



# UNIVERSITY OF GOTHENBURG

## SCHOOL OF BUSINESS, ECONOMICS AND LAW

### **Unlocking the Secrets of Radical Innovation Leadership**

An Exploration of the Leadership Practices that Drive Radical Innovation within Organizations

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Master degree project in Innovation and Industrial Management

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## Abstract

Innovation is essential for companies to distinguish themselves from competitors and fulfill customers' evolving needs, resulting in increased market share and financial performance. Research in academic literature has acknowledged the significance of leadership in promoting innovation within an organization. Radical innovation, in particular, has numerous potential benefits, such as enabling companies to differentiate themselves, gain new customers, and enter new markets. While there is extensive research on the relationship between innovation and leadership practices, there is a gap in the literature concerning the relationship between leadership practices and radical innovation. Thus, the authors of this study aim to investigate this relationship and identify any differences between the practices of leaders who foster general innovation and those who foster radical innovation. The research question for this study is:

- *What leadership practices are required in fostering radical innovation within a firm, and how do these practices differ from those used to foster incremental innovation?*

The study began with an extensive literature search, where eight different types of leadership practices were discovered. Subsequently, seven in-depth interviews were conducted with various companies and experts.

The empirical results suggest four leadership practices that are required in promoting radical innovation. The innovation structure and design creative teams are crucial for radical innovation. But also establishing internal and external collaborations as well as having a straight and clear vision in which direction the company is heading.

**Keywords:** innovation, radical innovation, leadership, leadership practices, incremental innovation, innovation process, innovation leadership, radical innovation leadership, innovation management

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# 1.0 Introduction

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*In the introduction chapter, the problem discussion is presented, which aims to lead the reader into the research subject, which ends with the research question. Delimitations are also presented, aiming to guide the reader on the research's focus.*

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## 1.1 Problem discussion

The importance of innovation in business cannot be overstated. In today's fast-paced and highly competitive marketplace, organizations that are able to consistently introduce new and improved products, services, or processes are best positioned for success. Innovation allows companies to differentiate themselves from their competitors and meet the changing needs of their customers, leading to increased market share and financial performance (Boyles, 2022). Furthermore, innovation can drive efficiency and productivity improvements, helping businesses to operate more efficiently and effectively. Given the central role that innovation plays in the success of modern businesses, it is essential that organizations prioritize and invest in this area (Boyles, 2022). According to an article in Forbes (2017), implementing the proper innovative techniques can help organizations save time and money, as well as provide a competitive advantage in growing their business.

Since Joseph Schumpeter made the term innovation popular, the term has undergone numerous reformulations, and its significance for business success has evolved (Dekkers, et al., 2014). Goffin and Mitchell (2017) utilize three degrees to describe the different levels of innovation: incremental, breakthrough, and radical. Incremental innovations are improvements to existing products, services, and processes that target a company's core customers and markets. On the other hand, breakthrough innovations involve substantial changes through new technology or by addressing previously unmet customer needs. Finally, radical innovations, also known as transformational innovations, are game-changing and create new businesses or major new categories or completely redefine the competitive environment (Goffin & Mitchell, 2017). Radical innovation has been recognized as a significant source of competitive advantage and long-term growth for organizations. According to a study published in the Journal of Management & Organization, radical innovation involves introducing highly novel and

disruptive ideas, products, processes, or business models that can create new value for customers and stakeholders (Escrig, 2019).

An example of radical innovation is the Apple iPhone, which was released in 2007 with the goal of creating a phone that could do more than just make calls. An interview from 2007 between former Microsoft CEO Steve Ballmer and David Lieberman illustrates the extent to which the iPhone was considered radical. Ballmer states that Apple would, at most, capture a 2-3% market share. (Yarow, 2012). The interview from 2007 demonstrates how wrong Microsoft was about the iPhone and serves as a testament to the challenges of radical innovation for business leaders.

The potential benefits of radical innovation are numerous. It can help a company differentiate itself from its competitors, attract new customers, and enter new markets. It can also drive long-term growth and sustainability by creating new sources of revenue and value. However, radical innovation can also be risky and requires an organization's high level of resources and commitment. It may involve significant changes to an organization's current business model or operations and may require developing new capabilities or acquiring new technologies (Escrig, 2019).

Despite these challenges, the potential rewards of radical innovation make it an important consideration for any organization looking to stay competitive and adapt to a changing business environment. Therefore, it is crucial for organizations to carefully plan and execute a radical innovation strategy in order to effectively leverage this powerful source of growth and advantage (Escrig, 2019).

The role of leadership in fostering innovation within an organization has been widely recognized in academic literature. According to an article, good leaders play a crucial role in creating an environment that supports developing and implementing new ideas (McKinsey & Company, 2012). They motivate and inspire their teams to think creatively, take risks, and provide the necessary resources and support for innovation to thrive.

Effective leaders also have the ability to communicate a clear vision and strategy for innovation and are able to align the organization's resources and efforts behind this vision. In addition, they foster a culture of innovation by promoting collaboration, transparency, and continuous

learning and by recognizing and rewarding employees for their contributions to innovation. In this way, good leadership is critical for creating the necessary conditions for innovation to occur and for ensuring that an organization is able to effectively leverage the benefits of innovation (Capgemini Consulting, 2012). According to a study by McKinsey & Company (2012), which analyzed 2,927 surveys with leaders, one of the most important factors for the success of innovation projects was the support and involvement of leaders.

As mentioned, much research explains the relationship between innovation and leadership practices; by well-known authors such as Amabile (1998), Chesbrough (2003), and Christensen. et al. (2008) have all contributed research on the subject. The same cannot be said regarding the relationship between radical innovation and leadership practices. There is, thus, a gap to be filled here.

## 1.2 Purpose and research question

Given this literature gap, the study's authors aim to investigate the relationship between leadership practices and radical innovation. By studying this relationship, the authors hope to identify differences between the practices of leaders who foster general innovation and those who foster radical innovation. This research will contribute to a better understanding of the role and practices of leadership in fostering radical innovation. In addition, it may provide insights to help organizations better plan and execute radical innovation projects.

Based on the purpose and problem discussed, the following research question will be examined:

- *What leadership practices are required in fostering radical innovation within a firm, and how do these practices differ from those used to foster incremental innovation?*

## 1.3 Delimitations

This thesis is delimited to five companies operating in different industries. The companies are Autoliv, Sendify, Senzime, AstraZeneca, and Philips. These companies were selected for their reputation as innovative firms and their potential to provide insights into the leadership practices that foster radical innovation. Although these companies operate in diverse sectors, they all share a commitment to innovation, making them suitable for this study. However, it is



essential to note that this research is limited to knowledge-intensive companies, which may restrict the generalizability of the findings to companies operating in other industries. In addition, the study focuses exclusively on leadership practices and does not examine other factors that could impact innovation. The study assumes that innovation primarily occurs through a top-down approach, where leaders have a significant influence. While the authors acknowledge the existence of alternative ways where innovation can occur, such as bottom-up approaches, due to time constraints, these will be left for future research to explore in greater depth.

## 2.0 Theoretical framework

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*In this chapter, the theoretical framework that forms the foundation of the study is presented. The purpose of the chapter is to summarize appropriate theories that deal with innovation leadership practices. The chapter consists of three parts. The first part presents the definition of innovation and is followed by a section that discusses the innovation process. Then different theories within leadership practices are presented under eight different themes.*

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### 2.1 Innovation definition

The term "innovation" is ubiquitous today, and regardless of one's role as a business leader, politician, or ordinary worker, it is impossible to avoid hearing it. Michael Obryan (2013) notes that the term has become the buzzword of the decade in the worlds of education and business and suggests that it is the most important and overused term in America today.

One of the first researchers to attempt to define innovation was Joseph Schumpeter (1934), who recognized the importance of understanding what innovation is. Even though Schumpeter developed the concept 90 years ago, the work remains relevant today. The author's definition comprised five components:

- 1: Launching a new product or a product with improved quality that is new to consumers.
- 2; Introducing new methods of production or sales of a product (which may have already been used in other industries).
- 3: Opening a new market.
- 4: Utilizing new sources of supply.
- 5: Creating a new industry structure, such as the establishment or destruction of a monopoly position.

Schumpeter's view of innovation included new products and manufacturing methods. Michael Porter's (1990) agrees with the view of Schumpeter and, also suggests that innovation can include distribution, organizational learning, and marketing, emphasizing that innovation does not solely come from research and development. Everett Rogers (1995) demonstrated that innovation need not be entirely new, and his definition, "innovation is a practice, idea, or object

that is perceived as new by the individual," underlined that newness is as essential as originality. Therefore, innovation does not have to be entirely novel.

Cohen and Levinthal (1989) define innovation as the ability to assimilate, implement, generate, use, and exploit new ideas, while Velo (2008) defines it as the creation of tangible social value through fresh thinking or by introducing something new.

Other scholars define innovation as a discontinuous process (Osborne, 1998) that creates new products and processes leading to commercial success (Gordon & McCann, 2005).

According to ISO (2019), anything novel and valuable is an innovation.

The Oslo manual from the Organization for Economic Co-operation and Development (OECD, 2018) defines innovation as:

"a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)." This definition will also be used in the study when the concept of innovation is mentioned.

### 2.1.2 Incremental Innovation VS Radical Innovation

Blank (2019) differs between different innovations with the help of three different horizons. First of all, horizon one (incremental innovation) focuses on innovations of slight adjustment and developments with an existing business model for short-term projects. Moreover, horizon two is innovation projects which extend a company's current business model with new products and customers. Last of all, horizon three is innovation projects which create new business models and new capabilities (radical innovation).

Tuff & Nagji (2012) presented their Innovation Ambition Matrix, dividing innovation into three types, core, adjacent and transformational. Where core innovation includes "optimizing existing products for existing customers," adjacent innovation "expanding from existing business into "new to the company" business, and transformational innovation, which stands for "developing breakthroughs and inventing things for markets that don't yet exist." The latter category, transformational, is innovations that create a stir. The authors include examples such as iTunes and Starbucks. Usually, the successful implementation of these innovations demands that the enterprise utilize unaccustomed resources. For instance, developing new capabilities to better understand customers, communicating about products that lack direct predecessors,

and cultivating embryonic markets. Organizations that are successful in managing innovation invest in three levels of ambition while also ensuring that there is a balance between them.

Author Satell (2017) developed an Innovation Matrix to help leaders navigate all the different concepts and strategies when it comes to different types of innovation. Here he brought out four types of layers of innovation and asked two questions; How well can we define the problem? And how well can we define the skill domain(s) needed to solve it? He named the four types of innovation as breakthrough, sustaining, basic, and disruptive.

In this study, we will use Blank's (2019) definition of innovation as incremental innovation and radical innovation.

## 2.2 Innovation process

To better understand the theory behind the innovation process, the pentathlon framework from Goffin and Mitchell (2017) will be used. According to the authors, the process is divided into three stages: Ideas > Selection > Implementation, with two parallel with two different support functions: Innovation Strategy and People, Culture, and Organization.

The framework illustrates the Innovation process as a funnel where many different ideas are generated in the first place, followed by the selection stage where only the most valuable ideas are selected (Goffin & Mitchell, 2007). In this stage, the selected ideas can vary from incremental to more radical innovation ideas. In the last implementation stage, the organization ranks the chosen ideas based on several components, such as risk, time, and value for the company (Goffin & Mitchell, 2007).

The support functions should contribute with support and guidance for the innovation projects. In the first function, Innovation Strategy, the management team needs to develop a strategy to communicate and guide the employees in which way they should go (Goffin & Mitchell, 2007). The top management team identifies risks, opportunities, and market trends to determine where the specific company aims to innovate to stay ahead of its competitors. The second support function, People, Culture, and Organization, should focus on the human resources behind the innovation projects (ibid). There are many focus areas in this function, such as hiring the most suitable employees, creating creative organizational structures, and creating and

communicating an innovative culture to motivate and empower the employees (Goffin & Mitchell, 2007).

## 2.3 Leadership practices

According to Kremer et al. (2019), leadership practices in relation to innovation focus on enabling the drive of innovation rather than commanding it. Eight different leadership practices could be used for organizing the organization to have the best chance to succeed with its innovation project.

### 2.3.1 Establish a clear set of values within the organization

According to Bowen (2013), an organization's vision serves as a guiding principle and a future-oriented goal that outlines where the organization wishes to position itself in the market. This vision is commonly expressed through a brief statement and plays a crucial role in driving innovation, inspiring employee motivation, and contributing to organizational success. The vision is rooted in the organizational culture, which is shaped by a unique set of values and ethical principles. The executive leadership or senior management is primarily responsible for determining the vision, and it is recommended that they involve employees at all levels in the creation or revision process (Bowen, 2013).

There is a clear linkage between the vision statement and the drive for innovation. According to Amabile (1998), Unclear goals can kill creativity by hindering an individual's ability to focus their efforts and develop innovative ideas. When goals are unclear, it becomes difficult for individuals to know what they are working towards and what they are expected to achieve. This lack of direction can lead to frustration, confusion, and a feeling of being stuck, which can stifle creativity.

On the other hand, according to Podsakoff et al. (1990), having a clear vision statement helps foster innovation by providing a sense of purpose and direction. A clear vision statement defines the company's overall goal, providing employees with a framework for making decisions and pursuing new ideas that align with the company's purpose. With a clear vision, individuals are better equipped to take risks, be creative, and generate new ideas that can drive innovation and growth. A clear vision statement provides clarity and focus, inspiring employees to think outside the box and come up with new, innovative solutions.

Moreover, moving on to the mission, according to Bowen (2013), the statement should answer the question, *why do we exist?* The best mission statements should balance being general enough to drive numerous organizational goals and specific enough to prioritize organizational activities and resources. Bowen (2013), highlights that a mission statement is a declaration of an organization's goal that distinguishes it from competitors and showcases its values. In order to establish an effective mission statement, it is crucial to focus on the unique competitive advantage of the organization.

### 2.3.2 Develop a well-defined and organized structure for innovation

To effectively drive innovation and bring new ideas to market, it is important for companies to have a well-defined and organized structure for innovation.

First of all, most of all, innovation comes from the idea-generation process in organizations. According to Keum & See (2017), this process could be harmed by a high level of authority from the management. The authors mean that the reasons are that for ideas to foster, a high level of open communication and free creativity is essential for employees to be comfortable presenting their ideas (Keum & See, 2017). However, several authors mean that their needs to be a clear structure of the process for idea generation and how ideas are generated. According to Goffin and Mitchell (2017), there is essential for an organization to know how to work with innovation ideas from the start to minimize the risk of losing valuable ideas that have the potential to be valuable in the future. Cooper & Edgett (2007) agrees with this as they propose that one of the most important ways to foster innovation is in the early stage by having a systematic process to generate new ideas. If the organizations do not have a suitable idea evaluation scheme, many good ideas will be killed; the poor and less innovative ideas will survive. Mainly because they are not innovative, smaller and with a more negligible risk than the others (Cooper & Edgett, 2007).

Furthermore, according to Goffin and Mitchell (2017), the second step that is important for structuring the innovation process is to have a clear structure for selecting the ideas. Other authors agree with this picture; for example, Cooper & Edgett (2007) points out that having a method to select and evaluate new ideas is critical for the innovation process. The authors mean that companies use destructive methods to evaluate ideas like financial tools. The authors mean

that innovative ideas are often unknown and hard to evaluate financially, making it hard to obtain useful knowledge from the calculations. In the article from Christensen et al. (2008), the authors agree with this view. According to the authors, a significant number of companies put short-term financial results ahead of long-term investments in innovation. This fixation on quick financial gains can result in choices prioritizing cost reduction and efficiency over investing in research and development, hindering the organization's ability to create and launch new offerings. Instead, the companies should take a longer financial performance view and understand the importance of investing in innovation and development that they could benefit from in the future.

From a management perspective, Keum & See (2017) have, in their studies, concluded that in the brainstorming process, a more accessible and open and low hierarchy of leadership promotes new great ideas to foster. However, the authors propose that a more hierarchical leadership approach should be implemented when the idea-generation phase ends and the selection phase begins. This should be achieved through careful organizational design.

### 2.3.3 The Importance of Embracing Risk and Failure in Innovation

Innovation requires taking calculated risks and embracing the possibility of failure. The development of radical new ideas can often lead to increased uncertainty and a higher probability of failure in comparison to other incremental innovation ideas. Because of this uncertainty, many companies tend to have a negative approach to these ideas, making the employees negatively tuned to foster these ideas. Therefore, several authors agree that for a company to work successfully with innovation, especially radical innovation, the management team needs to accept the risk and the risk of failures and instead learn from them. Bel (2010) argues that innovation failure creates a chance for innovation success in the future. The author proposes a five-stage circular model for working with innovation risks and failures, (1) Innovation, (2) Risks/Uncertainties, (3) Error/Failures, (4) Learning, (5) Initiatives. Gavin & Levesque (2006) agree with this mindset and mean that companies need to set up a trial and error strategy because of the high uncertainties in these environments where an experimental approach is necessary. However, according to the authors, managers need to balance the work of the trial and error approach. Too much focus on trial and error can be detrimental, as some new businesses face difficulties due to a lack of decision to close them despite repeated failures (Gavin & Levesque, 2006). Accepting these realities is necessary to push boundaries and create

truly groundbreaking ideas. Embracing failure as a natural part of the innovation process can lead to greater success in the long run.

#### 2.3.4 The importance of acknowledging and encouraging individual excellence

In an individual manner, recognition and being rewarded in the workplace are essential for the individual to feel included and appreciated (Prossack, 2021). Moreover, several authors point out that fostering innovation is strongly connected with letting the employees feel trusted and recognized. According to Leavitt (2022), organizations need innovative approaches and strategies to reward and recognize their employees. This will help the employees feel trusted, giving them the autonomy to create innovative ideas. Leavitt (2022) provides four different areas where organizations should focus on creating this environment for the employees:

- Design issues: Organizations need to determine the questions regarding the implementation and structure for reward and recognition before succeeding with it (Leavitt, 2022). In this case, it could be that the company must determine what innovation is for them and know who and how the employees should be recognized and rewarded for it to gain success.
- Peer recognition: Leavitt (2022) mentions that it is more beneficial for a corporation to reward their employees with peer recognition instead of money. The risk with rewarding employees with monetary means is that the focus shifts from the innovation to the money, which could harm teamwork if the monetary means are not divided equally.
- Formal events: Bringing people together who usually do not work together is a great way to foster innovation. One example of this is The World Bank, which holds creative fairs to foster innovation where people worldwide come together to create innovative ideas. In 2002, the fair held a competition between staff and also people outside of the organization to come up with ideas to fight poverty. In the competition, of 2400 entries, 240 went to the final stage, where 40 of the programs were funded. According to Leavitt (2022), this is an excellent example of what could happen when people with different work backgrounds come together.
- Work structure: Last of all, Leavitt (2022) emphasizes the importance of time. The author means that for an employee to be recognized for their innovation, the management needs



to set aside time for their employees to give them a chance to foster innovation. An example is at the company 3M, where the laboratory team operates with a “15 percent rule,” which means that 15% of their time they are free to spend that time on new innovations that could benefit 3M in the future (3M Careers, 2023).

### 2.3.5 Establish internal and external collaborations.

Two decades ago, Chesbrough published his book "Open Innovation" (2003), where he introduced the concept of Open Innovation. With the argument that the approach of viewing innovation as a closed process that must be protected at all costs was outdated. Open innovation is "the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation, respectively" (Chesbrough et al., 2006). They suggest companies can and should use external contacts and ideas to innovate. Bel (2010) writes that it is now time for open innovation or network innovation and believes that influential innovation leaders have the ability to integrate their concepts with external technologies and add their unique perspectives.

Authors Laursen and Salter (2014) build upon Chesbrough's research to gain a deeper understanding of the impact of external search on innovative performance. They studied the significance of external search breadth and depth for various types of innovation and found that external search depth is linked to radical innovation. As technology and the market evolve and the innovation network expands, more players within the system have specialized knowledge. Innovative firms must scan a wide range of search channels to access the diverse knowledge sources in these networks.

Researchers Faems et al. (2005) attempted to find evidence that the variety of inter-organizational collaboration relates to the effectiveness of innovation strategies. They found that companies that use a heterogeneous network of collaborative partners in their strategy perform better than those that do not.

Additionally, Faems et al. (2005) found that the type of collaboration affects the innovation outcome. Exploitative collaboration in cooperation with suppliers and customers contributes to increased sales of improved products. In contrast, explorative collaboration with universities and other research-based companies contributed to increased sales of entirely new products.

According to Blindenbach-Driessen (2015), cross-functional teams are an excellent way to structure a team working on innovation projects which means that the team is established with members from different departments within the organization. However, there is a risk that the diversity of the team members could be a factor for conflicts to arise, which could lower the project's performance (Blindenbach-Driessen, 2015)

### 2.3.6 Design Creative Teams

Leaders need more than just creating strategies, visions, and missions; they must also be able to build a good team (Day et al., 2004). If an organization wants to build creative teams, consideration must be given to the design of such teams (Amabile, 1998). Regarding how teams should be structured, research is relatively unanimous that the cohesion of a team should be made up of diversified individuals (Amabile, 1998; Byrne et al., 2009; Goffin & Mitchell, 2017). When people with different backgrounds, intellectual foundations, and approaches to work are combined, ideas are usually generated creatively and excitingly (Amabile, 1998).

Diversified teams, however, are only the beginning, says Amabile (1998). The team members must share the same ambitions regarding the project's goal. In addition, they must show a high motivation to help and support their fellow humans in tough times and understand what positive qualities they bring to the group as a whole. This requires leaders to have a deep understanding of their employees in order to assemble such a team.

Curral et al. (2001) also believe that an innovative team performs better if the team size is smaller, as larger teams can create ambiguities in what to achieve and thus inhibit creativity. This applies not least when the degree of innovation is high. However, this does not mean that you should only go after a minimum requirement for group members, but go after the character traits of each project.

Many researchers also believe that leaders should focus on the cohesion of teams. Groups that work well together and have similar ideas yet still possess diverse perspectives usually exhibit greater levels of creativity (Mumford & Van Doorn, 2001). Moreover, the leader needs to ensure that he or she does not become too narrow-minded, as this can inhibit creativity. If the leader notices that the group is becoming too cohesive, the leader must encourage collaboration between different departments to create a more nuanced picture (Keller, 2001).

Moreover, West (1990) suggested that a team leader that creates an environment that values and supports inventive thoughts, allows individuals to express their ideas without fear of punishment, and prioritizes both the company's and the task's goals, can boost a team's ability to innovate. Therefore, creating a safe and inclusive atmosphere is crucial. In addition, leaders must create an environment where people can share and spread knowledge and ideas freely by locating the innovation teams in the same place (Jong et al., 2015).

However, research has shown that it can be difficult to assemble a team with the right chemistry and diversity (Amabile, 1998). If you succeed in that, it has proven to be very powerful. If you don't succeed in that, you can instead destroy creativity. Amabile (1998) believes that a common way that leaders destroy creativity is by putting together a homogenous team where everyone has the same way of thinking. A pitfall, however, is that it can be tempting to create such a team as such teams usually manage to make quick decisions with less drama along the way.

### 2.3.7 The importance of providing time and resources

The leader's ability to provide sufficient resources is particularly important when it comes to an innovative project (Christensen et al., 2008). When the researchers Furr & Dyer (2014) asked the question "What prevents you from moving more new ideas to market" to employees of large companies, the most common answer according to Furr & Dyer (2014) was, "I just do not have the time." The researchers believe that dedicating time to innovation is more important than, for example, dedicating space. They mention companies such as Google, 3M, and Valve, which, among others, devote 10-20% of their employees working hours to innovation. The researchers believe this time should be set aside as a half/full day once or twice per month rather than an hour here and an hour there to utilize it to the maximum.

Tuschman & O'Reilly (2011) argue that organizations must find a way to balance their core business with their change work and present the concept of ambidextrous organization. Leaders' ability to handle today's and tomorrow's needs is the key to long-term success. However, this tends to create a culture clash between the core and changing businesses. Here leaders need to be able to handle both today's needs and tomorrow's needs.

In addition, leaders need to use the right tools for financial evaluation (Christensen et al., 2008). Too many managers use misleading and maladapted models, such as net present value (NPV) and the way fixed and sunk costs are used in evaluating innovative projects, tending to disadvantage the projects often characterized by high uncertainty. Instead, leaders should focus on using tools that can fairly reflect the true value of innovative projects. An example of such a tool the researchers (Christensen et al., 2008) mention is the real option framework (binomial tree based), where each node can show the project's probability and profitability. Although, on the other hand, the implementation of such a system can be complicated. However, it has proven to be incredibly beneficial when it comes to the evaluation and decision on innovative projects, not least when it comes to radical innovation.

### 2.3.8 The importance of providing training and development opportunities

Creating innovative capabilities and changing organizations is difficult (Oconnor & Ayers, 2005). By training for innovation and creativity, Rampa & Agogue (2021) showed that it is possible to create conditions for radical, innovative capabilities in organizations and with employees in the organization. Through training, it is possible to create individual abilities for exploration and the ability to handle radical ideas. Rampa & Agogue (2021) also showed that through training, companies could make their employees more motivated.

The researchers Gomes et al. (2004) found a significant positive relationship between repeated training and learning ability. Constant investments in various types of education and employee training favor the generation and openness of new ideas. In addition, the training ensures that employees in an organization work based on the same conditions, language, and vision. Which in turn contributes to better communication and knowledge transfer (Gomes et al., 2004). The same researchers found, just like Rampa & Agogue (2021), that the employees become more motivated and committed to their employer and its goals.

## 3.0 Method

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*This chapter deals with the design and execution of the study. The first part will discuss the study's research approach and the study's research strategy. This is followed by a section that explains the research design, followed by two sections that deal with data collection and analysis. The chapter ends with a discussion of the research criteria.*

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### 3.1 Research Approach

#### 3.1.1 Research Strategy

This study aimed to investigate and analyze leadership practices in successfully promoting radical innovation in a company. This was done by examining how leaders work with radical innovation and what the theory says about it. There is a wealth of research on innovation management (see, for example, Goffin & Mitchell 2017), but relatively little on the relationship between leadership and radical innovation, and even less on how it looks in Swedish companies, which will be the delimitation. Therefore, there is room to fill and contribute knowledge in this part of the research.

Since the study aimed to investigate the relationship between leadership practices and radical innovation, partly based on existing theory, a deductive approach was applied. In the deductive approach to research, the process began with the development of a theory or hypothesis, which was then tested through the collection and analysis of data. This approach relies on pre-existing knowledge and theories to guide the research process and is often used to confirm or refute existing ideas. In this study, the theories were divided into eight different points and laid the foundation for Leadership Practices; these points were the starting point for collecting the empirical evidence. An alternative approach would have been to use an inductive approach. The inductive approach involves starting with the observation or collection of data and using that information to form new theories or explanations. This approach helps generate new ideas and may involve the development of a research question to guide the data collection and analysis process (Bryman & Bell, 2015). However, that approach was unsuitable for the study since the theory was brought in before the empirical work was built up.

The research strategy was of a qualitative nature. In addition to the obvious fact that it tends to be characterized by words rather than numbers, the qualitative research strategy aims to describe the social world through an examination of the interpretation of the world by its participants. This relationship also makes it based on interpretivism. It also allows for a flexible change of focus when new insights arise. In addition to this, it is characterized by an exploratory approach where it seeks answers to "why?" (Bryman & Bell, 2015). Since the study wanted to investigate how leaders think and work with radical innovation and get a deeper understanding of the relationship between fostering radical innovation and leaders' practices, the qualitative research strategy was a suitable choice. Additionally, the exploratory approach was well suited for this study as it allowed for the possibility of contributing new knowledge in a relatively under researched area

### 3.2 Research design

The study aimed to investigate the practices of leaders that facilitate radical innovation within organizations. To achieve this, a cross-sectional design was utilized to examine the general practices of the population and compare specific cases or groups within that population. According to Bryman & Bell (2015), using a cross-sectional design would produce a more general understanding of the topic rather than comparing the studied cases.

However, in order to examine both the general practices of the population and make comparisons between specific cases or groups, a comparative research design was included. This hybrid design provided a broad population overview while allowing for more focused comparisons between specific cases or groups (Bryman & Bell, 2015).

### 3.3 Data collection

Data collection refers to the process of gathering and structuring information. There are two main types of data: primary and secondary. The collected data type depends on the research strategy and design. Primary data is firsthand information that has not been published and is specific to a topic or research question. On the other hand, secondary data is already published information gathered by other researchers and available from various sources (Bryman & Bell, 2015). Primary data is often more accurate because it is collected directly, but it can also be more time-consuming to gather than secondary data (Patel & Davidson, 2011). Both primary and secondary data has been collected by the authors.

### 3.3.1 Secondary data collection

The theories were collected in a systematic literature review fashion and summarized in a theoretical framework for the study. According to Bryman and Bell (2015), a systematic literature review begins with formulating clearly answerable research questions, followed by conducting the review where the authors obtain and present secondary data. For this study, the secondary data has been obtained from journals, articles, and studies characterized by theories and information on innovation management and radical innovation. The data has been gathered primarily from Google Scholars, Gothenburg University's "Supersök," and Scopus with specific keywords and search words. As mentioned before, secondary data has been produced by other researchers for purposes other than the purpose of this study. Therefore the collected data is not optimally adapted to the study's research question. However, besides the cost and time advantage, it provides a good foundation for presenting nuanced data collection and later analysis. Furthermore, the secondary data was conducted before gathering the primary data. The reason behind this was to build a foundation for the interview guide based on the secondary data, securing that the questions behind the semi-constructed interviews are constructed to give representative answers for the research.

#### 3.3.1.1 Literature review

As stated before, the literature review was constructed by first constructing the research questions, followed by searching for the relevant literature. The literature was then presented systematically. When searching for the relevant literature, specific keywords and additional search words can help the researchers stay on track and find relevant information for the study (Kalpokas & Radivojevic, 2021). To manage the search of literature in a systematic and efficient way, keywords and additional search words have been used for the study and are presented in Table 1.

Keyword	
Leadership characteristics	
Innovation management	
Radical innovation management	
Search words in combination with keywords	
Keyword	Search word
Leadership characteristics	competencies
Leadership characteristics	change
Innovation management	strategy
Innovation management	process
Innovation management	culture
Radical innovation management	strategy
Radical innovation management	process
Radical innovation management	culture

Table 1: Keywords and additional search words for the secondary data collection

Furthermore, Kalpokas & Radivojevic (2021) point out the importance of including inclusion and exclusion criteria for the study to determine if the literature and the articles are relevant to the study or not. For this study, all articles are peer-reviewed to ensure that the articles are relevant, and the quality is high enough to examine. Moreover, the articles included in the secondary data collection should be gathered with the keywords and additional search words listed in Table 1. Therefore, one inclusion criterion was to gather literature or data sources focusing on innovation with a leadership aspect. Lastly, literature that is written in languages other than Swedish or English are excluded from the study since the study is written in English, and both of the authors' mother language is Swedish.

Based on the systematic literature review, eight different themes were detected. These eight themes became eight leadership practices, and the detected theories were placed in these practices. The eight leadership practices were named based on what the theories under each theme had in common. For example, the practice was named "Design Creative Teams" and was generated by the discussions from the researchers (Amabile, 1998) Curral et al. (2001) (Mumford & Van Doorn, 2001). (Keller, 2001). West (1990).

### 3.3.2 Primary data collection

As stated before, the primary data was gathered to have the chance to answer the research question. There are many advantages to primary data. First, the data was gathered firsthand regarding a specific topic and purpose, making it reliable and trustworthy. Second, the researchers have control over the data and the methods used to collect it. However, as mentioned before, it could be time-consuming and hard to find appropriate participants if the research population is small (Bryman & Bell, 2015).

There are several types of primary data. Some examples are interviews, observations, and surveys. Because of the qualitative focus of this thesis, where the purpose was to answer the research question in depth, the most relevant primary data was collected through interviews. Moving in on to interviews, there are many different types. To begin with, the structure being used in this thesis was a semi-structured interview. This is a combination of structured interviews where the interviewee has all questions prepared in advance, while unstructured interviews are the opposite, with no questions prepared. The interview is more of an open-ended conversation. The semi-structured interview is, as said, a combination where most of the



questions were prepared, but the interviewee had the chance to ask follow-up questions or go from the structured interview guide (Bryman & Bell, 2015).

Because of the semi-structured interview, the researchers had the chance to be more flexible and adjust to the specific interview. Flexibility has many advantages but could also be a risk. Because of the flexibility in a semi-structured interview, there is a risk of not sticking to the prepared questions and moving away from the subject. This was handled with an interview guide with well-prepared questions that helped the interviewee to stick to the subject (Patel & Davidson, 2011). Another way the authors ensured to focus on the proper subjects was after the interview with the help of transcription.

### 3.3.2.1 Selection of companies and respondents

To begin with, some delimitations needed to be made to find suitable companies for the research. To secure that the companies and respondents are aligned with the delimitations of the study, all of the companies that were being studied should fulfill the criteria listed below:

- Have innovative core values.
- Work in technological knowledge-based industry.

In the process of selecting which companies were included in the research, several methods have been used. First, Boston Consulting Group (BCG) published a report in 2021 on the 50 most innovative companies in the world (Most Innovative Companies 2021, 2021). This report was a reliable source for companies that could fit into the research. From the 50 companies that were included in the BCG report, two companies, Philips and AstraZeneca, were interviewed.

Furthermore, most of the interviewed companies were gathered through personal contact with people in suitable companies. These contacts then connected us with a colleague that fit the aim of the interview. The companies gathered with this method were Sendify, Autoliv, and Senzime. We found this method the most successful because of the accessibility to the companies with personal contacts in the specific organization.

Moving on to the respondents, two types of respondents were interviewed. First, the interview with the companies was conducted with people in the organization. To find the most suitable people to interview, some criteria needed to be met to ensure the interviews would gather reliable and valid empirical findings. These criteria for the interviewees are listed below:

- Work with innovation projects.
- Have knowledge about the organizational structure.
- Have managerial responsibility.

Furthermore, the researchers also wanted to include expert knowledge in the research to have the chance to make valuable analyses between the empirical findings from the companies to compare them to the answers from the experts. The experts consisted of professors with expertise from the subject and management consultancy firms working more operatively on these innovation projects. The reason for choosing to interview a professor was to get a more theoretical understanding of the subject and compare the answers with the theoretical framework to analyze potential similarities and differences. The thoughts about including management consultancies were to build a bridge between the chosen theories and the companies to access unbiased answers on how innovation projects are done more operationally. The suitable people were gathered by personally forwarding our request to the specific people. A list of the interviewees is listed below in Table 2.

COMPANY	COMPANY SIZE* (allabolag, 2021)	WORK TITLE/ROLE	Length & Date
AstraZeneca	Large	Executive Director Strategy & Innovation	60 min - 8/3-23.
Philips	Large	Director of product development	50 min – 9/3-23.
Senzime	Small	CEO	40 min – 23/3-23.
Sendify	Medium	Expansion Manager	45 min – 6/4-23.
Autoliv	Large	Innovation Director	40 min – 24/4 -23.
Expert		Professor at the Department of Technology Management & Economics at Chalmers University of Technology	45 min – 2/4 -23.
Expert		Consultant CAPGEMINI	50 min – 15/4-23.

Table 2: Table of interviewees

\* Large = 250+ employees (according to European Commission, n.d.)

\* Medium = Fewer than 250 employees (according to European Commission, n.d.)

\* Small = Fewer than 50 employees (according to European Commission, n.d.)

### 3.3.2.2 Interview guides

The interview guide is a list of questions asked in the interviews (Bell et al., 2018). Because of the chosen interview method, which was semi-structured interviews, the questions in the interview guide consisted of more open-ended questions to ensure that the interviewee had the chance to answer freely (Magnusson & Marecek, 2015). By asking open-ended questions, there is a chance to ask follow-up questions to gather as much information as possible. However, there is a risk that the open-ended questions will lead the interview in the wrong direction. Therefore, the interview guide must be well constructed to secure that the interview fulfills the purpose of the research. According to Magnusson & Marecek (2015), the interview guide should consist of different segments. First of all, the first segment in a semi-structured interview should focus on building a relationship with the interviewee. This could be done by introducing yourself and the subject, followed by asking questions about the interviewee letting him or her present themselves and want they do that could contribute to the research. The second step in the interview guide is the main body, where most empirical findings should be gathered. The main body should consist of different topics and sections. The order of the topics should be related, enabling the interview to follow a red line and reducing the sense of jumping between different subjects. The last section of the interview is the ending part. Here the interviewer should let the interviewee reflect on the interview and have the chance to add any answer. Examples of these questions could be, “Is there anything more you would like to add” or, in this research, “Last of all, if you have the chance to change how your company works in radical innovation projects, what would that be?”. Lastly, the interview should end with the interviewee having the chance to ask the interviewer questions about the research letting them feel that they also got something meaningful out of the interview (Magnusson & Marecek, 2015). The interview guides are presented in the appendix.

## 3.4 Data analysis

Bryman and Bell (2015) write that one of the biggest challenges with qualitative research is that it often involves significant amounts of data that can be difficult to analyze. To make the study nuanced, great importance was placed on the analysis. When the data was collected, a transcription of the interviews was performed to create as clear a structure as possible during the process.

The data analysis in this study took a grounded theory approach. This approach was iterative and involved the data collection, theory, and analysis standing in close relation to one another. This was done through theoretical saturation, where the coding and collection of data continued until a point was reached where it no longer provided new information (Bryman & Bell, 2015). Since the research question and strategy of the study were based on a deductive approach where theory and data collection have a close relationship, this approach is well-suited. The analysis was based on a self-made model/table based on theories that were developed in the literature review, which were then compared and analyzed in the study's empirical findings. The table will complement the text rather than a substitute to make the analysis as straightforward as possible for the reader. Based on the table, the authors had the possibility to rank the critical character traits that affect a leader in the radical- and incremental innovation process and work as a base of theories and empirical findings, enabled the authors to make a profound analysis. The structure of the table is shown below in Table 3.

	<b>Establish a clear set of values within the organization</b>	<b>Develop a well-defined and organized structure for innovation</b>	<b>The Importance of Embracing Risk and Failure in Innovation</b>	<b>The importance of acknowledging and encouraging individual excellence</b>
Radical Innovation				
Incremental Innovation				
	<b>Establish internal and external collaborations</b>	<b>Design Creative Teams</b>	<b>The importance of providing time and resources</b>	<b>The importance of providing training and development opportunities</b>
Radical Innovation				
Incremental Innovation				

Table 3: Table structure for analysis

### 3.5 Research criteria

In qualitative research, the ambition is to discover phenomena, interpret and understand the meaning of the surroundings, to describe perceptions or a culture (Patel & Davidson, 2011). In quantitative studies, the terms validity and reliability are often used. These two concepts can also be used in qualitative research but have their limitations (Bryman & Bell, 2015). Lincoln and Guba (1985) suggest two other concepts that are more appropriate: trustworthiness and authenticity. Trustworthiness can be divided into four concepts, creditability, transferability, dependability, and confirmability (Guba & Lincoln, 1994). The concept of authenticity in research, as explained by Lincoln and Guba (1985), emphasizes the importance of fair treatment of interviewees' responses without any influence from social or political factors. To ensure authenticity, the researchers employed a uniform set of conditions for all participants and conducted semi-structured interviews, which enabled the interviewees to express their opinions without being limited by the topic. Additionally, before the interviews, all participants were informed of the research theme, and the interviewers refrained from using theoretical terms to avoid potential misunderstandings.

According to Bryman & Bell (2015), creditability corresponds to internal validity. To ensure creditability in the study, notes were taken during the interviews while it was recorded. Then they were also transcribed. In addition, great importance was placed on choosing the right respondents for the research question to ensure that the answers they gave were relevant to draw an analysis.

According to Bryman & Bell (2015), the transferability of findings corresponds to external validity. And explains to what extent the answers can be applied to other contexts. Since this survey aimed to find out which leadership practices work best in driving radical innovation, one can imagine that the findings in this survey can be applied to areas other than what is current in this case. This is because company leaders in almost all industries, at some point, work with radical innovation.

Dependability or reliability refers to the degree to which a study can be replicated or whether the researchers (if there are more than one) agree with what they see and hear (Bryman & Bell, 2015). Here, great emphasis has been placed on describing the research process, which has been done in the Method chapter. This is to transparently show how the study went about it, but also in a methodical way so that it will be possible to see how we did it and replicate it.

Confirmability or objectivity, as it is also called (Bryman & Bell, 2015), has been ensured by the authors constantly ensuring that one understood the same thing during and after the interviews. In addition, to ensure that no prejudices should destroy the study's objectivity, the researchers have strictly had an objective approach. The interviews with the experts also added an extra dimension of confirmability to the empirical evidence.

## 4.0 Empirical findings

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*In this chapter, the empirical findings from the interviews will be presented. The chapter will start with a company description and its definition of innovation. Furthermore, the chapter will follow the structure of the theory chapter, which has been the foundation for the interview questions. First, the five company interviews will be presented, followed by the two interviews done with experts in the research area. Finally, the chapter will end with empirical findings of the most valuable tools for driving radical innovation, according to the interviewees.*

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### 4.1 Company description

Senzime is a Swedish-listed medical technology company founded in 1999. Their vision is "To eliminate anesthesia- and respiratory-related complications, and radically reduce health care costs related to surgical and high acuity procedures – by developing and providing healthcare providers with algorithm-powered, state-of-the-art patient monitoring solutions." and their mission is "A world without anesthesia- and respiratory-related complications (Senzime, 2022).

AstraZeneca (AZ) is a publicly traded Swedish-British pharmaceutical and biotechnology company. Their purpose and values are: "We push the boundaries of science to deliver life-changing medicines." respectively, "We follow the science. We put patients first. We play to win. We do the right thing. We are entrepreneurial" (AstraZeneca, 2023).

Philips is one of the world's largest electronics manufacturers, with headquarters in Amsterdam. Philips' purpose is: "At Philips, our purpose is to improve people's health and well-being through meaningful innovation. We aim to improve 2.5 billion lives annually by 2030, including 400 million in underserved communities. As a technology company, we – and our brand licensees – innovate for people with one consistent belief: there's always a way to make life better." (Philips, n.d). Moreover, they describe their innovation work as "We have a proud heritage of ground-breaking innovation that stretches back almost 130 years.

Meaningful innovation – focused on our customers' needs – remains at the heart of everything we do".

Sendify was founded in 2016 and works with logistics solutions via its digital platform. It was established to "We founded Sendify to level the playing field and empower ambitious businesses to ship smarter." (Sendify, 2023).

Autoliv was established in 1953 in Vårgårda, Sweden. Autoliv is a supplier of automotive safety equipment like airbags and seatbelts. Autoliv has over 68 000 employees and operates in over 27 countries. The company lives for: "Life-saving innovation for a safer society" with a mission of providing world-class life-saving solutions for mobility and society (Autoliv, 2023).

## 4.2 Establish a clear set of values within the organization

AstraZeneca highlights that the company is a large organization characterized by an innovative culture, as it is a large part of the business idea. As the interviewee states, "We are a learning organization; you have to be curious; it has to be in the culture. You should always look for new ways". He continues that it is essential that the employees are curious and emphasizes the importance of not getting stuck in what works and has always worked without daring to come up with new ideas. This applies to both incremental and radical innovation. These values are something that the interviewee believes is one of the reasons why the company is doing so well right now.

The interviewee, CEO of Senzyme, a company with 50 employees active in the medtech industry, says that the company's entire business idea is based on innovation. The company will develop and manufacture innovative products that make a difference in healthcare. This is by researching them or via acquisitions. As the company is still so small, it is essential to have clear ambitions of where to go and that all employees are on the same train regarding radical and incremental innovation.

Philips has been a frontrunner in innovation since the start, which is also integrated into its culture of having the ability to develop new innovative products. The innovation culture is seen in the cultural value statement from Philips, which says that the company's purpose is to improve people's health through meaningful innovation. The interviewee believes that this purpose is clearly integrated into the company and that all employees live by this purpose and vision. However, the representative from Philips explains that there are challenges connected to the culture when Philips acquires a new business from another geographical area where the



acquired company has a different culture that differs from Philips. The interviewee believes that the best way to integrate the acquired company is by communicating with each other through workshops or meeting with different people and departments to let the acquired company feel that they are part of Philips and its culture.

Moving on to Sendify, the interviewee does not feel that there are clearly stated values in the form of vision and mission statements at Sendify connected to innovation at the moment. One reason behind this is that Sendify is currently heading towards big changes in the strategic landscape, in which the cultural values will be readjusted. However, the representative is sure the chosen strategy ahead will include the innovation spectra as it is part of the DNA of Sendify. As the interviewee states, “Since the start of Sendify, change management has always been a big part where everyone feels that the big opportunities for improvements.” The interviewee believes that one reason behind this is that the company is relatively young. Therefore, there is no mindset of “we do like we always done it” which Sendify believe is a great opportunity for them.

According to the representative from Autoliv, the company has well-defined cultural values that permeate the whole organization. Their vision is simple to understand and remember, which Autoliv believes is the key to getting everyone at a large organization like Autoliv to work after. Their vision is to save more lives with the values of One Autoliv, transparent, innovative, and agile. According to the interviewee, these values match the company's atmosphere very well.

The Capgemini expert believes that having a clear vision and values is crucial for a company. Here the challenge is to connect the process with the vision. He says anyone can write down the vision and mission, but getting it across to your employees is essential. He continues by pointing out that it is one thing to have a clear vision, but you must also be able to deliver. Here it is crucial to have an integrated vision with all stakeholders in the company.

The expert from the Chalmers University of Technology emphasizes the importance of having a clear vision of where the company aims to go in the future. According to the interviewee, this will reduce uncertainty for the whole organization and especially the employees working in the company. However, he means that it is especially important with well-defined organizational values for companies operating in an unstable industry. The expert takes train logistics as an example of a very stable industry with enormous amounts of resources invested in the infrastructure. For this kind of industry, the vision statement is less important because there is

a lower degree of risk of drastic change appearing. According to the interviewee, the mission statement is more breakdown oriented and suitable to be defined for specific roles in the different functions and departments. It is, therefore, more suitable for incremental innovations.

### 4.3 Develop a well-defined and organized structure for innovation

Five years ago, AZ developed a new strategic plan for innovation and, above all, radical innovation. The purpose of this was to drive the work and formulate a strategy for how the company should pursue its development in the paradigm shift of the fourth industrial revolution. The interviewee explains that the result was that they created a group of global leaders within the company who were tasked with driving radical innovation as it is difficult to conduct it regionally. This group compiles projects and assigns employees to various projects. In addition, AZ works with so-called innovation hubs, which can be described as an open innovation ecosystem aiming to develop new innovative work. Although, when it comes to incremental innovation, this is something that all employees carry out, a focus on improvement is expected of everyone.

The importance of having a straightforward innovation process and structure is something Senzyme became aware of a year ago. Senzyme has an innovation team where everyone who works with R & D is included. However, it was noticed that all the time was spent on more incremental innovation measures such as updated system software and other product maintenance. The interviewee then began structuring the innovation process more and appointed a Chief innovation officer (CIO), among other things. The CIO was tasked with coordinating radical innovation. In addition to this, Senzyme organizes strategic meetings where you go through what you want to achieve going forward, these meetings take place annually and quarterly, and present is a so-called extended management group with employees from the entire organization.

To begin with, in a perfect economy, Philip has a strategic plan of working with the “50-30-20” rule of innovation projects. This means that 50% of the resources are allocated to incremental innovations, and 20% are allocated to radical innovations. The interviewee emphasized that this role is very theoretical, and as of right now, in 2023, the economy is heading against a recession, and most of the resources are allocated for incremental innovations. For their radical innovation projects, Philips is working with top-down strategic thinking where the managers ones a year develop a strategic plan of records. This plan should

answer questions of where Philips wants to compete based on the market changes, competition, and customer preferences. The strategic plan should also answer the questions of how they should compete in this market and with whom. Based on the strategic plan, a portfolio strategy is developed that should generate a product portfolio that matches the outputs from the strategic plan of records, and the start of generating a product is started. Philips works with a five-year time frame from planning to generating a product.

For Sendify, there are no specific processes or strategies for working with innovation projects. According to the interviewee, one reason behind this is that the company is relatively small, where no specific processes are defined for working with innovation. However, certain departments are working with innovation. For example, the technology department works with more incremental innovations for its software development. The strategy for this department is to make a lot of small incremental changes instead of big ones in order to see which effects and efficiencies they output. The interviewee believes this is the best strategy because much of the deployments from the technology team affect UX (User experience) for their customers. Therefore, if big changes are made at once, it can negatively affect the customers.

Moving on to Autoliv, the interviewee addressed that the innovation process begins with the research department. The research department identifies areas where Autoliv has the biggest chance of succeeding with a project based on data from reality. An example is the causes of severe human damage in traffic, where they try to find a possible solution as the seatbelt that Autoliv pioneered. The representative from Autoliv adds that the first step is often the most important and that it is critical to find a purpose that matches the vision of saving more lives. When the research team identifies the opportunity, the next step is to make advanced engineering studies where a team identifies the opportunities of making this product at Autoliv and the market possibilities connected to the product. Moreover, suppose there are opportunities for the product. In that case, the Group development project department takes over and starts working with the innovation project and breaks down the project into different requirement specifications. There is no specific difference in how the process looks for incremental versus radical innovation. However, the interviewee emphasized that the length of the process could look different. In contrast, the incremental process could be shorter because there is often a demand for incremental innovation that often updates an existing product.

From an expert point-of-view, the Chalmers University of Technology expert emphasizes that you need to differentiate between the radicalness of the innovation in the process when

selecting the strategies for working on the project. The most important aspect when talking about the innovation's radicalness is the final product's competitiveness. Therefore, when designing the innovation process, the interviewee believes that the most important question a company needs to answer with the process is how the company can find ways to protect itself and give radical innovations a chance. With this, the expert means that with a changing market landscape, the companies need to be able to adapt to these changes while protecting themselves from competitors. A great example of this was the company Ericsson, which played a big part in developing the first Mobil phones. This was not the company's main focus, but they understood the upcoming market change and adapted and led the change instead of rejecting it.

The innovation process within an organization is essential, especially regarding radical innovation, says the Capgemini expert. This is because incremental innovation usually flows anyway. If there is no process for radical innovation, it can quickly become forgotten or postponed to the future. It is, therefore, crucial for organizations that leaders allow their employees to research radical innovation. An effective way to enable this is to move the innovation team out of the line organization, partly to create a culture and avoid financial numbers influencing decisions.

#### 4.4 The Importance of Embracing Risk and Failure in Innovation

When it comes to embracing risk and failure, this is something that the interviewee thinks is at the heart of AZ. As the representative states, "It's built into the system." AZ operates in an industry where failure is expected; one in ten projects fail. However, the tenth that succeeds brings a large reward, which later means the company can continue research. It is, therefore, essential to encourage the employees to continue research and to dare to fail. He also points out that when it comes to radical projects, in particular, it is important to fail as early as possible when the cost is the lowest. This is also something that AZ has implemented. The interviewee states, "If we go back to the millennium shift, we can see that failures in the later phase are much less today than then since the employees dared to fail earlier in the stage and made better decisions."

For a relatively young company like Senzyme, risk & failure is everyday life, says the interviewee. The company launched its first product quickly, aiming to test it and learn directly from customers. It is, therefore, essential that the company and its leaders encourage their

employees to dare to take risks, from the management, failure is completely acceptable, according to the representative from Senzime. This is not least important when it comes to radical innovation. Customer feedback is also an essential part of the development work; by launching the product quickly, the company can correct the mistakes and thus work with incremental innovation after you have "failed".

When working with innovation projects, the risk is always a factor that needs to be considered. The interviewee means that Philips needs to evaluate the investment of the project based on the value at risk. He explains that this could be difficult, especially for radical innovations that often have a long time frame before generating income, and therefore is hard to quantify. The chosen strategy for each innovation project depends on a majority of the risk connected to the innovation. For example innovations with low risk, Philips often use a "spray-and-pray" approach where they invest in a huge investment package and break it down into smaller ones in the early stage of the project. This will help Philips see results from the projects in an early stage and then continue to develop the most valuable innovations. For the radical innovation projects, Philip uses a venture approach where they break this out from the internal to have a better chance of developing the innovations. This is most suitable when the risk is higher and when the time frame of the innovation is longer. Moreover, Philips has a rule of not investing more than \$700' in each project.

Sendify is in a situation where significant changes are happening, both strategic changes but also because of external factors, such as the recession and the war in Ukraine, which resulted in smaller investments into the company, which has been a big part of the quick development of Sendify since the start in 2017. This also affects the risk averseness at Sendify, where only minor, less risky development projects are being executed, and no radical innovation projects are currently ongoing. However, the interviewee means that Sendify historically is risk averse at the right value and not afraid to take risks in the entire organization. As the interviewee states, "You need to dare fail in order to succeed." The representative believes that this mindset has been the foundation for the growth of Sendify, where everyone from top management and down in the different departments has this mindset of experimenting with new ways of working, which could benefit both customers and investors.

For Autoliv, embracing risk is part of every innovation project. The interviewee emphasized that the faster the risk is identified, the quicker you can take action on it. For Autoliv, the aim is to identify the risk in the second step of the innovation process, where advanced engineering

studies are made. The risk is calculated with factors such as technology, demand, and product production risk. However, the interviewee emphasized that there is a risk in every project and that there are more aspects to take into the calculations. For example, for more radical projects, the innovation could have a different purpose of ensuring their place as the pioneering company in the segment. Furthermore, if market changes are happening, Autoliv wants to be the first one on the market, and therefore, they are willing to take on more risk for a radical innovation project. He also adds that risk is accepted at Autoliv, but the quicker the big risks are identified, resources and time could be saved. The risk of making customers and stakeholders disappointed is reduced.

The Capgemini expert believes that it is essential that leaders accept risk and failure and, above all, that employees get the chance to try new things. He points out, however, that it must not get out of hand. Instead, the focus should be on encouraging curiosity. He also believes that without focusing on accepting risk and failure, the risk is that you only get incremental innovation within the company.

According to the expert from The Chalmers University of Technology, accepting risk and failure is very important for innovation projects. Starting with incremental innovation projects, different budget allocation tools could be used. The expert takes the Net present value as a valuable tool for calculating risk and return for innovation investment. However, the net present value is more suitable for projects on a shorter time frame, like incremental innovation projects. Therefore, it is more difficult to use for radical innovation projects that often have a longer time frame. However, he emphasizes that radical projects should be seen as an insurance cost for future change and that companies, of course, should include the risk aspect but always consider why the project is selected and its purpose of it.

- “It is easy to quantify operational investments but hard to quantify strategic”

The expert from Chalmers University of Technology.

## 4.5 The importance of acknowledging and encouraging individual excellence

AZ does not work with monetary or other reward systems when it comes to recognizing and rewarding employees when they come up with innovative ideas, as the whole organization is built with innovation, according to the interviewee. However, it is essential to highlight employees who come up with new ideas and then help them on their way. AZ works a lot to encourage employees to be curious; therefore, employees must feel that they are seen and heard so that this curiosity does not disappear. The interviewee states, "Innovation is a contact sport. It is important to meet, which means it is impossible to work from home."

The CEO of Senzyme says it is essential to acknowledge the employees when they have developed something good and encourage them to innovate. In addition to encouraging the employees to be curious, it is crucial to Senzyme that they are allowed to participate and have their say on things. Both in terms of radical and incremental innovation. Renaudin believes that employees who feel seen perform better, which is created by encouraging the employees.

As innovation is one of the fundamentals of Philips and is tightly integrated into the culture of Philips, the interviewee believes that the employees know that they try to find new ways of managing the work or constantly think about how they could make something different. However, encouraging each other is important to stay ahead of its competitors.

The respondent at Sendify says that encouraging their employees is very important for their employees to feel heard and seen for their innovative ideas. Even if Sendify does not have a specific innovation process through the organization, they feel that it is important to give their employees a chance to change how they work today and continually communicate that if there is a process, the employees feel that they can make more efficient, they should come up with ideas. However, Sendify does not work with a process for rewarding their employees more than continuous feedback directly to the employee but also in a group.

For Autoliv, there is a rewarding method connected to idea generation along their employees. The interviewee explains that if an employee delivers a patent idea to the manager that the manager feels is sufficiently developed that he or she wants to protect, the employee gets a pre-determined amount of money. If the patent turns out to be unique in the world, the employee gets another amount of money that increases if the patent is unique in several countries. If the patent goes into production, there is an additional amount of money to the employee. However,

the respondent addresses that it takes a very long time before an idea can go into production, which is connected to the payout to the employee.

The expert from the Chalmers University of Technology mentions the importance of not punishing employees if the innovation project turns out in a failure; the project is selected because it should ensure the company for future change is often selected higher up in the management chain. Instead, the company should have a structured process of feedback routines with constructive feedback that can motivate the employees instead of scare them not to try again. Instead, the employees should feel that the profit of succeeding is higher than the degree of being scared to fail. The respondent believes that companies, instead of rewarding innovation ideas with monetary means, the company should instead motivate the employees and receive them the motivation to want the innovation project to succeed and therefore help the company to grow. However, he mentions that there are different ways of rewarding employees after succeeding with an innovation project in terms of monetary means, options, or other financial methods.

The Capgemini expert believes leaders must understand their employees' needs and create a culture where they feel they are seen and heard. Employees who have wasted a significant amount of money should not be punished. It is also essential to create incentives and, in various ways, encourage employees to try new things. Monetary means can be suitable here, but the focus must be on innovation, not monetary means. According to him, culture is more important than monetary means.

## 4.6 Establish internal and external collaborations

According to the respondent from AZ, it is essential to collaborate with others. The company must expand beyond what it can do. AZ is looking for partners worldwide and offers places in their innovation hub, which he calls a global network. The company has around 20 innovation hubs that work to connect people and ideas. As the respondent states, "Open innovation has become much more important today, compared to 7-8 years ago, and it will only become more and more important." The respondent highlights an exciting collaboration with VOLVO that began during the pandemic and is based on a common interest in learning from each other. Even though the companies are not in the same industry, they can benefit from each other by exchanging knowledge. This is something that mainly applies to radical innovations. When it comes to incremental innovation, this is something that happens all the time with all employees.



For Senzyme, which is a relatively small company, all employees are part of an R&D team and thus also constantly work together to innovate, according to the interviewee. After the company launched its first product, which was a result of radical innovation, the employees' focus has been on incremental innovation. Here, the company also works to bring in external resources in the form of researchers from universities and other institutes. However, for incremental innovation, she strongly believes that the company must dare to trust itself and use its own resources as well. When it comes to radical innovation, this is something the company has started to buy into. This as the company needs to focus more on incremental innovation in the current situation.

For Philips, internal collaboration is very important, as one of the steps in the innovation process for their radical innovation is to build an innovation team with different people from different departments. According to the respondent, this is the best way to access as much knowledge as possible from the entire organization to have the best chance to succeed with the project. He explained that this process looked different from before. Earlier, it was the idea one who came up with the idea that worked as a product manager, but Philips realized that this was not as efficient. The reason behind this was that the one who came up with the idea had broad knowledge in one area but not as much in different areas, which is needed to realize the innovation. Therefore, Philips adjusted the process and selected a product manager to take the project further, making the projects much more efficient.

Sendify uses external sources at the beginning of the innovation process to identify trends or witness changes in the market. This helps them in the management work of defining their strategies, moving ahead to have a better chance of probing the customer needs or development needs for the specific products. When a development or innovation area is selected, the generating of the product comes within the organization.

Autoliv uses different kinds of external sources in its innovation process. The interviewee describes the external sources in three different categories. The first category is academic sources, where Autoliv accesses knowledge from, for example, Universities. This is suitable for radical innovation projects where the innovation is not established on the market, making the need for research and theoretical knowledge highly useful. Moreover, the second category is high-tech companies with specific knowledge in areas where Autoliv lacks internal resources. Therefore, the need for expertise from companies where this knowledge is the main focus is profitable for Autoliv. The third category of external sources is from suppliers and

customers that could provide Autoliv with important insights into opportunities for developing existing products and important information about market trends. The interviewee emphasized that this kind of external source is more used for incremental innovation projects.

The Capgemini expert believes that when it comes to radical innovation, it is crucial to work with external collaborations of various types, especially in companies that have been around for a while. Because the risk in such companies is that you remain in the same old pattern. Working across departments is essential for radical innovation to take advantage of the company's resources. Regarding incremental innovation, he believes it is wise to rely on your employees who know how it is done, as it is difficult for outsiders to come in and speak about things they need to learn.

## 4.7 Design Creative Teams

The respondent explains that AZ hires people by going through the needs for each project, and then managers locate employees who fit those projects. This mainly applies to projects created in the Innovation Hubs. Regarding research that occurs more inside the organization, the teams are created more naturally. There is also no protocol for developing teams for more incremental projects. But he points out that AZ employees are all intellectuals and says "The intellectual ability is not deficient, but it can sometimes become an obstacle. But you can shoot down innovative ideas quite easily sometimes". It is then the leader's role to step in and try to stimulate the projects.

The CEO of Senzyme explains that they do not have a particular framework for how they work when it comes to forming innovative groups within the company. A big reason for this is that everyone in the company is part of the same R & D group, which makes it easy for the management to quickly locate what needs there are and then appoint the right person in the right place. Regarding incremental innovation, Senzyme also works to bring in outside experts who can add value to the projects. The opposite is true regarding radical innovation. For example, when the company acquired a company last year, work began to integrate it into the organization and make sure to draw synergy effects by moving personnel around, precisely focusing on creating a creative team.

Philips has worked hard to find the best way to constitute the teams working on their innovation projects. As said before, this process has been adjusted multiple times, trying to find the most

efficient and best way to have the best chance to succeed with the project. For incremental innovation projects, the team working on the projects often comes from the same department. The reason behind this is, according to the respondent, that this project often deals with small product improvements based on customer insights with low risk. Therefore, insight from different departments is less important than for other projects. However, Philips uses a cross-functional design for their radical innovation projects to access broad and reliable insights.

In the case of Sendify, the interviewee explains that for incremental projects, they design a project team from the same department. This has been proven to be the most efficient way. The interviewee thinks this is because the incremental projects often are more small developments of the product which means that the knowledge needed often exists within the specific department. Earlier, they tried to include different departments in this process but witnessed that this slowed the process. So instead, if other knowledge is needed for an incremental project that does not exist within the departments, they gather the information outside of the team, making the process as efficient as possible. However, for more radical innovation projects, the teams are designed with members from different departments as the projects are often on a longer time frame where it is essential to have different backgrounds and knowledge. For these kinds of projects, Sendify has a maximum number of members in each team, which is six. The reason behind this is that there is a risk of having too many people involved where each member's ambitions do not match each other.

For Autoliv, the design of the innovation team often depends on the innovation. As said before, Autoliv does not distinctly differ between radical and incremental innovations at the beginning of the process. Therefore, the team's creation depends on what knowledge and effort it is needed to put into the project. At Autoliv, every innovation project is often technologically driven, which creates a demand for engineering, often resulting in a team where the majority of the people come from different technologically driven departments of the company. However, the interviewee emphasized that the need of project leaders, economists, and other parallel departments are needed in the project resulting in cross-functional collaboration. Furthermore, the need for a cross-functional driven team is more beneficial for radical innovation projects where different kinds of questions must be answered from different areas in the organization. On the other hand, for incremental projects, the search for knowledge is often located in a specific department, resulting in a more department-driven team.

The expert from the Chalmers University of Technology means there has been a significant change in how companies design innovation teams. As a result, there is a higher degree of will and maturing in the industry for working more cross-functional. He thinks this is the case because the knowledge within the organization is more decentralized now than before. Therefore, the need to work with different departments brings more knowledge to the project group, which will contribute to a higher success rate. The interviewee continues by emphasizing that the cross-functional team design is often more suitable for radical innovation projects rather than for incremental projects where the function-based approach is more efficient.

The Capgemini expert thinks creating creative teams from different aspects is essential. Firstly, the most important thing is to put together a team that is committed first and foremost. The leaders must review who is best suited. It is also important to ensure the group does not become too homogeneous. It is best to have people with different backgrounds. The interviewee adds that it is essential for the company not to design teams with too many members as this will slow down the process without generating a better outcome. From the expert point of view, the teams should not exceed eight members and, if possible, minimize the teams even more.

## 4.8 The importance of providing time and resources

By highlighting radical ideas and working with innovation hubs, AstraZeneca allows those ideas to develop, says the interviewee. This is fundamentally important to the company. Even if the company is doing radically well now, time and resources must be given to succeed in the future. It is also about getting the leaders and employees in the company to dare look up and see what is needed to allow the organization to provide time and resources. The interviewee thinks that it is often the case that the company postpones various projects as they focus more on operations. It is about daring to discuss with the manager to enable time and resources.

The CEO of Senzime has a significant focus on providing the right amount of time and resources to the employees who work with innovation. When she noticed that the employees did not have time to work on radical innovation to the same extent, she hired a chief innovation officer to free up time solely for this. The company aims to have so-called theme days solely focusing on innovation every quarter. On these days, employees can focus exclusively on innovation. Regarding incremental innovation, time and resources are already included in the business model, as it is broadly based on constantly developing the company's products.

Philips has a strategy of providing time and resources for their innovation projects when an idea is generated and selected, often from the sales or the technology team. A product manager selects that creates a project team, working further with the innovation. The respondent emphasized that the teams should not be completely isolated from the organization and work 100% with the project. The challenge is balancing the time spent on the innovation project and their current duties. However, Philips does not have a rule of thumb that encourages their employees to contribute a percentage of their work to generate new ideas. That needs to come from the employees in craftsmanship when someone recognizes a potential innovation.

Sendify does not work with separating time for their employees throughout the entire organization to come up with innovative ideas. However, in some teams, where it is more necessary than others, time for development is provided. For example, the technology and development team has designated time each week to discuss development opportunities and tries to rank all ideas based on the priority of the idea. The development needed for the customer to work in their program will be prioritized first, and the “good to have” will be prioritized later. The respondent explains that most of the provided time for new innovations is on the top management level with a top-down approach where they guide the rest of the organization when processing change or new innovation ideas to focus on further.

The Autoliv respondent explains that Autoliv provides time and resources for the employees to work with innovation ideation. However, the amount varies for different departments, and the time spent often depends on if there is time available for the employees. He adds that no percentage of the work time is separated for only working with idea generation. However, different departments have more time available than others. An example is the Global innovation center in Vårgårda, Sweden, where one part of the work is to develop new ideas and solutions, resulting in more time is spent on this process.

## 4.9 The importance of providing training and development opportunities

The interviewee at AZ emphasizes that it is vital to stimulate the employees' curiosity. Because AZ is a learning organization whose business idea is to develop new products, employees always develop. For AZ, it is rather about encouraging the employees to look up and constantly improve. He sees the company's innovation hubs as an excellent place to develop; as people from different backgrounds meet daily and get the chance to discuss, development comes more naturally.

Senzyme's CEO strongly believes in encouraging personal development and likes her employees to attend fairs and various events for them to develop. Own responsibility for personal development primarily applies to development within incremental innovation. Regarding radical innovation, the CEO believes that the company's theme days, where they focus only on innovation, are an excellent opportunity to educate their staff. Allowing employees to work with complex issues also teaches them to become more creative.

The respondent at Philips believes that Philip must train and educate their employees but for the right moment. He believes that everybody can come up with great ideas and new ways of doing things; therefore, the focus of training should be elsewhere. The interviewee believes that it is more important to train their employees for the later stage in the innovation process when the idea is generated to realize it into reality. As the respondent states, "To have trained professionals in the later stage is critical for succeeding with the innovation." Therefore, Philips works a lot with communication back to their employees when there are opportunities for knowledge development and always wants their employees to take the next step.

Sendify works a lot of training their employees in different areas, as well for innovation, both on the department level but also together with the entire organization. The interviewee explains that this is often held as workshops where the primary purpose is to generate a change management mindset for their employees. The interviewee states, "What we do today does not mean that that is the right thing to do it." He has seen a significant change since they started with the workshops to foster the innovation culture and remind the employees that innovative ideas are highly appreciated within the organization. However, he emphasizes that it is crucial to lead the employees during the workshop and often has a theme or focus area, which often is the departments and organizational goals.

At Autoliv, educating and training their employee for innovation is department driven, where specific departments are in need and suitable for more education than others. In addition, the respondent believes the training is more suitable for incremental projects such as product developments, where the employees often have more knowledge than radical innovation. However, he emphasizes that it is more important to identify in the early stage of the innovation process which kind of knowledge and expertise is needed by having a clear purpose for the project. This will create a demand for people matching the requirement specification that Autoliv will start searching for.

The Capgemini expert believes training employees is essential to promote innovation. Especially in radical innovation, leaders must train their employees to think outside the box. It has to do with being curious, he says. This is the task of the leader. Furthermore, there are a variety of tools. He concludes that it is easy for employees to enter an organization and think that everything is working, but that is usually different.

The Chalmers University of Technology expert thinks that training the employees to drive innovation is a perfect way of showing the organization's appreciation and support for what the employees are trying to accomplish. Moreover, he also thinks that business talks with the teams are suitable for giving feedback back to the employees. However, these business talks should be constituted with different evaluation criteria; the risk is otherwise that the feedback is not constructive and being more fuzzy than constructive.

#### 4.10 Develop radical innovation

The respondent at Philips emphasizes that for Philips to succeed with more radical innovations, there must be better ways to recognize opportunities that could lead to radical innovation. The respondent took an example of one of the guys working at Philips who came up with the idea behind the iPhone that proposed it for Philips but was rejected every time because Philips did not realize its potential value. He thinks one reason behind this is that the mindset from Philips is that either you work with the innovation in full power, otherwise you dismiss it early. Instead, Nikola Dojcinovic believes that Philips needs to be more risk averse in a later stage of the investment and take the risk even if more resources are needed and the computational is not looking positive at that moment.

The interviewee at Sendify believes that the most critical aspect for Sendify right now to work more efficiently with radical innovation projects is to constitute a clear Vision. This will help the entire company to know in which direction they are aiming, which permeates all organization departments. With this vision, the next step is to break down the vision into subgoals for the organization and all departments. As said before, Sendify is heading for significant organizational changes, and the interviewee is sure they are on the right path to work with more radical innovation projects.

The respondent at Autoliv believes that one of the most critical aspects for having the best chance of succeeding with a radical innovation project is to understand with the company vision in mind which areas have the most significant problems and challenges concerning automotive safety. Based on this, a problem statement needs to be extracted with a need for innovation which will generate value for the company. If these steps are fulfilled, the respondent believes the project team will have a solid foundation to work with, turning the idea into reality. Another essential aspect to consider is to adjust the company competence portfolio to the areas where radical innovation could appear. Otherwise, according to the respondent, there is a risk that radical innovation ideas will not arise if the competencies are not established in the organization.

For AstraZeneca to better understand radical innovation, the interviewee believes in finding the right balance between the core and innovation businesses. In addition, it is vital to stimulate curiosity in the employees, and here the leaders have an essential role. This is because the employees know what is needed and have the knowledge to develop what is needed. Leaders must therefore give their employees the right tools, shape the right culture, and have clear communication.

Senzime's CEO, believes that in the future, she will continue to work on creating curiosity among her employees and work with training and development among her employees. Giving your employees time to work on their incremental innovation and product maintenance ensures a good balance between the core and innovation businesses.

For driving radical innovation projects, the Chalmers University of Technology expert argues that there should be a high degree of awareness about the business ideas and the vision for the company. However, there should also be a high degree of change management that these



business ideas and visions could change in the future. The Chalmers University of Technology expert emphasizes that he does not mean that the companies should take huge risks but to have a mindset of change, and if the change is happening, the strategies and approaches should be in place for taking action.

The Capgemini expert believes that to improve one's innovation work; one must separate incremental and radical innovation more. One must create space to innovate without demands on different KPIs but also work to create a culture that breathes radical innovation. Only focusing on radical innovation will the machine stop, but if you do not do something that is radical innovation, you risk going bankrupt. He believes an excellent way to achieve a good balance is by creating an innovation team or breaking out a department.

## 4.11 Summary of the empirical findings

In Table 4 below, a summary of the empirical findings is presented. In addition, the table presents the essential aspects from the interviews concerning the eight different leadership practices connected to radical and incremental innovation. The findings in the table are the foundation for the analysis to have the best chance to make conclusions between empirical findings and theory to be able to answer the research question.

	<b>Establish a clear set of values within the organization</b>	<b>Develop a well-defined and organized structure for innovation</b>	<b>The Importance of Embracing Risk and Failure in Innovation</b>	<b>The importance of acknowledging and encouraging individual excellence</b>
Radical Innovation	The vision statement is critical for future guidance.	Important with a well-defined structure. Separate department.	Important for selecting radical innovation projects.	Long term reward systems.
Incremental Innovation	The mission statement is important for short-term guidance.	More of a straightforward approach.	Suitable tool for evaluating risk in short-term projects.	Short-term feedback discussions.
	<b>Establish internal and external collaborations</b>	<b>Design Creative Teams</b>	<b>The importance of providing time and resources</b>	<b>The importance of providing training and development opportunities</b>
Radical Innovation	It is important to access knowledge from different places in the organization and from external sources.	Often a project leader gathering members from different departments in the organization.	Good way to access radical innovation opportunities from employees in the organization.	Important for specific departments in the organization.
Incremental Innovation	Collaborations from the same departments in the line-organization.	A project team from the same department with input from the organization.	Incremental innovation ideas often come from line-organization.	Important for all departments to develop for incremental innovation projects.

Table 4: Summary of the empirical findings

## 5.0 Analysis and Discussion

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*In this chapter, an analysis and discussion of the empirical evidence in relation to the theoretical framework is carried out. It is therefore structured like the previous chapter, based on the eight leadership practices.*

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### 5.1 Establish a clear set of values within the organization

The result shows that all leaders believe that their company has a culture that values innovation, and all leaders think it is essential to promote innovation. Something that goes hand in hand with what Bowen (2013) believes is the key to driving innovation within a company. The vision should be rooted in the organizational culture and shaped by a unique set of values and ethical principles. By having a clear set of values within the organization, you, as a leader, can more easily motivate your employees to innovate, as well as incremental and radical innovation.

The only company that has yet to have a clearly defined vision and mission is Sendify. The other companies, AstraZeneca, Philips, Senzime, and Autoliv, have a clear purpose: to develop and produce new technology through innovation. Whether Sendify falls into what Amabile (1998) calls innovation killers is debatable. Amabile's theory that unclear goals kill a company's creativity is appreciated and reasonable. But since Sendify is doing well anyway, not having a clear, readable vision shouldn't necessarily be a bad thing as long as all employees are on board. While AstraZeneca, Philips, and Autoliv, three large companies with two well-proven business models, work with clearly written down visions regarding innovation, Sendify has the advantage of still being relatively small and has retained its innovative culture from its start-up time. The interviewee at Sendify also emphasizes that it is about the employees knowing what is expected of them rather than having a written vision with the word "innovation" in it. However, he agrees with the other company leaders that the goals must be clear.

Both experts stress that it is essential for a company and leaders to have a clear vision and picture of where the company is going in the future to reduce uncertainty among employees. This is connected to the theory by Podsakoff et al. (1990) that a clear vision statement defines the company's overall goal, providing employees with a framework for making decisions and pursuing new ideas that align with the company's purpose. By creating a clear vision, leaders can improve the conditions within the organization to drive innovation.

## 5.2 Develop a well-defined and organized structure for innovation

Regarding the structure of the innovation process, the theory is straightforward. A transparent and fair structure is an advantage for fostering innovation in an organization. In addition, there is no risk of missing out on good ideas if you have a good structure. This is also something that four out of five leaders work with, the exception being Sendify. AstraZeneca and Autoliv primarily use their Innovation Hubs to process their ideas. Philips works with top-down strategic thinking, developing annual plans from idea to product, and Sensime, with its CIO, is responsible for the entire process. Three different approaches but with the same purpose, to allow leaders to foster innovation in the organization. Sendify, on the other hand, works more with an open approach where you, as an organization, coordinate as you go. Here you can imagine that the company's size may be why it works for the company; the leaders do not have problems collecting all the ideas when fewer employees exist. An interesting aspect is how the interviewee from Sensime, experienced how difficult it is to innovate without a clear structure. Something that Sendify may experience when the company operates further.

If we stay on the same subject, it is interesting to go in and look at how leaders should best choose the right idea and weed out bad ideas. Researchers such as Goffin and Mitchell (2017) believe that the ability to select the right ideas is an important, if not decisive, step for the innovation process. This is interesting because an innovation process without the ability to capture ideas is worthless.

If we move away from the structured picture, Keum, D., & See, K. (2017) believe in a more open and less actor-like leadership when it comes to the first phase of the process, the brainstorming phase. To then gradually become more authoritarian. Something that fits relatively well with the leaders from AstraZeneca, Philips, and Autoliv. AstraZeneca and Autoliv, through its innovation hubs and research centers where employees can laboratory and research their conditions and then get support from above. Furthermore, despite its top-down strategic thinking, Philips can work based on Keum, D., & See, K. (2017) that a more open leadership in the first phase is a good way to get out of the box and get a broader perspective. Employees feel more comfortable and freer to live out their creativity.

If we look at what the experts say, it is clear that structure is an essential cornerstone in fostering innovation in a company. The experts emphasize that leaders must distinguish between radical

and incremental innovation when they develop strategies for their process, showing the importance of distinguishing between the two types of innovation. Asking the question of how to protect radical ideas from being destroyed and ignored is essential. So crucial that the expert from the Chalmers University of Technology considers it the most critical thing. The Capgemini expert stresses that the process of radical innovation should be distinguished from that of incremental innovation. This can be an effective way to give employees the environment they need and managers the chance to give their employees time to research properly.

### 5.3 The importance of embracing risk and failure in innovation

What could be seen through the chapter about embracing risk and failure in the organization is that all the interviewees have a joint picture that embracing risk and failure is important for the innovation process. This will encourage the employees not to be afraid to try new things and instead get motivated by the thought of succeeding with innovation, even if the innovation is incremental or radical. This mindset is aligned with the thoughts of Bel, R. (2010), that says that when companies succeed by embracing employees about failures, that is when the employees have a chance to learn and develop. However, there needs to be a point where the failure needs to be a sign of not continuing with the project, as the Cap Gemini expert emphasizes. This is aligned with the thoughts of Gavin & Levesque, that argue that there is very important to have a clear strategy of how the company should work with trial and error. Otherwise, there is a risk that the same mistakes will occur several times, and the company will fail repeatedly without taking any action. Instead, the companies often try again and fail. The majority of the companies interviewed did not have any clear strategy for how they worked with failures. However, Philips and Autoliv had the most structured way of working with failures. For example, the incremental projects, Philips had the “Spray-and-Pray” approach where they pushed new developments on the market and then took action based on the output. They learned from the failures and adjusted it afterward as a trial and error technique. For the radical innovations, Philips did not invest more than \$700’ which helped Philips not let the innovation get out of hand. However, this could be a problem for Philips in the later stage if a problem with the innovation occurs and the project has exceeded the budget. Autoliv had a similar approach where the interviewee emphasized that it is important to discover risk early in the process because that prevents the company from moving forward with projects with a high degree of risk of failure. This statement goes against what Philips' interviewee means, who says that even if there are a lot of risks, the company must dare to continue and not stop

the project too early. The interviewee said, however, that many factors influence this decision process.

Another interesting point is the need for budget instruments in the innovation process when determining the risk av value of a potential project. The expert from Chalmers University of Technology argues that it could be difficult to use budget instruments like Net present value for more radical innovation projects because it has too short a time frame that does not match the time frame for most radical innovation projects. Instead, the innovation should be seen as insurance for future change and where the incentives do not apply to the thoughts of the net present value of when the innovation could generate monetary income for the company. This mindset from the expert from Chalmers University of Technology could be linked to the article from Christensen et al. (2008), where the authors argue that using financial tools like NPV results in managers that underestimate the purpose of the project and the benefits of continuing to invest in the innovation project. An example from the interviews is with Philips, where the interviewee believes that Philips could be better off proceeding with the innovation project at a later stage instead of rejecting it because of high investment costs. This resulted in rejecting potentially successful projects because management focused on the return on the investment instead of other beneficial aspects.

## 5.4 The importance of acknowledging and encouraging individual excellence

Based on the interviews, the main focus for the companies when talking about rewarding and encouraging the employees is based on cultural values. Most of the interviewees emphasized that if they have a clear business culture that fosters the need for innovation, it will generate motivation through the whole organization and the employees working on the innovation projects. The majority of the interviewees believe that the happiness in helping the company to develop and grow should primarily come from the organization and not from an individual manager. In addition, several of the interviewees also add that when they succeeded in encoring a mindset in the employees that the happiness of succeeding is higher than the risk of failure, that is when they have achieved the innovation culture that all people need to try new things in order to improve, even if it turns out bad.

Both of the interviewed experts talk about different monetary rewarding methods that could be used to incentivize the employees working on the innovation projects to succeed with the projects. However, out of the interviewed companies, one out of five companies is using monetary rewards for succeeding with an innovation: Autoliv, which connects monetary rewards from delivered patents. Autoliv believes this is a good incitement and motivation for the employees to bring up new radical ideas. In addition, four of the five company interviewees did not believe that monetary rewards would not work out well. The risk is that the focus is more on the rewards instead of the innovation itself, making the purpose from the company does not agree with the purpose the people working on the project have.

From a theoretical point of view, Leavitt (2022) argues that there are four different focus areas where companies need to make strategies for rewarding and recognizing their employees: Design issues, Peer recognition, Formal event, and Work structure. In connection with the empirical findings, all companies fulfill two focus areas: Peer recognition and Formal events. Examples could be feedback sessions with the employees to give constructive feedback or workshops with an innovation theme where the employees have a chance to contribute and training for working with different innovation projects. However, the other two focus areas, design issues, and work structure, were not focus areas for the interviewed companies. For example, work structure is connected to providing the employees time besides ordinary work to foster innovative ideas. For the studied companies, this is not a process that they do on an organizational basis. Therefore, according to Leavitt (2022), those areas could be beneficial for companies to work with further to motivate and recognize their employees even more.

## 5.5 Establish internal and external collaborations

From a theoretical standpoint, Bel. (2010) argues that the best way to structure the collaboration approach for an innovation project is with a combination of external and internal sources. However, the authors emphasize that it depends on the purpose of the innovation project and how much of the external versus internal sources is needed. If we deep down further into the theories, Keld Laursen and Ammon Salter agree with the mindset from Bel. (2010), but expanding it further, the authors conducted a research where they concluded that using external sources for radical innovation projects is more important as the technologies are more developed today than before, making the networking aspect more critical. Linking this to the interviewed companies, this is the approach all companies use. One company that stands out is Astra Zeneca, which has the most external collaboration out of the interviewed companies. This is done in their innovation hubs, where they collaborate with several different companies

in an Open innovation approach. According to Astra Zeneca, this is a great way to access knowledge from companies they normally would not work with, resulting in a significant stream of knowledge spreading. However, one reason for this may be the size of the company and the fact that this creates a chance to develop its innovation department significantly more than many of the other companies interviewed. However, we see Philips and Auotliv, which are also very large companies, where the interviewee believes they have the best opportunity to develop innovations within the company, using internal collaboration with support and feedback from external sources.

## 5.6 Design Creative Teams

When designing a team working on innovation projects, theories propose that the team should consist of people from different backgrounds and knowledge to generate the best output. However, it could be time-consuming because it requires that the team members work towards the same goal and support each other, which could be problematic when working in cross-functional teams that have not worked together before. One pitfall which minimizes when working cross-functional is that the group is too homogenous, which will impair the creativity of the team. However, the team working on the project should not either be too heterogeneous; according to Amabile, if the team is too far from each other, this will harm the chemistry in the group and kill the creativity. Therefore, the theories implies the management aspect of compounding the teams, where the manager needs to consider several factors before deciding on the team members. This could be linked to the interview with Philips that changed the team designing process where the idea generator first assembled a team which they, after a while, realized was not the best way because it resulted in a too-homogenous group. Instead, a product manager took control of the selected idea and assembled the team, which created a more dynamic group with different knowledge and backgrounds. However, out of the interviewed companies, all five are working more cross-functional for their radical innovations and with a department approach for their incremental innovations.

Another aspect is the team size; according to Currall et al. (2001), the team should be manageable, making it easy to control several different ambitions in the group. The authors point out that this is especially important for innovation projects with high risk, which could be connected to radical innovation projects. The thoughts from Curall et al. (2010) agree with the mindset from the expert at Capgemini, which believes that a bigger group than eight will



struggle to generate a joint ambition for the project. In connection to the interviewed companies, Philips and Sendify have a rule for how many members a project team could have. For Sendify, six people are the maximum; for Philips, the maximum is seven, matching the mindset of the theories and experts.

## 5.7 The importance of providing time and resources

However, as the theory suggests, all leaders believe that giving their employees enough time to work on innovation is very important. However, AstraZeneca's leader also believes that it is not only the leaders' responsibility to provide enough time and resources but also that employees must discover opportunities and request more time and resources. A perspective that theories such as Christensen et al., 2008 do not address. To create a work environment where employees dare to take the initiative and come forward and ask for extra time and resources, a culture that encourages this is required. Something that Christensen et al. 2008, on the other hand, addresses is the belief in setting aside time each month where the employees can work solely on innovation. It is also something that Senzime and Sendify work on. Sendify sets aside hours each week to talk about development and discuss different ideas, while Senzime has themed days where the employees only get the chance to work with radical innovation. If one goes by the theory, Senzime's approach is the most effective; a leader should invest in setting aside whole days instead of a few individual hours here and there to maximize the effect.

Moving on to Tuschman & O'Reilly's theories about the ambidextrous organization, about companies having to find a way to balance their core business with their change work, this is something that companies think is important but difficult. None of the five interviewed companies does have a rule that says employees should set aside a certain amount of time for the core business and another for innovation but believes this is up to each employee. AstraZeneca leader feels leaders often push forward innovative projects to focus on core business. Something that they have solved by simply moving the radical innovation to their innovation labs. Senzime did something similar, but instead of moving employees to their own department, they appointed a CIO who was given overall responsibility for innovation. Something that may have been done as they only have around 50 employees, and a relatively large part of the company would be missing from the core business.

## 5.8 The importance of providing training and development opportunities

Rampa & Agogue (2021) showed that it is possible to train employees to become better at innovation and radical innovation. The company managers who were interviewed agree with this. Sendify and Philips work a lot with workshops with different themes to get their employees more creative. The fact that Philips' leaders believe that it is primarily about training their employees for the latter phase of the innovation process shows a self-awareness on the part of the leader. He knows what they need to improve and uses training and development to lift his employees to the next level. AstraZeneca, Sensime, and Autoliv work instead to get their employees to want to develop themselves. They aim to get their employees to develop, but here it is the employees' job to drive this development process. Again, it's about creating an environment that encourages self-development; AstraZeneca try to create that environment through their Innovation Hubs, while Sensime has a better starting point than other companies, thanks to their size. If you have few employees, there is a greater opportunity to influence the environment and create a learning environment. Sensime believes that different types of training are needed depending on whether it is radical or incremental innovation. This shows that you need to separate the two types of innovation. While training for incremental innovation may be easier to delegate, one can imagine that for radical innovation, someone must delegate to create the opportunity for the employees to become more creative.

The Chalmers University of Technology and Capgemini experts also see the importance of training their employees. The Capgemini expert believes that by constantly offering training and development for its employees, it can influence the motivation of its employees. Something that fits Gomes et al.'s (2004) theory. By constantly developing the employees, a leader can create an environment where all employees strive for the same goal. Something that can be explained from a sense of team feeling is that if an employee feels that his colleagues and manager want to take the company forward, he becomes motivated. In addition, this opportunity to develop instills a feeling that one's boss trusts and believes in one, which usually positively impacts one's motivation.

## 6.0 Conclusion

*In this chapter, a framework will be presented with the aim of answering the research question. Additionally, each leadership practice will be presented and concluded with the foundation from theories, empirical findings and analysis. Furthermore, a section of suggestions for further research will also be presented.*

### 6.1 Conclusion of the study

To draw conclusions of the entire results, some practices are more attributable to radical innovation, but even more are suitable for both radical and incremental innovation. A framework is created with insights from the research presented in Figure 1 below to present how companies should work with leadership practices regarding innovation.

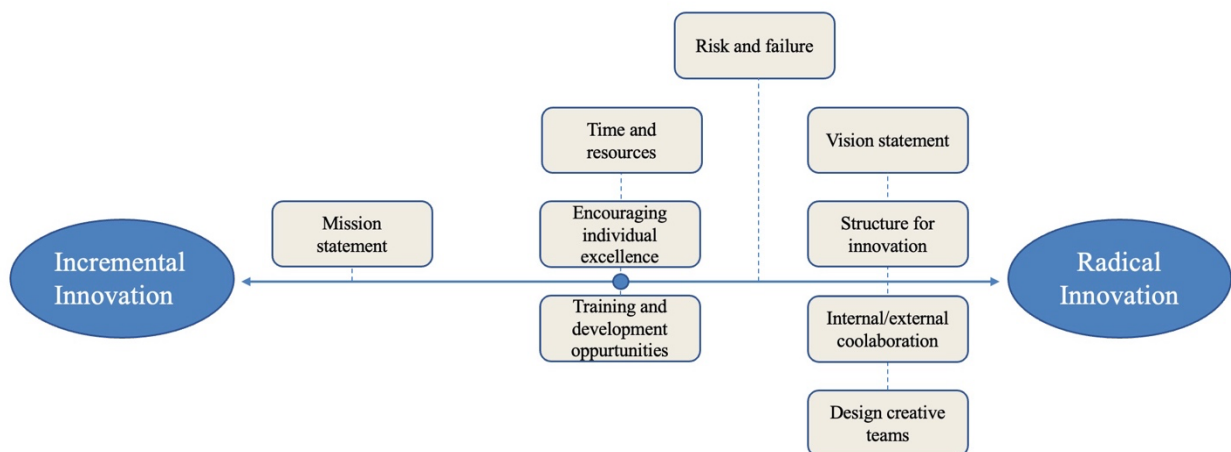


Figure 1: Brentman, A. & Sundling, E. framework for innovation leadership practices.

The company leaders describe the importance of accepting risk & failure as essential to working with innovation. Just as the theory states, embracing failure as a natural part of the innovation process can lead to tremendous long-term success, business leaders believe that without risk & failure, innovation cannot succeed. However, risk and failure can apply to both incremental and radical innovation because innovation is a process that is not always straightforward, even if it concerns product care or launching something completely new.

Two other equally important practices for radical and incremental innovation are *acknowledging and encouraging individual excellence* and *providing training and development opportunities*. This is explained by the fact that it is essential for people to feel

included to succeed with innovation and that people need to stimulate their education as technology progresses. Further, it does not matter what type of innovation you work with; it's just as important.

When discussing *the importance of clear values and mission/vision*, practices differ between incremental and radical innovation. While the importance of having a mission seems to be equal between radical and incremental innovation, the importance of a clear vision is greater in radical innovation. This is explained by the fact that having a clear vision statement helps foster innovation by providing a sense of purpose and direction. Therefore, people need extra clarity when it comes to radical innovation.

Another practice that differs between radical and incremental innovation is *establishing internal and external collaborations*. This is more critical from a radical point of view. This is precisely what Chesbrough tried to explain with Open Innovation. Companies can benefit from gathering information from other companies, other departments within the company, and collaborations with external parties to accelerate their innovation. In the case of radical innovation and entirely new products, this is an effective way to speed up the process. After all, it is not very intelligent to reinvent the wheel. This demonstrates that the theories advocating exploitative collaboration, such as cooperation with suppliers and customers leading to improved product sales, as well as explorative collaboration with universities and research-based companies leading to entirely new product sales, were on the right track.

Last but perhaps most importantly, there is a difference in *the structure of innovation and design creative teams*, which is critical to radical innovation. The company leaders agree regarding creating a culture for their innovation team, either by completely moving it out of the line organization or giving them room to work individually on their innovations. All in order to not let results requirements or other factors influence them. Instead, as several authors argue, let the companies take a longer financial performance view and understand the importance of investing in innovation and development that they could benefit from in the future. And because the company leaders have a maximum number of people in each team and let them work individually, the leaders can create an environment where people can share and spread knowledge and ideas freely by locating the innovation teams in the same place.

## 6.2 Suggestions for further research

Since this study only drew analyses and discussions based on in-depth interviews with seven companies and experts, examining a larger sample and seeing if leadership practices differ will be interesting. The current selection regarding the respondents' industry is also a matter for discussion. A suggestion for further research could have been to choose a different sector. Alternatively, a comprehensive survey where a more significant number of companies within various industries were investigated would have given a more nuanced picture of the research question. Instead of a benchmark, it is also possible to think of case studies that provide a more in-depth understanding of leadership practices' impact and significance. One could also have emphasized the importance of various cultural differences and investigated the extent to which leadership practices are universal or culturally specific. Future research could also have focused on a specific practice and examined its importance more nuancedly.

When it comes to the method and collection of theory, there are, of course, more theories that can be collected that were not possible in this investigation due to the time factor. A qualitative approach has been used in this study regarding the choice of research strategy. Here one could have imagined a combined approach with quantitative and qualitative elements or only quantitative and, through statistical analysis, examined the relationship between different leadership practices variables between a large selection of organizations.

Some theoretical and managerial implications can be explored further. The study assumes that innovation primarily occurs through a top-down approach, where leaders have a significant influence. There are other ways that innovation can be fostered. Further research could focus, for example, on a more bottom-up or collaborative approach or combine the three approaches. Doing this gives a more nuanced picture of which leadership practices are required to foster innovation.

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# Appendix

## Interview guide – Companies

1. What is your definition of innovation in your company?
2. Do you differ between innovation in general (incremental) and radical innovation?
3. Do you have an innovation process and strategy, and how is it structured?
4. How does the leader participate during the innovation process?
5. Do you have a clear vision and mission that is integrated into the company?
6. Are the innovation spectra included in the vision and mission?
7. How do you work with risk and failure, is it accepted at your company?
8. How do you encourage radical innovation along your employees?
9. How do you reward radical innovation along your employees?
10. How do you design your innovation teams regarding:
11. Group composition (cross-functional or from the same department)?
12. What does the collaboration between different departments and task assignments look like?
13. Do you include external sources in your innovation process, and do you differentiate between incremental and radical innovation in this step?
14. Do you provide time and resources for driving radical innovation ideas?
15. How do you balance the company's core business with generating innovative ideas?
16. How do you train and educate your employees for radical innovation?
17. Do you provide feedback back to the employees?
18. How can your company develop the innovation process and strategy, and what will be needed?

## Interview guide - Experts

1. What is your definition of innovation in general, and what is your opinion about different types of innovation (incremental vs. radical)?
2. How important is the innovation process and strategy, and how is it structured?
3. Is there any difference between incremental and radical innovation for how to structure it?
4. How should leaders participate in the innovation process?
5. Do you think it's important to have a clear vision and mission integrated into the company for the innovation process?
6. Should the innovation spectra included be included in the vision and mission?
7. In your opinion, how should companies approach risk and failure regarding innovation?

8. How could you encourage radical innovation along employees?
9. How could you reward radical innovation along employees?
10. How do you think the teams' design should be in a radical innovation project?
11. Group composition (cross-functional or from the same department)?
12. What is your thought on collaboration between different departments and task assignments?  
What is the right way to go?
13. Should you include external sources in your innovation process, and do you differentiate between incremental and radical innovation in this step?
14. What are your thoughts on providing time and resources for driving radical innovation ideas?
15. How should you balance the company's core business with generating innovative ideas?
16. What are your thoughts on training and educating your employees for radical innovation?
17. What should the feedback process look like for this kind of project?
18. How can companies develop their innovation process and strategy, and what will be needed?
19. What do you think is the key to thriving radical innovation ideas?