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Exploring Responsible Innovation through a Gender Lens:

A Comparative Case Study of Male and Female Leadership in Business

Prof. Fabian Homberg

SUPERVISOR

Prof. Cinzia Calluso

CO-SUPERVISOR

Lina Breiter 756221

CANDIDATE

Academic year 2022 - 2023

“In the long run, we shape our lives, and we shape ourselves. The process never ends until we die. And the choices we make are ultimately our own responsibility.”

Eleanor Roosevelt

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00197, Rome, Italy

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Contact: lina.breiter@gmail.com

Abstract

During increasingly turbulent times, both in markets, society and the environment, the need for responsibility is high. Striving towards the desired outcomes and avoiding the undesired ones for innovations becomes crucial, especially since the stakes are high due to globalization and complex ecosystems. One of the most important factors at shaping the outcomes of innovation is the leadership behind it, and since the number of women in leadership positions are increasing, this area needs to be invested further. This qualitative comparative case study aims at investigating the similarities and differences between male and female leadership in Responsible Innovation. By analyzing current literature in these areas combined with the findings from interviews with male and female leaders working with innovation, the findings were that neither male or female leaders excelled in all dimensions of responsible innovation. The women scored higher in the dimension of anticipation, while the men scored higher in reflexivity. Their approach to inclusion and responsiveness differed, but neither reached the most desired levels. The results showed that diversity in management is crucial for creating Responsible Innovations. This research contributes to the literature about responsible innovation, as well as gender and management studies.

Keywords: Responsible Innovation, male and female leadership, gender, risk management, reflexivity, inclusion, and agility.

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1.0 Introduction

1.1 Background

In today's rapidly changing world, with increasing globalization and more complex ecosystems, innovation becomes crucial for shaping the future toward the desired sustainable outcomes. However, this is not without risks, and there is a growing need for innovation that takes into account the environmental and social implications of these (Owen et al., 2013; Von Schomberg, 2013). Responsible Innovation, earlier known as Responsible Research and Innovation, refers to the collaboration of organizations and stakeholders in terms of innovations, with the goal of taking care of the future (Stilgoe et al., 2013). Using a Responsible Innovation process is a way to increase the possibility of positive outcomes while trying to avoid negative ones as much as possible (Owen et al., 2013; Stilgoe et al., 2013; Von Schomberg, 2013).

One crucial factor in shaping the direction and impact of innovation is leadership (Demircioglu & Van der Wal, 2021). As the number of women in managerial positions and leadership roles continues to grow (Clark, 2022), it is essential to understand how gender affects the approach to Responsible Innovation. While there is a significant body of literature on the importance of gender diversity in promoting sustainability (Birindelli et al., 2019; Galbreath, 2017; Glass et al., 2015; Kassinis et al., 2016; Wille et al., 2018), there is a gap in the literature when it comes to exploring how male and female leaders approach innovation responsibly.

Throughout history, there has always been an interest in investigating the differences between genders. In 1990, Rosener described that women do not use the typical command-and-control leadership style. He argued that commonly, men view leadership more as transactions between them and their subordinates, but on the opposite, women tend to drift towards "interactive leadership". The latter is more concerned with sharing power, encouraging participation, and striving toward employees feeling important, while command-and-control leadership claims that employee motivation comes from the manager using their position and resource control (Rosener, 1990). Even earlier than that, in 1975 JB Chapman described that the gender of a person not only determines how a particular phenomenon is perceived by that

person but also that gender stereotypes affect what the appropriate behaviors in these situations are. One example that the author mentions is that female leaders typically choose more accommodating techniques than their male counterparts (Chapman, 1975). Even though gender is talked about in the area of Responsible Innovation, it is more commonly approached from the perspective of gender equality as an outcome or a goal (Oliveira et al., 2022; Owen & Pansera, 2019; Wojniak, 2017), not as something that distinguishes or determines how it is managed and created.

1.2 Problem Discussion

According to Lubberink et al (2017), responsibility for sustainability has become a critical issue for organizations of all types and sizes. With the growing awareness of the impact of human activities, companies are under increasing pressure to adopt sustainable practices. Lubberink et al. (2017) argue that these types of innovations inside corporations are an important part of the future since society largely relies on private businesses for researching and developing solutions for societal problems. While sustainable innovation refers to how an organization creates products, services, or processes that generate benefits for society and the environment (Lee, 2021), Responsible Innovation has similar goals but also considers the many uncertainties surrounding innovation. A distinction to be made here is therefore that Responsible Innovation focuses on the motives and input rather than the results since it takes into account the many unknown factors (Owen et al., 2013).

The growing amount of uncertainty in the markets, regarding for example technology, might create undesirable impacts, even though the goal was to avoid it. This means that moving forward responsibly can be a challenge (Owen et al., 2013). Von Schomberg (2013) and Owen et al., (2013) clarify that the societal actors and innovators are interdependent when discussing Responsible Innovation, and responsibility can be complicated to decide.

One way to deepen the understanding and try to disentangle this complex phenomenon is to investigate this together with the gender of the leaders. This perspective can help to understand how gender might affect how the leader perceives, organizes, and motivates innovation, and what purposes and values they prioritize. For example, there is research that suggests that men and women have different leadership styles and approaches to

decision-making, which could lead to differences in their approach to Responsible Innovation (Hentschel et al., 2019; Rosener, 1990; Wille et al., 2018). Another example is that researchers suggested that women tend to be more collaborative and consensus-driven in their leadership style, which could lead to a more inclusive approach to this phenomenon compared to the more masculine controlling leadership style (Wille et al., 2018; Rosener, 1990). As specified before, research has been done analyzing sustainable innovation in the context of gender, but no literature about Responsible Innovation and male and female leadership exists.

1.3 Purpose and Research Question

The core purpose of this study is to increase the understanding of how Responsible Innovation might differ under male and female leadership and to contribute both theoretical and practical knowledge to these. This paper will analyze the many layers and dimensions of Responsible Innovation, with guidance from the framework presented by (Owen et al., 2013). Comparisons will be made between male and female leaders in order to find both differences and similarities. The goal is to provide a more nuanced and realistic picture of how the gender of the leader might have connections to Responsible Innovation than what the literature has investigated so far. Therefore the research question for this study is:

RQ: How does Responsible Innovation differ under Male and Female leadership in business?

This study is relevant for organizations and leaders who want to deepen their understanding of how male and female managers' approaches and leadership might differ or correspond in the area of Responsible Innovation. This can therefore help organizations to develop more effective responsible initiatives and practices. Furthermore, this research could be of interest to anyone who is interested in understanding the relationship between gender, leadership, and Responsible Innovation, and in promoting more well-thought-out and responsible approaches to innovation. Lastly, this research might be of interest to managers and leaders who want to reflect on their own motivations, actions, and thoughts compared to others in similar positions.

1.4 Delimitations

When conducting research, it is important to establish clear delimitations in order to limit the scope and direction of the study. In this particular research project, there are several delimitations that have been established. First, the focus of the research is on intentions and planning related to innovation, rather than on the success of these plans. This means that the research will explore the strategies and plans that managers have in place to promote innovation, rather than evaluating the effectiveness of these plans. This was partly because of narrowing down the scope, but also to avoid ranking the outcomes. Since gender and leadership could be considered sensitive subjects, comparing the results and the effectiveness of their leadership styles might have negative consequences, and ranking is therefore avoided.

Second, the focus of the research is on managers in Sweden. This means that the research will be conducted with managers who work in organizations based in Sweden, rather than managers from other countries. This is to avoid comparisons that come from a cultural difference rather than gender. Third, this research will gather information from the managers themselves, rather than from the employees. This approach is chosen to better understand the intentions, planning, and decision-making processes of the leaders, but might miss out on interesting inputs. Lastly, the comparisons will be done between male and female leadership, and will not consider any other genders (for example non-binary). This is due to current literature and research and will be discussed more in the methods section.

It is important to note that these delimitations do not mean that the research is not relevant or valuable. They simply serve to focus the scope of the research and to ensure that the findings are specific and directly applicable to the context being studied.

1.5 Disposition

1.0 Introduction	This part presents the topic for this research, starting with a section on the background of the phenomenon. Purpose, research question, and a problem discussion are conducted as well. Lastly, the delimitations are discussed.
2.0 Literature Review	In this chapter current literature about Responsible Innovation, innovation, and gender studies is presented. The theoretical framework is created with inspiration from the four dimensions of Responsible Innovation presented by Stigoe et al. (2013).
3.0 Methodology	The methodology section discusses the research strategy and design, as well as the data collection and analysis methods. Lastly, the quality criteria for this study will be discussed.
4.0 Empirical Findings	The primary data collected from the interviews will be presented here, both in text and in quotes. The answers are anonymous but connected to their gender, age, and industry.
5.0 Analysis	This chapter connects the empirical findings with the theory presented in the literature review. Connections are mainly done with the theoretical framework, but also with the other literature presented.
6.0 Discussion	The last chapter concludes the findings of this research and answers the research question. Practical and theoretical implications are discussed, and examples of future research are presented.

Table 1 - Disposition of paper

2.0 Literature Review

2.1 Gender

This part will investigate the current area of gender research and male and female leadership. There have also been some studies done that connect this to sustainability and CSR. By presenting existing literature, it can later be analyzed together with the data collection to see if stereotypes and earlier research persist, and if there are new and unexpected outcomes as well.

2.1.1 Studies of Gender Differences and Stereotypes

It is easier to grasp the direct determinants of leadership, for example, knowledge, skill, and motivation, which are commonly discussed in leadership literature (Goffin & Mitchell, 2017). Shen and Joseph (2020) found that there are some indirect determinants of leadership outcomes as well, and gender is one of them. They argue that there is a growing body of literature regarding gender and leadership, but the nuances are often lost because of the complexity of the variables.

There are characteristics labeled as masculine and feminine, and Walker and Aritz (2015) presented the most well-known ones. For example, they argued that feminine characteristics are more conciliatory, facilitative, and collaborative, while masculine ones tend to be more confrontational, competitive, and autonomous. They also present that apart from being more direct, masculine styles tend to have a more task/outcome orientation, while feminine ones focus more on processes and people (Walker and Aritz, 2015). This is in line with the idea of women being more communal in their leadership.

When investigating the stereotypes about gender today, Hentschel et al. (2019) asked men and women to address typical preconceptions about gender. The questions were built around agency dimensions (assertiveness; independence; instrumental competence; leadership competence) and communality dimensions (concern for others; sociability; and emotional sensitivity). Stereotypically, women score higher in communal areas, and men are considered

more agentic, meaning more in control and taking charge (Hentschel et al., 2019; Wille et al., 2018). The results indicated that commonality stereotypes persist today, but what was interesting was the agency stereotypes, which were much more complex. Both men and women rated the genders equally high on instrumental competence. Female raters saw other women as equally independent and leadership competent, but when they had to rate themselves in relation to their gender, they were less positive (Hentschel et al., 2019). This is similar to what Shen and Joseph (2020) found, which was that women tend to rate themselves lower in terms of effectiveness. When analyzing gender differences, stereotypes are always something to have in mind since they might affect how people perceive themselves and their colleagues.

Eagly and Johnson (1990) found no significant proof that women lead more in an interpersonally oriented style and that men lead in a task-oriented style (as the stereotype states) when analyzing leaders. When investigating people without leadership roles, the stereotypes were more prominent. One stereotype that they found to be true in their analysis was that women had a tendency to use a more democratic or participative leadership style, and men had a more autocratic and direct one (Eagly & Johnson, 1990; Shen & Joseph, 2020). Khushk et al. (2022) argue that stereotypes might affect stakeholders' beliefs in female leaders, they might for example have underlying thoughts that she is not assertive, authoritative, or have enough confidence for the role. Pierli et al. (2022) say that women might feel like there is a lack of support for them when implementing new innovative ideas, and Shen and Joseph (2020) found that due to the fear of negative reactions from colleagues, women are less likely to talk than men in discussions. Bursztyn et al. (2017) investigated how female students acted around male peers, and how they tend to avoid showing ambition in this situation. This means that the number of women who act more communal might increase when in a minority position in a male-dominated industry.

2.1.2 Gender and Risk-Aversion

Multiple researchers have found women to be more risk-averse (Barber & Odean, 2001; Croson & Gneezy, 2009; Slovic, 1999), which has become a somewhat accepted stereotype around the world. Kassinis et al. (2016) argue that this personality trait can work as a double-checking mechanism, hence avoiding “hit-or-miss” types of decisions.

Slovic (1999) explained that maybe, women perceive the world as more dangerous because they are more vulnerable, receive fewer benefits from the risks and that they have less power and control. His results also found that men were more likely to “Agree that future generations can take care of themselves when facing risks imposed on them from today’s technologies” and that the public should not be a part of the decision-making process (Slovic, 1999, p.693). Barber and Odean (2001) argue that apart from risk aversion, men tend to lean towards *overconfidence* when making decisions. This seemed to be more prominent in male-dominated fields, for example, finance. Croson and Gneezy (2009) present that how women and men view risks might be the reason why there are differences. They discuss that women might see risk as a threat to avoid, while men see it as a challenge to participate in. Booth and Nolen (2012) found that women in a male-dominated environment had more cautious risk preferences, compared to when they were in an environment with a female majority. In this scenario, women were more likely to take greater risks.

More recent studies have shown even more nuances to discuss in this subject. Zalata et al. (2018) investigated the puzzle of ethics versus risk aversion in CEOs. They argued that women have a reputation for being more concerned with “ethical” issues, and act accordingly when faced with a dilemma. What Zalata et al. (2018) found was that when the women in this study were faced with an issue that could lead to costly legal actions, they chose to shift to subtle, safe, and difficult-to-detect corporate actions, which was very similar to the result they got from male managers. They concluded that to prefer a risk-averse option because of these reasons was equally as “unethical” as the male outcome. The idea that women were supposed to be substantially more ethical was a myth in this scenario.

2.1.3 Gender and Sustainability

There have been multiple studies investigating connections between the gender of the leader and sustainability, many arguing that gender-diverse leadership is the most efficient strategy for sustainability goals (Birindelli et al., 2019; Glass et al., 2015; Kassinis et al., 2016; Wille et al., 2018) and green innovations (Galbreath, 2017). Galbreath (2017) explains that how leaders influence strategy, culture, products, and processes will determine actions related to sustainability and green innovations. When investigating how leaders promote Sustainability, Glass et al. (2015) found no significant difference in the outcomes of sustainability initiatives

between female and male leaders, but the strategies on how to get there differ. The authors claim that depending on the gender of the leader, they may enact leadership in vastly different ways, and the priorities they set for the organization will be different as well (Glass et al., 2015). Sustainability has a close relationship with Responsible Innovation, which focuses on the input for sustainability rather than the outcome.

When researching environmental attitudes, Diamantopoulos et al. (2003) found women to be more concerned about environmental quality, but when investigating the knowledge about environmental issues, there were no significant differences between the genders. Galbreath (2017) argues that the studies done by for example Kassinis et al. (2016) and Post et al. (2011) show that women tend to advocate more for firms' responsibility towards the environment and that this should be a visible difference between female and male managers as well. In contrast, there is research that shows that when rising in rank at a company, the differences between genders are smaller compared to the general population, and they sometimes even becomes insignificant (Emmerik et al., 2010; Melamed & Bozionelos, 1992; Wille et al., 2018). This means that men and women without leadership responsibilities show more differences, and managers tend to act more similarly.

2.2 Innovation

This part will present the relevant literature in the area of innovation. It is crucial to determine what it means in this particular paper, due to the many different and diverse explanations and theories connected to it. By presenting what is considered an innovation or innovative behavior in this research, the analysis done later will be more clear and more understandable for the reader.

The general definition of innovation is to introduce something new (Goffin & Mitchell, 2017), but there are many more ways to define innovation in literature and multiple ways to separate the different types of innovation. Schumpeter (1934) highlighted how innovation changes and revolutionizes the economic structure, and how new ones replace the old structures. He defined five components, which still have relevance today. These are (1) the Introduction of a new product or an improved version and (2) New production methods for a

particular branch. It could have been used in another one before. (3) Opening of new markets (4) New supply sources (5) Competition in new forms, which resulted in a restructuring of the industry (Goffin & Mitchell, 2017; Schumpeter, 1934).

2.2.1 Degrees of Innovation

There are also different degrees of innovation that can be discussed, but there are no generally accepted terminologies yet. Goffin and Mitchell (2017) presented three degrees: Incremental-, Breakthrough-, and Radical Innovation. Incremental Innovation is described as improvements to products, services, and processes, or new ones but they address the same market. These are often easier to develop, and based on the customer's needs. Radical Innovation is the opposite since it targets not yet existing markets. It can also be new business models that transform markets. Breakthrough innovations are the middle ground that targets new but adjacent markets and involves the creation of new products or services with unique features (Goffin & Mitchell, 2017). The authors highlight that incremental innovations are the most common ones, while radical ones are very rare.

2.2.2 Types of Innovation

Edwards-Schachter (2018) presented that apart from the more classical types of innovation (product and process), there is a need to distinguish this from service innovation and business model innovation as well. Due to the growing relevance of services instead of manufacturing-oriented products, it is important to highlight the differences in how they are innovated. Edwards-Schachter (2018) argues that service innovation is often less formally organized, less technological, and less radical. The authors also say that business models, apart from being an important vehicle for innovation, can also be an innovation itself. Traditionally, companies operated with very similar business models, but more recently this has changed. The concept of business model innovation is to consciously change the existing one or create a new one that satisfies the customers' needs better (Edwards-Schachter, 2018). Chesbrough (2010) argued that the value of a great business model (even with mediocre technology) is higher than great technology with a mediocre business model.

2.2.3 Exploitative vs Explorative Innovation

It is possible to differentiate between exploitative and explorative innovation as well, though both are crucial for an organization's survival (Berraies & Zine El Abidine, 2019). Jansen et al. (2006) explain that explorative innovations are more radical and designed to meet the needs of new customers and/or markets. The authors also describe that that type of innovation can be new designs, or could be the creation of a new market or a new distribution channel. They explain that this often requires new knowledge to some extent (Jansen et al., 2006). Berraies and Zine El Abidine (2019) say that explorative innovation ensures the organization's survival and competitiveness in the long term, but might have negative returns in the short run.

On the other hand, Berraies and Zine El Abidine (2019) explain that exploitative innovation focuses on the success and survival of the organization short term, and is more associated with predictable and positive returns. Jansen et al. (2006) argue that exploitative innovation is more incremental, and is designed to meet the needs of the organizations' current customers or markets. Instead of requiring new knowledge and skills, organizations can broaden their existing one, and work on improving and expanding their designs, products, and services (Jansen et al., 2006). Much focus is on increasing efficiency (Berraies & Zine El Abidine, 2019; Jansen et al., 2006).

2.3 Responsible Innovation

Responsible Innovation aims at taking care of the future, both in the environment and society. First, some different perspectives on the scope of Responsible Innovation will be presented, then its connection to corporate governance will be discussed. The research about Responsible Innovation has to be adapted to a business setting, which will be handled in the third part. Lastly, irresponsible innovation will be discussed. Current literature in these areas will be analyzed, and multiple perspectives on Responsible Innovation will be presented.

The definition of Responsible Innovation used by Stilgoe et al. (2013) and Owen et al. (2013) is “Responsible Innovation means taking care of the future through collective stewardship of science and innovation in the present” (Stilgoe et al., 2013, p.1570). This means that there is

more focus on the input for innovations, for example, care, responsiveness, purposes, and values. They argue that this gives us more potential to deal with uncertainty today.

Voegtlin and Scherer (2017) suggest that innovation is a key solution to the world's problem with sustainability. The authors highlight the connection between Sustainable Development (SD) and Responsible Innovation, arguing that increasing the use of Responsible Innovation will have positive effects on Sustainable Development. They mention that scholars have argued how business organizations have a social responsibility toward public concerns due to them having the necessary means and resources for it, and them being a crucial source for innovations (Voegtlin & Scherer, 2017). They propose three considerations (or dimensions) for scholars, practitioners, and policy-makers that will ensure that organizations actually contribute to this.

(1) The first dimension is called 'responsibility to avoid harm', which considers the impacts on both people and the planet. Here, the *development and implementation* of innovation (both products and services) in organizations should be responsible. (2) The second dimension is called 'responsibility to do good', and argues for the importance of *incentives* for organizations to innovate sustainably and responsibly. (3) Lastly, *global governance structures* must be established to support both the responsible development and implementation of innovations, as well as the responsibility to do good (the first two dimensions). The authors refer to this last dimension as the 'governance-responsibility' of organizations (Voegtlin & Scherer, 2017).

Voegtlin and Scherer (2017) say that to avoid "doing harm" on an organizational level (both to clients and the environment), innovations with risk management frameworks are what scholars discuss most. To "do good" is discussed together with concepts like green innovation, eco, shared value, and social entrepreneurship. What the authors argue is that even though scholars discuss this, they often only consider one of these aspects and avoid the others.

2.3.1 Responsible Innovation & Responsible Governance

Scherer and Voegtlin (2020) present a straightforward model of Responsible Innovation, where (1) Reflexive and participative corporate governance, will facilitate (2) Innovations that both avoid doing harm and also does good for both the people and the planet, this will then contribute to (3) overall Sustainable development and grand societal challenges. Scherer and Voegtlin (2020) then specify the relationship between corporate governance and Responsible Innovation for sustainable development. They discuss how organizations can integrate sustainability considerations into their decision-making processes through effective corporate governance. The authors also look at the challenges that organizations face in implementing Responsible Innovation and sustainable development, including the tension between short-term financial goals and long-term sustainability goals, and the role of government and regulation in promoting Responsible Innovation. They argue that effective corporate governance can help organizations to align their innovation strategies with sustainable development goals, and to ensure that their innovations contribute to positive social and environmental outcomes (Scherer & Voegtlin, 2020).

Scherer and Voegtlin (2020) discuss three different approaches to corporate governance and their implications for sustainable development. First, there is the ‘Shareholder Value Approach’, this approach focuses on maximizing shareholder value and profits as the primary goal of corporate governance. It prioritizes economic considerations over social and environmental considerations and views corporate responsibility as a means to achieving economic goals. Secondly, the authors present the ‘Stakeholder Approach’, which views corporations as being responsible to a wider range of stakeholders, including shareholders, employees, customers, suppliers, and the wider community. The goal is to balance the interests of different stakeholders and to ensure that corporate governance processes take into account the needs and concerns of them all. Lastly, they present the ‘Political CSR Approach’, which views corporate responsibility as a political issue, and argues that corporations have a responsibility to contribute to sustainable development. This approach emphasizes the role of governments and civil society in shaping corporate governance (Scherer & Voegtlin, 2020).

Scherer and Voegtlin (2020) also present what kind of conditions can lead to Responsible Innovation for each of the three approaches. The Shareholder Approach needs government to

set the right incentives, which means incentives to make the organizations create products, services, and processes that avoid harm and do good. The authors then explain that the Stakeholder approach requires powerful stakeholders to have an interest in these. The Political CSR approach is instead when Responsible Innovation is contributed to with deliberations with citizens, who can contribute with the knowledge or has an interest in these (Scherer & Voegtlin, 2020). They argue that incorporating all three can help organizations to develop and implement corporate governance processes that ultimately promote Responsible Innovation and sustainable development.

2.3.2 Responsible Innovation in the Business Setting

Responsible Innovation is often discussed in a science and pure innovation context, and not in a business context. Brand and Blok (2019) investigated RI in businesses and reflected on deliberative engagement as a central governance mechanism. They argue that there are some tensions that arise in this specific situation, that do not normally apply in other contexts. The question of to which extent deliberate engagement (both with stakeholders and the public) is suitable when discussing RI in a business setting (Brand & Blok, 2019). The first tension that the authors present arises between deliberative engagement and innovative capacity. This means that the dialog between the company and the outside actors that Responsible Innovation encourages might have some negative effects in a business setting. They explain that this kind of engagement can require significant amounts of time and resources, and still might not be beneficial directly to the company. Commercial exploitation is important for many businesses' survival, and actions that have a negative impact on their ability to profit from this exploitation of their innovation will mostly not be implemented (Brand & Blok, 2019).

The second tension Brand and Blok (2019) presents is similar but is between knowledge sharing and competitive advantage. Stilgoe et al. (2013) present how important transparency and openness are in the Responsible Innovation process, for example when discussing responsiveness. Brand and Blok (2019) argue that since we do not act in a perfectly competitive market, and information is not equally distributed among all actors, businesses are able to profit from exploiting it. If this knowledge leaks to other companies, the business will lose its competitive advantage and its ability to attract investors. The ideal level of

transparency in Responsible Innovation is difficult to accomplish, but using for example patents and collaborations can let businesses be transparent at a more realistic level (Brand & Blok, 2019).

The last tension that Brand and Blok (2019) argue should be considered when discussing Responsible Innovation in business settings is between inclusive governance and current corporate governance structures. Von Schomberg (2013) highlights the importance of ‘collective responsibility’, which means that there are multiple different actors sharing the responsibility for the innovation. In today's corporate governance structures, people with decision-making authority will most likely favor the investments with the best expected financial returns (Brand & Blok, 2019). Brand and Blok explain that those who have the responsibility for investment returns (the board) and those who take the financial risks for it (the owners and investors) will most commonly have the last say when it comes to decision-making. This means that those with this type of power often have financial interests, which is the opposite of what Responsible Innovation aims at. Brand and Blok (2019) continue to explain that even though one can argue that boards and investors have some kind of social responsibility, they often have a self-serving bias that will have them serving their own interests in the end anyway. The authors investigated which theories of business ethics could accommodate Responsible Innovation and these tensions the best, and concluded that political CSR has a lot of common ground with this (Brand & Blok, 2019), which Scherer and Voegtlin (2020) and Hadj (2020) also have discussed.

Hadj (2020) investigated CSR (Corporate Social Responsibility) and Responsible Innovation, and how this affects both stakeholders and environmental management, and their overall competitiveness. He explains that Responsible Innovation plays a mediating role between CSR and SMEs (Small and medium-sized enterprises). The study found that the mediating effects of this were driven by including stakeholders in the innovation process, the anticipation of future trends (in terms of innovation that is socially responsible), and being responsive to potential risk (identify and react accordingly). He did not find enough evidence to support the claim that reflexivity contributed to Responsible Innovation and competitiveness in this scenario (Hadj, 2020). He explained the taxonomy (classification) he used for the dimensions as follows: Inclusion - to engage different stakeholders from the beginning; Anticipation - to understand opportunities that can shape the future better; Responsiveness - the risks posed by new technologies in terms of increasing probabilities of

events and the associated cost, as well as the level of accessibility and transparency to research and innovation outcomes; and prevention/reflexivity - more technical, for example, refining processes and using low-emission production (Hadj, 2020).

2.3.3 Irresponsible Innovation

Von Schomberg (2013) explains that “irresponsible innovations” or “irresponsible outcomes” are usually not due to one specific actor and their actions, but the many actors that are involved in the process. He claims that this often happens in practices where the stakeholders are not aware of how important the social context is, or that their conflict resolutions were unproductive. Von Schomberg (2013) goes on to present four types of irresponsible innovation: Technology push, Neglectance of fundamental ethical principles, Policy Pull, and Lack of precautionary measures and technology foresight. He also clarifies that these are not mutually exclusive, but is often found together. He also states that corrective actions taken in the later stages of a process are almost always more costly than taking them earlier, and the costs that come with acting irresponsibly are often substantial (Von Schomberg, 2013).

2.4 Theoretical Framework

This chapter presents the literature needed to analyze the research question “How does Responsible Innovation differ under Male and Female leadership in business?”. The framework is divided into four dimensions, coined by Stilgoe et al. (2013). The authors claim that the framework needs to be adapted to the setting it is used in, which is why this theoretical framework has been complemented by research done in relevant areas.

2.4.1 Four Dimensions of Responsible Innovation

Stilgoe et al. (2013) and Owen et al. (2013) present a framework aimed at creating an understanding of Responsible Innovation and support efforts aimed at it. The authors explain that RI should be seen as the explanation for the shift from the governance of risk to the governance of the innovation itself, instead of a simple governance paradigm.

Owen et al. (2013) reasoned that when there is an absence of certainty, evidence, and understanding, the question of how to proceed responsibly arises. They argue that stewardship of innovation must include, apart from broad reflection and deliberation, the *purpose* of the innovation. Why? Who might it benefit? And who might it not? (Owen et al., 2013). Prospective responsibility (care and responsiveness) is relevant in this discussion since it allows us to reflect on the specific purposes and the questions asked above. The authors also draw the comparison between how *care* and *responsiveness* are connected to responsibility and can help to create a framework, and how these are less familiar compared to more knowledge-based retrospective views of this (for example liability, accountability, and blame). Owen et al. (2013) say that historically responsibility has had many reciprocal forms since their actions rarely had any irreversible impacts on the world at large. Today, that is not the case, and the authors argue that the dimensions of a responsible framework must therefore be non-reciprocal and future-oriented.

Stilgoe et al. (2013) and Owen et al. (2013) present four dimensions of Responsible Innovation, based on questions asked by the public about new areas of science and technology. There were questions regarding the product, process, and purpose. The questions represented what kind of societal concerns and general interests there were, which should then be embedded in the innovation process. They argue that these dimensions show important characteristics of RI, which they claim can be ‘heuristically helpful for governance’ (Stilgoe et al., 2013).

2.4.1a Anticipation

The first dimension is what the authors call Anticipation, which Owen et al. (2013, P.38) explain as “describing and analyzing those intended and potential unintended impacts that might arise, be these economic, social, environmental, or otherwise”. Anticipation is considered needed in the governance of Responsible Innovation for multiple reasons. For example, the concerns about the pace of social and technical change from a political and environmental point of view, and critiques about how the top-down risk-based models can not capture the full scope of new technology in terms of social, ethical, and political stakes (Stilgoe et al., 2013). The risks of these are often unforeseen, and the methods used for forecasting have commonly failed. What Stilgoe et al. (2013) explained was that anticipation is not the same as prediction, this is due to the complexities and uncertainties of the

co-evolution of science and society. They explain that timing is important for anticipatory processes. This means that in order to be constructive, you must be early enough, and to be meaningful, you need to be late enough (Rogers-Hayden and Pidgeon, 2007; Stilgoe et al., 2013). Another important aspect is the plausibility of scenarios, which can impact the success. Stilgoe et al. (2013) explain that there is resistance to anticipation, both institutionally and culturally, which could be the reason an organization lacks it. Lubberink et al. (2017) argued that this framework needed to be adjusted in order to fit into a business context. They chose to translate anticipation as to first determine the impacts and outcomes desired, which address needs in society or the environment. They say that it is also to determine which negative impacts to prevent or reduce. Next is to find which ways can be taken to get there, but be aware of the uncertainties surrounding these pathways.

Anticipation can be connected to a more well-researched area by discussing risk, which is a major part of this dimension. Foresight, assessments, and scenarios are approaches Stilgoe et al. (2013) present that can connect to risk management or risk analysis. There have been multiple studies done that compare female and male leaders' relationship to risk-taking, which has shown women to be more risk-averse than men (Slovic, 1999; Barber & Odean, 2001; Croson & Gneezy, 2009). Research about female and male leaders' ethics has shown different perspectives, for example, Ciolac (2013) argues that subordinates view their female managers as more empathic, but Zalata et al. (2018) say that even though there is a small difference in ethics, the risk-aversion that women show is more prominent. Lubberink et al. (2017) discuss how anticipation is connected to societal and environmental needs and how to determine the desired impacts here, which can be connected to the common good and ethics. Pierli et al. (2022) argue that women tend to focus more on long-term strategies and stakeholders' interests, while men tend to focus more on short-term ones and shareholders. This can connect back to the research about how men might be more willing to take risks for rewards in the shorter term, and how women are more risk-averse.

2.4.1b Reflexivity

The second dimension of the framework is called Reflexivity, which Owen et al. (2013, P.38) describe as “Reflecting on underlying purposes, motivations, and potential impacts, what is known [...] and what is not known”. There are multiple meanings behind the word ‘Reflexivity’, but Stilgoe et al. (2013) argue that what is needed in governance is *Institutional*

Reflexivity, which means reflecting on your own activities, commitments, and assumptions, and that there are limitations to knowledge. It also means that the perspective matters and your particular framing might not be universal (Stilgoe et al., 2013). They explain that the dimension of reflexivity challenges the idea of scientific ‘amorality’ and ‘agnosticism’, and asks the actors to not separate their role responsibilities and moral responsibilities but instead blur the lines of these. The authors argue that this demands openness and leadership. Lubberink et al. (2017) translate this into a business setting, they say that reflexivity is to critically reflect on one's own actions and responsibilities, as well as their values, motivations, and perceptions of reality. They should also reflect on how these affect the management, both on the process of innovation and the outcome they desire.

According to Dreyer et al. (2017), Corporate Social Responsibility (CSR) captures the importance of transparent and ethical behavior, together with the responsibility organizations have for their decisions and impacts on society and the environment. They connect this to reflexivity due to how it describes the importance of critically reviewing your own actions, and how the audit of practices and compliance can be used in organizations to work with this. Another connection can be made to the studies done about how women and men perceive themselves. According to Hentschel et al. (2019) and Shen and Joseph (2020), female managers tend to look down on their own competencies and negatively reflect on their decisions. On the other hand, there are studies that show that men lean toward overconfidence when taking decisions (Barber & Odean, 2001). This means that most tend to have a hard time reflecting on themselves realistically.

2.4.1c Inclusion and Deliberation

Next is the dimension called Inclusion, or Deliberative, which Owen et al. (2013, P.38) explain as “inclusively opening up visions, purposes, questions, and dilemmas to broad, collective deliberation through processes of dialog, engagement, and debate, inviting and listening to wider perspectives from publics and diverse stakeholders”. Stilgoe et al. (2013) say that Inclusion comes from the decrease in expert and top-down policymaking. The authors then say that because of the search for legitimacy, science, and innovation are including new voices. One way that scientists and innovators are doing this is by involving a wider public outside of the stakeholders. Another way inclusion is growing is by the use of hybrid mechanisms that aim to create more diverse input and deliverance of governance. This

could for example be multi-stakeholder partnerships, forums, and including lay members more (Stilgoe et al., 2013). They are also presenting arguments that have arisen when discussing Inclusion and the methods, purposes, and evaluation criteria used when evaluating the participation. One way of evaluating the quality of the public dialog was presented: intensity (the timing of opening up for consultations from the public and how the discussion group is built), openness (diversity of the group), and quality (gravity and continuation of the group's discussion). Stilgoe et al. (2013) claim that increased inclusion can come from bottom-up changes inside of the innovation processes, and innovations that are user-driven; open; open source; participatory; and network-based can all contribute to more voices being heard.

When translating this into a business context, Lubberink et al (2017) chose to explain inclusion as involving a diverse range of stakeholders in all stages of the innovation process. They also argue that these should be actors with different, but necessary, resources for governing the innovation process and achieving the outcomes they desire. Lastly, they present that this can be achieved by both the creation and maintenance of relationships due to their effects on commitment.

Lubberink et al (2017) separated inclusion from deliberation, which they instead presented as an agreed exchange of opinions and perspectives among stakeholders, which goes both ways. This is based on shared criteria for evaluation and information, which they argue could be of help when making decisions. They also say that formal decision-making power (regarding the process or outcomes, or both) can act as a complement here. Dreyer et al. (2017) argue that this dimension has close connections to 'Design Thinking', due to their common goal of the inclusion of different types of stakeholders. Goffin and Mitchell (2017) describe how Design Thinking centers around the needs of the customers, which will shape and control the choices that the organization makes. Even though Responsible Innovation inclusion includes more stakeholders than just the customers, the Design Thinking perspective might be more familiar to businesses.

2.4.1d Responsiveness

The fourth dimension, Responsiveness, explains the need for the capacity to adapt both shape and direction to changing circumstances (Stilgoe et al., 2013). Owen et al. (2013, P.38)

explained it as “using this collective process of reflexivity to both set the direction and influence the subsequent trajectory and pace of innovation, through effective mechanisms of participatory and anticipatory governance”. Stilgoe et al. (2013) present approaches to this, for example, midstream modulation and anticipatory governance. The authors draw a connection to the Inclusion dimension, suggesting that the responsiveness dimension recognizes the insufficient knowledge and control one has while adjusting the course of action (Stilgoe et al., 2013). They clarify that this corresponds to the two different meanings of *respond*, which is either to *react* or to *answer*, responsiveness means being flexible and adaptable during evolving circumstances and information and being able to adjust accordingly. Von Schomberg (2013) and Stilgoe et al., (2013) argue that being more responsive to societal problems is the core challenge of Responsible Innovation. They specify that these are not preordained nor uncontested, which means that it might be easier said than done.

To adapt this in a business setting, Lubberink et al. (2017) define responsiveness as ensuring that the business has the ability to adjust the process of innovation when circumstances change (both within the business and outside of it) and that they actually do it. This is to make sure that the innovations that address bigger challenges or aim to prevent negative effects succeed. Stakeholders should here be able to recalibrate their roles and be prepared to adjust or even withdraw the innovation project from launching. Changes inside a business can be both smaller or larger. Well-known markets and products call for more incremental and continuous improvements, while the unknown requires more radical changes (Goffin & Mitchell, 2017).

Dreyer et al. (2017) argue that responsiveness is somewhat related to agile project management since both address the organization’s ability to change direction in response to changing needs. According to Goffin and Mitchell (2017), this includes for example trial-and-error periods for organizations, where less focus is on specifications and more focus on testing and feedback. They also present that this means that following through on plans, comprehensive documentation, and contract negotiations are not the most important parts, but responding to change and collaboration is. When investigating gender and leadership, Ciolac (2013) found no significant differences between men's and women’s ability to adapt to new situations. On the other hand, Khushk et al. (2022) argue that women tend to be more flexible.

Theoretical framework



Figure 1 - Theoretical Framework summary by the author inspired by the four dimensions of Responsible Innovation (Stilgoe et al., 2013)

2.4.2 Further Implications about the Framework

Stilgoe et al., (2013) continue to show how these dimensions are connected, as well as how they are connected to the specific contexts of governance they are in. If one dimension increases, another one might as well, but there is also the possibility of new tensions and conflicts arising from it. The authors argue that for this reason, the framework should be considered as a whole and not broken down and focused on only one (Stilgoe et al., 2013). Owen et al. (2013) say that by combining these four dimensions, we meet two goals. First, we build “reflexive capital”, which is concerned with purposes, processes, and products of innovations, in a way that is iterative, inclusive, and deliberative. The second goal is about how we can respond collectively to uncertainty and unpredictability by modulating (Owen et al., 2013).

Multiple studies presented tend to favor feminine leadership behavior and qualities when discussing Responsible Innovation. This study aims to see if there are any differences between male and female leadership in this area and if these are similar to the ones previously

studied, not to rank or rate gender qualities. As discussed before, the differences seem to get smaller in the higher hierarchies (Wille et al., 2018; Emmerik et al., 2010; Melamed & Bozionelos, 1992), which might result in different conclusions as well. Shen and Joseph (2020) presented that many studies done in the area of male and female leadership have a subordinate point of view, which might not correspond to reality. They argue that there could be biases present, created by stereotypes. Another factor to consider here is the memory of the employees, for example, Shen and Joseph (2020) present a study where the employees had a hard time remembering agentic behaviors in their female managers.

3.0 Methodology

This chapter will first present the research strategy and research design chosen for this paper. Then a presentation of how the primary data was collected and how it was analyzed later. Lastly, the quality criteria for this study will be presented, as well as the plan on how to comply with these.

3.1 Research Strategy

In order to answer the research question “How does Responsible Innovation differ under Male and Female leadership in business?” managers will have to talk about their own experiences, beliefs, and perceptions. This means that the social reality is what emerges from the property of individuals’ creation, not as an external and objective reality (Bell et al., 2018). This research question requires an inductive approach, since it is not created from general theory or hypotheses, but instead starts with observations which will lead to theories and generalizations (Bell et al., 2018). The aim is to understand this phenomenon in depth rather than breadth through the perspective of the subjects. With all of this in mind, a qualitative approach was the most suitable research strategy for this study. This study is focused on understanding the subjective experiences, perspectives, and meanings of individuals, rather than measuring and quantifying these differences.

3.2 Research Design

When choosing the framework, or “logic”, for collecting and analyzing the data, one must have the research question/purpose and strategy in mind. It is also important to consider if there is a need to investigate causality, time dimension, and generalisability, and how the research setting should be. The optimal choice here is to investigate this phenomenon in the “field” and collect primary data from leaders with real-life experience. The purpose is more exploratory than confirmatory since the goal is to create a deeper understanding. The time dimension is flexible since Responsible Innovation and leadership in this context do not have to be investigated at several points in time. There is no investigation of change or process, hence no need for data collection at different points in time (Bell et al., 2018).

Taking these decisions in mind, there are multiple research designs that can fit this study. A single case study would be the right decision if the plan was to investigate only one company and its innovation. In order to get data that is ever more open for comparisons, for example between different industries, a comparative design is more fitting. Eisenhardt (1989) provides useful insights for conducting comparative case studies. She emphasizes the importance of selecting cases that are similar in some respects but that differ in others, which leads to the ability to identify similarities and differences between them. She also discusses the importance of using multiple cases in comparative studies, rather than relying on a single case study (Eisenhardt, 1989). In this research, the similarity between the cases is that they are all leaders who work with innovation to some extent, but the key difference is their gender. Bell et al. (2018) argue that comparative studies in qualitative research often take the form of a multiple-case study, where these cases can be either organizations or people.

Bringing the chosen research strategy (qualitative) and research method (comparative case study) together, the typical form will be qualitative interview research on two or more cases, in which there will be some type of comparison between them (Bell et al., 2018). One negative aspect of choosing a comparative case study instead of a single case study is that some depth might get lost. It is important to avoid making comparisons between data that might not be comparable, for example, industry-specific information. If industry-specific differences or similarities arise, these will be addressed clearly. One advantage of using the four dimensions of Responsible Innovation as a base for the theoretical framework is that it focuses less on formal duties and more on values, personality traits, and motives, which

means that the analyses will be more about the leaders and not their industries. The questions asked during the interview will also have a personality angle to ensure that the data collected is relevant (interview guide in Appendix 1). The advantage of having respondents from both product and service industries is that some meaningful insights might arise from comparing one industry to another.

3.3 Data Collection

The primary data was collected through semi-structured qualitative interviews. This will give rich and detailed answers, but also be some structure to ensure that the data collected is comparable. This leads to more interesting and useful comparisons and analyses than quantitative data collection, but is also more time-consuming (Bell et al., 2018). One pilot interview was conducted in order to test the interview guide and make sure that the data collected will be of relevance and good quality for further analyses. After the pilot interview, some of the questions were shortened and simplified to ensure that the respondents fully understood the question before answering. More questions about real-life experiences and examples were added to ensure that the respondents talked about their own behaviors and not “ideal” ones.

3.3.1 Sampling

There was purposive sampling done for the interviews. Respondents were chosen strategically in order to be relevant for answering the research question “How does Responsible Innovation differ under Male and Female leadership in business?”. The criteria for sampling for all respondents will be that they have a leadership/management position, work with some degree of innovation in their organization, and that they identify as either male or female. I acknowledge that there are more nuances to the topic of gender, for example non-binary, but literature in the relevant areas has not taken this into consideration. Due to the current literature, it is only possible to make well-grounded comparisons between male and female leadership. These criteria are set to open up the ability to make comparisons between two different cases. Since the sampling is non-random, the generalizability will be low, which can be seen as a disadvantage (Bell et al., 2018).

Since there was some difficulty in finding interviewees that fulfilled the criteria, snowball sampling was sometimes used as the next step. Snowball sampling is a form of convenience sampling, where the initial contact will help to establish contact with other relevant respondents (Bell et al., 2018). The required sample size was difficult to forecast before starting to interview the respondents, and the initial number of interviews was set to 10. After conducting half of the interviews, two more were conducted to ensure saturation.

	Respondent	Age	Industry	Online or In Person	Duration of Interview	Interview language
1	Male 1	<50	Product	In person	40 min	English
2	Female 1	>50	Product	In person	1h 05 min	English
3	Male 2	<50	Product	Online	55 min	English
4	Female 2	<50	Product & service	Online	1h	English
5	Male 3	>50	Service	Online	55 min	Swedish
6	Male 4	>50	Product & service	Online	1h 05 min	Swedish
7	Female 3	<50	Product	Online	40 min	English
8	Male 5	<50	Service	Online	45 min	English
9	Female 4	>50	Service	Online	50 min	English
10	Female 5	>50	Product	Online	1h	Swedish
11	Female 6	<50	Product	Online	40 min	English
12	Male 6	<50	Product & service	Online	35 min	Swedish

Table 2 - Interview Respondents

3.1.2 How the Interviews were Conducted

The interviews were semi-structured, which means that there was an interview guide with planned questions, but also room to discuss outside of these questions. The research question “How does Responsible Innovation differ under Male and Female leadership in business?” requires that there is some structure in order to be able to make comparisons, but since this is a qualitative study and we want to gain deeper and unexpected understandings, there needs to be room for unplanned questions as well. This flexibility was to ensure that the interview focused on what the interviewee found important to explain, but also kept the interview in the

relevant area to ensure that there is cross-case comparability (Bell et al., 2018). There were some prepared probes in order to ensure that all necessary information was given but not in a way that has the possibility to mislead the answers.

The first interviews were conducted in person, this was a preliminary choice done in order to not miss out on possible observations. Due to time and place constraints for the respondents, the rest were conducted on Zoom or another platform with video. The interviews were recorded with the interviewees' approval. This study is conducted only by one interviewer, and recording helped with both memory and attention. Re-listening to recordings ensured that there were no mishearings and no important information that was lost, and allowed more thorough examinations of the answers. When there is only one person conducting the interview, it might be hard to both ask questions, listen, and document the answers at the same time, which recording helps with (Bell et al., 2018).

Transcription was done to large extents, but not in full due to time constraints. Introductory discussions, for example about the purpose of the study, were not transcribed. Discussions at the end of the interviews about other non-relevant topics were excluded as well. Answers to the interview guide questions and relevant discussions were transcribed in order to help with coding, but also to increase the transparency and rigor of the study. Recording and transcribing also open up the data to public scrutiny, where other researchers could evaluate how the analysis is done and avoid possible biases (Bell et al., 2018), which was relevant when interpreting a few answers. What needs to be mentioned is that these methods are time-consuming and require more equipment. There were multiple digital tools to use for transcriptions of longer interviews, for example, Microsoft Word.

3.4 Data Analysis

Since qualitative research and interviews generate large quantities and high complexity of data due to transcriptions and recordings, it is crucial to have the goal and research question in mind when starting to analyze the data. This is done in order to avoid spending too much time on irrelevant information. The data were analyzed inductively to a greater extent, but not fully, in order to balance conceptual constraints and practical constraints (Bell et al., 2018). Relevant peer-reviewed literature was then used to contextualize the findings.

3.4.1 Thematic Analysis

Thematic analysis was a fitting tool to use in this paper due to the flexibility of the method, specifically because of how it can be used to analyze large varieties and types of data (Bell et al., 2018). When investigating such broad phenomena as leadership, gender, and Responsible Innovation, the data was very complex and required a method that can guide the emergence of codes and analyses in a flexible way.

3.4.2 Coding

The coding process for thematic analysis builds on the concept of finding common themes, or a group of similar or related codes, from the original initial codes (Bell et al., 2018). The transcriptions from the interviews were crucial for the initial coding due to the ability to put codes on the finished text. The initial codes could be parts of sentences, whole sentences, or paragraphs, depending on the context. The framework for Responsible Innovation presented by Owen et al. (2013) makes distinctions between the four dimensions; anticipation, reflexivity, inclusion, and responsiveness. It was easy to see which initial codes that belonged to which dimension due to the Interview Guide (Appendix 1) being organized in that specific order as well. This did however not exclude the possibilities of other connections to other theories besides the dimensions of Responsible Innovation since the approach of this study is generally inductive. The themes were then searched for in for example repetitions, metaphors and analogies, and similarities and differences. The most important criterion for establishing patterns, which later become themes, is the repetition of similar codes (Bell et al., 2018). According to Thematic Analysis, there is a criterion for relevance. This means that a lot of irrelevant codes and patterns will appear (Bell et al., 2018), but only those that are connected to leadership, gender, and Responsible Innovation were considered a theme.

I believe that the quality and rigor of this study would increase with some inspiration from the Gioia Methodology. This means that the respondents were treated as “knowledgeable agents”, who know what they are doing and can explain their intentions, actions, and thoughts. It also assumes that the researcher is able to see patterns in the data (Gioia et al., 2013). The coding was done in these steps; 1st-order analysis (concepts) connected to each dimension of Responsible Innovation emerged early in the analysis. These were closely

related to the actual data; the 2nd-order analysis was where the number of codes decreased and themes appeared. This told us more about what kind of answers were coming forth; lastly, a couple of aggregated dimensions appeared which guided us toward the areas where we could make deeper analyses and comparisons (Gioia et al., 2013). By using these three steps which started very close to the data and moved towards more categorizations, the broad research question “How does Responsible Innovation differ under Male and Female leadership in business?” can be investigated.

This mix between the more simple Thematic analysis and some elements from the Gioia Methodology was a good fit to simplify and deal with the large amount and complex data collected from the transcriptions of the qualitative interviews. It can also guide the reader through the steps done from interviews to finished conclusions in a transparent way since they can follow the data from raw data to aggregated dimensions. This figure visualizes the planned coding process:

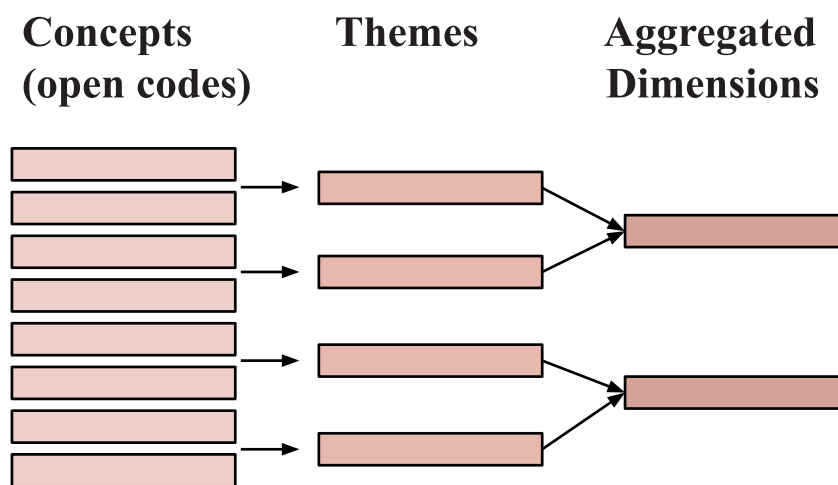


Figure 2 - Coding Steps

3.5 Quality Criteria

There are some research quality criteria made specifically for qualitative research since the ones for quantitative research are not always applicable. The quantitative ones are commonly known as *Validity*, *Reliability*, and *Objectivity*, but Bell et al. (2018) instead present these four aspects of trustworthiness for qualitative research;

- *Credibility* (which is concerned with how believable the findings are),
- *Transferability* (can the findings be applied to other contexts?),
- *Dependability* (are they likely to be applicable at other times as well?), and
- *Confirmability* (is there a chance that the researcher has allowed her values to affect the research?) (Bell et al., 2018)

To ensure *credibility* in this paper, examples of how the initial codes (concepts) turned into themes is provided in appendix 2. Initial codes are very close to the actual data, which shows the reader how the process from data to analyses was. This will also get the reader the chance to judge this process themselves. If there was any risk of misinterpretation, the studied objects were contacted to confirm the findings (respondent validation).

Transferability was dealt with similarly to what I described earlier and with a lot of detailed and full quotes. The three-step coding process will also give the reader the ability to follow along and make their own judgments about the analyses done, and read the conclusions done in a more realistic context. By providing this, the reader themselves can decide the basis for judging transferability instead of blindly trusting the conclusions.

In order to guarantee the *dependability* of this research, some extra steps had to be taken due to the fact that there is only one researcher. In times of uncertainty, supervisors and fellow researchers were asked to advise and interpret. Re-reading and other types of self-reflection were also an important part of the process. This part also relates to transparency, which I have discussed earlier.

Confirmability is similar to what I have written above, but more concerned with bias. There might for example be some bias due to my gender as female, which was planned to be dealt with if problems arise and clear to the reader from the beginning. Here the help from supervisors and fellow researchers helped as well. Furthermore, credibility was also dependent on self-reflection and the supervision of others.

4.0 Empirical Findings

This part will present the results from the semi-structured interviews conducted. In order to create the results in a straightforward and easily readable way, the structure will follow the four dimensions of Responsible Innovation. This does not mean that interesting findings outside this framework will be ignored, but can be found in the last section.

4.1 Who has Responsibilities?

All respondents argued that businesses have an increasing responsibility when it comes to society and the environment. F1 and F5 also said that the employees have it themselves, M1 and F3 talked about how there is an individual responsibility, and M4 said that the consumers have a big responsibility due to them controlling demand. F6, M3, and M4 discussed the responsibility the government has, both by regulating and incentivizing. F6 argued that companies have responsibilities surpassing their stakeholders, and can even drive political change.

“I think, since they are large, have the means, and can collaborate, they can do more impact than an individual person [...] I think it's really important by the government to help companies driving those kinds of innovation, and to reward them for that” (about businesses responsibility)- M2

“I think each business needs to ask themselves questions about the value they're creating. And value is not only money, it's not only revenue, it's not only profit, value is also like creating a good place for people to work, and opportunities to make an impact on the society, both in social questions in environmental questions. And I think that is something that needs to be included in every innovation process” - F2

4.1 Anticipation



Figure 3 - Anticipation codes

4.1.1 Planning, Goal Setting, and Organizing

Both respondents M1, M2, M3, F1, F3, F5, and F6 talked about the role of analyzing trends in the market, and how these can be used for setting goals and planning for the future. M1 and M2 both talked about trends in social media. M3 and F3 were a little bit reluctant to always follow them. M3 said that trusting trends over your own analyses is a bad idea. F3 explained that it can be dangerous to follow trends since a lot of them are unsustainable. She took coupons and overconsumption as an example and has a business model that revolves around this. Respondent F6 argued that even though the market looks a certain way, your organization can be part of shaping it and driving change are not impossible.

“I would say that it is of the utmost importance that we follow the current development in the market” - F5

Respondent M5 discussed this thoroughly by explaining the importance of leaders setting common and clear goals in an organization, and then working collectively towards that. He added that his whole organization works with sustainability, but his department has a high focus on innovation. He said that being a manager in a more traditional and bureaucratic organization means that decisions take a very long time and involve many steps, and thus hinder innovation. Respondent M1 agrees that it can be tougher for more rigid companies.

“We have very clear goals from the top, and we know what our responsibilities are. But it's not really clear how we achieve or move towards those goals. And yeah, that is the problem sometimes, especially when the goal changes” - M5

M5, F1, F2, F5, and F6 all talked about how important the top leadership of the organization is, and which goals, values, and structures they set. F6 highlighted how the purpose and values the top managers set affect the decisions of the whole organization.

“If you don't have the top management, ownership, and the board with you in these decisions. It's never gonna happen. It's going to be innovation theater. We're gonna talk about innovation, but you're always gonna, you know, focus on the short term profits” - F2

“So every day I think we are facing those things, but having a guiding star with a brand strategy that is purpose driven. It gives us a good foundation and a framework for kind of taking the right decisions at the right time” (when discussing impacts outside of the company's short-term profits) - F6

Both M1, M3, M4, M6, and F5 argued that the goals might not be set by the company, but by the people who ultimately will pay for the product or service. This means that in order for the company to have sustainable and responsible goals and ways of getting there, there needs to be a demand for that from the customer. M3 said that the majority of the customers care too much about the price, and that decides what long-term goals to set. M5 and F4 explained that it is easier to focus on being responsible towards society and the environment when you do not have as much financial pressure, both took governmental involvement as an example.

“It's too complicated and too expensive to do certain things. It's this that drives up the prices, and in the end the customer have to pay for it” - M4

F1, F3, F4, and F6 explained that their choice depends on the situation. The respondents both feel some pressure from the organization and owners about financial goals, but they also work towards more responsible ones as well. F1 also talked about compromising.

“So we get the short term and long term, [...] that kind of balancing is something we do all the time, with the limited resources we have” - F3

“ [...] it's always about finding a balance between finance and sustainability perspectives” - F4

4.1.2 Risk

Respondent M1 had an example of how he in the early days of the company had purchased low-quality material for the production due to the low price but soon realized that it would not work. He explained that his wanting to be quick to the market and producing at a low cost would be beneficial, but instead, they had to re-purchase the material and get rid of what they had. Respondent M2 had a similar experience but with a positive outcome. He explained that they had problems with their supplier during the pandemic and that they forecasted an increase in demand shortly. He decided to change suppliers without hesitation, and the company could increase its sales during that time. M6 said that he sometimes accepts opportunities before looking into the details because he does not want to miss it or risk that someone else does it first.

“I was lucky that it wasn't a big order though, so that specific mistake I will not make again” - M1

“I would say I'm quite quick, almost impulsive haha. Sometimes they're good. Sometimes they're bad” (about decisionmaking) - M2

“I was more aggressive when investing and deciding, always looking for new opportunities [...]I learned to trust my decisions and not just do what everyone else is doing” - M3

When talking about earlier days, M3 said that he used to be more quick and careless in his projects when he was younger. He compared his decision-making process to his female coworker who was the same age and position but was way more patient. M3, M4, F1, F2, F3, F4, F5, and F6 all said that their decision-making in unknown situations depends on multiple variables. M4 explained that it depends on the whole picture, small risks are more okay to take and might be important to make sure that plans go through. F5 said that if she can minimize the risks of the project by working overtime, she will do that due to the regulations and controls of the projects. She also said that this is often due to laws and regulations.

“I mean, it takes years to have all the facts. But in the end of the day, you still have to decide do we do it? Or do we don't? Don't wait? Yeah, there are always risks in every decision” - F4

“Do your best to avoid unnecessary risks and to cover all possible grounds” - F1

“We have a lot of like obstacles, which is related both to what you can and cannot do, legally [...] it is just limited and held back by risk mitigation, legal requirements, which is really frustrating at times [...], let's just try it in a safe environment and see if it works” - F2

4.2 Reflexivity

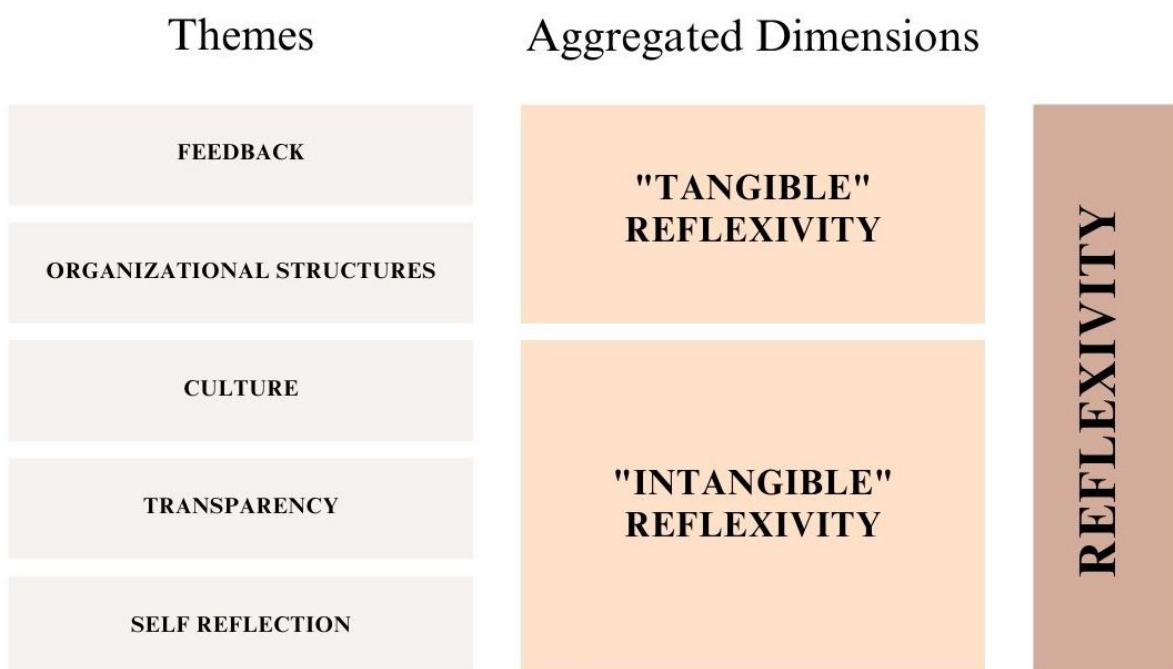


Figure 4 - Reflexivity codes

The subjects discussed in the reflexivity dimension were often talked about from an organizational perspective, and personal values and motivations were sometimes avoided and talked around. Feedback from customers, subordinates, and other stakeholders has been talked about, as well as self-reflection on the leaders' own actions and values. The dimension of reflexivity will be presented in two categories, one for more clear and structured ways to deal with this, and one more spiritual.

4.2.1 Organizational Structures for Reflection

Multiple respondents working at smaller organizations expressed that they do not have any means to collect and distribute feedback, input, or tips from stakeholders due to the size of their organization. Both F2, M1, M3, and M6 explained that it is easier to just open up and talk to both employees and other stakeholders since there are so few. F2 argued that even if they would have this, it could just be empty words.

“And we can write code of conduct [...], we can have the word innovation in our strategy. But if we don't do anything with it, if we don't measure it, if we don't push ourselves, if we don't talk openly about where we are at what problems we have, and how we want to solve them, and actually make actually make changes. It's it's just theater” - F2

In larger organizations, there were more formal ways to deal with feedback and input. Both M6 and F5 explained how their companies work a lot with employee training and support from different functions in the company. Respondent M5 talked about how his company has forums and meetings for employees to share their thoughts and ideas. M3 says that they mostly use customer support.

“The X is a platform where you aim you write your idea, you're fully anonymous, because we don't want people that have a title to go get more likes, for example, [...] we use this platform then to give feedback to each other and to grow the ideas together” - F3

F3 later adds that this kind of formal structures and processes might make people and leaders fall into their comfort zone since it is embedded in the business model. Respondent F5 also says that all the formal structures and support functions they have gives her a sense of safety.

4.2.2 Culture and Values

Multiple respondents expressed how the organization had a culture in which employees were encouraged to speak up, be honest, and build trust with each other and the leaders. F1 and F3 both talk about transparency, both inside the organization, but also with other stakeholders outside of it.

“It should be very high in ceiling, if you have a problem, lift it up immediately, and we will discuss it. So trying to have an a culture that we're not hiding anything, and be as transparent as possible. And then we will solve the problem together” - F1

M2 explains that he relies much on relationship building and trust and that everyone involved should be able, to be honest about problems, ideas, and feedback. F4 also argues about the importance of trust, especially for leaders. F6 talked about core competencies in her company, and that they lead to self-calibration. She explained that these are not only to drive results but also to collaborate, build trust, and develop yourself.

“I mean, everyone's really monitoring themselves and we don't have like, a decided structure for that yet, so to speak. I mean, we try to work as a team as much as possible and building trust, working on relationships instead of having formal processes” - M1

“But I think with our bases in Swedish culture, we are quite, you know, you should be able to speak up your mind” - F6

When discussing their leadership and role in the company, the answers were, of course, diverse due to the different industries and positions. Both M1, M3, M4, and M6 explain how important it is to trust yourself and your decisions. M6 adds that you have to take responsibility when something goes wrong. M1 talks about intuition and gut-feeling, and how he often use them to make decisions. Similarly to that, M4 explains it as follows:

“When I don't have all the information, which happens quite often, I have to go on my gutfeeling. I will say that this is the way I want to do it, and even though all obstacles aren't solved we will do it on the way. With this gutfeeling, I would say it is a success 9 out of 10 times that we fixed the obstacle. Sometimes it goes wrong as well of course” - M4

“It works out most of the time, but you have to take responsibility for your decisions and fix it yourself if it goes wrong. As a manager, it is especially important not to blame anyone else”

-M6

M5 explains that leaders have a huge responsibility due to herd mentality and the need to follow people and ideas and that this is something to be cautious of. He says that often, it is enough for a manager to stand up, be clear of the targets they have and how they should be achieved, and then people will follow and try to live up to that.

“It's really interesting thinking about organizational behavior and the psychology behind it. We humans can in a group behave very stupidly [...] you know, we are, in a sense, herd animals that need or like to follow people and different ideas. So this is something we need to be mindful of as leaders, and treat very careful” - **M5**

4.3 Inclusion



Figure 5 - Inclusion codes

Both respondents F3 and F4 talked about how the word inclusion can be interpreted and misused. F3 explained that a lot of companies can include a wide range of stakeholders, but not really listen to them. She explained that it is important to see it as a partnership and dialogue, not a monologue. Respondent F4 gave a similar answer but also explained that diversity does not always have to be about classical measurements like gender and age.

“Diversity is being invited to the party, inclusion is being asked to dance” - F3

“For me, it's more about diversity in thinking, diversity in being diversity in doing diversity and creativity. And of course, when you say that, it's always that you have to embrace something that is completely different from yourself” - F4

4.3.1 From the Inside of the Organization

The majority of the respondents talked about how including the employees inside the organization is important. Respondents M1, M4, M5, M6 F1, F2, F3, F5, and F6 all talked about how the knowledge and diverse input from the employees is something they put great value in, and to be taken into consideration in different stages of the processes of for example decisionmaking, analyzing, and coming up with ideas. M1 explained that he relies heavily on the creativity of the employees inside the organization, and does not involve other stakeholders that much. He explains that customers do not always know exactly what they want and desire, and that might actually hinder innovative ideas in their company. Respondent F2 explained that only listening to employees and not listening to customer needs can be dangerous since engineers and innovators tend to fall in love with their ideas and avoid questioning themselves.

“So you don't ask these questions. You just say, if we have this feature, I'm sure that they will buy it. And that's how too many really good products or ideas have died” - F2

Respondents F1, F3, F5, and F6 talked about the importance of involving different parts of the organization in the innovation process, and not just the ones working directly with it. F3 also said that they have special meetings every week where they bring in new ideas from the organization. Experts in these areas will be present for these meetings in order to speed up the

process of the first assessment. M3 said that depending on the situation, there are standardized processes and templates for who to involve and when which makes it easier for him.

“Have we checked with the quality department? Have we checked with the legal department, and we've checked with finance? is everyone is aligned, and have been able to give their opinion? And trying to listen to everyone” - F1

“Innovation is not owned by one team or one department, it's something we need to run throughout organization” - F3

During the pandemic and remote working, employee inclusion was more difficult to work with according to a number of leaders of both genders. F6 said that she is a relational leader who believes that collaboration and interaction are key, which made remote working a challenge in the beginning. She explained that it was crucial to make sure that the people at home also was heard during meetings, and not just talk with the people in the room.

4.3.2 From the Outside of the Organization

When discussing inclusion from stakeholders outside of the organization, diverse opinions came forth. M2, M3, M4, F2, and F6 explained that it is difficult to open up the organization too much since they need to protect it as well. F2 said that she would rather wait until the product is ready for the market to avoid too many stakeholders interfering with the process and coming up with demands. F6 argued that including diverse stakeholders is important, but not to let it interfere with their company core. M2 and M3 were more concerned with competitors getting a hold of information and not being able to protect their IPs and opportunities.

“And we honestly try not to talk to too many, because if we start talking to people, they're going to want stuff from us” - F2

“You have to be careful with what you say when you speak to stakeholders, which can take those ideas and exploit them themselves” - M2

Respondent F3 had another approach to this problem, where she argues that the organization can have a more holistic view on innovation. M2 said that even though they might want to open up their company more, due to their company being smaller, the processes for getting protective rights over their innovations are too complicated. He says that bigger companies with stronger positions in the market have a better opportunity to open up their companies more.

“And if you have mission, a vision and a target that is bigger than your own product, you see yourself as an important puzzle in the society, and that you have the power to change the ballgame. Then then you are not as eager to the IP and ownership and only profit, you really believe that together with partners, you can scale up and make an impact to the world” - F3

When discussing who to include outside of the organization, respondent M2, M3, M4, M6 F1, F2, F4, and F5 all said that it is important that the customer is a part of the process. M3, M4, F4, and F5 explained that customer demand should drive what kind of innovations that should be focused on. F5 added that during times of uncertainty, it is even more important to listen and have close dialogues with the customers. M4 says that he believes that due to consumers becoming more and more environmentally conscious, companies will have to develop toward that as well. It will not become a choice between financial goals and the bigger picture, because customer demand changes. M2, M5, and F2 expressed that they have worked with customer surveys to investigate for example the size and type of demand.

“I think that's one of the major problems in general today, when we're not doing like needs driven innovation. And we're focusing on internal ideas, not external needs. So that's, that's generally a very big problem” - F2

“But as I said, talking and listening to customers. But I think it's important to gain customer feedback, especially when developing a new product” - M1

Including suppliers in the innovation process was something multiple leaders in product-industries discussed. Respondents M1, M2, M4, F1, F3, F5, and F6 all talked about involving suppliers to some extent. According to M2 and F5, having involved the suppliers in the discussion has helped them to solve problems during turbulent times. M1 explained that

of his suppliers play a very important role in keeping his company sustainable and that he likes to keep in touch with them to hear about new opportunities.

“We are very dependent upon our suppliers. We build the product, but the product is built upon a lot of components. And that comes from our suppliers. So this is the culture that needs to be spread not only within our company, but all our suppliers, not only first tier suppliers, but second tier suppliers, suppliers to suppliers” (about sharing information and transparency) - **F1**

“We don't call the suppliers suppliers, we call them partners, because we truly believe that collaboration is the new partnership and the new leadership” - **F3**

There were also a number of leaders who talked about the inclusion of other companies. Respondent M2 was the only one to actively talk about having a dialogue with competitors, which he means is important in the early stages to investigate the current market. M4 talked a lot about surrounding yourself with the right people, organizations, and stakeholders. He said that it is very important to have knowledgeable and loyal stakeholders around you.

“The whole thing is to surround yourself with very good people. During the whole time we worked with X project, we tried to have the best workers, the most professional consultants, you know, just good partners” - **M4**

M3 expressed that he always tries to work with other companies that he trusts and that he knows will do a good job without his organization always getting involved. M6 expressed himself similarly but said that he thinks collaborating with other organizations who have knowledge in other areas than they do creates a win-win situation. F3 highlights the importance of partnerships. F2 says that innovation hubs could be an option depending on the situation. Respondents F1 and F4 talked about involving a wide range of stakeholders in order to get a holistic view, and F6 called it a whole ecosystem of stakeholders.

“I would say what we're trying to do is to involve as many stakeholders as possible [...] so we can have a 360 view of the problem. And not only looking at financials but looking at the world. Look at it from a customer perspective, from a safety perspective, political, and also from an environmental friendly perspective” - **F1**

“[...] but also the humble curiosity of constantly getting inspiration and collaboration with others who contributes with with different knowledge than I have. And that is something that I think is super important” - (about leadership) F4

Some respondents expressed problems with involving stakeholders that are not connected to protecting their innovation. F1 and M6 explained that in some situations, it is important to act fast and you can not include too many stakeholders. Respondent F4 also said that due to time constraints, they do not always have the time to explain the situation, and sometimes she takes herself out of the equation as well. She also says that you have to consider the costs of involving a lot of different people. Both M3, M4, and M6 also explained that the cost of involving too many stakeholders can sometimes be too high. Respondent M5 complained that his organization tends to force the involvement of too many stakeholders, which he sometimes believes is unnecessary. He continues to explain that this makes innovation very slow, and hard to control due to the very many voices trying to get heard and agree.

“Sometimes you can't involve as many as you want to because you have too little time. Sometimes speed is more important” - F4

4.4 Responsiveness

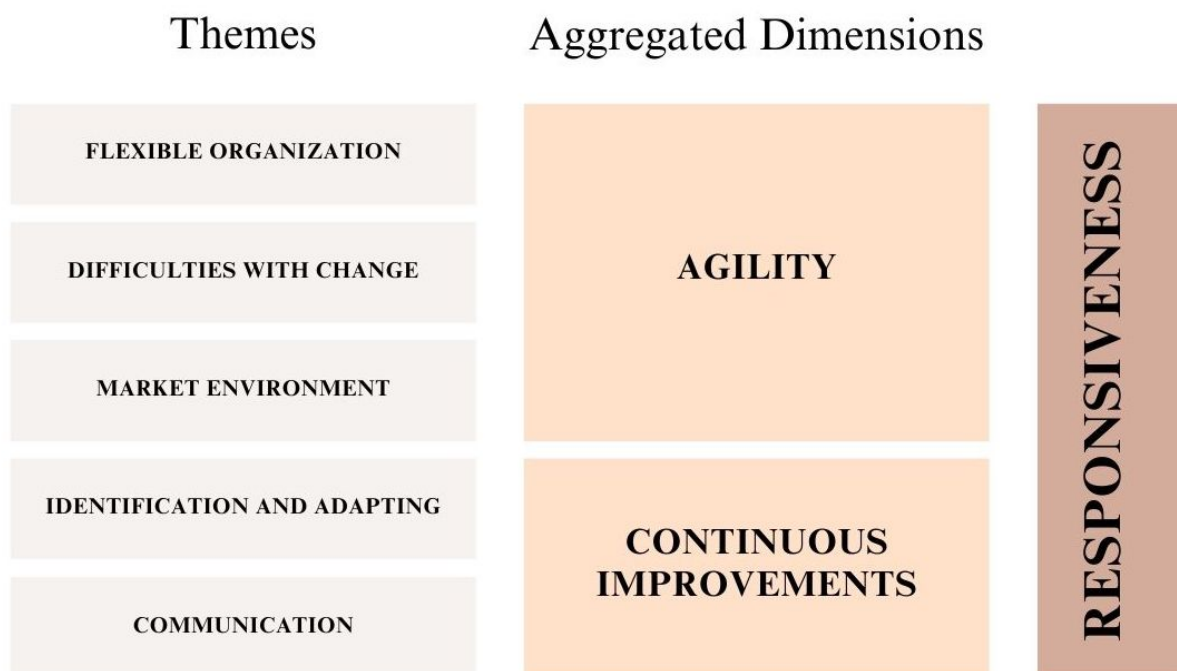


Figure 6 - Responsiveness codes

4.4.1 Agility

There were a couple of words that were used frequently by all the respondents when discussing the area of responsiveness in a general context. All of the respondents said that to some extent, it is important to be flexible, agile, adaptable, or able to respond to changes. M2, M5, F2, F3, and F4 all highlighted that this is extra important when working with innovation. Respondent M3 was the only respondent talking about history. He said that we are very unsure about the future, and you can not just follow what everyone else is doing in the market. He explained that the only thing we know for sure is the past, which makes it important to look back as well.

“You keep pouring money in it, because you already invested so much. Yeah, that's one of the hardest things about innovation is to stop doing things that you don't have evidence to continue with. We are in love with our ideas” - F2

“Because innovation is also about being flexible for new ideas that might come into the portfolio. And when something new comes in, maybe you need to pause or reprioritize” - F3

Multiple respondents said that companies' ability to be agile can be connected to the size of the organization. M5 explained that changes take a lot of time in his organization due to the layers of hierarchy, while both M1, M6, and F2 said that being a smaller company makes it easier to adapt to changing circumstances.

“It just feels like as companies get bigger, the bureaucracy makes it less agile” - M2

“A lot of the and as a challenge for the larger organizations today, because you need to be, you need to be fast. Because there are temporary market windows that you need to address” -F4

Different industries go through different changes which might create both obstacles and opportunities. One event that changed the circumstances in all markets was the COVID-19 pandemic, which affected production, suppliers, shipping, customer demand, work environments, and more. All respondents said that during this time, they experienced a lot of turbulence in their organizations. F1, F4, F6, and M5 expressed that their organization was

well prepared and handled the challenges that came with the pandemic well. F1, F4, and F6 all explained that communication is very important during these times since it is not business as usual and everyone needs the same information to keep the company effective. M2, M6, and F2 said that even though the organization was not prepared enough, they were flexible enough to turn it around. Both required some drastic decisions, where leadership became very important. M6 explained that they also got lucky because they had almost no extra savings in the company since they used to invest it all. F3 said that she was very impressed with the whole company and how they managed to turn their situation around during the pandemic and launch a brand-new product. Both M2 and F5 explained that their connections to pharmaceuticals created numerous new opportunities for their companies, which was challenging but also a way to step out of their comfort zone. F5 continued to say that it was important for her to stay true to their brand and reputation, and not provide anything hazardous just to get their products to the market, which respondent F1 also talked about.

“And then the pandemic came, and in four weeks, we lost all of our assignments, all of our customers, all of our revenue [...] the first thing we did was to ask ourselves like, okay, let's make three scenarios, what we think about the future, like the best, the most negative, the most probabilistic one, and look at what we can do to find new business in this environment where we don't know anything” - F2

M1, M3, and M4 expressed that they were kind of forced to change and that they were somewhat reluctant towards it. M3 said that even though his organization handled the situation well, he was skeptic of customers and other stakeholders. He said that he felt a lot of pressure to take even more responsibility for both safety and finances and that some people took advantage of that opportunity.

“The timing was kind of bad since we relied heavily on customer interactions during that time, but you just had to take a bite of the sour apple so to say” - M1

“We have had to become flexible against our will” - M4

4.4.2 Continuous Improvements

Working with continuous improvements is something that came up in some of the interviews. M1, M2, M5, M6, F1, F2, F3, F4, and F5 all talked about the importance of this and ways to constantly evolve and grow.

“If we are to change, we can't do business as usual. And we see with the climate action that is required. We need to have extreme innovation. We need to try fail and learn and do it really fast” - F3

M1, F2, F3, and F4 talked about how companies need to not only create a finished output but adapt it along the way. F4 explained that it is not only about re-doing but also re-thinking. M6 said that it is a constant back and forth between suppliers, their company, their customers, and other stakeholders with small but important improvements.

“We have changed the production process so many times in such a short time, it's almost like constantly prototyping” - M1

“I let the market decide the direction. And we kept doing that up until launch in different experiments, instead of just, you know, creating something first and then pushing it out to the market” - F2

Respondent M5 said that his organization is not set up for continuous improvements due to reluctance towards change. He explains that governmental involvement makes continuous improvements slow. M1, M2, F1, and F3 say that this is something embedded into their companies.

“So it's not configured in a way that is stimulating changes, and it's very, very resistant to change even, like from a personal all the way down to the individual in organization” - M5

“We need to improve every day, and not only the company, but every employee itself needs to improve all the time just to keep up with competition if we want to exceed competition. So then we need to be even better [...] LEAN is a big part of our company, and is something every employee and manager is working with” - F1

Respondent M, M6, and F1 talked about the importance of communication in the organization, and that information needs to spread fast in order for all employees to learn. M2 says that he is always on the look for areas of improvement and F5 says that it is all employees' responsibility to search for these and share them with the organization.

“Its like an constant alertness that maybe something can be related, connect the dots” - M2

4.5 Observations

One observation to note is the difference in the time the respondents took to answer different questions, and from which perspective the respondents spoke. If you take the mean time to answer the introductory questions, the male respondents took considerably longer time to present themselves. Multiple women only used a couple of sentences. Multiple men explained their roles in the organizations and projects thoroughly. This can be seen for example by their use of the words “I” and “me” more frequently, and by highlighting their own actions and decisions more than the organization in general. It was more common for the female respondents to use “we” and “us”. Some women rarely explained how they were a part of the story or experience they talked about, and only talked from the organization's perspective.

5.0 Analysis

This chapter will analyze the findings from the data collection from a theoretical perspective. The analysis will be done by using the literature presented in part 2.0 Literature Review, with a special focus on the theoretical framework presented. First, the Four Dimensions of Responsible Innovation will be discussed together with other relevant literature and gender stereotypes. Secondly, the tensions that arise when discussing Responsible Innovation in a business setting will be analyzed.

5.1 Anticipation

5.1.1 Leadership

There was a large number of both male and female respondents who talked about trends and movements in the market, and how these affect the goals and desired outcomes of the organization. Stilgoe et al. (2013) argued that regular forecasting often fails due to uncertainties surrounding the situations, for example how the organizations are not alone in the market, but there is a co-evolution. Stilgoe et al. (2013) also explain that timing is crucial for anticipatory processes in order to for the innovation to be both meaningful and constructive. Leaders who track the changes in the market, therefore, have a better chance of succeeding in their timing and demand and reaching the desired outcomes. There were both male and female respondents who were critical of analyzing trends too much. One example is respondent F3 who said that trends could boost your sales and goals, but sometimes they have unsustainable outcomes like overconsumption. This is closely related to what Von Schomberg (2013) said about irresponsible innovation, where there was a lack of foresight and precautionary measures. This could be seen as following the right trends and market changes can lead to a greater success rate, but following the wrong ones can lead to undesired outcomes. This highlights the importance of leaders being aware of the outcome of their decisions and planning.

One man and four women talked about the importance of top leadership. They said that the goals, values, and structures they set will affect the whole organization, hence deciding the

desired outcomes. This was for example described as having a guiding star for all employees and leaders when making decisions. Four men and one woman said that the goals are set by the demand of the customers since they are the ones who ultimately pay for the product or service. This means that in order to have Responsible Innovation, there must be a demand for this from the customers.

Lubberink et al. (2017) argued that the anticipation dimension for Responsible Innovation requires businesses to determine the desired outcomes for needs both in society and the environment. Only focusing on customers' needs means missing out on societal and environmental needs. Even though women talked more about values, there is still a need for the top management to set goals that favor a larger target. This can also be compared to the research done by Walker and Aritz (2015), where they argue that masculine leadership styles are more result and task-oriented (focused on meeting customer demand). More than half of the women said that they try to reach a balance between the financial goals they have from the organization and more responsible goals. These results indicate that the majority of the female respondents answered in a way that is more closely related to how anticipation should look in order to ensure Responsible Innovation, but not ideal. This can be connected to the different approaches that Scherer and Voegtlin (2020) presented about corporate governance and Responsible Innovation.

The majority of the male respondents talked from a shareholder- or a (customer) stakeholder-approach, where creating value for the customer demand was the determinant for the desired outcomes and goals. The female respondents answered from a slightly wider perspective, similar to what Pierli et al. (2022) argues. Even though all of the respondents argued that businesses have a wider responsibility, none fully had the optimal 'Political CSR Approach' when discussing their own actions.

5.1.2 Risk Management

Risk management is something the literature has argued looks very different between men and women. To ensure Responsible Innovation, Stilgoe et al. (2013) say that foresight, assessments, and scenario analysis are good tools. Lubberink et al. (2017) argued that it is important to both find pathways to take and also to be aware of uncertainties. Multiple

researchers have found women to be more risk-averse (Barber & Odean, 2001; Croson & Gneezy, 2009; Kassinis et al. 2016; Slovic, 1999), which means that they would be more cautious and try to analyze uncertainties further. The interviewees all talked about their risk preferences, and how they tend to act in these situations. Multiple younger men talked about difficult or unexpected situations they have ended up in due to eagerness to get to the market or fear to miss opportunities. The situations had different outcomes, some negative and some positive, but all needed some calibration or re-doing. One older man said that he used to be more careless and eager, but learned later in life that that did not always work out. None of the female respondents talked about situations like that, but the majority said that their decisions and preferences rely on the situation.

This research has found that women's more cautious approach is better aligned with how the literature would describe Responsible Innovation in the anticipation dimension. But the motives behind the more risk-averse behavior are interesting as well. Zalata et al. (2018) presented that there is a stereotype that says that women are more ethical than men, but there were multiple respondents of both genders that argued for the ethical responsibility of businesses. Two female respondents talked about legal requirements and regulations, and how this affects their caution as well. This is something Zalata et al. (2018) discussed as well. They found that the motive of avoiding costly legal actions was stronger than pursuing purely ethical actions. Even though the more common female behavior is to favor Responsible Innovation in this research, the incentives and motives do not fully align with why one should be more cautious in Responsible Innovation.

5.2 Reflexivity

5.2.1 Tangible Reflexivity

Multiple respondents of both genders mentioned that their organizations have decided on ways to deal with areas connected to the reflexivity dimension. Some say that they have organized ways to collect feedback back to the leaders, and they have employee training, codes of conduct, and structured communication systems. This is something set by the company, which two female respondents argued was not enough. One of them said that this creates a comfort zone for the leader, where he or she does not have to think too much about

their own leadership. The other respondent said that codes of conduct are just words, it does not ensure that every employee and leader evolves outside of them. Owen et al. (2013) argue that reflexivity is about underlying motivations and purposes, and Stilgoe et al. (2013) say that one should reflect on their own activities, commitments, and assumptions. Both explain that it is important to understand your own limitations of knowledge as well. Relying on company standards for reflexivity means less focus on your own leadership and self-reflection. Stilgoe et al. (2013) also say that this dimension requires leaders to blur the lines between role responsibilities and moral responsibilities, and one could argue that company standards for reflexivity become role responsibilities.

5.2.2 Intangible Reflexivity

Multiple respondents of each gender talked about how their organization or they as leaders promote a transparent company where especially employees, but also customers and other stakeholders are free to speak their minds. Many also talked about how organizational culture and trust are important, and how it leads to self-calibration, self-surveillance, and responsible decisions. Some talked about core values as well. These are all tools and ways to deal with the reflexivity dimension according to Owen et al. (2013) and Stilgoe et al. (2013). Having purposes beyond the ordinary tasks seems to be important for leaders of both genders where they all feel some kind of moral responsibility.

There is one more part of the reflexivity dimension according to literature, which Lubberink et al. (2017) explain clearly by saying that it is important to critically reflect on one's own role in this, not only their actions and responsibilities but also values, motivations, and perceptions. This is something numerous respondents did not reflect upon and preferred to discuss from an organizational point of view. In section 4.5 - Observations, it is brought up that the majority of the female respondents used the words "us" and "we" more frequently, and rarely explained their part or roles in the examples they gave. Male respondents tended to use "me" and "I" when telling stories and was more clear about their role in the events that happened. This showed that the male respondents reflected more about their own actions and motives when talking about their leadership, while the female respondents continued to have more of a group perspective.

Hentschel et al. (2019) and Wille et al. (2018) both argued that women are in nature more communal, which means that they have more concern for others and focus on sociability. They said that men on the other hand are more agentic, meaning more focused on independence and assertiveness. Eagly and Johnson (1990) and, Shen and Joseph (2020) said that women have a leadership style that is more democratic and participative, while men have a more autocratic and direct one. Even though commonality is highly important when discussing the *Inclusion Dimension* of Responsible Innovation, reflexivity requires the leaders to look at their own roles (Lubberink et al., 2017; Owen et al, 2013), which the majority of female respondents did not.

There is literature to suggest that when reflecting on their own decisions, women tend to look down on their own competencies (Hentschel et al., 2019; Shen & Joseph, 2020). On the contrary, Barber and Odean (2001) argued that men tend to lean toward overconfidence in decision-making. During the interviews, four out of six male respondents said that it is important to trust your own decisions. Some say that it is about gut feeling and intuition. Multiple male respondents said that even though their quick or less informed decisions do not always work out, they sometimes do as well. This can be connected to the idea that men can sometimes be overconfident in their decisions (Barber & Odean, 2001), and fail to reach what Stilgoe et al. (2013) explain as knowing the limitations of your own knowledge. This is one of the main elements of the reflexivity dimension (Stilgoe et al., 2013).

There was no data collected that showed that the female leaders looked down on their own decisions and hinted towards lower self-esteem, which some research has implied (Khushk et al., 2022). Looking at all the components of the reflexivity dimensions suggested by Lubberink et al. (2017), Stilgoe et al. (2013), and Owen et al. (2013), neither the male nor the female leaders reached the ideal level of reflexivity, but the male respondents were able to discuss their own role more in detail.

5.3 Inclusion

5.3.1 Inclusion from the Inside of the Organization

The inclusion dimension of Responsible Innovation focuses on the importance of involving a diverse range of stakeholders during multiple stages of the innovation process, and opening up, for example, visions and dilemmas to these (Owen et al., 2013). All respondents talked about at least one type of stakeholder, the employees inside the organization. Nine respondents, both male and female, said that the input employees provide in terms of for example creativity and knowledge is crucial for the organizations. Multiple respondents of both genders talked about relationships and trust inside of the organization, which Lubberink et al (2017) explain is key for ensuring that inclusion has a positive effect on Responsible Innovation. They explain that creating and maintaining relationships with stakeholders, which in this case is the employees, has an effect on the commitment, and therefore crucial to ensure inclusion for Responsible Innovation.

What could be seen is that four female respondents and no male respondents argued for the inclusion of diverse stakeholders during all parts of the process, and not just the ones working directly with the project. This was for example to ensure that everyone is being heard and all interests are aligned, and to speed up the processes. Lubberink et al (2017) explained that the responsiveness dimension requires inclusion during all stages of the innovation process, and not only specific stages, for example only including different and diverse employees for sourcing ideas. Rosener (1990) talked about how men have a tendency to view their leadership as transactions between them and their subordinates, while women lean towards more interactive leadership which encourages participation. Connecting this with the findings from the interviews, this older research seems to persist today and the interviewed women were more concerned with inclusion during the whole process.

5.3.2 Inclusion from the Outside of the Organization

Opening up to stakeholders outside of the organization is the next step toward a more inclusive Responsible Innovation (Stilgoe et al., 2013). One of the most common ways to include stakeholders is to use Design Thinking (Dreyer et al., 2017), which means that the focus is primarily on consumer needs (Goffin & Mitchell, 2017). The majority of the

respondents of both genders said that focusing on the customer is crucial for the survival of the business. Some respondents said that customer demand was important to keep track of. Other respondents said that since the final price is paid by the customers, their voice needs to be heard when making decisions. Involving customers ensures that the products and services produced by the company will have demand on the market. One respondent said that by involving customers, he avoids large inventories or waste. Including customers from the earlier stages of the innovation process will therefore make sure that there is some demand in the market. This is close to what Stilgoe et al. (2013) say about user-driven innovations, which is that they can be more responsible by making sure that more voices are heard.

The majority of the respondents (both male and female) talked about including suppliers in the innovation process as well, both to solve problems that arise or to find new opportunities. This is something that differs from industry to industry, meaning that the importance of suppliers is greater in the product industry than in the service industry. Answers in this area will therefore not be fully comparable. What can be said is that respondents explained that suppliers should be involved in order to produce sustainable and responsible products.

Walker and Aritz (2015) talked about stereotypes about feminine and masculine characteristics, where feminine ones were more collaborative and masculine ones more autonomous. They also said that stereotypically, women are considered more communal and score higher in these areas when measured. Eagly and Johnson (1990), and Shen and Joseph (2020) presented the stereotype that women used a more participative leadership style, while men had a more autocratic one. These all imply that female leaders should have a higher focus on inclusion than male leaders, hence being more in line with the dimensions for Responsible Innovation. Men should prefer more individually structured processes, hence missing out on input from other stakeholders. When analyzing the answers given by the respondents, both multiple men and women talk about the importance of inclusion. There were both male and female leaders who expressed that inclusion might not always be the priority, sometimes speed is more important.

Respondents of both genders talked about collaboration, partnerships, and new knowledge from diverse stakeholders. This is connected to what Lubberink et al (2017) described as *deliberation*, which they separated from the inclusion dimension. They argue that in order for the exchange of perspectives and opinions among stakeholders in business, it has to go both

ways. One respondent talked about it as an ecosystem, which can be seen as even more inclusive than an agreed exchange and captures the complexity behind it.

There is research that suggests that the differences between genders get smaller the higher up in the hierarchies you get and that managers would be more similar than non-leaders (Wille et al., 2018; Emmerik et al., 2010; Melamed & Bozionelos, 1992). The leaders who have been interviewed seemed to have very similar views and opinions about inclusion in their organization, which *could* be explained by the fact that they are all managers higher up in the hierarchies.

5.4 Responsiveness

5.4.1 Agility

All respondents of both genders expressed that it is important to be flexible, agile, adaptable, or able to respond to changes. These can all be connected to the dimension of responsiveness, which Stilgoe et al. (2013) describe as having the capacity to adapt to changing circumstances. Von Schomberg (2013) and Stilgoe et al., (2013) argue that this might be easier said than done, which multiple respondents expressed as well. Lubberink et al. (2017) continued to explain that apart from having the ability to adapt, organizations need to make sure that they actually do it. Respondents explained that their ability to adapt was affected by for example hierarchies in the organization and the size of the organization, where smaller and flatter ones had an easier time actually going through with the changes.

Both male and female respondents expressed that when the pandemic hit, their organizations were not prepared for such changes. Their general flexibility made it possible for the organizations to ultimately turn it around, but they point out that leadership is extremely important in these situations. Connecting this to the levels of innovation, these larger changes require more radical changes (Goffin & Mitchell, 2017) and have more in common with explorative innovations (Zine El Abidine, 2019). What stood out in this section was that there were three male respondents who talked about reluctance towards changes to some degree, or felt some skepticism toward the changes they had to do during the pandemic. These were all respondents who earlier had talked about the importance of flexibility, but here showed signs

that their own approach towards changing circumstances was somewhat different. Khushk et al. (2022) argued that women are more flexible than men, which seems true in this situation, but the responsiveness dimension is not only about adapting to negative changes like the COVID-19 pandemic but also grabbing opportunities that arise. As discussed earlier in Anticipation Risk Management 5.1.2, men were more likely to go for opportunities quickly, even though they sometimes lacked the necessary information beforehand. This could be seen as being more flexible when positive changes happen in the market where male leaders react faster.

Analyzing this one step further, Walker and Aritz (2015) said that masculine leadership styles tend to have more focus on the result and Croson and Gneezy (2009) argued that men could see riskier decisions as a challenge to participate in. This could be connected to why male leaders want to grab opportunities that arise since the explorative and radical innovations are often the ones with the biggest impacts on results but contain more risks. On the other hand, research showed that women tend to be more risk averse (Slovic, 1999; Barber & Odean, 2001; Croson & Gneezy, 2009) and reluctant toward legal issues (Zalata et al., 2018), which to some extent can be connected to why none of the female respondents complained about having to adapt to the consequences of the pandemic. Ciolac (2013) found no significant difference in men's and women's ability to adapt to new situations, which in general could be argued as true in this research as well. The difference is that the ability and motivation to adapt depends on the situation, where the male respondents were more inclined to adapt to positive opportunities whereas the female respondents were more motivated to adapt in situations with threats and possible negative outcomes.

5.4.2 Continuous Improvements

Nine of the respondents, both male, and female, talked about the importance of constantly growing, evolving, and improving, closely connected to agile project management (Dreyer et al., 2017). Some talked about how it is crucial to focus not only on the outcomes but also on the processes there. One respondent said that it is not only about re-doing but also re-thinking continuously. Prototyping, experimenting, failing, and learning are also ways in which the respondents talked about responsiveness in day-to-day work. These are all tools connected to continuous improvements (Goffin & Mitchell, 2017), exploitative innovations (Zine El

Abidine, 2019), and, incremental (Goffin & Mitchell, 2017; Jansen et al., 2006). These are considered more common than the innovations and changes discussed in the previous sections, and more focused on the current customers and markets and how to grow their knowledge in these areas (Jansen et al., 2006).

There were multiple respondents of both genders discussing this, where the focus often was on their organization's abilities rather than any leadership or preferences. This area was important to most, and multiple ways to improve and work with responsiveness as continuous improvements arose, for example having clear and effective communication. No difference between the male and female leaders was found in this area. No evidence was found to suggest that the stereotype that women are more flexible than men was true (Khushk et al., 2022) or that feminine leadership is more focused on processes (Walker and Aritz, 2015). The research by Ciolac (2013) arguing that there is no difference between adaptability between male and female leaders is more applicable.

5.5 Tensions

There are certain tensions presented by Brand and Blok (2019) that arise when analyzing Responsible Innovation in a business setting. The first tension they presented was between deliberative engagement and innovative capacity. This was a problem multiple respondents talked about, specifically how inclusion requires a lot of resources, for example, time and money. This could for example be about the time it takes to explain all the necessary background information to the person giving the input, or the time it takes to make decisions if a lot of different stakeholders have to agree. The responsible action here would be to prioritize inclusion, but this can sometimes be difficult when working in a profit-driven organization. There were three men who explicitly said that the costs of involving too many people are too high, but there were both men and women who talked about how it can take too much time. This is somewhat aligned with the stereotype that men are result-oriented (Walker & Aritz, 2015) due to their focus on costs, but since women talked about other scarce resources, it is not fully supported.

Brand and Blok (2019) also talked about a second tension between knowledge sharing and competitive advantage. This is something a few respondents talked about, specifically how

knowledge sharing is important but difficult. The nature of the innovation and size of the organization seems to have a bigger impact on the reluctance towards knowledge sharing, but there were two men who were extra cautious with how to protect their innovations from competitors. According to earlier research and stereotypes, women are considered more communal (Hentschel et al., 2019; Wille et al., 2018) and have a more collaborative leadership style (Walker & Aritz, 2015), while masculine leadership is considered more competitive and autonomous (Walker & Aritz, 2015). The fact that male respondents are more protective of their innovations could be seen as more competitive and autonomous, and not as willing to open up. Some of the female respondents were more concerned with keeping the company core intact and avoiding being taken advantage of, which is not aligned with the female stereotypes. There was only one single respondent who expressed that she was not scared of opening up the company, hence both male and female leaders in this research seem to act in a non-responsible way by avoiding knowledge sharing, acting more aligned with the male stereotypes.

The last tension that Brand and Blok (2019) presented was between inclusive governance and current corporate governance structures. There were no signs of differences between the male and female respondents here, which could be connected to the fact that they all have similar positions in their organizational structures. There is research that says that the differences between men and women become smaller when rising in rank at a company (Emmerik et al., 2010; Melamed & Bozionelos, 1992; Wille et al., 2018), which is found to be true here.

Apart from the tensions presented by Brand and Blok, there is another one that arose during the interviews. Multiple respondents talked about the difficulties choosing between quickly taking action (mainly with positive opportunities) and taking the time to assess risks and plan thoroughly or including all relevant stakeholders. This can be connected to three of the dimensions that Stilgoe et al. (2013) presented, meaning that responsiveness is negatively affected by anticipation and inclusion.

When comparing the answers between the respondents' answers about scenarios with these decisions, there were some differences. When put in a situation that requires deciding between responsiveness and anticipation, multiple male respondents favored responsiveness and acting quickly. This is very much in line with the research about men and risk management, where men were less focused on eliminating risks before taking action (Barber

& Odean, 2001; Croson & Gneezy, 2009; Slovic, 1999). In contrast, multiple women explained situations where they were more cautious but it took longer time. In situations where respondents were comparing decisions that could either favor responsiveness or inclusion from the outside of the organization, the majority chose to favor responsiveness, and no difference between the genders was found.

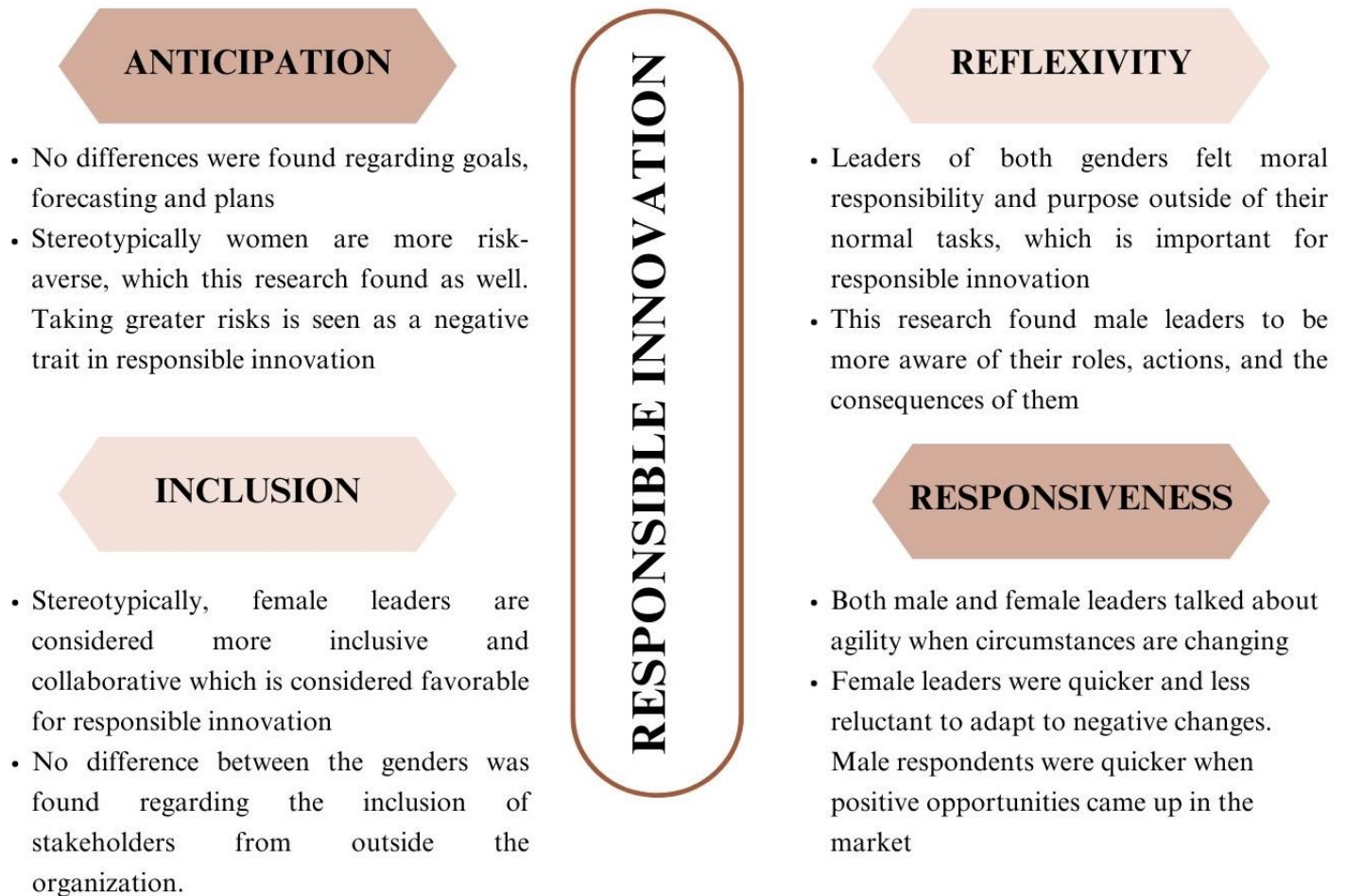


Figure 7 - Summary of findings visualized by the Theoretical Framework

6.0 Conclusion

This chapter will provide the answer to the research question. This will be done by discussing the findings of similarities and differences between male and female leaders regarding Responsible Innovation. The second part of the chapter will discuss the implications of this research, and the final part will provide suggestions for future research.

6.1 Answering the research question

The core purpose of this study was to increase the understanding of how Responsible Innovation looks under male and female leadership, and what similarities and differences might exist. When analyzing existing literature about Responsible Innovation, gender research, and stereotypes, a literature gap was found and the following research question was formulated;

RQ: How does Responsible Innovation differ under Male and Female leadership in business?

The findings of this research show both similarities and differences between male and female leaders in business regarding Responsible Innovation. These were found both in attitudes, actions, and motives. One of the main findings was in the anticipation dimension of the framework “The four dimensions of Responsible Innovation” presented by Stilgoe et al. (2013). Anticipation requires the leader to assess the potential impacts and uncertainties of their decisions, and risk management was one of the most discussed topics here during the interviews. Stereotypes about genders and risk management showed that women are more risk-averse and men tend to take greater risks, which was prominent in this research as well. Taking greater risks is seen as a negative trait in Responsible Innovation due to the importance of striving towards positive outcomes and avoiding negative ones. The second part of the anticipation dimension was discussed around leadership, and what goals and plans the leaders set for their organizations. Some minor differences were found, but in general, neither male nor female leaders succeeded at reaching the more holistic view on anticipation

where they consider not only stakeholders somewhat connected to their company, but also the greater society and environment.

In order to create Responsible Innovation, Stilgoe et al. (2013) also argue that the leader should consider reflexivity. Tangible reflexivity is of less importance in this research due to its connections to the specific organization, but intangible reflexivity is crucial. One similarity found was that leaders of both genders feel moral responsibility and purpose outside of their normal tasks, which is considered important to reach Responsible Innovation. Stereotypes argue that women are more focused on communality, while men favor independence. While commonality is important in the inclusion dimension, it is crucial for the leader to see his or her role in the events as well. This research found male leaders to be more aware of their roles, actions, and the consequences of them.

Stereotypically, female leaders are considered more inclusive and collaborative which is considered favorable in the dimension of inclusion for Responsible Innovation. By including a diverse range of stakeholders the leader will ensure that all perspectives are being considered and possible knowledge collected, which both male and female respondents talked about. While female leaders were more concerned with including employees from the organization during the whole innovation process, no difference between the genders was found regarding stakeholders from outside the organization. The focus was largely on customers and not on the general society, which could be explained by the fact that this research focuses on leaders in businesses. Regarding the dimension of responsiveness, both male and female leaders talked about agility when circumstances are changing. The difference was that female leaders were quicker and less reluctant to adapt to negative changes, for example, the COVID-19 pandemic, while male respondents were quicker when positive opportunities arose in the market. This means that both male and female leaders were agile, which is crucial for Responsible Innovation and the uncertainties and changing circumstances that are discussed with it. The difference seems to be in which situations the leaders are more or less inclined to adapt.

When discussing all dimensions of Responsible Innovation together, there seem to be both differences and similarities between male and female leaders. None of the genders was a better fit for Responsible Innovation, but each one had its strengths and weaknesses. For example, while female leaders were more aligned with anticipation, male leaders tended to

show more reflexivity. The four dimensions should be considered together (Stilgoe et al., 2013), which means that the research arguing that diversity is of the utmost importance for sustainable innovation (Birindelli et al., 2019; Galbreath, 2017; Glass et al., 2015; Kassinis et al., 2016; Wille et al., 2018), this research argues that diversity is crucial for Responsible Innovation as well. Therefore, the answer to the research question “How does Responsible Innovation differ under Male and Female leadership in business?” is that male and female leaders show both similarities and differences, and both have dimensions where they score higher, for example, how female leaders score higher in the anticipation dimension, while male leaders score higher in reflexivity, but to ensure Responsible Innovation all dimensions must be considered.

6.2 Implications

6.2.1 Practical Implications

Due to rapidly changing circumstances and complexities in the markets, the need for innovations to create positive impacts on society and the environment is becoming increasingly important (Owen et al., 2013; Von Schomberg, 2013). This research aims at exploring Responsible Innovation under male and female leadership, and which similarities and differences might exist. These findings can be of use for organizations who strive towards maximizing the impact of their Responsible Innovations due to the more nuanced understanding of the subject, for example when composing teams. By increasing the knowledge of how the gender of the leader is connected to Responsible Innovation, organizations can create effective teams and innovation projects that take into account both strengths and weaknesses. Historical management theories often focused on male traits for effective leaders (Rosener, 1990), while multiple researchers argue that female traits and stereotypes are more fitting for leadership (Barber & Odean, 2001; Croson & Gneezy, 2009; Galbreath, 2017; Kassinis et al., 2016). This research argues that gender-diverse leadership in organizations is the optimal way to ensure Responsible Innovation, which could promote organizations to work more with diversity as a way to enhance their performance. Ultimately, this could promote gender equality in leadership positions.

This research could also help managers to analyze and reflect upon their own roles and leadership. By comparing their own leadership to this research, they might create a deeper understanding of their strengths and limitations, for example in which situations they could benefit from input from another leader. In the end, the environment and all of society benefit from more Responsible Innovation, and research investigating this area could increase the success rate and effectiveness of attempts towards this.

6.2.2 Theoretical Implications

The framework “the four dimensions of Responsible Innovation” was created by Stigoe et al. in 2013, and Lubberink et al. investigated how it can be applied in a business setting in 2017. There has been research conducted on male and female leadership for many years, and multiple studies have drawn a connection between diverse leadership and sustainable innovation (Birindelli et al., 2019; Galbreath, 2017; Glass et al., 2015; Kassinis et al., 2016; Wille et al., 2018), which shares some similarities with Responsible Innovation.

This research aims at filling the literature gap between Responsible Innovation and male and female leadership. The result showed both differences and similarities between the genders, which not only create a deeper understanding of the field but also paints a more nuanced picture of each of the four dimensions of Responsible Innovation. For example, separating the responsiveness dimension into “negative changes in the market” and “positive opportunities” showed the fact that leaders might act differently in these situations and responsiveness can not be analyzed as a whole.

It also shines a light on the difficult positions leaders in businesses end up in when having to choose between the business’s profitability, and social and environmental responsibility, for example when a project has financial potential but there are possible negative impacts on the environment. This is similar to the tensions presented by Brand and Blok (2019) where they investigate Responsible Innovation in a business setting, but this research highlights the managers' roles in these situations. There is a recurrent dilemma to choose between the most profitable decision and the most ethical and responsible one.

6.3 Future Research

As discussed before, the literature about Responsible Innovation often has had a focus on research and science rather than its practical use in a business setting. This is something that needs to be investigated further due to the growing pressure on organizations to act responsibly and sustainably. Lubberink et al. (2017) argued that society heavily relies on corporations to research and develop solutions for societal problems. Future research could focus on investigating and potentially solving the tensions that arise for both leaders and their organizations when deciding profitability and responsibility.

Secondly, future research could continue to build on the findings from this paper and collect data from the subordinates as well. This could work as a way to investigate actions and motives that might be unknown to the leaders themselves and to work as a fact-checking mechanism for the claims that the leaders did during the interviews. This was not done in this research due to limited resources, but there is literature that argues for the relevance of this. For example, Shen and Joseph (2020) found that employees could have a hard time remembering agentic behaviors in their female managers

Furthermore, another area to research could be if there are any differences between male and female-dominated industries and their connection to Responsible Innovation. One comment about this came forth during the interviews, which stated that some differences might exist. This perspective could provide an even deeper understanding of how businesses can ensure Responsible Innovation and the desired outcome. There is existing literature about the differences between male and female leadership in these different industries, but the connection to Responsible Innovation has not yet been drawn.

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Appendix 1

Interview guide

Present the purpose of the thesis shortly, explain the word stakeholders in this thesis (it could be anyone). Ask about consent for the interview, recording and the information that will be given in the thesis.

General questions:

1. First of all, tell me about yourself? who are you and what do you do?
 - a. In which industry do you work?
 - b. What is your position right now? and for how long have you had it?
2. What kind of responsibility do you think businesses have when it comes to the environment and society?

Anticipation:

3. Can you tell me about a time when you had to consider both the organizations short-term financial gains, and long-term impacts on society or the environment?
4. Can you give an example of a time when you had to make a decision without having all the necessary information?
 - a. Do you feel comfortable taking those decisions?
5. Can you tell me about a time when you had to choose between thorough planning and quickly responding to changes?

Reflexivity:

6. How do you ensure that employees and general stakeholders can share their honest feedback with you?
 - a. Does your organization have any formal means to do this?
 - b. Do you as a leader have any other ways?
7. Can you tell me about a time when you changed your mind because of feedback from people around you, or maybe your own self-reflection?

Inclusion:

8. How do you seek diverse perspectives before making important decisions?
9. What kind of stakeholders do you believe are important, and how should they be involved?

Responsiveness:

10. How do you think your organization adapted to the pandemic and the changing circumstances that came with it? what would you have done differently?
 - a. If needed: Distance working, issues with suppliers/manufacturing/shipping, finance, customers (relationships, happiness), safety regulations?
11. How do you think organizations should be able to adapt to external changes, both when it comes to opportunities and challenges?

More difficult and open questions:

12. What role do you believe innovation plays in creating a more sustainable and just future?

Thank you for your time! is there anything else you believe is relevant to discuss in this subject?

Appendix 2 - Open coding example

Concepts (open codes)	Themes	Aggregated Dimensions
Feedback Customer feedback Feedback from consumers Small company feedback Employee training Codes of conduct Relying on company standards Communication systems Comfortable in company structures Decided structures	Feedback Organizational structures	Tangible reflexivity
Transparency Purpose Values Trust Relationship Purpose driven Transparency Challenge your team Role of leaders Responsibility of leaders Speak your mind culture Managers enforce values Challenge yourself Self reflection Self monitoring Self calibrating Having good intuition	Culture Transparency Self reflection	Intangible reflexivity

EXECUTIVE SUMMARY

1. Introduction

In today's rapidly changing world, with increasing globalization and more complex ecosystems, innovation becomes crucial for shaping the future toward the desired sustainable outcomes. However, this is not without risks, and there is a growing need for innovation that takes into account the environmental and social implications of these (Owen et al., 2013; Von Schomberg, 2013). Responsible Innovation refers to the collaboration of organizations and stakeholders in terms of innovations, with the goal of taking care of the future (Stilgoe et al., 2013). Using a Responsible Innovation process is a way to increase the possibility of positive outcomes while trying to avoid negative ones as much as possible (Owen et al., 2013; Stilgoe et al., 2013; Von Schomberg, 2013).

One crucial factor in shaping the direction and impact of innovation is leadership (Demircioglu & Van der Wal, 2021). As the number of women in managerial positions and leadership roles continues to grow (Clark, 2022), it is essential to understand how gender affects Responsible Innovation. While there is a significant body of literature on gender diversity in promoting sustainability (Birindelli et al., 2019; Galbreath, 2017; Glass et al., 2015; Kassinis et al., 2016; Wille et al., 2018), there is a gap in the literature when it comes to exploring how male and female leaders approach innovation responsibly. Throughout history, there has always been an interest in investigating the differences between genders.

In 1990, Rosener described that women tend to drift towards "interactive leadership" rather than the typical command-and-control leadership style. Even earlier than that, in 1975 JB Chapman described female leaders typically choose more accommodating techniques than their male counterparts. Even though gender is talked about in the area of Responsible Innovation, it is more commonly approached from the perspective of gender equality as an outcome or a goal (Oliveira et al., 2022; Owen & Pansera, 2019; Wojniak, 2017), not as something that distinguishes or determines how it is managed and created.

According to Lubberink et al (2017), responsibility for sustainability has become a critical issue for organizations of all types and sizes. With the growing awareness of the impact of human activities, companies are under increasing pressure to adopt sustainable practices.

Lubberink et al. (2017) argue that these types of innovations inside corporations is an important part of the future since society largely relies on private businesses for researching and developing solutions for societal problems. While sustainable innovation refers to how an organization creates products, services, or processes that generate benefits for both society and the environment (Lee, 2021), Responsible Innovation considers the many uncertainties that surround innovation and focuses on the input rather than the results (Owen et al., 2013).

One way to deepen the understanding and try to disentangle this complex phenomenon is to investigate this together with the gender of the leaders, which can help to understand how gender might affect how the leader perceives, organizes, and motivates innovation, and what purposes and values they prioritize. For example, there is research that suggests that men and women have different leadership styles and approaches to decision-making (Hentschel et al., 2019; Rosener, 1990; Wille et al., 2018) or that women tend to be more collaborative and consensus-driven in their leadership style (Wille et al., 2018; Rosener, 1990), , which could lead to differences in their approach to Responsible Innovation.

Purpose and Research Question: The core purpose of this study is to increase the understanding of how Responsible Innovation might differ under male and female leadership and to contribute both theoretical and practical knowledge to these. This paper will analyze the many layers and dimensions of Responsible Innovation, with guidance from the framework presented by (Owen et al., 2013). Comparisons will be made between male and female leaders in order to find both differences and similarities. The goal is to provide a more nuanced and realistic picture of how the gender of the leader might have connections to Responsible Innovation. Therefore the research question for this study is:

RQ: How does Responsible Innovation differ under Male and Female leadership in business?

This study is relevant for organizations and leaders who want to deepen their understanding of how male and female managers' approaches and leadership might differ or correspond in the area of Responsible Innovation, and develop more effective responsible initiatives. Furthermore, this research could be of interest to anyone who is interested in promoting more well-thought-out and responsible approaches to innovation. Lastly, this research might be of interest to managers and leaders who want to reflect on their own motivations, actions, and thoughts compared to others in similar positions.

When conducting research, it is important to establish clear delimitations in order to focus on the scope and direction of the study. First, the focus of the research is on intentions and planning related to innovation, rather than on the success of these plans. This means that the research will explore the strategies and plans that managers have in place to promote innovation, rather than evaluating the effectiveness of these plans. Second, the focus of the research is on managers in Sweden to avoid comparisons that come from a cultural difference rather than gender. Third, this research will gather information from the managers themselves, rather than from the employees. This approach is chosen to better understand the intentions, planning, and decision-making processes of the leaders. Lastly, the comparisons will be done between male and female leadership, and will not consider any other genders (for example non-binary). This is due to current literature and research and will be discussed more in the methods section. These delimitations serve to focus the scope of the research and to ensure that the findings are specific and directly applicable to the context being studied.

2. Literature Review

Gender: This part investigated the current area of gender research and male and female leadership. By presenting existing literature, it can later be analyzed together with the data collection to see if stereotypes and earlier research persist, and if there are new and unexpected outcomes as well. For example; Walker and Aritz (2015) presented that feminine characteristics are more conciliatory, facilitative, and collaborative, while masculine ones tend to be more confrontational, competitive, and autonomous; Stereotypically, women score higher in communal areas, and men are considered more agentic, meaning more in control and taking charge (Hentschel et al., 2019; Wille et al., 2018); multiple researchers have found women to be more risk-averse (Barber & Odean, 2001; Croson & Gneezy, 2009; Slovic, 1999); In contrast, there is research that shows that when rising in rank at a company, the differences between genders are smaller compared to the general population, and they sometimes even becomes insignificant (Emmerik et al., 2010; Melamed & Bozionelos, 1992; Wille et al., 2018).

Innovation: This part presented the relevant literature in the area of innovation. It is crucial to determine what it means in this particular paper, due to the many different and diverse explanations and theories connected to it. By presenting what is considered an innovation or innovative behavior in this research, the analysis done later will be more clear and more

understandable for the reader. For example; Goffin and Mitchell (2017) presented three degrees: Incremental-, Breakthrough-, and Radical Innovation; Business Model Innovation (Chesbrough, 2010) and service innovation (Edwards-Schachter, 2018).

Responsible Innovation: Responsible Innovation aims at taking care of the future, both in the environment and society. First, some different perspectives of Responsible Innovation, then its connection to corporate governance was discussed. The research about Responsible Innovation has to be adapted to a business setting, which was handled in the third part. Lastly, Irresponsible innovation was touched upon. Scherer and Voegtlin (2020) present a model of Responsible Innovation where reflexive and participative corporate governance will contribute to Innovations that avoid doing harm and does good for the people and the planet, this will then contribute to overall Sustainable development. Brand and Blok (2019) presents three tensions that arise with RI in a business setting regarding deliberative engagement and innovative capacity, knowledge sharing and competitive advantage, and inclusive governance and current corporate governance structures.

Theoretical Framework: The framework is divided into four dimensions, coined by Stilgoe et al. (2013). The authors claim that the framework needs to be adapted to the setting it is used in, which is why this theoretical framework has been complemented by research done in relevant areas. These can be seen in the figure below.



Figure 8 - Theoretical Framework summary by the author inspired by the four dimensions of Responsible Innovation (Stilgoe et al., 2013)

3. Methodology

This chapter will first present the research strategy and research design chosen for this research. Then a presentation of how the primary data was collected and how it was analyzed later. Lastly, the quality criteria for this study will be presented, as well as the plan on how to comply with these.

In order to answer the research question “How does Responsible Innovation differ under Male and Female leadership in business?” managers will have to talk about their own experiences, beliefs, and perceptions. This means that the social reality is what emerges from the property of individuals’ creation, not as an external and objective reality (Bell et al., 2018). This research question requires an inductive approach, since it is not created from general theory or hypotheses, but instead starts with observations which will lead to theories and generalizations (Bell et al., 2018). The aim is to understand this phenomenon in depth rather than breadth through the perspective of the subjects. With all of this in mind, a qualitative approach was the most suitable research strategy for this study.

When choosing the framework for collecting and analyzing the data, one must have the research question/purpose and strategy in mind. It is also important to consider if there is a need to investigate causality, time dimension, and generalisability, and how the research setting should be (Bell et al., 2018). Taking these decisions in mind, a comparative design is fitting. Eisenhardt (1989) provides useful insights for conducting comparative case studies. She emphasizes the importance of selecting cases that are similar in some respects but that differ in others, which leads to the ability to identify similarities and differences between them (Eisenhardt, 1989). In this research, the similarity between the cases is that they are all leaders who work with innovation to some extent, but the key difference is their gender.

Data Collection

Primary data was collected through semi-structured qualitative interviews. This method ensures rich and detailed responses while maintaining some structure for comparative analysis. A pilot interview was conducted to test the interview guide to ensure relevance and quality of data, then 12 interviews were conducted with 6 female leaders and 6 male leaders. Recordings were made with the participants' consent to create accurate transcriptions and analysis (Bell et al., 2018).

The criteria for sampling for all respondents will be that they have a leadership/management position, have connections to some degree of innovation in their organization, and that they identify as either male or female. I acknowledge that there are more nuances to the topic of gender, for example non-binary, but literature in the relevant areas has not taken this into consideration. Due to the current literature, it is only possible to make well-grounded comparisons between male and female leadership.

The interviews were semi-structured, which means that there was an interview guide with planned questions, but also room to discuss outside of these questions. The research question “How does Responsible Innovation differ under Male and Female leadership in business?” requires that there is some structure in order to be able to make comparisons, but since this is a qualitative study and we want to gain deeper and unexpected understandings, there needs to be room for unplanned questions as well. This flexibility was to ensure that the interview focused on what the interviewee found important to explain, but also kept the interview in the relevant area to ensure that there is cross-case comparability (Bell et al., 2018).

Thematic analysis was a fitting tool to use in this paper due to the flexibility of the method, specifically because of how it can be used to analyze large varieties and types of data (Bell et al., 2018). The coding was done in these steps inspired by the Gioia Methodology; 1st-order analysis (concepts) connected to each dimension of Responsible Innovation emerged early in the analysis. These were closely related to the actual data; the 2nd-order analysis was where the number of codes decreased and themes appeared. This told us more about what kind of answers were coming forth; lastly, a couple of aggregated dimensions appeared which guided us toward the areas where we could make deeper analyses and comparisons (Gioia et al., 2013). This mix between the more simple Thematic analysis and some elements from the Gioia Methodology was a good fit to simplify and deal with the large amount and complex data collected from the transcriptions of the qualitative interviews. It can also guide the reader through the steps done from interviews to finished conclusions in a transparent way since they can follow the data from raw data to aggregated dimensions.

The quality criteria for this study was credibility, transferability, dependability, and conformability (Bell et al., 2018). To ensure that these were met, this research had for example; full transcriptions; thick quotes; three step coding; and help from supervisors and fellow researchers.

4. Empirical Findings

The interviews were transcribed and open coding conducted, which were collected in themes and after that aggregated dimensions. The findings are structured around the four dimensions of Responsible Innovation presented in the theoretical framework.

Responsible Innovation dimension	Aggregated Dimensions	Themes
Anticipation	Leadership (setting goals and directions)	Decisionmakingpower Leadership Forecasting Uncertainty
	Risk Management	Risk Taking Risk Management Risk Balance
Reflexivity	“Tangible Reflexivity”	Feedback Organizational Structures
	“Intangible Reflexivity”	Culture Transparency Self-Reflection
Inclusion	Inclusion from inside of the organization	Employee Input Department Collaboration Diversity
	Inclusion from outside of the organization	Customers Involvement Other Stakeholders Difficulties with inclusion Bigger role of company
Responsiveness	Agility	Flexible organization Difficulties with change Market Environment
	Continuous Improvements	Identification and adapting Communication

Table 3- Empirical findings coding themes and aggregated dimensions

Observations

One observation to note is the difference in the time the respondents took to answer different questions, and from which perspective the respondents spoke. The male respondents took considerably longer time to present themselves and some women only used a couple of sentences. Multiple men explained their roles in the organizations and projects thoroughly. This can be seen for example by their use of the words “I” and “me” more frequently, and highlighting their own actions and decisions. It was more common for the female respondents to use “we” and “us”. Some women rarely explained how they were a part of the story or experience they talked about, and only talked from the organization's perspective.

5. Analysis

This chapter will analyze the findings from the data collection from a theoretical perspective. The analysis will be done by using the literature review with a special focus on the theoretical framework presented. First, the Four Dimensions of Responsible Innovation will be discussed together with other relevant literature and gender stereotypes. Then, the tensions that arise when discussing Responsible Innovation in a business setting will be analyzed.

Anticipation

Leadership: There was a large number of both male and female respondents who talked about trends and movements in the market, and how these affect the goals and desired outcomes of the organization. Stilgoe et al. (2013) argued that regular forecasting often fails due to uncertainties surrounding the situations, but timing is crucial for anticipatory processes in order to for the innovation to be both meaningful and constructive. Leaders who track the changes in the market, therefore, have a better chance of succeeding in their timing and demand and reaching the desired outcomes. There were both male and female respondents who were critical of analyzing trends too much, which is closely related to what Von Schomberg (2013) said about irresponsible innovation. Four men and one woman said that the goals are set by the demand of the customers since they are the ones who ultimately pay for the product or service. This means that in order to have Responsible Innovation, there must be a demand for this from the customers. Lubberink et al. (2017) argued that the anticipation dimension for Responsible Innovation requires businesses to determine the desired outcomes for needs both in society and the environment. Only focusing on customers' needs means missing out on societal and environmental needs and none fully had the optimal 'Political CSR Approach' when discussing their own actions.

Risk Management: Risk management is something the literature has argued looks very different between men and women. To ensure Responsible Innovation, Stilgoe et al. (2013) say that foresight, assessments, and scenario analysis are good tools. Lubberink et al. (2017) argued that it is important to both find pathways to take and also to be aware of uncertainties. Multiple researchers have found women to be more risk-averse (Barber & Odean, 2001; Croson & Gneezy, 2009; Kassinis et al. 2016; Slovic, 1999), which means that they would be more cautious and try to analyze uncertainties further. The interviewees all talked about their risk preferences, and how they tend to act in these situations. Multiple younger men talked

about difficult or unexpected situations they have ended up in due to eagerness to get to the market or fear to miss opportunities. This research has found that women's more cautious approach is better aligned with how the literature would describe Responsible Innovation in the anticipation dimension.

Reflexivity

Tangible Reflexivity: Multiple respondents of both genders mentioned that their organizations have decided on ways to deal with areas connected to the reflexivity dimension. Some say that they have organized ways to collect feedback back to the leaders, and they have employee training, codes of conduct, and structured communication systems. This is something more closely connected to the specific organization and industry the respondent work in.

Intangible Reflexivity: Multiple respondents of each gender talked about how their organization or they as leaders promote a transparent company where especially employees, but also customers and other stakeholders are free to speak their minds. Many also talked about how organizational culture, core values and trust are important, and how it leads to self-calibration, self-surveillance, and responsible decisions. These are all tools and ways to deal with the reflexivity dimension according to Owen et al. (2013) and Stilgoe et al. (2013). Having purposes beyond the ordinary tasks seems to be important for leaders of both genders where they all feel some kind of moral responsibility.

There is one more part of the reflexivity dimension according to literature, which Lubberink et al. (2017) explain as it is important to critically reflect on one's own role in this, not only their actions and responsibilities but also values, motivations, and perceptions. This is something numerous respondents did not reflect upon and preferred to discuss from an organizational point of view. In section 4.5 - Observations, it is brought up that the majority of the female respondents used the words "us" and "we" more frequently, and rarely explained their part or roles in the examples they gave. Male respondents tended to use "me" and "I" when telling stories and was more clear about their role in the events that happened. This showed that the male respondents reflected more about their own actions and motives when talking about their leadership, while the female respondents continued to have more of a group perspective. Stereotypically, women are more communal and have a more democratic leadership style, while men are more independent and agentic, and have a more autocratic

leadership style (Eagly & Johnson, 1990; Hentschel et al., 2019; Shen & Joseph, 2020; Wille et al., 2018). Even though commonality is highly important when discussing the *Inclusion Dimension* of Responsible Innovation, reflexivity requires the leaders to look at their own roles (Lubberink et al., 2017; Owen et al., 2013), which the majority of female respondents did not. Looking at all the components of the reflexivity dimensions suggested by Lubberink et al. (2017), Stilgoe et al. (2013), and Owen et al. (2013), neither the male nor the female leaders reached the ideal level of reflexivity, but the male respondents were able to discuss their own role more in detail.

Inclusion

Inclusion from the Inside of the Organization: The inclusion dimension of Responsible Innovation focuses on the importance of involving a diverse range of stakeholders during multiple stages of the innovation process, and opening up, for example, visions and dilemmas to these (Owen et al., 2013). All respondents talked about at least one type of stakeholder, the employees inside the organization. What could be seen is that four female respondents and no male respondents argued for the inclusion of diverse stakeholders during all parts of the process, and not just the ones working directly with the project. This was for example to ensure that everyone is being heard and all interests are aligned, and to speed up the processes. Rosener (1990) talked about women lean towards more interactive leadership which encourages participation, which can be somewhat connected to the findings regarding inclusion inside the organization.

Inclusion from the Outside of the Organization: Opening up to stakeholders outside of the organization is the next step toward a more inclusive Responsible Innovation (Stilgoe et al., 2013). One of the most common ways to include stakeholders is to use Design Thinking (Dreyer et al., 2017), which means that the focus is primarily on consumer needs (Goffin & Mitchell, 2017). The majority of the respondents of both genders said that focusing on the customer is crucial for the survival of the business. This is close to what Stilgoe et al. (2013) say about user-driven innovations, which is that they can be more responsible by making sure that more voices are heard. When analyzing the answers given by the respondents, many talked about the importance of inclusion, but both male and female leaders expressed that inclusion might not always be the priority, sometimes speed is more important. There is research that suggests that the differences between genders get smaller the higher up in the hierarchies you get and that managers would be more similar than non-leaders (Wille et al.,

2018; Emmerik et al., 2010; Melamed & Bozionelos, 1992). The leaders who have been interviewed seemed to have opinions about inclusion in their organization, which *could* be explained by the fact that they are all managers higher up in the hierarchies.

Responsiveness

Agility: All respondents of both genders expressed that it is important to be flexible, agile, adaptable, or able to respond to changes which can be connected to the dimension of responsiveness Stilgoe et al. (2013). Lubberink et al. (2017) continued to explain that apart from having the ability to adapt, organizations need to make sure that they actually do it. Respondents explained that their ability to adapt was affected by for example hierarchies in the organization and the size of the organization, where smaller and flatter ones had an easier time actually going through with the changes. Both male and female respondents expressed that when the pandemic hit, their organizations were not prepared for such changes. What stood out in this section was that there were three male respondents who talked about reluctance or skepticism towards changes they had to do during the pandemic. Khushk et al. (2022) argued that women are more flexible than men, which seems true in this situation, but the responsiveness dimension is not only about adapting to negative changes like the COVID-19 pandemic but also grabbing opportunities that arise.

Analyzing this one step further, Walker and Aritz (2015) said that masculine leadership styles tend to have more focus on the result and Croson and Gneezy (2009) argued that men could see riskier decisions as a challenge to participate in. This could be connected to why male leaders want to grab opportunities that arise since the explorative and radical innovations are often the ones with the biggest impacts on results but contain more risks. On the other hand, research showed that women tend to be more risk averse (Slovic, 1999; Barber & Odean, 2001; Croson & Gneezy, 2009) and reluctant toward legal issues (Zalata et al., 2018), which to some extent can be connected to why none of the female respondents complained about having to adapt to the consequences of the pandemic.

Continuous Improvements: Nine of the respondents, both male and female, talked about the importance of constantly growing, evolving, and improving, closely connected to agile project management (Dreyer et al., 2017). Some talked about how it is crucial to focus not only on the outcomes but also on the processes there. Prototyping, experimenting, failing, and learning are also ways in which the respondents talked about responsiveness in daily work,

similar to continuous improvements (Goffin & Mitchell, 2017), exploitative and incremental innovations (Goffin & Mitchell, 2017; Jansen et al., 2006; Zine El Abidine, 2019). No difference between the male and female leaders was found in this area (Khushk et al., 2022).

Tensions

There are certain tensions presented by Brand and Blok (2019) that arise when analyzing Responsible Innovation in a business setting. The first tension they presented was between deliberative engagement and innovative capacity. This was a problem multiple respondents talked about, specifically how inclusion requires a lot of resources. Brand and Blok (2019) also talked about a second tension between knowledge sharing and competitive advantage. This is something a few respondents talked about, specifically how knowledge sharing is important but difficult. The nature of the innovation and size of the organization seems to have a bigger impact on this, but there were two men who were extra cautious with how to protect their innovations from competitors. According to earlier research and stereotypes, women are considered to have a more collaborative leadership style (Walker & Aritz, 2015), while masculine leadership is considered more competitive (Walker & Aritz, 2015). The fact that male respondents are more protective of their innovations could be connected to that.

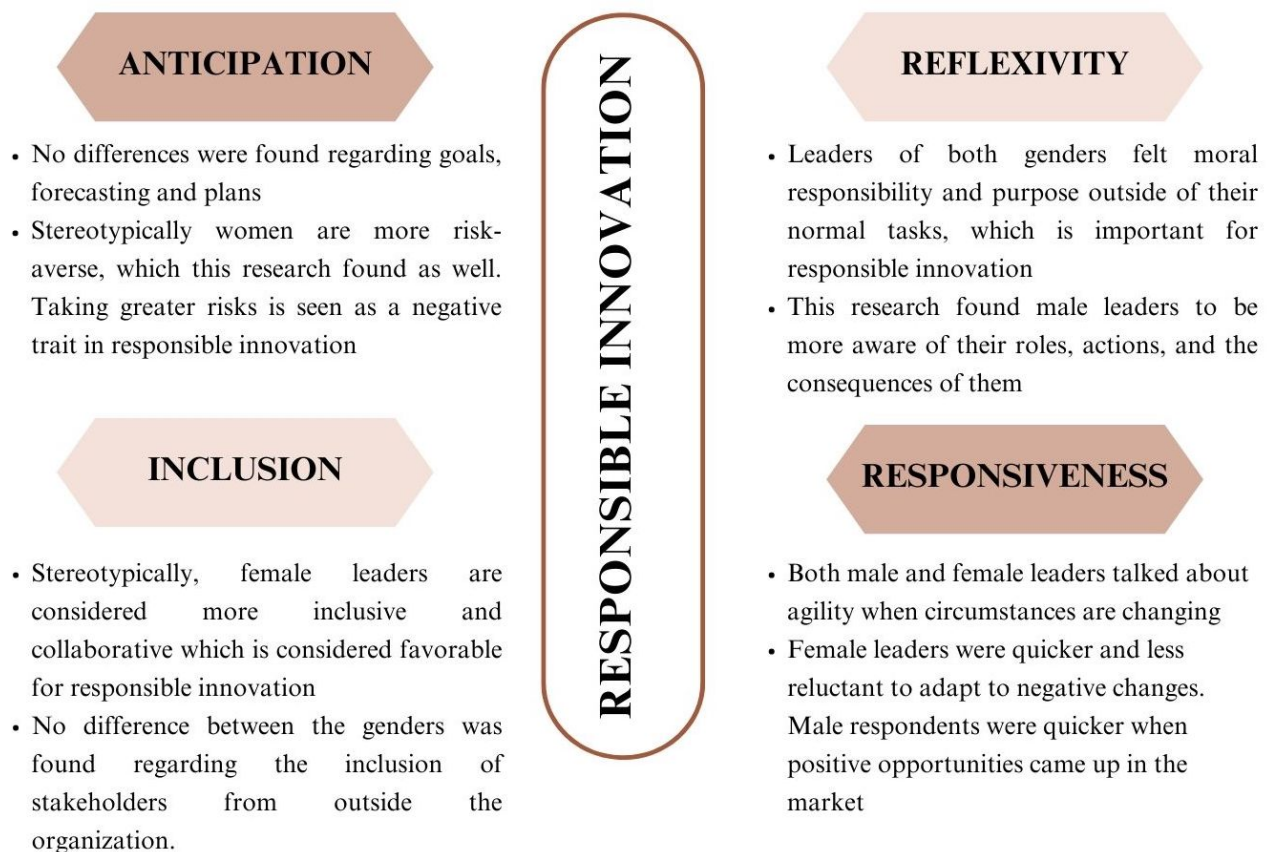


Figure 9- Summary of important findings visualized by the Theoretical Framework

Conclusion

Answering the research question

The core purpose of this study was to increase the understanding of how Responsible Innovation looks under male and female leadership, and what similarities and differences might exist. When analyzing existing literature about Responsible Innovation, gender research, and stereotypes, a literature gap was found and the following research question was formulated; ***RQ: How does Responsible Innovation differ under Male and Female leadership in business?***

The findings of this research show both similarities and differences between male and female leaders in business regarding Responsible Innovation. These were found both in attitudes, actions, and motives. One of the main findings was in the anticipation dimension of the framework “The four dimensions of Responsible Innovation” presented by Stilgoe et al. (2013). Anticipation requires the leader to assess the potential impacts and uncertainties of their decisions, and risk management was one of the most discussed topics here during the interviews. Stereotypes about genders and risk management showed that women are more risk-averse and men tend to take greater risks, which was prominent in this research as well. Taking greater risks is seen as a negative trait in Responsible Innovation due to the importance of striving towards positive outcomes and avoiding negative ones. The second part of the anticipation dimension was discussed around leadership, and what goals and plans the leaders set for their organizations. Some minor differences were found, but in general, neither male nor female leaders succeeded at reaching the more holistic view on anticipation where they consider not only stakeholders somewhat connected to their company, but also the greater society and environment.

In order to create Responsible Innovation, Stilgoe et al. (2013) also argue that the leader should consider reflexivity. Tangible reflexivity is of less importance in this research due to its connections to the specific organization, but intangible reflexivity is crucial. One similarity found was that leaders of both genders feel moral responsibility and purpose outside of their normal tasks, which is considered important to reach Responsible Innovation. Stereotypes argue that women are more focused on communality, while men favor independence. While commonality is important in the inclusion dimension, it is crucial for

the leader to see his or her role in the events as well. This research found male leaders to be more aware of their roles, actions, and the consequences of them.

Stereotypically, female leaders are considered more inclusive and collaborative which is considered favorable in the dimension of inclusion for Responsible Innovation. By including a diverse range of stakeholders the leader will ensure that all perspectives are being considered and possible knowledge collected, which both male and female respondents talked about. While female leaders were more concerned with including employees from the organization during the whole innovation process, no difference between the genders was found regarding stakeholders from outside the organization. The focus was largely on customers and not on the general society, which could be explained by the fact that this research focuses on leaders in businesses. Regarding the dimension of responsiveness, both male and female leaders talked about agility when circumstances are changing. The difference was that female leaders were quicker and less reluctant to adapt to negative changes, for example, the COVID-19 pandemic, while male respondents were quicker when positive opportunities arose in the market. This means that both male and female leaders were agile, which is crucial for Responsible Innovation and the uncertainties and changing circumstances that are discussed with it. The difference seems to be in which situations the leaders are more or less inclined to adapt.

When discussing all dimensions of Responsible Innovation together, there seem to be both differences and similarities between male and female leaders. None of the genders was a better fit for Responsible Innovation, but each one had its strengths and weaknesses. For example, while female leaders were more aligned with anticipation, male leaders tended to show more reflexivity. The four dimensions should be considered together (Stilgoe et al., 2013), which means that the research arguing that diversity is of the utmost importance for sustainable innovation (Birindelli et al., 2019; Galbreath, 2017; Glass et al., 2015; Kassinis et al., 2016; Wille et al., 2018), this research argues that diversity is crucial for Responsible Innovation as well. Therefore, the answer to the research question “How does Responsible Innovation differ under Male and Female leadership in business?” is that male and female leaders show both similarities and differences, and both have dimensions where they score higher, for example, how female leaders score higher in the anticipation dimension, while male leaders score higher in reflexivity, but to ensure Responsible Innovation all dimensions must be considered.