smoother cooperation with outstanding members in the future
Q21: I participate in KVIST because I felt that I had to
Q22: I think a network, as KVIST is important for the forest industry
Q23: Participation in KVIST activities makes me feel more competent
Q24: During knowledge sharing occasions with other members, I contribute less knowledge than I know I can.
Q25: During knowledge sharing occasions with other members, I make less effort on knowledge contribution than other members.
Q26: I think that participation in KVIST is useful for females in the forest industry
Appendix 2:

Table 10. Adjusted R-square perceived usefulness and self-determination

<table>
<thead>
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<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
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</thead>
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<td>.503</td>
<td>.482</td>
<td>.59745</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Perceived usefulness, Self-determination

Table 11. Adjusted R-square knowledge exchange and perceived usefulness

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
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<td>.522</td>
<td>.502</td>
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</tr>
</tbody>
</table>

a. Predictors: (Constant), Knowledge exchange, Perceived usefulness