Collaboration as a driver of EDI

How Collaborative Activities Drive the Development and Implementation of Employee-Driven Innovation Initiatives.

J. (Joery) de Haas

24-06-2023

MSc. Management of Technology

First supervisor: Dr. N. (Nikos) Pachos-Fokialis
Second supervisor: Dr. M. (Martin) Sand
Chair: Dr. R.M. (Robert) Verburg

Delft University of Technology
Faculty of Technology, Policy and Management, Delft

Ouriginal score: 2.67%

STEDIN TUDelft

Acknowledgements

Finalizing this Master's thesis represents a key achievement in my pursuit of a Master of Science degree in Management of Technology. At this significant stage, I wish to express my gratitude to those who have contributed to my progress and success.

First and foremost, I want to thank my first supervisor, Dr Nikos Pahos. His unique insight on the topic and consistent guidance were invaluable throughout this process. His insights pushed me to think about the subject from multiple angles, which significantly contributed to my work. I would also like to express my appreciation to my committee members, Dr Robert Verburg and Dr Martin Sand. Their constructive feedback and helpful suggestions were vital in guiding my research.

I would like to express my thanks to all the individuals who participated in my research. Their contributions and unique perspectives added depth to my study and resulted in interesting findings. The stimulating conversations with them encouraged me to strive for the best in this research.

Finally, a big thank you to my friends, colleagues and family for their support and motivation throughout the thesis writing process. Their support provided the necessary push to overcome the challenges I faced.

I hope this thesis makes for a good read.

Joery de Haas
2023

Summary

A growing perspective on innovation suggests that significant innovation can stem from employees' daily activities. Traditional innovation practices often delegate decision-making to a select group, typically R&D departments or specialized units. However, this approach overlooks the innovation potential distributed across all employees in an organization. Recent understanding challenges this traditional view, emphasizing that all employees possess the potential for innovation. Recognizing and harnessing this potential can lead to more distributed and effective innovation practices within organizations. This concept is referred to as Employee-Driven Innovation.

In the context of Employee-Driven Innovation (EDI), collaboration is crucial for successful development and implementation. Effective collaboration, reliant on structures promoting knowledge exchange, skill development, and resource sharing, amplifies an organization's performance by capitalizing on individual strengths and expertise. However, the specific impact of collaboration on EDI practices is not well-understood, creating a gap in the literature and an opportunity to explore how collaboration influences EDI. Understanding these dynamics can inform and shape effective EDI practices. Therefore, it's essential to investigate the influence of collaborative activity on EDI, guiding the formation of effective strategies and driving successful EDI practices.

This research narrows its focus to the development and implementation phase of Employee-Driven Innovation (EDI), as the literature suggests this phase is most influenced by collaborative activities and the organizational context allows deeper research into this specific phase. The central question being explored in this research is: *how do collaborative activities drive the development and implementation of EDI initiatives?*

To address this, a case study is conducted within a single organization, Stedin, a grid operator in the Netherlands. The study encompasses several EDI initiatives and involves questioning both the initiators of the initiatives and collaborators during the development and implementation phase. A semi-structured interview format is used to gather insights.

This research reveals key insights into the contrasting collaborative activities of the "fuzzy front end" and the "back end" of the development and implementation process of EDI initiatives. The fuzzy front end, characterized by exploration, thrives on dynamic, distant, and informal collaboration. These characteristics facilitate swift interactions, overcome organizational resistance, and prevent collective decision-making structures, thus promoting speed and flexibility.

Conversely, the back end, typically more specialized and complex, benefits from stable, intimate, and homogeneous collaboration. This phase involves a time-consuming and complex role transfer, transitioning the EDI to an innovation that can be adopted organization-wide. Stable, homogeneous and intimate collaboration ensures effective implementation and a smooth transition of ownership.

The study also identifies two overarching attributes that impact the entire EDI development and implementation phase: strategic EDI programs, representing formal collaboration structures, and power relations. Formal structures balance the negative effects of excessive autonomy, and provide support, credibility, and accountability, thereby propelling the EDI process. Similarly, power relations enhance EDI development and implementation through several drivers including the provision of support, mandate, and autonomy.

These insights shed new light on the previously unexplored relationship between collaborative activities and the development and implementation of EDI initiatives. By exploring this topic for the first time, the study has provided valuable insights that add to existing academic understanding and practical application of EDI. Employees can utilize this information to tailor their collaborative strategies to the development and implementation phase of the EDI process. Moreover, organizations can leverage strategic EDI programs and power relations to provide a structured yet flexible approach to innovation resulting in better support for the employee engaging in an EDI initiative. The research offers organizations additional information to harness the innovative potential of their employees more effectively.

Table of Contents

1. Introduction

Innovation is considered to be a foundation for organizational success. It plays a central role in the development of new products, services, and processes, capable of boosting productivity, increasing profits, and enabling organizations to adapt to evolving market conditions (Tohidi & Jabbari, 2012). Innovation is the development and implementation of new and novel ideas into a product, process, or service, often involving commercialization (Popadiuk & Choo, 2006).

Historically, the responsibility for stimulating and directing innovation within organizations has been confined to a specific group of individuals, such as those within R&D departments or specialized business units. These are the individuals tasked with making key decisions about the direction of innovation, while the wider employee base is often tasked with carrying out these decisions and performing supplementary tasks (Kesting & Parm Ulhøi, 2010). The approach to innovation has been moving away from models that are mostly centred on this traditional view of innovation and placing increasing attention on other significant sources of the innovation process (Høyrup, 2012). Understanding how businesses build up resources for creativity and innovation has become a critical challenge in discovering new strategies to encourage innovation in all areas of activity (Parjanen, 2012).

In essence, there is an ongoing transition from the conventional top-down approach to innovation to a more distributed model that values and taps into the innovative potential of employees. This transition signifies the emergence of a more democratized innovation process that can potentially yield a diverse array of ideas, making the organization more resilient and adaptable in a fast-paced, ever-changing market environment.

An emerging perspective puts forward that the daily tasks and routines of employees serve as fertile grounds for innovation. This perspective argues that innovation isn't merely the product of deliberate efforts by designated groups, but rather a spontaneous outcome of employees' day-to-day work. It is during the course of these routine activities that employees often stumble upon innovative solutions, driven by a desire to align their interests with the overarching goals of their employers. In essence, employees' daily work becomes a source of dual satisfaction - a way to fulfil their own needs while also contributing to the broader objectives of the organization. (Tuomo, 2013). It is critical to recognize that resources for initiating innovations are distributed across an organization. Therefore, it would be unwise for an organization to ignore the implicit knowledge and innovative capabilities of its regular employees (Haapasaari et al., 2018).

The notion that innovation emerges from employees' everyday activities is known as Employee Driven Innovation (EDI). Following Høyrup (2012, p. 8), EDI can be deducted to the following definition; *the creation and execution of concepts, products, and procedures stemming from the interactions of employees who are not specifically tasked with this responsibility.* The employees who participate in EDI activities do so in addition to their regular work responsibilities (extra-role behaviour) (Buhl et al., 2016). The transition from traditional to employee-driven innovation means that it gives employees the freedom to participate actively in decision-making, the initiation and the development and implementation of new innovative ideas.

To realize this transformation, organizations must acknowledge the workforce's innovation potential and create an environment that supports workers' participation in innovative activities. It necessitates a cultural shift within firms, where employees are given the freedom to suggest and carry out ideas, and management takes a supporting position (Deslée & Dahan, 2018). Employee-driven innovation (EDI) is a branch of innovation that is still relatively immature. The practice of enabling employees to develop new concepts and solutions that can serve as a crucial component in fostering innovation and driving business growth (Tirabeni & Soderquist, 2019).

Employee-Driven Innovation (EDI) has become an increasingly important aspect of innovation in organizations as it enables employees to contribute their unique skills and knowledge to improve the organization's products and services (Tirabeni et al., 2016). The EDI process can be generally split into two distinct phases: the initial emergence and generation of an idea, followed by the development and implementation phase (Echebiri, 2020; Høyrup, 2012; Smith et al., 2012).

1.1. Problem Statement

While the importance of Employee-Driven Innovation (EDI) has been well established, it remains a relatively emerging area of research and practice. Its potential for enabling organizations to benefit from the unique skills and knowledge of their employees in enhancing products, services, and processes is becoming widely recognized. Among the various stages of EDI - the phase of emergence and generation of an idea, and development and implementation phase (Echebiri, 2020; Høyrup, 2012; Smith et al., 2012) - the last phase, development and implementation, is considered to be the most crucial and difficult for organisations, as it transforms EDI initiatives into innovative outcomes (Haapasaari et al., 2018). Despite this, it is also recognized as a phase in which many organizations face challenges, given that numerous factors can impede or drive the successful development and implementation of EDI initiatives (Aaltonen & Hytti, 2014).

There is a limited understanding of some of these factors and the specific mechanisms that underpin the development and implementation phase of the EDI process. Specifically, the extent to which these factors contribute to the successful execution and the desired outcomes of EDI initiatives is still under-explored. This knowledge gap is limiting the ability of organizations to optimize the process of EDI, particularly the crucial development and implementation phase, thereby possibly hindering the overall innovation potential within firms. One of these key, but under-explored, factors potentially driving the successful development and implementation of EDI initiatives in organizations is found to be collaboration.

While Smith et al. (2012) acknowledge the importance of collaboration, the literature lacks a comprehensive exploration of the specific effects of collaborative activity on the development and implementation process of the EDI process. The insufficient understanding of how collaboration functions in the development and implementation phase of EDI could transform it from a driver to a barrier. This could potentially prevent EDI from achieving its full innovative potential. When collaboration is successfully applied within the context of EDI, it can lead to more novel, comprehensive, and effective ideas and solutions. Without an understanding of how to effectively facilitate collaboration or how collaboration could potentially drive EDI in the development and implementation phase, organizations could miss out on these opportunities. Additionally, collaboration is a key component of a culture of innovation, encouraging openness, knowledge sharing, and cross-functional cooperation. Without an understanding of how collaboration contributes to EDI, organizations may struggle to cultivate this culture, potentially impacting the frequency and quality of innovative initiatives.

1.2. Research Objective & Knowledge Gap

Current literature states that it is essential for an organization to foster a culture of joint-innovation effort in order to overcome potential barriers and increase innovation capability through EDI practices. These collaborative efforts require a cohesive and integrated approach that encompasses various aspects of the organization. By ensuring successful interplay among these aspects, an organization can effectively implement EDI practices and achieve improved innovation capacity (Aasen et al., 2012).

The inherent purpose of EDI is to foster and realize innovative effects through employee involvement, but this activity is not limited to the employee or group initiating the initiative. A single group or employee cannot assume all the crucial roles in the innovation process, such as idea generation, scouting, connecting, testing, and implementing (Tirabeni & Soderquist, 2019). Like mentioned before, the process of EDI can be divided in two distinct phases: the phase of emergence and generation of an idea, and development and implementation phase. The emergence of and search for ideas, as well as idea generation, are activities that predominantly occur at the individual level (Echebiri, 2020; Smith et al., 2012). On the contrary, idea development and implementation primarily take place at the team or organizational level (Echebiri, 2020). Collaboration is found to be mostly important in the development and implementation phase of an EDI initiative as it has the potential to influence the innovation process as well as its outcomes.

Despite recognition of the potential role of collaboration in driving Employee-Driven Innovation (EDI) initiatives, there remains a gap in understanding the specific and practical impacts of collaborative activity during the development and implementation phases of EDI. The details of how collaboration influences the process and success of these initiatives are still largely unexplored.

Consequently, there is a need for further research that delves into the effects of collaborative activity on the development and implementation phase of EDI initiatives. This research gap has inspired the creation of a conceptual model to guide the research, as shown in Figure 1.

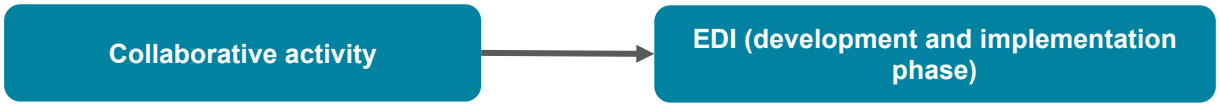

Figure 1, conceptual model of the identified knowledge gap

1.3. Research Questions

The primary aim of this research is to explore the impact of collaborative activities on the development and implementation phase of Employee-Driven Innovation initiatives. The conceptual model presented in Figure 1 outlines the key elements of this study. Based on this, the central research question can be formulated as follows:

"How do collaborative activities drive the development and implementation phase of EDI initiatives?"

In order to achieve this research objective and provide an answer to the primary research question, the research will be steered by five sub-questions, each designed to investigate a distinct part of the broader research theme:

1) How can collaboration be defined and conceptualized in the context of EDI?
2) How can EDI be defined in the context of the organizations EDI initiatives?
3) What specific collaborative activities are prevalent during the development and implementation phase of EDI initiatives?
4) What are driving factors of the EDI development and implementation phase in relation with the collaborative activities?
5) What factors influence collaborative activity during the development and implementation phase of EDI initiatives?

1.4. Research Scope and Potential Contributions

This research aims to examine the role of collaborative activity in driving the development and implementation of EDI initiatives. Specifically, these collaborative dynamics will be examined within a single organization; Stedin. Stedin is a highly regulated grid-operator in the Netherlands concerned with a very big challenge in the upcoming decade: the energy transition. They facilitate energy solutions for businesses and households, focusing on sustainability, reliability and customer satisfaction. Innovation has become a focal point in recently developed strategies for the energy transition:

"… we collaborate across departments within Stedin to ensure coordinated innovation. We distinguish between a push and a pull approach. The push comes from external developments that we can implement, while the pull comes from our employees' innovative solutions to current problems..."

The organisation places a strong emphasis on employee-driven innovation, encouraging their staff to share their ideas and creativity in order to drive overall business improvement. Within this organization, EDI initiatives originate from a variety of sources, each contributing to a rich landscape of EDI activity. One significant source of these initiatives is the organization's strategic EDI programs, designed specifically to nurture and promote such initiatives. These strategically crafted programs are responsible for the majority of the EDI initiatives within the organization and serve as an institutional framework to encourage the creation and growth of EDI initiatives, providing the necessary resources and guidelines.

However, the strategic EDI programs don't represent the whole picture. There are initiatives that have been developed and put into action without being part of these specifically planned programs. This less formal, perhaps more spontaneous, domain of EDI activity is more challenging to study due to the lack of oversight and documentation. Yet, understanding these initiatives is crucial as they could potentially provide unique insights into how collaboration might drive EDI outside of strategic programs. Therefore,

this research will attempt to explore both areas - the formal, structured world of strategic EDI programs, and the more informal, less visible initiatives born outside these programs. The aim of conducting these interviews is to obtain a comprehensive view of how collaboration under different circumstances influences the development and implementation of EDI initiatives.

Furthermore, this research narrows its focus to the development and implementation phase of the EDI initiatives. Three main reasons justify this emphasis. To begin with, literature indicates that collaboration has a more significant and observable effect on EDI during the development and implementation process (Axtell et al., 2000). The initial generation of an idea is considered to be more individualistic, meaning the impact of collaboration becomes more evident in the later stages. It is therefore anticipated that concentrating on the development and implementation phases will yield more insightful results about the role of collaboration in EDI initiatives. Secondly, some organizations and research see EDI as solely the initiation or emergence of an idea. In the context of this organization EDI encompasses both EDI phases, providing a valuable opportunity to delve deeper into the mechanisms of the development and implementation of an EDI initiative adding value to EDI literature. Thirdly, the development and implementation phases are typically the most challenging and critical parts of the EDI process for an organization. Most obstacles encountered throughout the EDI process are particularly noticeable during these phases. The development and implementation phase in an employee driven innovation process is crucial because it translates ideas into real-world solutions (Haapasaari et al., 2018), manages risks and resources, ensures user acceptance, measures the success of an innovation, and provides learnings for future innovation. As such, this research will focus on this specific phase to better understand the how collaborative activity might drive the successful development and implementation of EDI initiatives.

As the research is being done within an organization, the problem statement of the research is partly based on practical problems within the context of this organization. But the relevance can potentially be generalized beyond the scope of the specific organization. By exploring the role of collaborative activity in the development and implementation phase of EDI initiatives, this research could provide organizations with an improved understanding of how to optimize this critical part of the innovation process. These findings could even serve as a practical guide for managers and employees. Additionally, the research could provide insight for organizations that are transitioning or having difficulties transitioning into a EDI based innovation strategy. By highlighting the role of collaborative activity in the EDI development and implementation phase, it could help such organizations in managing this transition more effectively.

The theoretical relevance of this study is grounded in its potential to contribute to the existing body of knowledge on Employee-Driven Innovation (EDI) and collaboration. The current literature on EDI, while growing, has a limited understanding of the role of collaboration in the development and implementation phase of EDI initiatives. This research is aiming to fill this gap by exploring the specific impacts of collaborative activities in these crucial stages of the EDI process. By doing so, it contributes to a deeper understanding of EDI and expands the literature on the subject. The research is designed as an exploratory study, initiating the first steps in this particular field of EDI research.

1.5. Thesis Structure

This research is organised into five primary sections, each representing a distinct phase in the research journey. The first phase lays the groundwork for the research. It clarifies the problem statement, pinpoints existing knowledge gaps, and sets out the objectives and research questions. This initial step provides a strong foundation for the study. The second phase delves into the pool of existing theoretical knowledge, leading to the construction of a broad body of knowledge. This framework sheds light on the concepts of Employee-Driven Innovation (EDI) and collaboration, facilitating a more intricate understanding. An in-depth review of relevant literature paves the way for a deeper exploration of collaboration in the context of innovation later in the research. The third phase involves gathering qualitative data, which is crucial to support the exploratory nature of this research. The methodology applied in this research is outlined, including discussions on research design, data collection methods, and data analysis techniques. The final two phases focus on the analysis and interpretation of the collected data. The gathered data undergoes careful analysis, and the key findings of the data will be reported. Multiple conceptual-frameworks are developed based on these findings. These findings are debated and interpreted in the discussion section, linking back to the existing literature. The thesis concludes by suggesting potential opportunities for future research and highlighting the implications of this research.

2. Literature Review

The literature review for this research delves into two crucial areas: Innovation and Collaboration, each playing a key role in understanding Employee Driven Innovation (EDI) and its relation to collaboration. Firstly, the chapter takes a deep dive into the concept of Innovation, shedding light on its definitions, impacts, and the variables that influence it. A special emphasis is laid on EDI, allowing us to understand this unique form of innovation in detail. Secondly, the review examines Collaboration, a influential factor to EDI yet often perceived as a fuzzy concept within the context of innovation. Exploring current literature could help guide the approach in answering the first two research questions and serves as a base for the data collection and analysis phase.

2.1. Innovation

Any organization's success depends significantly on innovation since it enables the creation of new products, services, and processes that can raise productivity, increase earnings, and react to shifting market conditions (Tohidi & Jabbari, 2012). Innovation is a multifaceted concept that is crucial to the growth and development of businesses, industries, and economies. Many scholars and experts have attempted to define and understand the concept of innovation, leading to a variety of perspectives. Three such perspectives are presented by O'Sullivan & Dooley (2009), Urabe (2018) and Schilling (2019), who offer contrasting yet complementary views on the definition of innovation.

Urabe (2018) provides a comprehensive and detailed understanding of innovation, stating that "*Innovation consists of the generation of a new idea and its implementation into a new product, process or service, leading to the dynamic growth of the national economy and the increase of employment as well as to a creation of pure profit for the innovative business enterprise*." (Urabe, 2018, p. 3). According to this definition, innovation is not just about creating new ideas but also about effectively implementing them in a way that contributes to economic growth, increased employment, and profit generation for businesses.

Furthermore, Urabe (2018) emphasizes that innovation is an ongoing, cumulative process that involves organizational decision-making steps, from idea generation to implementation. This perspective highlights the importance of a continuous flow of information-gathering and entrepreneurial vision in fostering an innovative environment where new ideas can thrive and be transformed into successful products or processes; "*Innovation is never a one-time phenomenon, but a long and cumulative process of a great number of the organizational decision-making process, ranging from the phase of generation of a new idea to its implementation phase. New idea refers to the perception of a new customer need or a new way to produce. It is generated in the cumulative process of information-gathering, coupled with an ever-challenging entrepreneurial vision. Through the implementation process the new idea is developed and commercialized into a new marketable product or a new process with attendant cost reduction and increased productivity''* (Urabe, 2018, p. 3).

Following (O'Sullivan & Dooley, 2009), innovation is about helping organizations grow. Growth is often measured in terms of turnover and profit, but can also occur in knowledge, in human experience, and in efficiency and quality. Innovation is the process of making changes to something established by introducing something new. O'Sullivan's emphasis on knowledge, human experience, and quality/efficiency adds further depth and nuance to the definition of innovation, enriching the understanding of its multidimensional nature: "*Innovation is the process of making changes, large and small, radical and incremental, to products, processes, and services that result in the introduction of something new for the organization that adds value to customers and contributes to the knowledge store of the organization*." (O'Sullivan, 2008, p. 3-5)

On the other hand, Schilling (2019), offers a more succinct definition, describing innovation as - *"the practical implementation of an idea into a new product or process."* (Schilling, 2019, p. 19). This view focuses on the tangible, real-world application of ideas, which is a vital aspect of innovation. Although this definition may not encompass the entire complexity of innovation as Urabe (2018) does, it serves as a useful reminder that innovation must ultimately result in concrete outcomes that can be observed and measured.

Innovation reveals itself in diverse forms, each drawing on specific types of knowledge and influencing competitors and customers within the industry in distinct ways. The literature extensively discusses the various types of innovation and their dimensions. Therefore, in the context of this research, the types of innovation are filtered down to two of the most commonly used and best-understood dimensions of innovation; incremental and disruptive innovation, as well as product, and process innovation.

Product innovations refer to the development of new or improved goods or services that fulfil specific market needs (Popadiuk & Choo, 2006). These innovations are embodied in the outputs of an organization and can be tangible, such as physical products, or intangible, such as digital services. Product innovations should offer improvement in one or more features or performance criteria, this encompasses the integration of new functionalities, as well as improvements to existing capabilities (*The Oslo Manual*, 2018).

In contrast, process innovations are related to the transformation of an organization's operations and the way it conducts its business (Schilling, 2019). This includes the introduction of new input materials, task specifications, work and information flow mechanisms, and equipment used to produce a product or render a service (Popadiuk & Choo, 2006). Process innovations focus on enhancing efficiency, reducing costs, and improving the overall performance of a company's production or service delivery methods. By adopting new techniques in producing or marketing goods and services, organizations can optimize their operations and achieve a competitive edge in the market. A business process innovation is a new or improved business process for one or more business functions that differs significantly from the firm's previous business processes and that has been brought into use in the firm (*The Oslo Manual*, 2018).

The other dimension in the innovation spectrum is radical innovation and incremental innovation, this dimension is often classified with use of the degree of newness and differentness (Schilling, 2019). Radical innovations are fundamental changes that represent revolutionary advancements in technology. These innovations are characterized by clear departures from existing practices and often involve the creation of entirely new products or processes (Popadiuk & Choo, 2006). Due to their nature, radical innovations often create a high degree of uncertainty in organizations and industries and may require significant investments in technical skills, knowledge, designs, production techniques, and equipment (Popadiuk & Choo, 2006). Incremental innovations, on the other hand, involve minor changes or adjustments to existing products and processes. These innovations do not involve a significant amount of novelty, and they often improve or modify existing products or processes in small but meaningful ways (Popadiuk & Choo, 2006). Examples of incremental innovations include introducing new features in existing products, refining manufacturing processes, or making slight adjustments to the design or functionality of a product (Popadiuk & Choo, 2006).

In essence, the distinction between radical and incremental innovation is based on the degree to which an innovation represents a departure from existing practices. Radical innovations involve significant changes and revolutionary advancements, while incremental innovations consist of smaller, more modest improvements to existing products or processes (Schilling, 2019). The classification and knowledge about these different innovative dimensions is essential in understanding the dynamics and implications of innovation in various industries and contexts.

2.1.1 Employee-Driven Innovation (EDI)

A specific viewpoint that is gaining traction in the context of innovation argues that workers' daily activities are where a large part of the innovative activity can come from. Innovation from employees' daily activities often arises as a result of discovering a way to satisfy both their own interests and that of their employers (Tuomo, 2013). It is critical to recognize that resources for initiating innovations are distributed across an organization. Therefore, it would be unwise for an organization to ignore the implicit knowledge and innovative capabilities of its regular employees (Haapasaari et al., 2018).

In the context of organizations, the authority to make decisions regarding innovations is typically delegated to a select group of individuals, such as a small fraction of specific functions (assuming this to be dedicated R&D departments and innovation specialized business-units) and managers. This division of decision-making responsibilities is considered to be typical in traditional innovation practices (Kesting & Parm Ulhøi, 2010).

Similarly, traditionally, the active and operational creation and implementation process of innovative ideas has been perceived as the purview of R&D departments or other specialized business-units within an organization (Haapasaari et al., 2018).The process of decision-making in these contexts involves identifying potential options and determining the most appropriate course of action for a given situation. This is a common objective for organizations when making decisions about innovations.

It seems to be generally accepted that in the context of traditional innovation practices employees do not have the authority to make decisions concerning the future development of an organisation. Their primary role is to execute the decisions made by management and perform auxiliary tasks (Kesting & Parm Ulhøi, 2010). This traditional view has been challenged by recent developments in the understanding of innovation.

As was already mentioned, historically it has been believed that creating innovations calls for specialized knowledge and is therefore the sole domain of specific business units. However, it is critical to recognize that resources for initiating innovations are distributed across the organization. Therefore, it would be unwise for an organization to ignore the implicit knowledge and innovative capabilities of its regular employees (Haapasaari et al., 2018). This concept operates under the underlying assumption that all employees possess the potential for innovation, which may vary in visibility depending on the extent to which it is recognized and embraced by the firm and its workforce (Amundsen et al., 2014; Bäckström & Lindberg, 2018).

The concept of involving employees in innovation and improvement is not a completely new phenomenon. In 1997, High Involvement Innovation (HII) was introduced in the literature and stated that the involvement of employees in innovative efforts can result into more diversity and flexibility within a firm or industry (Hansen et al., 2017). It suggests that a broad-based involvement in innovation yields superior diversification and flexibility than the traditional model where only a select group participates.

In Scandinavian countries, including Norway, there is a long-standing tradition of employee participation in working life. This tradition was further emphasized by the Norwegian government in the White Paper on Innovation, where employee involvement was identified as a crucial aspect of their innovation policy (Hansen et al., 2017).

Many European countries have adopted similar approaches under various names, such as "high-performance workplaces," "high involvement workplaces," "innovative workplaces," "sustainable work systems," and "employee-driven innovation" (Hansen et al., 2017). Nowadays involvement of employees in innovative processes is often referred to as Employee Driven Innovation (EDI). The core principle of the Employee-Driven Innovation concept is that companies can greatly improve their innovation performance by fostering collaboration between employees and managers (Hansen et al., 2017) and moving away from the traditional view of innovative activities (Kesting & Parm Ulhøi, 2010).

While the name of the concept of engaging employees in innovative processes has come to a somewhat unified definition, the meaning of it remains rather vague and debatable. Hansen et al. (2017), identified several leading sources that provide their definitions of EDI, as can be seen in Table 1. By examining these related yet different definitions, a comprehensive and definitive definition for the context of this research can be formulated.

Table 1, definition of EDI following main sources

Source	Definition of EDI
Kallevig, 2014	*"This implies a recognition that the vast majority can and should contribute to innovation. Individuals represent a significant source of insight and problem solving, whether they work in a development device or have operating tasks."*
An Innovative and Sustainable Norway, 2008, p. 43	*"Employees' active participation in the development of goods, services, and production processes, and in spin-offs from existing businesses."*
Kesselring, 2014, p. 17	*"An informal, bottom-up process."*

Kesting & Parm Ulhøi, 2010, p. 66	*"The generation and implementation of novel ideas, products, and processes originated by a single employee or by joint efforts of two or more employees who are not assigned to this task."*
Høyrup, 2012, p. 8	*"Employee-driven innovation refers to the generation and implementation of new ideas, products, and processes – including the everyday remaking of jobs and organizational practices – originating from interaction of employees, who are not assigned to this task. The processes are unfolded in an organization and may be integrated in cooperative and managerial efforts of the organization. Employees are active and may initiate, support or even drive/lead the processes."*

The most widely accepted and comprehensive definition of Employee-Driven Innovation comes from Høyrup (2012, p. 8), and will function as the principal foundation for this research:

"*Employee-driven innovation refers to the generation and implementation of new ideas, products, and processes – including the everyday remaking of jobs and organizational practices – originating from interaction of employees, who are not assigned to this task. The processes are unfolded in an organization and may be integrated in cooperative and managerial efforts of the organization. Employees are active and may initiate, support or even drive/lead the processes"*

Furthermore, (Høyrup, 2012) classifies EDI activities into three categories. First-order EDI refers to a bottom-up process, initiated by employees, where innovations emerge from "autonomous creation of novelties at the grassroots level". Meaning that the initiatives come from the everyday work of employees and are not initiated with the goal of innovation. This can be seen as a primarily bottom-up process. Second-order EDI refers to management's efforts to systematize employee-initiated (first order) innovations. This involves a mix of bottom-up and top-down processes. Third-order EDI is characterized by managers inviting employees to participate in innovation processes with specific innovation goals in mind. In this case, the innovation process is typically top-down.

The EDI process can be characterized not only by its varying categories but also by its distinct phases. Various sources define different stages within the whole EDI process. Høyrup, (2012), Smith et al. (2012) and Haapasaari et al. (2018) identify two phases in the EDI process. Amundsen et al. (2014) and Echebiri (2020) divide the EDI process into three or four different stages. Using this literature, the phases used in this research are the result of synthesising the phases described. This results in the EDI process to be comprising two primary phases, the emergence and generation of ideas, followed by their development and implementation phase. In the initial phase, creativity plays a dominant role, often emerging from everyday work practices that exhibit qualities of openness and divergence (Høyrup, 2012). Upon the identification and creation of valuable ideas and initiatives, the subsequent development and implementation phase, requires employees to adapt and learn new practices (Høyrup, 2012). This transition ensures that the organization effectively integrates the innovative ideas and knowledge generated in the earlier stage, ultimately transforming an initiative or idea into an innovation (Haapasaari et al., 2018).

2.1.2 Individual and Organizational Outcomes of EDI

EDI has been found to be positively associated with both competitive and environmental performance in organizations (Buhl et al., 2016). By utilizing employees for distinct roles during innovation practises (idea generator, idea scout, idea connector, innovation tester, and user (Tirabeni & Soderquist, 2019)), EDI can effectively engage employees in innovation activities and contribute to the development of new knowledge, skills, and abilities. EDI builds a solid and sustainable innovation culture that can create a stream of competitive advantages in terms of innovations of various kinds (Tirabeni et al., 2016). EDI allows organizations to quickly respond to changing market conditions and customer needs by tapping into the collective knowledge and expertise of their employees. This can result in faster product development cycles and improved time-to-market. By leveraging the creativity and ingenuity of their employees, organizations can develop innovative products and services that differentiate them from their competitors. This can result in increased market share, revenue growth, and profitability.

As suggested by the research of Kesting & Parm Ulhøi (2010) this is due to the fact that, firstly, employees possess implicit knowledge and practice-based skills that are crucial for innovation processes and can provide valuable information through their daily interactions with internal and external partners. Secondly, the sheer number of employees within an organization typically exceeds that of only managers, constituting a considerable creative potential that is often untapped. Finally, employees often have relevant network contacts outside the organization, which can serve as potential sources of new knowledge and ideas.

In both individual and organisational levels of activity, the introduction of EDI can raise productivity, enhance profits and may generate growth (Smith, 2017). As is shown in Table 2, on the organizational level, it is possible to differentiate between operational performance and employee well-being, each of which has direct and indirect effects (Kelchtermans & Beule, 2013).

Operational outcomes through EDI initiatives can contain direct impacts, including the accelerated pace of renewal for products, services, and production, resulting in better value creation ability, reduction in operational disturbances, shorter lead times, and increased material and energy efficiency (Kelchtermans & Beule, 2013). Indirect impacts relate to organizational learning achieved through EDI. This type of learning occurs during the process of ideation and innovating, allowing the organization to simultaneously develop its own way of ideation and innovating and achieve long-term competitive advantage.
EDI also has a positive impact on perceived well-being at work. The active and systematic participation of employees means that issues important to them are better taken into consideration in the renewal process (Kelchtermans & Beule, 2013). In addition, inclusiveness boosts the sense of coherence in all three dimensions, contributing to the experience of inclusiveness. The opportunities to exert influence, utilize skills and competencies, and feel appreciated for contributions during changes increase the sense of coherence and promote well-being.

Table 2, organisational outcomes of employee-driven innovation (Kelchtermans & Beule, 2013)

	Direct Effects	Indirect effects
Operational Performance	Improvements and renewals in products an services and in ways of producing them.	Broad-based organisational learning.
Well-being at Work	Increased “employee-friendly” solutions in products, services and in ways of producing them	Increased experience of inclusiveness in change situations among employees.

Additionally, EDI can have an influence on individual outcomes. EDI engages employees in innovation activities, thus creating a sense of ownership and belongingness to the organization (Tirabeni & Soderquist, 2019). Employees who feel valued and appreciated are more likely to be motivated to contribute to the organization's success (Eisenberger et al., 1990). EDI democratizes innovation by allowing all employees, regardless of their job roles or positions, to take the initiative to propose, develop, and implement innovations (Laviolette et al., 2016). This approach helps to identify innovations that may have gone unnoticed under traditional suggestion systems.

Finally, the effectiveness of EDI practices varies according to how central human involvement is to their operations. EDI practices are impossible to implement for repetitive, low value-added tasks (Lawler et al., 2013). Therefore, organizations must consider the nature of their work and whether it lends itself to EDI practices.

2.1.3 Factors Influencing EDI

Employee-driven innovation (EDI) is a promising approach to promote innovation by encouraging employees to actively participate in the innovation process.
While EDI can offer many benefits, organizations can face several barriers when implementing EDI initiatives. On the other hand, specific drivers can help to overcome these barriers and ensure the successful implementation of EDI initiatives. In order to provide a comprehensive understanding of factors related to various levels of EDI practices, a sequential examination of these factors will be conducted, starting from the general context of EDI, and then moving to the implementation phase of EDI initiatives. This approach aims to provide an exploration of the factors influencing EDI practices across different levels. The first section of the literature review explores the factors that influence Employee-Driven Innovation (EDI) initiatives on a broad level, covering both phases: idea generation and emergence and development and implementation. After establishing this broad overview, focus will be narrowed to investigate specific factors that influence the development and implementation phase of EDI initiatives. It's important to undertake this more focused exploration as differences appear to exist within these two scopes.

Factors Impacting EDI – All Phases

Firstly, the performance of innovative activities within an organization is influenced by various individual-level antecedents and characteristics (Kim, 2004). Some of them can be considered as key factors in the context of EDI practices. Three identified individual antecedents are the need for autonomy, self-leadership, and creativity/innovativeness. Need for autonomy as an individual-level antecedent can help empower individuals to take ownership of their work. Autonomy can act as a moderator and strengthen the relationship between leadership and innovative behaviour (Echebiri, 2020). Another antecedent is self-leadership, which is the process of acquiring and developing self-influence, self-direction, and self-motivation skills necessary for effective performance in the workplace (Echebiri, 2020). Finally, creativity and innovativeness are essential individual-level antecedents for EDI. The presence of creative individuals is critical to organizational success, whether in the public or private sector. The ability to think outside the box, solve problems in new and innovative ways, and collaborate on fresh ideas is vital to achieving success in today's fast-paced business landscape (Parjanen, 2012).

Secondly, leader support or management support are key drivers of EDI initiatives generating novel ideas is often linked with the possibility of facing negative feedback or being overlooked by management, as well as the potential for criticism if the idea does not quickly translate into a lucrative innovation. Such challenges can pose significant barriers in the context of EDI. With this taken into account, Smith et al. (2012) claim that leader support is an important driver for EDI. Leader support can have an effect on intrinsic motivation, idea generation and the relocation of resources during implementation. Leader support is found to be driven by 13 different behaviours; innovative role modelling, intellectual stimulation, stimulating knowledge diffusion, providing vision, consulting, delegation, support for innovation, organisation of feedback, recognition, rewards, providing resources, monitoring, task assignment (de Jong & Den Hartog, 2007).

Thirdly, organizational factors are key in driving EDI initiatives. Organizational norms for innovation have been identified as a critical factor in EDI processes. Specifically, it has been suggested that an organization's attitude towards innovation practices plays a significant role in shaping employees' innovative behaviour (Berisha et al., 2020). The organisational norms for innovation can be indicated with different factors. The first one is considered to be absorptive capacity. Potential absorptive capacity refers to an organization's capacity to value, assimilate, and effectively apply new knowledge (Huang & Rice, 2009). This ability allows organizations to explore new knowledge and are of vital importance in the facilitation of innovation (Parjanen, 2012). Secondly the structure of an organisation can have influence on the organisational norms for innovation. Different organizational structures can facilitate or restrict innovative practices in an organisation (Savvides, 1979). At last, organizations can foster a culture of innovation by adopting new management principles, processes, and work infrastructure that reflect a shared code of conduct between management and employees (Tuomo, 2013). This culture is an important factor in driving organisational norms for innovation and EDI as a whole. In a study conducted by Amundsen et al. (2014) it was found that enterprises that experience increased innovative capacity due to the exploitation of EDI-practices had a number of cultural characteristics in common; commitment, cooperativeness, pride, trust, feeling of security, development orientation, openness, autonomy.

Finally, next to the individual need for autonomy, autonomy fostered on an organizational-level is also an essential factor in driving EDI practices, as it empowers individuals to take ownership of their work and innovate freely. Organizations that provide their employees with autonomy in decision-making and resource allocation are more likely to participate in EDI practices and foster an innovative and creative environment. This can be achieved through a flexible organizational structure, clear goals and objectives, and an environment that encourages risk-taking and experimentation. Autonomy has been found most effective during the process of generating new innovative ideas (Smith et al., 2012). For the EDI to be effective, it is imperative that organizations provide their employees with a sense of autonomy. This autonomy should enable employees to carry out tasks independently, without the need for excessive supervision. As EDI is typically initiated and implemented by employees, such autonomy is fundamental.

Factors Impacting EDI – Specific to the Development and Implementation Phase

Having identified the factors affecting EDI on a broad level, it is now relevant to explore a specific phase of the EDI process: development and implementation of EDI initiatives. As of now factors influencing EDI are explored on a broad level, but it is important to recognize that these factors may vary between the phases of the EDI process. As this study is primarily focussed on the development and implementation phase of EDI initiatives, it is essential to delve deeper into the factors that influence these initiatives in this specific phase.

Axtell et al. (2000) found that the factors most strongly associated with the implementation of initiatives were group and organizational factors, rather than individual or job factors. The involvement of team leaders, team method, diversity of team responsibilities, support for innovation, and participation and support from management are all critical drivers for successful implementation. The implementation phase of EDI initiatives belongs to the organizational, group, or team level. However, According to Echebiri (2020), the development and implementation of innovative ideas within the context of EDI also involve the individual domain. Employees play a crucial role in implementing innovation, but they cannot do it on their own. Thus, both individual and organizational domains are essential in the implementation of EDI initiatives.

Smith et al. (2012) found that the need for homogeneity increases as the implementation stage approaches to ensure the need for close collaboration between teams. Homogeneity in groups and teams is a critical factor for the successful implementation of EDI initiatives.

Additionally, effective resource allocation and support from leaders are critical drivers for the successful implementation of EDI initiatives (Smith et al., 2012). Managers' positive attitudes towards change can create a favourable internal climate for innovation, especially during the implementation stage. Following the research of de Jong & Den Hartog (2007), there are ten leadership behaviours that have been identified as key drivers for employee-driven innovation during the implementation phase.

Furthermore, it is suggested that an organisation need to accept unequal participation among employee in employee-driven innovation and make careful selections concerning who should be involved. Individual-antecedents are as important as leader support and other organisational conditions. The employees' perseverance and commitment is just as important a factor in successfully developing and implementing an EDI initiative (Voxted, 2018).

The literature suggests the existence of a fine line between autonomy and structure in the development implementation phase of EDI initiatives. Echebiri (2020), suggests that autonomy is a key factor in the implementation and development phase of EDI initiatives as it favours employees' innovativeness and involvement. Voxted (2018), suggests a certain structure is necessary to ensure a successful development implementation of EDI initiatives.

Finally, Høyrup (2012) emphasizes that the organizational culture plays a vital role in recognizing and paying attention to initiatives from employees. While employees can generate innovative ideas, these ideas must be supported and institutionalized to become successful innovations. Thus, the organizational culture must support the implementation of innovative ideas generated by employees.

2.1.4 Summary of Literature Findings

Innovation, essential for organizational success, is multi-dimensional, encompassing creation and implementation of new ideas that foster economic growth and profitability (Urabe, 2018). It's a cumulative, decision-making process, stimulating new ideas towards practical implementation (Schilling, 2019). Innovation also contributes to organizational growth through improved knowledge, efficiency, and quality (O'Sullivan & Dooley, 2009). Product innovation entails the creation of improved goods or services, while process innovation transforms organizational operations for enhanced efficiency (Popadiuk & Choo, 2006).

Employee-Driven Innovation (EDI) emphasizes that innovation can originate from everyday activities of workers, utilizing their unique knowledge and capabilities (Tuomo, 2013; Haapasaari et al., 2018). Traditionally, innovation was confined to select groups, with employees largely executing management decisions (Kesting & Parm Ulhøi, 2010). This view has shifted, recognizing the innovation potential spread across all employees. The EDI process, characterized by idea generation and implementation, is both a bottom-up and top-down effort, bridging creativity and learning practices (Høyrup, 2012; Haapasaari et al., 2018). Employee-driven innovation (EDI) is closely tied to organizational success, boosting both competitive and environmental performance (Buhl et al., 2016). Leveraging employee knowledge and skills, EDI promotes faster product development and innovative differentiation in the market (Tirabeni et al., 2016).

Implementing Employee-Driven Innovation (EDI) faces several influential factors. Key individual-level antecedents such as autonomy, self-leadership, and creativity facilitate EDI (Kim, 2004; Echebiri, 2020). Leader support significantly drives EDI, fostering motivation and resource allocation (Smith et al., 2012). Organizational factors, like norms for innovation, absorptive capacity, structure, and culture, also heavily impact EDI (Berisha et al., 2020; Huang & Rice, 2009; Parjanen, 2012; Savvides, 1979; Tuomo, 2013; Amundsen et al., 2014). Furthermore, organizational autonomy is crucial (Smith et al., 2012). For the specific development and implementation phase, factors include team homogeneity, leadership support, accepting unequal participation, balancing autonomy and structure, and supportive organizational culture (Axtell et al., 2000; Smith et al., 2012; Echebiri, 2020; Voxted, 2018; Høyrup, 2012).

2.2. Collaboration

The objective of this research is to explore the relationship between collaboration and EDI initiative development and implementation. Collaboration can be seen as a somewhat fuzzy concept, as it encompasses a wide range of activities and interactions among individuals or organizations working together. The term can be interpreted in various ways, depending on the context, goals, and level of cooperation involved. It is not always clearly defined, and its boundaries may be flexible, making it difficult to precisely delineate or research. Therefore it is important to examine existing literature discussing what collaboration entails, what the characteristics are and what dimensions and types of collaboration exist. The aim of this part of the literature review is to clarify and organize the definition of collaboration, making it less vague, and turning it into a researchable variable that can be studied empirically.

2.2.1 Collaboration in the innovation process

Innovation can be described as a process that is significantly influenced by collaboration (Beyerlein et al., 2006). Participation in innovation practices often begins as an individual activity but eventually evolves into a social and communicative process with community members (Chasanidou et al., 2018).

Collaboration is crucial in generating and evaluating ideas, co-creating prototypes, creating support and providing feedback. Organizational cultures that value collaboration, encourage the free exchange of diverse information, and foster the formation of alliances of collaborators who work together to develop new ideas are conducive to innovation (Albrecht & Ropp, 1984). Interactions among members often include asking questions, sharing experiences, and providing feedback, which can provide valuable insights into the nature of innovation communities, user types, and the quality of contributions (Chasanidou et al., 2018).

Collaboration, in a broad perspective and in the context of innovation, involves working together with others to create or achieve something, sharing resources, information, risks, and responsibilities (Dean, 2010). It requires several enablers such as, mutual engagement, trust, clear mandates and a focus on a common objective (Kaya, 2019). Through collaboration, people of different backgrounds and expertise can enhance each other's capabilities and synthesize differences to create something new.

Understanding the interplay between collaboration and innovation is essential. Collaborative networks are deemed influential in enhancing business performance. González-Benito et al. (2016) support this observation, indicating that business success chances increase when firms actively join-in collaborative activity into their innovation processes. The creation of effective collaboration is essential for an organization to foster innovation.

Drawing on the research of Beyerlein et al. (2006), it can be argued that the opposite of fostering collaborative activities within an organization is the formation of organizational silos. These are isolations on a individual, disciplinary, team or project level. The presence of silos within organizations can often suppress communication and hinders the sharing of knowledge and resources. As innovation increasingly becomes a key competitive advantage, moving from these silos to an open culture of collaboration becomes critical. To do well and stay ahead in today's competitive market, businesses need to effectively use collaborative activities in their innovative processes. So, creating a work culture where everyone values collaboration.

Now narrowing down this topic from innovation in the broadest sense towards the context of Employee-Driven Innovation (EDI), collaboration also stands as a critical component for successful development and implementation of EDI initiatives. Following Tirabeni & Soderquist (2019), collaboration is vital to facilitating an effective EDI environment. In this context, effective collaboration is reliant on well-established structures and routines that promote knowledge exchange, skill development, and resource sharing within teams.

In resemblance with this perspective, Smith et al. (2012) and Dean (2010) argue that collaboration capitalizes on the unique strengths and expertise of individuals and teams, ultimately amplifying the organization's overall performance and efficacy.

However, a tangible gap exists in comprehending the specific impact of collaboration on EDI practices. While the overarching relationship between collaboration and innovation, as well as the effect of collaboration on EDI, is clear, the specific dynamics remain ill-defined. This provides a gap in the literature and an opportunity for an exploration into how collaboration influences the EDI development and implementation phase.

This literature gap not only offers a scholarly opportunity for a nuanced understanding of the relationship between collaborative activity and EDI but also suggests significant practical implications. For instance, how can our understanding of these dynamics inform and shape effective EDI practices in organizations? Consequently, it becomes pivotal to delve deeper into the influence of various facets of collaboration on driving the development and implementation process within EDI initiatives. Research needs to deconstruct the dynamics of collaborative activity to guide the formation of effective collaboration strategies, thereby driving successful EDI practices.

2.2.2 Characteristics of Collaboration

So, collaboration is crucial for promoting and accelerating innovation. However, its broad and complex nature makes it a challenging area to investigate comprehensively. In order to address this complexity, this study intends to focus on tangible elements of collaborative activities within the innovation process, referred to as 'collaborative characteristics'.

These underlying dynamics of collaborative activities can be referred to as the “collaborative DNA”. Researching these underlying dynamics, as being collaborative characteristics, provides a logical approach for examining the intricate and complex nature of collaboration (Welborn, 2003), with the goal of better understanding its potential role in facilitating the development and implementation of EDI initiatives. The goal is eventually to examine these specific characteristics of collaboration within the development and implementation phase of EDI initiatives to find how these characteristics drive EDI development and implementation.

In the following section, the various characteristics that define and distinguish different forms of collaborative activity is explored. Highlighting these characteristics can help understand the meaning and dynamics of collaboration in the context of developing and implementing EDI initiatives.

Intra- and inter-organizational collaboration.
Collaboration, a crucial component in the context of organizational innovation, can be broadly classified into two distinct forms: inter-organizational collaboration and intra-organizational collaboration. Each form presents a unique approach to collaboration, with specific characteristics that differentiate them. By closely examining these two forms of collaboration, a clearer understanding of their implications and dynamics can be gained. This sets the stage for a more comprehensive analysis of their role in promoting the development and implementation phase of EDI initiatives.

Intra-organizational collaboration refers to the process of individuals or teams within an organization working together to achieve common goals or objectives. It involves sharing knowledge, skills, and resources among different units, departments, or functions of the organization (Kaya, 2019). Intra-organizational collaboration can occur through various forms of communication, such as face-to-face interactions, email, video conferencing, or other digital platforms, and it can involve individuals or groups at different levels of the organizational hierarchy. Intra-organizational collaboration can be a vital contributor to an organization's innovation performance. By creating an interconnected network of knowledge exchange and joint problem-solving, firms can maximize their knowledge diversity, recombine existing technologies effectively, and ultimately drive product innovation forward. Effective intra-organizational collaboration can break down silos within an organization, facilitate the sharing of resources and expertise, and enable a culture of innovation.

Inter-organizational collaboration refers to collaborative efforts where two or more organizations work together to achieve a common goal or objective (Hagdahl, 2002). It involves the sharing of resources, information, expertise, and decision-making responsibilities between organizations. Inter-organizational collaboration can occur between organizations in the same industry or sector, or between organizations in different sectors, such as private, public, and non-profit (Kaya, 2019).

Inter-organizational collaboration can be a strategic tool for organizations seeking to enhance their competitiveness by leveraging the strengths and expertise of their partners (Hagdahl, 2002, p. 3). Inter-organizational collaboration can facilitate the exchange of knowledge, resources, and ideas among partners, leading to the development of new products, and processes (Hardy et al., 2003). The establishment of collaborative relationships can enhance organizations' ability to respond to changing market conditions, technological advancements, and customer needs.

Formal- and informal- collaboration.

In the context of innovation, collaborative characteristics can primarily be categorized into two types: inter-organizational and intra-organizational. However, this broad categorization contains several other nuanced attributes associated with collaborative activities.

A notable characteristic among these collaborative activities is the existence of formal and informal collaborative structures. These structures play a significant role in shaping the collaborative environment and, in turn, the innovation process. Collaboration is essential for organizations to innovate and adapt to the rapidly changing business environment. However, collaboration can be challenging, especially when it involves individuals and departments with different backgrounds, goals, and working styles.

Formal and informal collaborative structures have been identified as important mechanisms for enabling and facilitating knowledge exchange between individuals and departments within organizations (Kaya, 2019). Sharing knowledge within an organization can be driven both with formal structure and informal connections across the organization (Tsai, 2002).

Formal structures refer to the mechanisms established by organizations to enable resource sharing and knowledge exchange between individuals and departments, these mechanisms may include organizational design, firm-wide incentives, and strategic relatedness (Kaya, 2019). Formal structures are explicitly designed by higher-level authorities to achieve specific organizational goals and objectives. They are typically subject to institutional rules, regulatory procedures, and norms that make them relatively stable.

In contrast, informal structures refer to the social interactions, trust, and shared goals that emerge among individuals and departments within organizations (Kaya, 2019). Informal structures are often not explicitly designed or recognized by higher-level authorities. Instead, they emerge organically as individuals and departments build relationships and collaborate to achieve common goals. Informal structures are often subject to social norms, languages, codes, values, and other practices that are not explicitly stated, making them more fluid and flexible than formal structures (Tsai & Ghoshal, 1998). According to the work of Tsai (2002), informally structured collaboration within an organization can significantly boost knowledge sharing. Simply put, parts of an organization that communicate and socialize informally and through their own network are more likely to share and exchange information with each other.

Both formal and informal structures play important roles in shaping the patterns of knowledge exchange and resource sharing between individuals and departments within organizations. While formal structures are more apparent with high levels of resource sharing and knowledge exchange (Gupta & Govindarajan, 1986), informal structures can be equally important for motivating collaboration and facilitating knowledge sharing by the use of an individuals own social and professional networks. Informal structures based on social interactions, trust, and shared goals are critical for building relationships and fostering a culture of collaboration within organizations (Tsai, 2002).

The collaborative landscape.

Delving deeper into the various characteristics of collaboration, collaborative practices can be further characterized by dynamism and intimacy, as derived from the Collaborative Landscape Model proposed by Welborn (2003). This framework offers two distinct dimensions to facilitate a richer understanding of collaboration and its contextual nuances.

Dynamism refers to the expected duration of a collaboration, which can range from short-term to long-term, in other words, it measures the degree of flexibility and adaptability required in the collaborative effort (Welborn, 2003). High dynamism collaborations may involve rapidly changing conditions, frequent adjustments, and pivots, while low dynamism collaborations may be more stable and predictable.

Intimacy measures the extent to which participants expose their core competencies and value to one another in a collaborative effort and it reflects the level of trust, and interdependence required in the collaboration (Welborn, 2003). High-intimacy collaborations typically involve close relationships, deep mutual understanding, and a willingness to share sensitive information, whereas low-intimacy collaborations may be more transactional and focused on specific goals or outcomes.

Homogeneous and Heterogeneous collaborative structures.

The concepts of homogeneous and heterogeneous collaboration represent two distinct characteristics in the world of collaboration, each with its unique attributes and potential challenges. Both have a significant role in fostering creativity and innovation within organizations.

Homogeneous collaboration is characterized by individuals who share similar characteristics and engage in collaborative efforts. These similarities can include factors such as similar knowledge backgrounds, experiences, goals, and personalities (Guzzo & Dickson, 1996). In a homogeneous team, members may have similar knowledge and skills, making communication and coordination easier. They may share similar ways of thinking and problem-solving, which can help them work more efficiently towards a common goal. This can lead to higher levels of collaboration, innovation, and performance in certain circumstances (Watson et al., 1993).

In contrast, heterogeneous collaboration involves a group of individuals with diverse knowledge backgrounds, experiences, attitudes, and personalities engaging in collaborative efforts (Guzzo & Dickson, 1996). A heterogeneous team can bring unique perspectives, knowledge, and experiences to the table, leading to increased creativity and problem-solving abilities.

Empirical studies have shown that functionally diverse and heterogeneous teams can be more innovative, can develop clearer strategies, can respond more aggressively to competitive threats, and can be quicker to implement certain types of organizational change than functionally homogeneous teams (Bunderson & Sutcliffe, 2002). On the other hand, this diverse and heterogeneous collaborative characteristic could also hinder team processes and effectiveness. Functional diversity, while bringing varied perspectives, can sometimes breed conflict, slow down response to competition, and even impact performance this way (Bunderson & Sutcliffe, 2002).

Understanding the role of homogeneity and heterogeneity as collaborative characteristics is essential for achieving successful innovation outcomes. While homogeneous collaboration may be more effective at the implementation stage, heterogeneous collaboration can be essential during the idea-generation stage (Smith et al., 2012). It is critical to balance the benefits and drawbacks of each approach to optimize collaboration for achieving the best results. By considering the stage of the innovation process and the specific goals of the team, it is possible to create a collaborative environment that fosters creativity, problem-solving, and successful innovation outcomes (Smith et al., 2012).

Power-Relations

In assessing the dynamics of collaboration, the role of power relations becomes an essential element to consider. These relations, often depicted through hierarchical structures within an organization, significantly influence the course and outcome of collaborative activities. This aspect of collaboration underscores the importance of the dynamics within hierarchical relationships among the participants. The nature of these dynamics can be diverse, ranging from collaborations marked by an equal distribution of power to those involving participants with unequal organizational hierarchy status.

Hierarchy, a central feature of organizational structure, is inherently linked to the distribution of power within a collective. This hierarchical setup not only governs information processing and decision-making but also shapes behavioural, psychological, and cognitive dynamics of organizational members (Keum & See, 2014).This means that the distribution of power, and the associated authority, affects collaborative activity, and steering its course and ultimately determining its success.

For example, leadership roles, rooted within this hierarchy, can become the agents of ‘power’ within collaborative processes, specifically in the context of Employee Driven Innovation (EDI). Leaders hold the power to guide, support, and stimulate innovation across various stages, from problem definition to idea generation and evaluation (Smith et al., 2012).

The hierarchical power differences in a collaborative effort also introduces the concept of a "license," a form of managerial permission that allows employees to step outside of their defined roles and contribute to innovation (Kesting & Parm Ulhøi, 2010). This 'license', a clear display of hierarchical power, can make or break the employee's innovative contribution. However, management can also extend its power positively by mentoring employees during idea generation and decision-making stages. Conversely, the lack of such support or its perceived negativity can stifle innovation, creating a barrier against challenging existing routines.

Given these insights, it is clear that hierarchical dynamics within a collaboration, can trigger or influence employees' innovative efforts (de Jong & Den Hartog, 2007). This power dynamic inherent in hierarchical relationships significantly impacts EDI initiatives and their subsequent development. The power dynamics, shaped by hierarchical positions, deeply impact the nature and efficacy of collaboration, particularly in the realm of EDI.

2.2.3 Summary of Liteature Findings

The concept of collaboration can be complex, having many interpretations. This literature review aims to simplify its definition, particularly in the context of Employee-Driven Innovation (EDI) and how collaboration drives the development and implementation of EDI initiatives. The primary goal is to enhance the understanding of collaboration and its potential impact on EDI initiatives.

In the field of innovation and EDI, collaboration involves cooperative activities between individuals aimed at reaching common goals, sharing resources, and jointly managing risks and responsibilities. These collaborative actions possess specific underlying dynamics, or characteristics, which are referred to as the 'DNA of collaboration'.

Multiple sources have been synthesized to identify six key characteristics that appear critical for collaboration within innovation processes. These key attributes include: intimacy, dynamism, collaborative-diversity, structures of formality, power-relations, and organizational scopes.

A examination of these specific characteristics can provide a better understanding of how collaboration drives the development and implementation of EDI initiatives. This method could deliver more tangible results than studying the broad and complex concept of collaboration and is visually represented in Figure 2. However, it's important to recognize that these characteristics can coexist and mutually reinforce each other. For instance, a collaborative activity could be dynamic, formal, and heterogeneous, which means that it is short-term, established and supported by the organization, and includes participants with diverse knowledge backgrounds. Gaining insights into these facets of collaboration can offer a comprehensive understanding of its role in driving EDI initiatives.

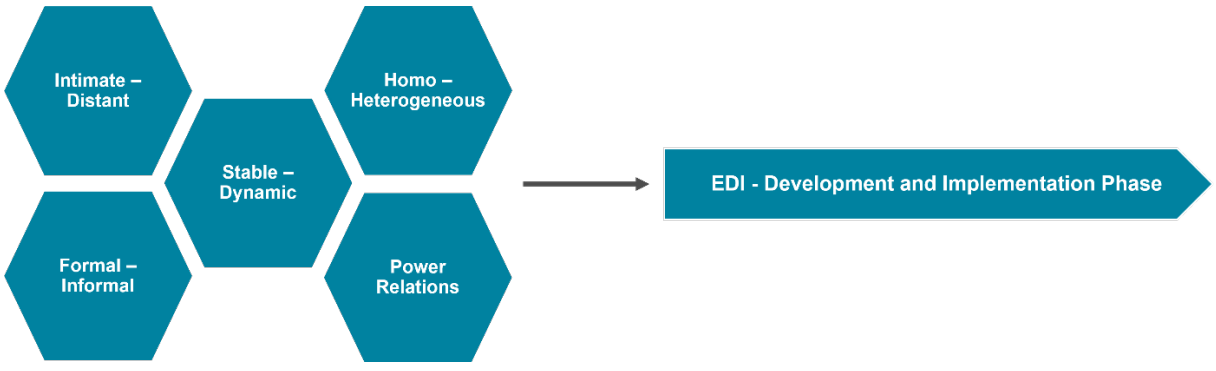

Figure 2, characteristics of collaborative activities in the context of innovation and EDI development and implementation

3. Methodology

The previous chapters outlined the primary research question, sub-questions, research objectives, knowledge gaps and existing literature. Building on this foundation the subsequent chapter will outline the methodology used for conducting the research. The aim is to present a transparent overview of the research methodology, which will provide a well-structured approach to address the research questions and objectives outlined earlier.

3.1. Research approach/design

3.1.1 Research Strategy

In this section, the research strategy is discussed for addressing the main research question in this research: *"How do collaborative activities drive the development and implementation phase of EDI initiatives?"*

The study will draw on existing literature in the field of EDI to build a solid foundation for understanding the relationship between EDI development and implementation and collaboration. This will include theory on; conceptualization and identification of factors affecting effective and successful EDI initiative implementation and the conceptualization of collaboration in the context of innovation processes. This body of knowledge could help to later identify, by using a case study approach, the relation between EDI initiative implementation and collaboration.

While existing literature is an important foundation for research, empirical evidence is essential to support or refute a particular hypothesis or research question. Therefore, research cannot solely rely on literature, but also requires the collection and analysis of data through empirical methods. Such data can be gathered and analysed to obtain a deeper understanding of the subject and generate conclusions that might add to the body of knowledge in the field. The research is structured as shown in Figure 3.

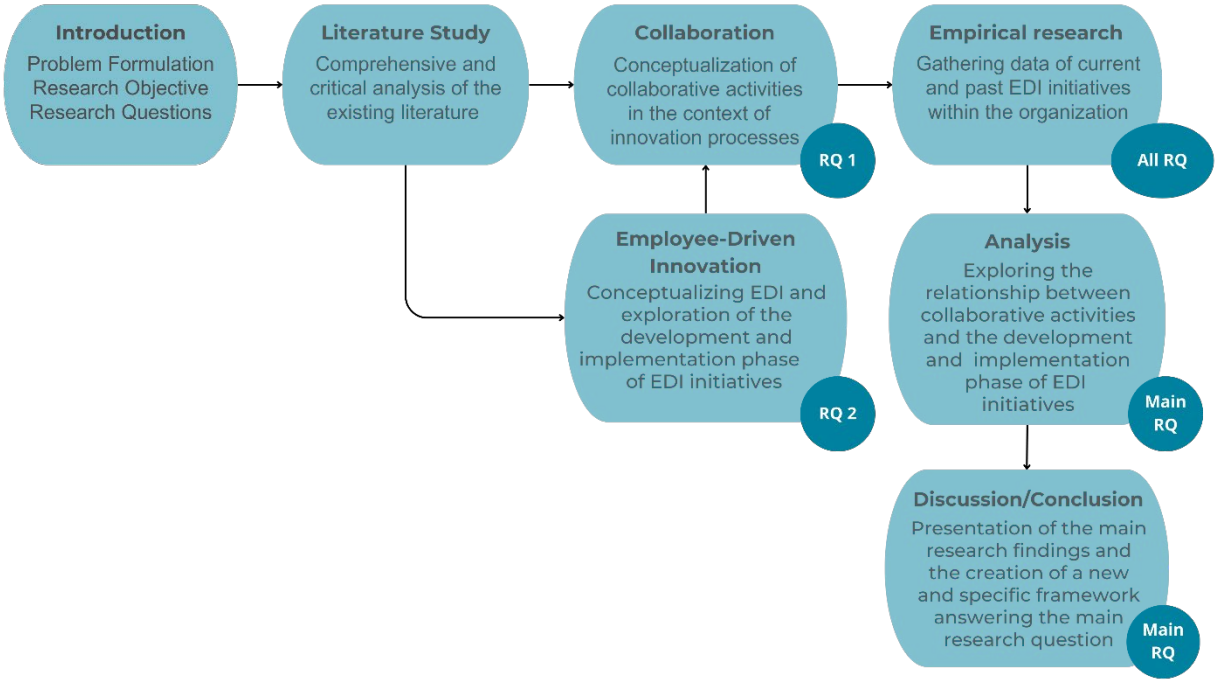

Figure 3, visualization of the research strategy

3.1.2 EDI-Scope for this research

This study adopts a focused lens on Employee Driven Innovation (EDI) within a specific organization; a grid operator functioning in a highly-regulated environment. Such a context inevitably influences the definition and interpretation of innovation, and underscores the importance of situating this research within its distinctive settings.

Definition of Innovation

Interpreting the meaning of innovation is neither straightforward nor universally agreed upon. It often depends on the context and specific objectives of the organization. Different organizations might have varying perspectives on what qualifies as innovative, depending on their goals, operations, and environmental factors.

However, one common thread running through various interpretations of innovation is that it must represent a distinctive approach or idea, and it must add significant value. This value may show as improved customer satisfaction or internal organizational benefits. It could mean revolutionizing product lines, reinventing processes, or perhaps creating entirely new markets.

For the purpose of this research, the lens of firm-level innovation is used, recognizing that the concept of innovation is contingent upon the context in which it's applied. To further solidify the understanding and to determine whether an initiative qualifies as an innovation, a decision-making tree is proposed based on Urabe's (2018) definition of innovation while taking into account the context of firm-level innovation.

```
Is the initiative new or an improvement to something that already exists?
└── Yes: Does it stand out from the rest?
    └── Yes: Does it make end-users' lives easier?
        └── Yes: Is it desirable, feasible and viable?
            └── Yes: Is it results-oriented?
                └── Yes: Does it positively impact business systems?
                    └── Yes: Does it optimize the use of resources?
                            └── Yes: The initiative or idea can be considered an innovation.
```

The development and implementation phase of the innovation process

EDI initiatives encompass two primary stages: the emergence and generation of ideas, which eventually leads to their development and implementation (Echebiri, 2020; Høyrup, 2012; Smith et al., 2012).

While the other phase, the emergence and generation of ideas, hold importance, they can be elusive and more challenging to track down in a research scenario. In contrast, the development and implementation phase is more observable, measurable, and therefore, provides a more robust basis for this research. This is due to the organizational context in which the development and implementation phase is more transparent then the emergence and generation of an EDI idea, as well as the literature stating that in the context of researching collaborative activity, the development and implementation phase tends to offer more tangible and researchable material.

3.1.3 Research Approach

Organizational Context

Operating as a grid operator, the organization is situated at the intersection of energy production and consumption, a position that demands a delicate balance between extreme reliability and continuous innovation. The tightly regulated environment and a history of government ownership could add layers of complexity to the innovation process. This context needs to be considered during this research as the unique organizational characteristics shape the research environment and could potentially guide the study towards understanding how EDI succeeds in such distinctive settings.

This specific research will be conducted at an organization named Stedin. Stedin is a leading energy distribution company based in the Netherlands. They provide energy solutions for businesses and households, focusing on sustainability, reliability, and customer satisfaction. Innovation has become a focal point in recently developed strategies for the energy transition:

"… we collaborate across departments within Stedin to ensure coordinated innovation. We distinguish between a push and a pull approach. The push comes from external developments that we can implement, while the pull comes from our employees seeking innovative solutions to current problems …"

The organization strongly encourages its staff to share their ideas and creativity to drive business growth and improve customer satisfaction, the company has adopted an Employee Driven Innovation (EDI) strategy, which has been put into action and is currently ongoing. The strategy serves to stimulate employees to think outside the box and come up with creative solutions. This approach allows employees to demonstrate initiative and contribute their suggestions and ideas toward improving the organization's processes, products, and services. After operating for several years, the strategy has given rise to several initiatives and currently supports the launch of fresh ones.

Qualitative Research Approach

The research aims to examine the development and implementation phase of the EDI initiatives within the organization of Stedin, with the objective of retrieving relevant data specific to the organization. Following Yin (2018), the case-study approach is important in answering 'how' questions and dealing with contemporary phenomena in their real-life setting. As such, the research will adopt a case study approach to provide an in-depth examination of the EDI initiatives within Stedin, which will contribute to the broader understanding of the concept of EDI in organizational settings.

The existence of multiple EDI initiatives (past and present) within the organization provides the opportunity to collect data from various sources, rather than limiting the scope to a single initiative. As a result, the case study methodology employed in this research will adhere to the structure of an "embedded single case with multiple units of analysis," as outlined by Yin (2018) and illustrated in Figure 4. This approach enables a comprehensive examination of the organization's EDI initiatives while maintaining focus on the individual efforts and their specific processes and outcomes. This approach will also enable the collection of a more diverse dataset, as data will be obtained from various sources within the organization, allowing for a broader perspective on the overall EDI process and its development and implementation phase.

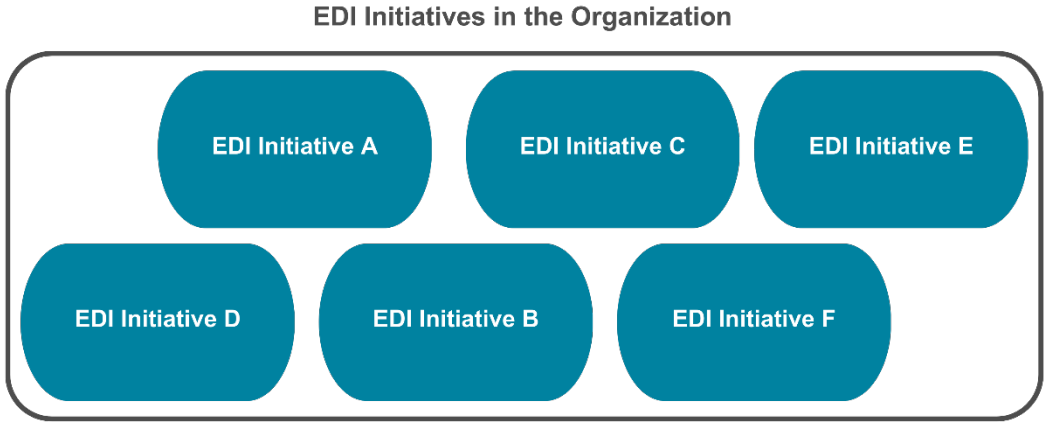

Figure 4, the embedded single case with multiple units of analysis

3.1.4 Case and Unit of analysis selection

As previously mentioned, the research will be conducted within a single organization, employing a case study approach to explore the EDI processes and initiatives at Stedin, a Dutch grid operator. Stedin is known for fostering a culture of innovation and actively encouraging employee-driven initiatives. The organization has worked on multiple EDI initiatives, making it an ideal case for this research.

The goal is to examine various EDI initiatives within Stedin to gain a more in-depth understanding of the relationship between collaborative activity and their characteristics and the development and implementation phase of the EDI process. As a result, this research will concentrate on multiple units of analysis, which are the individual EDI initiatives, situated within the broader context of the organization's EDI activities. An EDI initiative can be described as a concerted effort or project undertaken by employees, aiming to develop and implement innovative ideas, solutions, or processes within the organization. These initiatives are marked by the active participation of employees from various departments and hierarchical levels, as they work together and contribute their unique insights and expertise to foster innovation. EDI initiatives can be categorized into two distinct processes: the idea generation and initiation phase, and the development and implementation phase (as described in chapter 2.1.1.). According to the literature, in some EDI initiatives, employees are only involved in the first phase of the innovation process. However, in the context of this research, EDI encompasses the inclusion of employees in both the initial initiation and generation phase, as well as the development and implementation phase.

The EDI initiatives are developed and implemented differently in the context of the organization and can be divided into two main categories: those without a supporting structure in place and those with supporting and guiding structures in place. In the first category, the initiatives emerge from the grassroots level, where employees independently develop and implement their ideas without any formal support or guidance. In contrast, the second category of EDI initiatives involves development and implementation within specific strategic EDI programs that offer support and help during the process. These initiatives benefit from the presence of structured guidance and resources, ensuring that employees receive the necessary assistance to bring their ideas to completion. By understanding the different contexts in which EDI initiatives are developed and implemented, the organization can identify the most effective approaches and strategies to foster innovation and collaboration, ultimately leading to greater success in driving business growth and enhancing customer satisfaction.

Within the organization, a multitude of potential units of analysis, in the form of various initiatives, can be considered for inclusion in the research. Over 25 distinct employee improvement and innovation initiatives have been identified. Keeping in mind the timeframe in which the research is performed and linked to this limitation the quality of the data collection and analysis, not all EDI initiatives within the company can be analysed. Therefore a selection has to be made using purposive sampling procedures in order to get the most information possible out of the initiative selection. The initiatives will be selected based on certain pre-conditions.

These preconditions are guided by the literature on EDI and innovation and the organisational context, taking into consideration several criteria to ensure that the chosen initiatives are representative and relevant to the research objectives. The following criteria will be used to select suitable initiatives for this study:

> Innovation: The initiative must be considered innovative within the context of the organization. When questioning what is and isn't an innovation things can quickly become very fuzzy. The concept of innovation is subjective, and what may be regarded as innovative can vary depending on the context in which it is being considered. Therefore in this research innovation will be defined following Urabe's definition; "…generation of a new idea and its implementation into a new product, process or service, leading to the dynamic growth of the national economy and the increase of pure profit for the innovative business enterprise…".
> The innovativeness of EDI initiatives will be evaluated using the decision-making tree described in chapter 3.1.2. This approach will help determine whether an EDI initiative qualifies as innovative, both in terms of academic literature and within the organization's specific context. The questions will be contextualized within the scope of firm-level innovation, factoring in the unique environment of the organization. This means considering whether the idea enhances a product or stands out from the rest within the specific context of the organization.

Type of innovation: A specific type of innovation should be identifiable within each initiative. The selected initiatives should represent one of the innovation types extracted from the literature; product and process innovations. There appear to be no radical EDI initiative within the organization, this sets the limitation for type of innovation to incremental innovations.

EDI and type: The EDI initiative must conform to the definition of Employee-Driven Innovation and should be identifiable according to one of the two EDI types: EDI from the graasroot level and EDI supported by dedicated strategic programs. This classification ensures that the selected initiatives not only adhere to the principles of EDI but also capture the diversity found within the spectrum of Employee-Driven Innovation practices in the organization.

Criteria for diversity: the initiatives must be chosen in a way that a majority of different characteristics are incorporated in the selection. This way the research will include a diverse set of initiatives that collectively represent the full spectrum of variables relevant to the study of collaboration in Employee-Driven Innovation.

- The selected initiatives should showcase a diverse range of innovation types, covering product and process, innovations. Similarly, they should also represent a variety of EDI concepts (grassroot-level EDI and EDI supported by a strategic program), ensuring a variate understanding of the different aspects of Employee-Driven Innovation.
- Initiatives at various stages of development and implementation should be included, ranging from early-stage concepts to fully implemented solutions.
- The initiatives should originate from employees at different hierarchical levels within the organization, ensuring that perspectives from both management and non-management roles are represented.
- The selection should include initiatives that have emerged and are being developed in both structured EDI programs and those arisen organically from grassroots efforts without organizational structures put into place.

For example, the selected initiatives may include one that focuses on process innovation and another on product innovation; one that exemplifies grassroot-level EDI and another that represents EDI supported by a strategic program; one that originates from a strategic EDI program and another that stems from a grassroots effort without formal support; and one initiative initiated by a manager or leader and another by an employee in a lower hierarchical position.

Through a careful case selection process, cases can be selected that could provide a broad understanding of the role that collaboration plays during the implementation of different EDI initiatives within the organization. The selection procedure is designed to ensure a diverse and well-rounded collection of cases that represent the majority of distinct characteristics an EDI initiative can possess, while simultaneously confirming that the initiative is indeed innovative and aligns with the definition of an EDI initiative.

Examples of EDI initiatives

The selection criteria results in specific EDI initiatives from the organization that are incorporated in this research. The first example for such initiative is the development of a traineeship program aiming to solve the organization's skill shortage. It's a hands-on and practical-level traineeship tailored towards executive and technical staff. With a curriculum covering high-voltage technology's primary components, protections, and cables and lines. The program diversifies skillsets and opens up a new market of potential employees - those with motivation and learning capability but without a technical background.

Another example of an EDI initiative which results from the selection criteria is the development of workplace and failure-support containers. This initiative is a product innovation responding to the need for on-site availability of necessary tools and materials. This innovation is a portable, fully-equipped container for each project, enhancing operational efficiency and safety. By circumventing continuous work stoppages for material requests and vehicle overloading risks, this employee-driven solution greatly improves the practical aspects of project execution.

3.2. Case study protocol

3.2.1 Overview of the case study(s)

As can be seen in table 3, the selection procedure enabled the identification of eight appropriate initiatives for this research. These initiatives exhibit a range of diverse characteristics, encompassing variables such as status, type of innovation, roles within the organization, and type of EDI, which ensures a complete representation of the characteristics of EDI initiatives. This diverse selection ensures that the research captures a wide range of perspectives and experiences, ultimately providing a more in-depth collection and analysis of the data.

Table 3, selection of EDI initiatives and initiators for the qualitative data collection

	Initiator	Essence / idea	Status	Type of innovation	Type of EDI
I1.	Team-Leader	Traineeship as a new talent pipeline	Complete	Process	Strategic EDI program
I2.	Manager	Establishing an in-company training and learning facility	Complete	Process	Grassroot level
I3.	Engineer	SA-System improvement	Complete	Process	Strategic EDI program
I4.	Manager	Improving the project control manual	Current	Process	Strategic EDI program
I5.	Operations	Storage containers/workplace containers	Complete	Product	Grassroot level
I6.	Engineer	Ultrasound technology	Complete	Product	Strategic EDI program
I7.	Operations	Investigating magnetic coating to reduce energy loss	Current	Product	Strategic EDI program
I8.	Engineer	HoloLens integration	Complete	Product	Strategic EDI program

3.2.2 Data collection procedures

Method

To collect primary data, semi-structured interviews will be conducted with key stakeholders involved in the selected EDI initiatives. These stakeholders include employees, managers, and other relevant individuals who have played a role in the initiation or collaborative network of the development and implementation phase of the EDI initiatives. The interviews will aim to gather information about the collaborative activities used in the EDI development and implementation process, and their characteristics contributing the success or failure this distinct innovation process phase.

Semi-structured interviews are chosen as the primary data collection method because they allow for flexibility in the interview process, enabling the exploration of specific topics and themes in more depth while still maintaining a level of structure and consistency across interviews. Especially for explorative research semi-structured interviews can provide new insights that could not be achieved with structured interviews or surveys (Louise Barriball & While, 1994). An interview guide containing a list of open-ended questions will be prepared, serving as a starting point for the interviews. These questions will be designed to gather information about the collaborative activities within the development and implementation phase of the initiatives, the collaborative factors contributing to their success or failure, and the factors allowing collaboration to thrive in such processes. However, there will also be room for follow-up questions and engaging in a more open-ended dialogue with interviewees to gain deeper insights into their experiences and perspectives.

Interview participants are selected based on their involvement in the selected EDI initiatives. Key stakeholders, such as employees, managers, and other relevant individuals who have played a role in the development and implementation of the initiatives, are considered for interviews. To ensure a diverse range of perspectives, interviewees from different hierarchical levels, departments, and roles within the organization are included. The recruitment of participants is carried out through two distinct methods. First, the initiators and employees directly involved in the EDI initiatives will be interviewed with a focus on their experiences in the development and implementation process.

Following from the interviews with the EDI initiators, individuals that seem to have played a important collaborative role, are interviewed. This group may include colleagues from the same or different departments, external collaborators, and leaders or managers. By engaging with this diverse array of stakeholders, the research will be able to capture a more comprehensive understanding of the factors that influence the development and implementation of EDI initiatives, as well as the role that collaboration plays in driving the development and implementation process of EDI initiatives. Collaborators are chosen after initial interviews with initiators are conducted. This is done when it becomes apparent that the collaborators can lend deeper insights into the roles they've played and their collaboration with the initiator to advance EDI development and implementation. As a result, the following participants emerge for the second stakeholder group:

Table 4, selection of collaborators in EDI initiatives for the qualitative data collection

	Collaborator	Role in the EDI process
C1.	Project-Manager	Involved in the development and implementation of the storage / workplace container initiative
C2.	Trainee	Involved in the development and implementation of the HoloLens initiative
C3.	Strategic EDI Program Collaborator	Involved in various EDI initiatives coming from a strategic EDI program
C4.	Business-unit Director	Involved as a managing director in various EDI initiatives

Before conducting the interviews, informed consent will be obtained from the participants, and the purpose of the study, the voluntary nature of their participation, and how their confidentiality is maintained throughout the research process will be explained. Because of the nature of semi-structured interviews, face-to-face interviews are the most preferable. If this is not feasible, the option to conduct an online meeting will be available. To facilitate the analysis and ensure the accuracy of the data collected, permission to audio record the interviews will be requested. If consent is granted, the recordings will be used to create an anonymized interview summary to be included in this research (as has been approved by the HREC).

It is important to note that the specific details of the semi-structured interview process may be subject to change based on the evolving needs of the research and the feedback received from the participants. The interview guide, questions, and overall approach may be refined during the process of the interviews to ensure the most relevant and insightful data is collected for the study.

Interview Questions

In order to develop effective interview questions for this research, it is essential to recognize the different roles and perspectives of the participants involved in each initiative. By doing so, tailored questions can be formulated that address the unique experiences and insights of each participant-type. As a result, two distinct sets of questions are compiled to accommodate the different stakeholders participating in the interviews: the initiator of the initiative and those who had a collaborative role in the EDI process (such as colleagues, leaders, managers, or external partners).

For the initiator of the initiative, the interview questions will focus on their experiences during the innovation process, particularly the development and implementation stages. This includes questions regarding the main components, objectives, and expected outcomes of their idea, as well as any factors that may have helped or hindered their progress. Additionally, questions will explore the nature and extent of collaboration during the process, the roles and backgrounds of collaborators, and the strategies or tools used to enhance efficiency and effectiveness. On the other hand, for participants who had a collaborative role in the EDI process, the interview questions will emphasize their experiences and contributions to the development and implementation phases. This may involve inquiries about their specific roles in the innovation process, the support they provided, and the expertise they brought to the table. The questions used in the semi-structured interviews together with potential follow-up questions can be seen in Appendix I.

3.2.3 Data analysis methods/Procedures

Thematic Analysis and Data Interpretation; the collected data from the semi-structured interviews will be analysed using thematic analysis, a qualitative method for identifying, analysing, and interpreting patterns of meaning (themes) within the data. The thematic analysis provides a flexible and useful research tool that can offer a rich and detailed account of the data, allowing for the exploration of the role of collaboration in the development and implementation phase of various EDI initiatives within the organization. The process of thematic analysis can be broken down into six distinct phases, as outlined by Braun and Clarke (2006).

- Familiarization with the data: In this phase, the interview transcripts will be read and re-read to become familiar with the data and to gain an overall understanding of the participants' experiences and perspectives. Initial ideas and impressions will be noted down for future reference. In accordance with the HREC guidelines, the interview transcripts will be used to generate anonymized interview summaries for subsequent analysis procedures. This way the raw and personal data can be kept confidential.
- Generating initial codes: The transcripts will be systematically coded, identifying features of the data that are relevant to the research objectives. Codes will be assigned to words, phrases, sentences, or sections of text that capture the essence of the participant's responses. During this phase, an inductive approach will be used, allowing for codes to emerge naturally from the data without any preconceived categories or expectations.
- Searching for themes: Once the initial coding is complete, the codes will be examined to identify broader patterns and relationships among them. These patterns will be grouped together to form potential themes, which will be further refined in the next phase.
- Defining and naming themes: Once the themes have been reviewed and refined, they will be clearly defined and named to capture their essence and significance. This will involve developing a detailed description of each theme, including its scope, content, and the relationships between themes.
- Producing the report: Finally, the results of the thematic analysis will be incorporated into the research report, providing a coherent and comprehensive narrative of the findings. This will include a description of the themes, supported by quotes and examples from the interview data, a discussion and the implications of the findings.

By following this systematic process, the thematic analysis will help uncover the underlying patterns and themes within the data, providing valuable insights into the collaborative aspects of the selected EDI initiatives and the factors contributing to their success or failure within the organization.

3.2.4 Validity, Reliability and Generalizability

In this section, the three crucial aspects of research design and methodology are discussed: validity, and reliability. These key concepts play a significant role in determining the overall quality and rigor of a study, as they ensure that the research findings are accurate, consistent, and applicable to a broader context.

A case study protocol will be established to ensure the reliability and consistency of the research process. The protocol will outline the procedures and guidelines to be followed during data collection, analysis, and reporting. This will include the research questions, data sources, data collection methods, and analytical approach.
A case study database will be created to organize and store all collected data, including interview transcripts, and any other relevant documents. This database will serve as a central repository for all information, facilitating easy access and analysis while maintaining the integrity of the data to ensure both validity and reliability of the research.
A clear chain of evidence will be maintained throughout the research process to enhance the overall credibility and transparency of the study. This involves documenting each step of the research, from data collection to data analysis, ensuring that the findings can be traced back to the original data sources. By maintaining this clear chain of evidence, the study ensures a transparent and verifiable path from the initial data collection to the final conclusions drawn.

4. Results

A series of semi-structured interviews were conducted, engaging with 8 initiators and 4 collaborators of various EDI initiatives within the organization. This process led to insightful findings that corresponded with the main and sub-research questions. The data were systematically coded, analysed, and then themed for clarity and relevance.

The findings were not initially confined to the pre-set research questions. Instead, the themes were allowed to emerge organically from the analysis and coding process, in order to extract maximum potential from the data. However, the themes are divided into sections and can be linked with the pre-set research questions. The first section contains information that can help answer the initial two research questions. Subsequent sections, from the second through the eighth, contain data related to the third and fourth research questions, which appear to be interconnected, and the main research question. The final section offers insights that can answer the last research question. When taken together, these findings could potentially provide a complete picture that can help us address the main research question of this research.

4.1. Definition of EDI and Collaboration in the Context of the Organization

4.1.1 The Definition of EDI

The concept of Employee-Driven Innovation (EDI) can vary significantly from the standard definition of innovation, largely due to the situational context in which they are applied and observed. This divergence becomes evident when examining the EDI initiatives within the organization, where EDI is integral to the organization's innovative culture. Interviews conducted with key stakeholders, including collaborators and initiators deeply involved in the organizations' EDI processes, have unveiled unique insights into the interpretation and application of EDI.

When examining the perceived differences between the EDI initiatives from the interviews with the initiators, the initiatives can show as both product and process innovation. 8 out of 12 interviewees state that the primary focus of EDI initiatives is set on small, incremental changes that employees can execute independently.

"What I observe frequently is that problems, as they come up, are tackled and resolved, particularly the minor ones are often dealt with successfully. This is because employees themselves are able to address these issues." (Interview I6)

The EDI initiatives explored in the context of the organization are all incremental innovations and would not be considered innovations outside of the context of the firm. The EDI initiatives are considered 'innovations' on a firm level where the smallest unit of innovation is even considered to be; *providing the right tools for mechanics*. I1 mentioned that: *"There are a lot of innovations that stay on the shop floor, so those are very small innovations. These are, for example; tools".*

Almost all participants agree to the fact that EDI can be viewed as a bottom-up and action-oriented approach to innovation that is mostly embedded in and closely linked with the everyday work of employees. All interviews further revealed that EDI is characterized by the recognition and resolution of problems and opportunities that emerge in the course of an employee's everyday work. These daily experiences serve as the breeding ground for EDI initiatives. One participant mentioned that EDI encourages employees to autonomously develop and implement these ideas with the primary goal of enhancing their work experience; making it easier, more fun, smarter, and safer. Ultimately, fostering a culture of continuous improvement and innovation.

The independent execution is often referred to as autonomy in the process of EDI. Seven of the interviewees emphasized the perception of autonomy when defining EDI. This insight reveals that the element of autonomous action stands as a vital cornerstone of EDI initiatives and thus, is an essential aspect to consider in any conversation about EDI's definition.

During the interviews, a recurring theme emerged: an essential part of EDI is that the organization provides the necessary space, resources, and encouragement for employees to pursue and develop their EDI initiatives, reinforcing the importance of autonomy in the definition of EDI at Stedin.

It is said that the importance of autonomy also results in the nature of the EDI initiatives being smaller in scale and primarily focused on incremental changes. While the organization recognizes the value of large, radical ideas, it also strives to harness knowledge from the grassroots level and enhance employee motivation and satisfaction. This goal can only be achieved when employees have a degree of autonomy in the innovation process, which is more feasible when the ideas are manageable enough for employees to independently navigate at least part of the innovation journey as discussed by C4:

"I often refer to it as accessible innovation. For me, innovation from the employee's perspective is primarily about things that make the employee's life easier. So, these don't necessarily have to be lofty innovations, but mainly simple things that make your daily work easier, smarter, safer." (Interview C4)

Additionally, resulting from the interviews, innovation seems to be not solely defined by the end result of implementing a new process or product. Instead, all the initiators of EDI initiatives, when asked, concurred that innovation is viewed as a comprehensive process that encompasses the steps an employee takes in their innovative journey. This journey may involve creating shortcuts, learning new things, breaking new ground, inspiring others, and laying a foundation for future innovations, as discussed by I2:

"Innovation is a process, a journey. It's about thinking differently, breaking new ground, and stepping away from traditional pathways. It's about embracing the idea of wanting something different and inspiring others to do the same. That's how you stretch boundaries, and that's when you can create something truly innovative." (Interview I2)

These findings show that the unexpected outcomes that emerge during this process are valued as much as the main goal, reflecting the dynamic and evolving nature of EDI. As mentioned by I3, these incremental innovation steps can act as building blocks for larger, more radical innovations in the future, and are considered small innovations on their own.

Additionally, Employee Driven Innovation (EDI) is regarded as an inherently organic process. The path taken by the initiators is characterized by extensive exploration and a trial-and-error approach. This organic and exploratory nature of EDI aligns well with its spontaneous, bottom-up origins, as employees navigate, adapt, and innovate within the organization's existing framework.

Following patterns that are emerging in the interviews, this organic and exploratory character can be examined in more depth, particularly within the specific dynamics of the development and implementation phase of EDI initiatives. This critical phase can be further divided into two distinct sub-phases: the ambiguous 'fuzzy front end' and the more integrated 'backend' of the development and implementation process, as can be seen in Figure 5.

Figure 5, sub-phases within the EDI development and implementation phase

Two interviewees describe this emerging pattern distinctively.

Throughout the 'fuzzy front end' of the development and implementation phase, the process is primarily led by exploration, trial and error and, organic growth within the organization. The novelty and uncertainty of the emerging EDI initiative allow for creativity, flexibility, and free movement as employees explore possibilities and shape the initiative's direction as described by I2:

"During the initial stages, you may engage with a diverse group of people … this exploration is essential. You'll have discussions, and even if they don't give you what you want, they offer clarity on what you don't want. This knowledge is valuable as you continue to explore all possible avenues." (Interview I2)

As the process advances towards the 'backend', this exploratory and organic nature gradually transitions into a more structured and stable form. The further the EDI initiative progresses towards implementation, the less exploratory and organic it becomes, aligning more closely with the existing organizational structures, rules, and norms. As I4 fittingly described it:

"Ultimately, you have to consider whether your small, creative team can handle it. You also have to wonder whether the operational management is ready for everyone to develop their own initiatives within their areas of responsibility. There's a need for guidance and structure…" (Interview I4)

This shift seems to be an essential part of the EDI journey, as the initiative moves from an idea to an actionable and fitting component within the organization's operational framework.

4.1.2 Definition of Collaboration in the Context of EDI

Just like the definition of EDI, collaboration can take on various meanings depending on its context. Through interviews with the initiators and collaborating parties of various EDI initiatives within the organization, a definition of collaboration in the context of the development and implementation of EDI initiatives can be provided.

Collaboration, in the context of Employee Driven Innovation (EDI) within this organization, is described as a dynamic process where individual employees actively engage in various roles throughout the innovation process, also regarded as collaborative activities. This dynamic engagement underpins a cooperative spirit within the organization, guiding and aligning the innovation process toward a collective goal. As mentioned by I2 and I6, collaboration becomes particularly essential when individual capacities are challenged by uncertainty or a need for expertise beyond one's own proficiency.

As mentioned in the previous section, describing the definition of EDI in the context of the organisation, autonomy is an important factor in the process of EDI development and implementation. But, following the majority of the interviews, the execution of an EDI initiative can be a daunting process for a single employee to execute. Numerous executive roles come into play throughout the development and implementation stages of an EDI initiative. In most cases, a single individual cannot adequately fulfil all the specific roles required for the successful implementation of an EDI initiative, this is where collaboration becomes critical in the process as revealed by I3, I6 and C1.

"…everyone assumes a different role, but everyone also has a different role. This means that you automatically have different knowledge and expertise, so you need each other in this collaboration and you have to keep coordinating with each other, informing each other and involving each other in what's happening." (Interview C1)

I6 and I3 identify that collaboration partly means fulfilling various roles autonomously and recognizing what you can and can't achieve autonomously and when you recognize that you can't do something autonomously, you try to delegate these specific tasks or entire roles in the innovation process. C4 mentioned that this also entails being open and able to let go of "your" idea. Autonomy in the EDI development and implementation process provides a sense of ownership, responsibility and motivation. Therefore a lot of initiators of the EDI initiatives tend to try and do everything autonomously, they consider it as their "child". But when this becomes impossible, collaboration can help bring the development and implementation of the idea forward.

Another crucial factor in defining innovation is the presence of shared goals and interests among the collaborating parties. This concept is underscored by C2, who stated: "*If you want people to work together on your idea, then I think you need like-minded people who also support the idea".* This notion is mentioned by three other interviewees.

These insights give way to a pattern that collaborative activities in the context of EDI within Stedin, are not a mere assembly of skills and expertise of a collaborator that assigns them to a certain collaborative

activity. It is a carefully orchestrated interaction where the selection of potential collaborators is made strategically or through mere informal network effects, based on their alignment with the initiator's thought process and the shared vision of the innovation in question.

The results of this study indicate that collaboration can be considered as a journey of collectively passing through a pathway of thought, where the collaborators can carry forward the innovation process, accelerating it through their active involvement. However, this also implies that collaboration, within the context of EDI, necessitates the understanding and acceptance of the lack of immediate intrinsic motivation of potential collaborators as recognized by I7. I7 identifies that not all employees may immediately feel invested or motivated to participate in the proposed innovation or the line of thought or the goals and vision between initiator and collaborator does not align. The process demands a careful and strategic identification of individuals who exhibit openness, intrinsic motivation, and alignment with the proposed innovation. I2 describes that there might be individuals who decline to collaborate, and such instances should be seen as part of the organic journey towards finding the most suitable and effective collaborators.

Consequently, I7 and I6 mention that an essential aspect of collaboration is the exchange of value. Each collaborator contributes to the process and in this form creates or gives some type of value and therefore also stands to gain something in return, whether it's the realization of potential through the EDI initiative or other perceived benefits.

In summary, collaboration in the context of EDI development and implementation in this organisation constitutes the creation of a cooperative environment. This environment is designed to harness individual skills, exchange value, and pursue innovation with shared enthusiasm and commitment. It is a process where potential dead-ends are not viewed as failures but as integral components of a thorough exploration towards finding the most synergistic fit for each unique EDI initiative.

4.2. Balancing Autonomy and Structure

The feedback gathered from interviews with employees offers compelling insights into the relationship between autonomy, collaboration, freedom and structure in Employee-Driven Innovation (EDI) development and implementation. These insights, drawn from their experiences and collaborative activities, highlight the criticality of a balance between these factors for driving EDI initiatives within an organization.

Autonomy and freedom act as important factors in driving the development and implementation of EDI initiatives by offering speed and flexibility, as revealed by I7:

> “actually a limited amount of cooperation has resulted in it going quite quickly. Not everyone has to make decisions about everything.” (Interview I7)

According to I6 and I3 the power of independent action, decision-making capacity stemming from power dynamics, and role ambiguities empowering semi-authorized task ownership are a few examples of how freedom and autonomy can drive EDI. The freedom to act independently allows employees to implement more efficiently, bypassing collective decision-making structures that may slow down the process ensuring action-driven steps through the development and implementation process.

I6 additionally mentions that a substantial factor in providing the employee with autonomy is power relations and organizational culture. These are factors that enable autonomy, increase the likelihood of initiative-taking, potentially foster collaborations and daring to quickly take steps in the innovation process.

However, it is argued that organizations have to watch out for an excess of autonomy and freedom, which can render the development process open-ended and non-committal. Employees might find themselves in unfamiliar roles or daunting tasks without sufficient support or guidance leading to uncertainty and barriers to taking steps in the innovation process. C3 described it clearly during the interview:

> *“Taking on an EDI initiative is voluntary, but it's not noncommittal, because you choose to set the bar very high to try it out.”* (Interview C3)

That's where collaboration and structure come into play. The right amount of collaboration and structure creates a sense of accountability and prioritization for EDI initiatives. It also provides support in managing uncertainty and facilitates collaborations to navigate complex or daunting tasks. As one employee (Interview I3) fittingly put it:

> *"Having a structured approach would certainly have been helpful. It could eliminate the non-binding nature of the project. However, this could also diminish an important element of true innovation: the unexpected outcomes in the innovation process are just as important as the main objective."*
> (Interview I3)

So it becomes evident from the findings that finding the optimal balance between autonomy/freedom and structure/collaboration is key to successful EDI development and implementation. A correct balance must give employees the freedom to act autonomously while providing enough structure or engaging in collaborations to ensure accountability, guidance and support. These findings are represented in the conceptual framework in Figure 6.

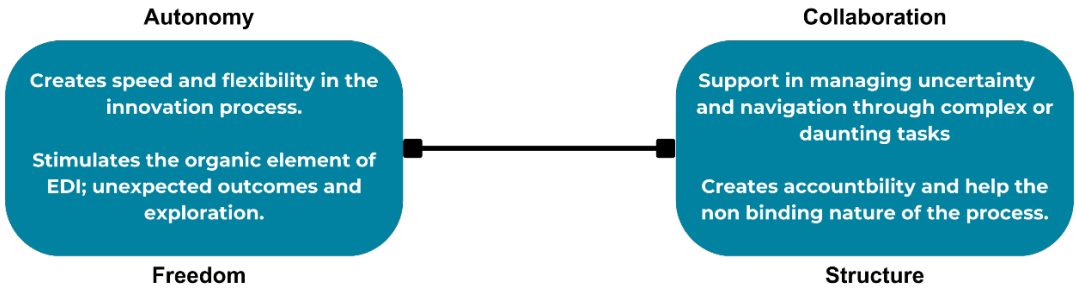

Figure 6, conceptual framework; autonomy/freedom and collaboration/structure

To summarize, autonomy and freedom can foster an innovative culture by showing that things can be done independently. Simultaneously, structure and collaboration provide a framework that brings these initiatives to a successful conclusion, transforming ideas into innovations. This delicate balance is what must be aimed for in the EDI development and implementation, a dynamic interplay that marries the best of both worlds: the agility and exploratory power of autonomy and freedom and the support and coherence of structure and collaboration.

4.3. Fluid Collaborative Characteristics driving the Fuzzy Front End

As described in the section considering the findings about the definition of Employee-Driven Innovation (EDI) within the organizational context, EDI emerges as a naturally evolving and dynamic process. This process is characterized not just by the tangible outcomes of the EDI initiatives, but also by the associated learning effects and explorative activities. These aspects constitute significant motivators, propelling the evolution of EDI initiatives.

In the initial steps in the development and implementation phase of the EDI process, also referred to as the fuzzy front end, the role of collaboration assumes a dual role, acting as both a driving force and a potential barrier hindering autonomy and freedom (described as the delicate balance in section 4.2). Collaboration can facilitate the progression of initiatives by pooling diverse skills and perspectives, yet can also hinder growth if not appropriately managed.
Innovation, particularly in the form of the first stages of EDI development and implementation, entails an organic trajectory of growth that employees navigate while fostering and executing these initiatives. The essence of EDI resides in its foundation: a process rooted in freedom, autonomy, cumulative learning, experimental attempts, and iterative corrections. This initial stage thrives with minimal formal structures or stringent guidelines, representing a sense of fluidity and flexibility.

When taking these previous findings into account, the interviews provide four characteristics of collaboration that align with this organic EDI process in the fuzzy front end. The proceeding sub-sections will delve into each of these characteristics, revealing their contribution to the successful development and implementation of this fuzzy front end of the development and implementation of EDI initiatives.

4.3.1 Heterogeneous collaboration driving the Fuzzy front-end

Heterogeneous collaboration – defined as collaborative activities comprising individuals with diverse backgrounds, experiences, attitudes, knowledge bases and personalities gathered together for working towards the same goals – plays a pivotal role in the fuzzy front end of the EDI process. In this phase, exploration is considered to be the cornerstone of progress as mentioned by I2.

This is largely due to the uncertainties inherent in launching an innovation, particularly when initiated by an employee. Whether it's a solitary employee or a small team, there exists an inherent limit to the scope of knowledge they possess. A prime example is the initiative of I4. They recognized their knowledge limitations and proactively brought in an external expert to enhance their understanding. This heterogeneous type of collaboration broadens the horizon of exploration, drawing on the wide-ranging expertise of potential collaborators.

The initial innovative idea, in its initial start-up stage, is thus enabled to expand in scope and vision. Using heterogeneous collaboration, the initiator can look through the lens of diverse perspectives which allows him to see the bigger picture of the innovative effort. For instance, this was the case during the initiative of I1:

> *"We first looked at the exemplary figures, who have shown in the past that 'side-entrants' can successfully enter the organization. These were three people who had already been retrained. We scheduled meetings to ask them about their experiences during their first month at Stedin."* (Interview I1)

This understanding aids in identifying necessary actions, potential collaborators, and pathways for later stages of the innovative process, and will enhance the effectiveness in targeting specific needs in knowledge and other resources. In some scenarios, heterogeneous collaborations may evolve into more stable alliances as was the case for I4 where their heterogeneous collaborator evolved to be part of their "core team". This typically occurs when there is an ongoing requirement for a specific form of knowledge or expertise over a longer time frame.

Simultaneously, the fuzzy front-end stage also presents an opportunity to communicate and network with departments beyond one's homogeneous sphere. This is especially beneficial when those departments are likely to be impacted by the innovative idea and can potentially assume a certain role in the innovation process. This finding can be led back to the following mention of I6:

> *"inventory-personnel were vital to the execution because they actually manage the innovation in practice. It's essential that we have a system within the organization to ensure the product is in the right place and used correctly. If all the responsibility fell to me, I would be the sole point of contact, and I couldn't take up this role."* (Interview I6)

The early engagement fosters a supportive environment from the beginning, ensuring feedback and input are gathered from potential end-users from the initial stages of development. During this phase, engagements may occur with a diverse range of individuals. While not all interactions may yield the desired outcomes, they are far from pointless. As mentioned by I2 and I6, some conversations might lead to the realization that certain ideas or paths do not align with the innovation goal. While these may outnumber the productive dialogues, they are equally critical. They not only offer clarity on undesirable pathways but also contribute valuable insights as you continue to navigate through possible routes. In essence, these 'unproductive' conversations are an integral part of the explorative journey, underpinning the overall process of innovation, as the knowledge gained from these 'failed' or 'unproductive' phases can be used in the later stages of the innovation process.

Figure 7, heterogeneous collaboration driving the fuzzy front end of EDI development and implementation

As can be seen in Figure 7, heterogeneous collaboration - involving individuals with diverse experiences and backgrounds - is crucial in the fuzzy front end of EDI development and implementation. This collaborative characteristic broadens the scope of exploration, drawing on various expertise to expand the initial innovative idea. This characteristic of collaboration can also enhance the preparation for role transfer. It facilitates communication beyond one's typical sphere, potentially identifying collaborators who might be necessary for later stages in the EDI process.

4.3.2 Informal, Dynamic and Distant collaboration driving the fuzzy front-end.

When navigating the earliest, most uncertain stages of the innovation process - designated as the 'fuzzy front-end' - three additional characteristics of collaboration prove to be vital. These comprise the triad of informal, dynamic, and distant collaboration. Each, with its distinct qualities, provides a necessary counterpoint to the challenges of this phase of EDI development and implementation.

I1 states that the organization, by nature, often embodies rigidity, with prevalent resistance to change. Overcoming these constraints necessitates an organic pathway achieved through informal, dynamic, and distant collaborations. The dynamics of EDI are often metaphorically described as 'swimming through the organization', an informal collaboration structure with dynamic and distant collaborative characteristics effectively can facilitate this journey, driving the fuzzy front end of the EDI process.

First, an informal collaborative structure embodies the organic growth trajectory an employee undertakes when initiating an EDI effort. In this context, the 'informal' collaborative characteristic denotes emergent social interactions, mutual trust, and shared objectives among individuals and departments within an organization without it being a created organizational structure. These informal structures aren't explicitly designed or recognized by higher authorities but emerge organically as individuals and departments build relationships and collaborate to achieve common goals.

The interview with I6 reveals that this autonomy to use network effects and autonomously decide when and whom to collaborate with provides flexibility and adaptability for the initiator(s) in the fuzzy front end of the EDI process. This empowers the initiator to rapidly navigate organizational hurdles and overcome obstructions from certain individuals or groups. This level of adaptability and flexibility is crucial for the success of EDI, promoting speed and averting stagnation caused by organizational barriers.

Additionally, I2 provides the insight that the add-in of dynamic (short-term, quick interactions) and distant (low interdependence) collaborations within an informal collaborative structure fosters a higher level of exploratory potential.

"Well, you start off not knowing much. By engaging in discussions and bouncing ideas off others, you gain knowledge." (Interview I2)

This exploration in its turn helps the cultivation and gathering of relations that can quickly foster creation, new knowledge, new collaborations and development progress in the fuzzy front end of the EDI process.

Both I6 and C1 consider a metaphor for a dolphin and a submarine. They mention that the initiator (the dolphin) engages in quick, minimal interactions with the collaborator (the submarine), launching them to gather knowledge or accomplish a specific task. Upon completion, the initiator surfaces again with the collaborator for another quick interaction. This is achieved through continuous yet brief communication, providing momentum to the fuzzy front end of the EDI process.

Both interviewees mention that communication serves as a significant influential factor in this form of collaboration and that it plays a dual role: informing collaborators about the innovation journey while concurrently fostering a sense of community. However, I6 adds that despite this inclusivity, decision-making power remains confined, preventing an excess of individuals from having the authority to make decisions about specific stages in the process. Such a scenario - where a multitude of collaborators has decision-making power - can cause a bottleneck, slowing the process down considerably:

"If you go to the formal part, then you are going to sail at someone else's pace and at the pace of the organization, whereas in this case, the innovation benefited from maintaining speed." (Interview I6)

Maintaining this balance is crucial: it promotes a communal atmosphere without compromising the pace or efficiency of the innovation process.

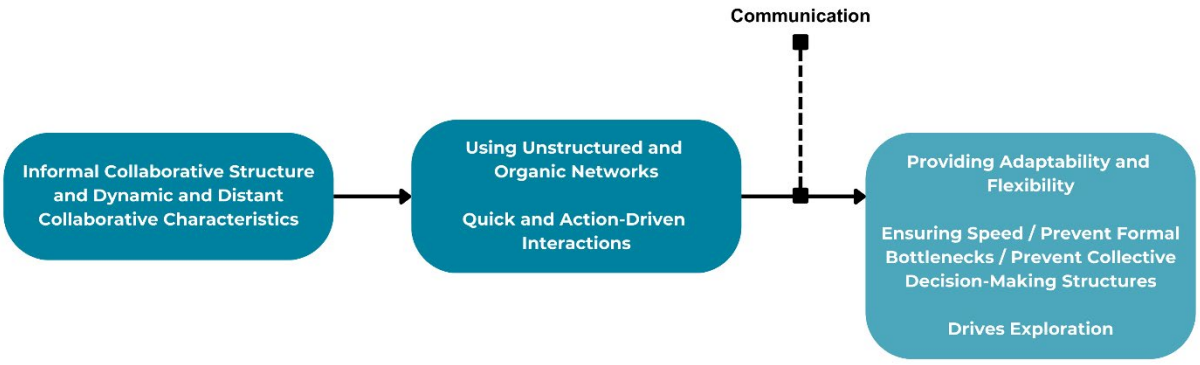

Figure 8, Informal, Dynamic and Distant collaboration driving the fuzzy front end of EDI development and implementation

Figure 8 provides a comprehensive summary of the findings, highlighting the three essential collaborative characteristics crucial in the fuzzy front end phase of developing and implementing EDI initiatives: informal (emergent social interactions), dynamic (short-term, quick interactions), and distant (low interdependence) collaborations. These characteristics play a vital role in promoting flexibility, enabling swift navigation of organizational obstacles, and facilitating exploration for the creation of new knowledge and progress. Ultimately, they serve as driving for the front end of EDI development and implementation.

4.4. Structured Collaborative Characteristics driving the Integrated Back-End

The innovation process, as underlined by the qualitative interviews and findings displayed in section 4.1, emerges as a dynamic journey that navigates from a phase of individual freedom and exploration, the fuzzy front end, to a collaborative implementation phase or the “back end” of the development and implementation phase. C3 stated that approximately 15% of tasks in the innovation process can be executed autonomously and without delay, while the remaining 85%, a significant majority, requires active collaboration.

I4 and I6 both discuss that the pivot towards the implementation phase introduces the importance of the transfer of the different roles that exist within the innovation process, recognizing that the initiator of the innovation is not expected, nor equipped, to assume all these roles alone.

Multiple participants refer to the roles in the innovation process as “the ABCDEF-roles” or “the six roles of innovation” meaning: activators, browsers, creators, developers, executors and facilitators. As mentioned in the first section about the definition of collaboration the initiator of an EDI process typically cannot take on all roles, except for rare cases, and there is a need to seek out and establish collaborations to fulfil these roles.

While the early stages of the innovation process revolve around autonomy and freedom, the inevitable emergence of uncertainty and limitations in knowledge or resources underscore the importance of role transfers for seeking guidance, consultation, and additional support. This has been described by I6:

> *“Traditionally, you can identify six roles that are crucial in an innovation process. Many people are excellent initiators, they might have fantastic ideas, but they struggle to transform these ideas into actionable solutions, implement them, communicate about them, or secure their financial sustainability. This is where assistance becomes necessary”* (Interview I6)

Additionally, when the innovation reaches a certain stage of maturity, autonomy can transition from being a driver to EDI to an obstacle, primarily due to the time constraints faced by the initiator as the EDI process still is an extra-role behaviour.

As the exploratory and fast-paced phase in the development and implementation phase reaches its end and the implementation and assurance of the EDI initiative come into play, the need for a more structured and integrated approach for successful implementation is necessary. The organic nature of the innovation must give way to a more controlled approach, and the initial flexibility, freedom and noncommittal character of EDI evolve into a process with obligations and commitments. I4 indicates that if this transformation is to be carried out successfully, the distribution of tasks and roles across different individuals becomes a necessity, making the EDI initiative more manageable and less daunting for the initiator.

So, the transference of roles is particularly critical at this stage of the process. This point in the innovation process symbolizes the transition of the EDI initiative from an individual effort to an organization-wide innovation. The autonomous character of the EDI initiative cannot be maintained indefinitely and can't be an EDI forever; it needs to evolve to encompass wider team involvement as sketched out by I8:

> *"for implementation, it's crucial to integrate everything smoothly into the existing processes and possibilities…this could mean aligning with established practices such as the BRP."* (Interview I8)

I4 has identified the introduction and handover of the innovation to the end users as an essential part of this phase; the individuals who will ultimately adopt and utilize the innovation. Operational teams have to take on the role and responsibility of embracing the idea, cultivating it, and ultimately actualizing the benefits of the innovation. These tasks inherent to the implementation phase often span several years, making it unreasonable to expect the initiator to maintain an unbroken intimate involvement and assume these executing roles.

Nevertheless, this role transfer from the initiator to the rest of the organisation is not something that is considered straightforward. The transfer of some roles existent in EDI initiatives to its practical end-users is influenced by three significant factors:

Available capacity: According to I4, an idea, no matter how brilliant, cannot take root if there is no capacity for its implementation or utilization.

Shared goals and interests: I1, I2, I4 and I6 all mention that in basic form the adoption of an idea requires an exchange of value and mutual benefits. The operational teams must identify value in the EDI initiative, which often necessitates the presence of shared goals and interests.

Organizational culture: I1, I3, I5 and I8 all describe that organizational culture can significantly impact the integrated implementation phase of an EDI initiative. An inflexible culture resistant to change can present a difficult barrier to innovation implementation.

I3 describes this dynamic of role transferring even further and stated that EDI initiatives often correspond directly with the work-related roles and expertise of the initiators, thereby leading to the development of highly specialized and intricate ideas. Such complexities can potentially restrict the transfer of roles and delegation of tasks, compelling the initiator to handle everything themselves. This autonomy can become a barrier due to the additional time commitment required for these 'out of role' tasks, especially in the implementation phase of an EDI initiative where not the initiators but the end-users actually need to assume the executive role:

> *"If I handle it myself, I'm fine. But that means my colleague doesn't gain that experience, leading to me becoming better at my job and acquiring more knowledge. Consequently, people ask me more questions, leaving me with less time to work on the things I actually want to improve."* (Interview I3)

This underscores the critical importance of collaboration and role transference within the innovation process. These role transfers need to happen to ensure a successful and smooth integration and implementation of the EDI initiative in the organization and with the end users as earlier stated by both I4, I6 and I8.

The interviews give insight into certain characteristics of collaborative activities that can drive this role-transferring process which is key in this "bank end" of the development and implementation phase.

Following I2, I3, I5 and I8, in the context of these, mostly, complex and specialized EDI initiatives, the delegation of tasks and transference of roles demand a form of collaboration that is both stable and intimate. The intimate (high interdependence) and stable (long-term and reoccurring) collaborative activities seem crucial factors in the execution and implementation stage of the EDI process. The intricate and specialized nature of the initiative cannot be transferred through brief, distant collaborations. Rather, a collaborator must engage over a longer period and with greater intimacy to gain the necessary knowledge and feel to assist in the successful implementation of the initiative, as mentioned by I2:

"Taking people with you and involving them in that process, delegating tasks in such a way that the idea will just continue to develop. That's very intensive at the beginning and then at a certain moment, you can just let go." (Interview I2)

Additionally, findings show that these collaborative activities, driving role transfer and the delegation of tasks in the implementation process, often occur homogeneously; involving individuals with a similar knowledge base, shared understanding, and frequently equivalent hierarchical positions within the organization. Ths appears to have two reasons:

Firstly, interpreted from the interview with I3, the initiators of EDI initiatives often work on innovation as end-users themselves. Consequently, the implementation is typically within their own team or department, and the process involves their close colleagues who are often similarly matched.
Secondly, interpreted from the interviews with I1 and I2, to engage in a stable and intimate collaboration, a collaborator has to provide time and effort in the EDI initiative. Therefore the same interest and goals are often a critical driver of such collaborative characteristics. The implementation of an initiative needs to have value to the collaborator meaning having shared interest and an equal mindset towards the innovation. A homogeneous collaboration has proven to be an influence in this.

However, based on the interview with I6, there are cases where the EDI initiative ultimately lands with end-users without the same knowledge base, shared understanding, shared goals/interests or equivalent hierarchical positions. If this is the case the stable and intimate collaborative characteristics become even more important. The knowledge gap is often bigger in these cases between the end-users and the initiator. This means that the collaborative path needs to be more extensive and must be initiated even earlier.

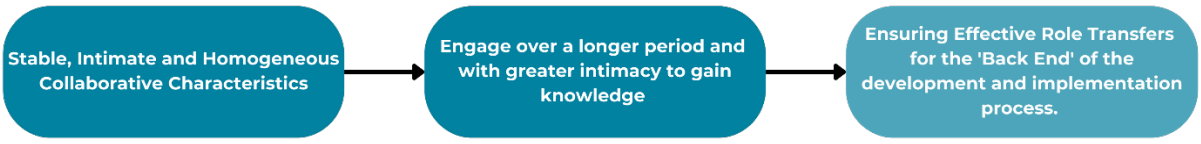

Figure 9, Stable, Intimate and Homogeneous collaboration driving the back end of EDI development and implementation

Figure 9 shows that as the process progresses towards the back end, role transfers become vital. Collaboration becomes more stable and intimate, often involving individuals with similar knowledge bases, understanding, and hierarchical positions, to increase knowledge sharing and with this facilitating task delegation and role transfers. This is based on the recognition that an initiator cannot assume all roles throughout the innovation process, so the need for collaborations to fulfil the different roles in an innovation process arises.

4.5. Formal Collaborative Structures Driving EDI Development and Implementation

As mentioned in 4.3, the findings of this study reveal autonomy and freedom as crucial elements in the innovation process, particularly during the fuzzy front end where exploration and organic paths through an organization play a central role. However, autonomy is a double-edged sword; it empowers individuals with the space to innovate but also presents potential pitfalls. As discussed by I3 and I6, these include the creation of uncertainty, the emergence of role ambiguities, missing knowledge or resources and an increased likelihood of non-committal tendencies among the initiators of the EDI initiative.

So, the success of an EDI initiative requires significant dedication and commitment from its initiators. The paradox is that the very freedom and autonomy which enable organic growth paths and foster informal collaboration can potentially lead to non-committal attitudes and a diminished sense of accountability. This makes the innovation process feel optional rather than something considered a necessary task. For an innovation process to truly thrive and ensure successful implementation for its end-users, it is necessary to strike a delicate balance between freedom and obligation, autonomy, and collaboration.

This is where a formal collaborative structure is described as a means or tool for successfully supporting the organic and informal path of innovation. In this organization, this formal collaboration can be described as so-called 'strategic EDI programs'. These are programs specifically designed to support EDI initiatives to ensure a higher level of successful EDI initiatives. These strategic EDI programs span all the phases of the EDI initiative to ensure a more structured EDI process without actually hindering the organic process and exploratory nature in the fuzzy front end of the development and implementation phase, as described in the interview with I2:

I see this strategic EDI program as a means for the organic structure of EDI… it's supportive. It's a mechanism designed to continually increase momentum. (Interview I2)

The strategic EDI programs can result in the following factors that support the EDI process, and primarily the fuzzy front end of this process as described by various participants:

- Promotion of accountability: I1 and I4 share the belief that by establishing clear roles and responsibilities within the EDI initiative, these programs generate a sense of ownership among initiators. This accountability can drive engagement and motivation, ensuring that individuals are committed to the progress and success of the initiative.

- Establishment of consistency: I1 discusses that strategic EDI programs aim to provide a consistent framework for conducting EDI initiatives. This uniformity ensures a common understanding of the process and reduces disparities in execution, resulting in more efficient and cohesive development and implementation of innovative ideas.

- Enhancement of credibility: C3 and I1 both mention that with a formal structure supporting the innovation process, these EDI initiatives gain credibility. This legitimacy can increase trust among stakeholders, enhance buy-in from employees, and may potentially encourage support from external sources.

  "It's to ensure that someone who has a mortgage at home and can't even order a paperclip at work, which is the case in many organizations, can bring their whole selves to their job. What we facilitate is that someone can be completely themselves." (Interview C3)

- Provision of guidance and consultation: Both I2 and I4 identify that by offering access to expert advice and guidance, these programs assist initiators in navigating the challenges of innovation. This consultation can range from technical advice to strategic planning, providing a crucial support system during the innovation journey.

- Establishment of goal orientation: I2 and I4 propose that with a clear direction and tangible objectives, initiators can better channel their creative energies. These programs help delineate these goals, providing focus and facilitating more effective, targeted innovation.

- Clarification of roles: I6 addresses that role ambiguity can create confusion and hinder collaboration. By clearly outlining responsibilities, strategic EDI programs remove such uncertainties, allowing team members to work together more effectively, with a clear understanding of their individual and collective roles.

- Facilitation of support: C3 and I2 think that these programs often play a vital role in securing the support of management or mentorship. Such backing can significantly enhance the resources available to the initiative, including knowledge, funding, and access to networks, thereby enriching the innovation process.

- Provision of motivation and recognition: C3 and C4 describe that Initiators often thrive on recognition. By offering formal acknowledgement of their efforts, these programs can boost morale, encourage perseverance, and foster a positive innovation culture within the organization.

- Fostering collaboration: I2 and I3 mention that these programs provide a platform for collaboration, balancing the need for freedom and autonomy with the guidance and structure necessary for productive collaboration.

A major drawback of such programs is identified by I1 and refers to the additional time they necessitate, time that many initiators simply do not have. Thus, it is essential for EDI programs to be flexible enough to accommodate the varying time capacities of different employees. For instance, a mechanic may have less time to commit to these innovative initiatives compared to an engineer. Accordingly, a successful EDI program must have the capacity to support a diverse range of employees and their unique circumstances:

"Currently, someone is working on developing an innovation structure specifically for executive staff. The aim is to make the pitching process and its accompanying structure more accessible to everyone. This is because participating in the Dragons Den event can consume half an afternoon, and not everyone has the flexibility to dedicate that much time." (Interview I1)

As such, the strategic EDI programs serve as an effective tool for nurturing the organic growth path and dynamic collaborations as can be seen in Figure 10. The formal collaborative structure works hand-in-hand with the informal elements of the EDI process as well as providing the guidance needed in the later stages of the development and implementation process, ensuring a balanced (autonomy and structure) and productive innovation journey.

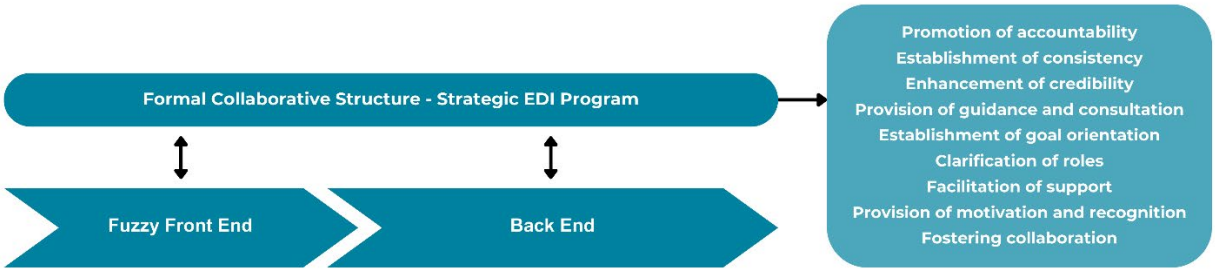

Figure 10, formal collaboration driving EDI development and implementation

4.6. Power Relations Driving Development and Implementation

Another very important characteristic of collaboration has been found to be a collaboration with an individual who has a higher hierarchical position in the organisation. The organization in its essence is a flat-matrix-type of organization. But in reality, there exists a definite hierarchical structure within the organization. During the interviews, a clear relationship has been discovered between the collaboration with individuals of a greater hierarchical position in the organization to drive EDI development and implementation.

Eight out of eight EDI initiators reveal that these power relations often show themselves in the form of leadership or management support. Collaboration with management or leaders is often considered fairly dynamic and distant because the initiators are often uncertain about their importance/priority and the expected time constraints of management. This view is due to the culture within the organisation and is opposed by management themselves:

"But what you see is that people quickly wonder, "Am I allowed to do this, can I do this, and does he have the time for this?" That is a tough nut to crack… I assume the underlying thought is, "He must be busy". So we make assumptions about others and that's why we don't do certain things. Like the idea of, "Management probably wouldn't allow this.". Well, there's a way to find out; just ask. That's always difficult in an organization." (Interview C4).

In light of these findings, it's evident that managerial support can significantly contribute to EDI initiatives in the following ways:

- Providing Guidance and Consultation: As indicated by I2, I4, I6 and I8 Managers contribute to the strategic direction of EDI initiatives by offering advice and suggestions based on their experience and understanding of the organizational goals. For example, a manager might guide the initiative towards better alignment with existing industry standards and use their knowledge and vision to support the initiative.

- Granting Autonomy (Carte Blanche): I1, I2, I5 and I6 argue that by entrusting initiators with the freedom to explore and experiment, managers encourage a sense of ownership and commitment, which can foster creativity and innovative efforts. This autonomy can, for instance, allow initiators to try unconventional strategies or partnerships that could enhance the initiative's effectiveness.

- Acting as a Liaison: I8 stated that as intermediaries between initiators and other stakeholders, managers facilitate communication, coordination, and cooperation. A manager's liaison role can bridge gaps between different departments or hierarchies, ensuring an inclusive and collaborative environment for the EDI initiative.

- Allocating Resources: I1, I2, I4 and I5 describe that managers, being in a position to allocate resources - financial, human, or technological - play a pivotal role in the successful implementation of EDI initiatives. This can mean authorizing a budget for the initiative, assigning staff to work on it, or providing necessary technological infrastructure.

- Delegating Decision-Making Authority: I5 and I6 convey that managers can empower initiators by delegating certain decision-making powers, which allows for swift and effective decisions that keep the initiative moving forward. This can include giving initiators (referred to by C4 as borrowed) authority to make certain strategic decisions or to allocate some resources.

- Granting a Mandate: I1, I2 and I4 mention that a formal directive from managers can lend substantial legitimacy to the EDI initiative, signalling organizational validation and enhancing its acceptance among stakeholders. This mandate can act as a free pass to act more action-oriented.

- Instilling Confidence in the Initiator's Idea: Following I1, managers expressing belief in the value of an EDI initiative can significantly boost the initiator's confidence, impacting their motivation and commitment positively. An encouraging word from a manager can inspire the initiator to persevere, even in the face of challenges.

- Demonstrating External Confidence: Based on the interview with I1 this above-mentioned show of support signals to external stakeholders that the organization is committed to the initiative. This external display of confidence can enhance the initiative's credibility, possibly attracting additional support or resources.

- Creating a Sense of Accountability and Motivation: As highlighted by I2 and I3, managers and leaders can function as patrons, issuing a formal directive for the EDI initiative's execution. This directive creates a sense of responsibility, urgency, and priority, providing formal legitimacy to the EDI initiative's execution. I3 mentioned that this can work if it does not hinder the freedom and autonomy inherent in such an innovation process.

I1, I6 and C4 describe that the effectiveness of collaboration between an idea initiator and a higher hierarchical entity is greatly shaped by two vital elements: trust in the employee and confidence in their idea. It is imperative for the higher hierarchical powers to have faith in both the employee and their proposed EDI initiative. Their belief in the competence of the employee, combined with their confidence in the potential of the idea, forms the basis for their support. Once established, this trust can instigate the aforementioned drivers of innovation.

I5 further emphasizes the point that recognizing the value of an idea is a influencing factor in obtaining management support:

"The great thing about our team is that our inputs are valued. If we encounter an issue and bring it up, it's taken seriously. It's encouraging when someone at 'the top' listens and decides; "okay, if that's really necessary, we just have to take care of it"." (Interview I5)

It is also mentioned during the interviews that it is noteworthy to consider who should initiate such a collaboration. I5 indicated that an emerging organizational problem necessitating change can activate power relations, leading to the solicitation of employee input. So it requires a catalyst to attract the necessary attention and support from 'higher-ups'. If such a catalyst is not present, the establishment of a strategic EDI program can serve as this catalyst, fostering collaboration with higher hierarchical entities according to I5. The inclusion of an EDI initiative within a formal collaborative structure lends credibility and visibility to the initiative, thereby encouraging collaboration among those in higher hierarchical power:

"I thought it was very good that we at least have the possibility to pitch the idea in front of management. The Dragons Den is purely intended to give these kinds of innovations, originating from the shop floor, a stage. And I noticed, that because it was pitched to management there, 5 doors have already been kicked open." (Interview I1)

These findings explain the critical role that collaboration, particularly with higher management, plays in the successful development and implementation of EDI initiatives. Trust, initiative, and the presence of a catalyst, such as an EDI program, emerge as significant factors in these collaborations.

Yet, there was a dissenting voice that argued the significance of personal hierarchy, suggesting it could influence whether or not management support is essential, and to what extent it could contribute to the development and implementation of the initiative:

"I didn't need to use a sponsor. When I asked people, they responded positively, so I didn't need someone higher up to request cooperation. However, I did ask the people who wanted to work with me, "What if I wasn't the person I am, but was an employee on the operational level?" They admitted that they probably would have been less willing to participate; "Because you ask, yes"." (Interview I7)

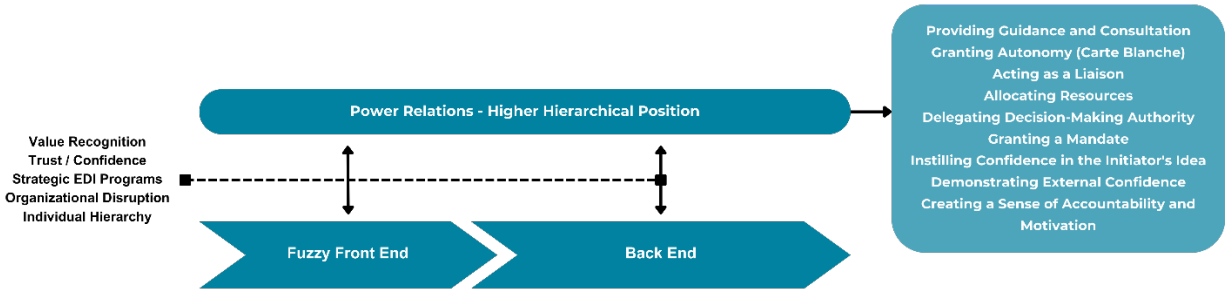

Figure 11, power relations driving EDI development and implementation

Power relations, as showed in Figure 11, are essential in supporting and driving the development and implementation process of EDI initiatives. They possess the potential to drive the EDI process in various ways, influenced and by a number of factors. Much like formal structures, these power relations span the entire phase of EDI development and implementation, serving as an tool in the development and implementation of EDI.

4.7. Inter- or Intra-Organizational Collaboration for EDI

The information gathered from interviews with initiators of Employee-Driven Innovation (EDI) initiatives has provided valuable insights into the role of primarily inter-organizational collaboration in driving EDI development and implementation. Although most findings until now are primarily linked to intra-organizational collaboration, the dynamics of collaboration with external partners bear strong similarities to those within the organization, with a few distinct characteristics resulting specifically from inter-organizational collaboration. Two participants have had experiences with inter-organizational collaborations and these findings are based on their descriptions.

The interviews with I6 and I7 shed light on inter-organizational collaboration and reveal that this collaborative characteristic can potentially drive the EDI development and implementation process through two primary mechanisms: resource exchanges and the creation of accountability.

Firstly, both of the participants agree that resource exchange is a crucial catalyst of EDI since partners and external firms often possess unique knowledge, technologies, or services that may not be available internally. This external influx of resources can act as a driver of the development or implementation of an EDI initiative.

Secondly, the participants argue that inter-organizational collaborations inherently entail an element of obligation, translating into the creation of accountability. Unlike intra-organizational collaborations, where the shared goals and interests within the firm often drive collaboration, inter-organizational collaborations require a value exchange that underlines their importance. Each collaborating organization expects to derive tangible value from the partnership, leading to increased accountability, which can further accelerate the development and implementation process due to the attached urgency and priority.

However, this increase in accountability associated with inter-organizational collaborations also poses risks, particularly to the company's reputation and credibility. To mitigate these risks, it's crucial to have management involvement and to establish clear and open communication about shared or conflicting goals and interests. This transparency will help set accurate expectations, minimize potential reputational damage, and enhance the efficiency of the collaborative activity as discussed by I6:

"Sometimes what I notice is that we, with, for example, the supplier of the camera, had to explicitly indicate that management had helped us in, for example, defining a strategy and approach to this collaboration…
…When things went in a different direction, we sought legal advice from management members. Because they have more experience with that sort of thing." (Interview I6)

Despite this small difference in the potential of inter-organisational collaboration driving the EDI development and implementation process, the overall dynamics of inter-organizational collaborations align closely with those of intra-organizational collaborations. Both the participants indicate that, of course there are differences, but the overall approach to the collaboration is equal:

"one of the most crucial qualities of our innovation team - and I'm not sure if this applies to every innovation team - is equality. With this in mind, we consistently shared equal information with everyone around us, including those outside our team. This also applied to external partners." (Interview I6)

"Indeed, it's a different collaboration, but the approach is similar." (Interview I7)

There are however some factors, described during the interview with I7, that seem to influence the initiation and the effectiveness of inter-organizational collaboration:

- Personal attributes, like one's position in the hierarchy and their professional network, can significantly influence the initiation of collaboration and the willingness to cooperate. A higher hierarchical status lends credibility, often encouraging external organizations to collaborate.

- The prominence and reputation of the organization also play a crucial role. If an organization is already an important partner or has a positive reputation, potential collaborators are likely to view it as trustworthy and credible, thereby fostering the willingness to collaborate.

- Value exchange is another key consideration. Value exchange is more important in the case of inter-organisational collaboration, there has to be a value exchange for collaboration to initiate and thrive. Some collaborations may be straightforward and transactional, like exchanging knowledge and resources for money, leading to results-based interactions. In contrast, collaborations, where the value exchange is less well-defined, can lead to uncertainties, underlining the importance of clear communication about each party's goals and interests to ensure more effective and reliable collaboration.

4.8. Factors Influencing Collaborative Activity in the EDI Process

Collaborative activities in the development and implementation phase of Employee-driven Innovation (EDI) are subject to a range of influencing factors. The organizational culture, available resources, and prevailing attitudes towards innovation play significant roles in either promoting or hampering such collaborations.

Firstly, I1 describes that organizational culture that encourages innovation can stimulate collaboration; however, resistance to change can hinder it. Both I3 and I1 indicate that time and capacity constraints often become key factors of this barrier. Employees may demonstrate an enthusiasm to engage in collaborative activities, but if organizational priorities do not align with the development and implementation of EDI processes, their capacity to contribute may be severely limited. This, in turn, affects their willingness to collaborate, despite the intrinsic motivation to do so. On the other hand, I8 expresses that the organization's commitment to its core work - such as that of a grid operator - fosters a strong sense of community and responsibility among employees. This feeling of collective responsibility tends to inspire a readiness to support EDI initiatives. However, despite this high level of motivation, capacity restrictions may still hinder effective collaboration. I3, I5 and I8 outline that the emphasis on everyday work often competes with the need for innovation, limiting the resources available for EDI initiatives:

“the pressure of the projects outweighs the push to innovate” (Interview I3)

The 'fuzzy front end' of the innovation process can benefit from the spontaneous growth of collaborative networks and informal structures within the organization as mentioned by I2. These informal collaborations are, as described by I7, driven by individual traits and fostered by goodwill and are critical to the EDI initiative’s organic growth.

As revealed by a pattern emerging from I3, I7 and C4, this goodwill, which is often a result of honesty and intrinsic motivation, can significantly amplify these informal collaborations and can also help initiate these collaborations. Those who are proactive and have a deep-rooted motivation for an EDI initiative are likely to take the initiative, connect with management, and dedicate time and effort to engage in collaborative activities to drive the development and implementation of the idea forward.

I1 and C3 mention that active stakeholder management is a crucial factor in facilitating collaborative activity in the EDI process. Meaning that the engagement of stakeholders, strategically examined and chosen by the initiators, before and during the development phase can lead to more effective collaboration. It can help avoid unnecessary collaborative efforts, and potentially hinder decision-making processes that could delay the project.

I4 and I6 both discuss communication as a key element for effective collaboration. It's particularly useful in scenarios where autonomous decision-making is required. Regular information sharing keeps everyone in the loop and prevents unexpected requests from potential collaborators. Furthermore, stakeholder management can be closely tied with communication strategies to keep the stakeholders well-informed, thus enhancing their willingness to contribute when needed.

I1 and I5 add the importance of the alignment of individual goals and ideas with the organizational vision. Stating that this can foster active collaboration within the organization. This alignment also aids in selling the idea to the organization to garner support. However, if the organization's priorities are not focused on EDI initiatives, the innovative culture may suffer. According to I1, it could potentially convey the message that "other things are more important than innovation." Such an attitude may discourage initiators from seeking collaborations and exploring innovation, especially when EDI is viewed as an extra-role behaviour without the vital organizational support.

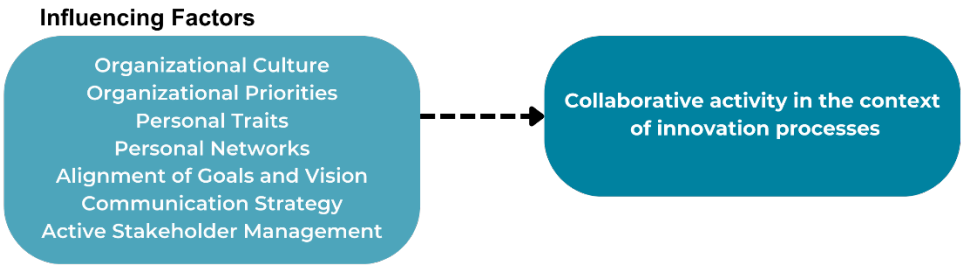

Figure 12, influencing factors for collaborative activity in EDI initiatives

The findings show that there are multiple factors influencing collaborative activity in EDI initiatives. These factors are visualized in Figure 12 and include organizational factors, personal factors, stakeholder management and strategy and the alignment of goals and vision.

The research findings reveal multiple factors shaping collaborative activity within EDI initiatives. As depicted in Figure 12, these factors include various areas, including organizational aspects, personal factors, effective stakeholder management, and the strategic alignment of goals and vision. These diverse components collectively contribute to driving or hindering collaborative activity in the EDI development and implementation process.

4.9. Summary and Framework creation

In this section, the aim is to unite and present the insights gathered from the exploration of Employee-Driven Innovation (EDI) initiatives within Stedin. This resulted in a clear, concise narrative that addresses the sub-research questions.

4.9.1 Findings – Defining Collaboration and EDI

In this section, the focus is set on addressing the first two sub-questions, which aim to define collaboration within the context of innovation and to understand the concept of EDI in relation to EDI initiatives within the organization.

The findings show that collaboration, within the context of Employee Driven Innovation (EDI) in the organization, is seen as a dynamic, cooperative process involving individual employees actively participating in various roles throughout the innovation process. This collaboration is crucial, especially when the task surpasses the capabilities of a single individual, necessitating collective effort and knowledge. This means that collaboration becomes crucial when autonomous execution, considered as one of the most important aspects of EDI development and implementation, becomes challenging, which is often the case during development and implementation of EDI initiatives. Collaboration therefore also involves a readiness to share and let go of personal ideas for the greater good.

Collaborative activities are not just about assembling skills and expertise, but also require strategic interactions, where collaborators are chosen based on their alignment with the initiator's thought process and the shared vision of the innovation. Collaboration is seen as a collective journey, where potential collaborators are selected carefully based on their openness, intrinsic motivation, and alignment with the proposed innovation. Not all employees may initially feel invested, and the process may involve rejections, which are seen as part of the organic journey towards finding the most suitable collaborators.

Moving to the definition of EDI in the context of EDI initiatives within the organization, the findings reveal that EDI within Stedin can be defined as a bottom-up, action-oriented approach to innovation that is embedded in the everyday work of employees. It involves small, incremental changes initiated and executed independently by employees, fostering a culture of continuous improvement and innovation. These initiatives are often based on daily experiences and challenges, with the main goal of enhancing work experience by making it easier, safer, and more enjoyable. The autonomy of employees to develop and implement their ideas is considered a fundamental foundation of EDI. EDI is also considered an organic, exploratory process with the path characterized by trial and error within the organization's existing framework. Consequently, innovation is not solely defined by the end product or process, but rather the comprehensive journey that involves learning, breaking new ground, and inspiring others. Even minor shortcuts and improvements are considered valuable innovations, with the potential to act as building blocks for larger, radical changes in the future.

The development and implementation phase of EDI initiatives are found to consists of two distinct sub-phases. The first phase, referred to in this research as the 'fuzzy front end', is characterized by uncertainty, creativity, and exploration. In this phase, employees need the flexibility to freely navigate the organization's existing framework. Marked by trial and error and organic growth as employees explore various possibilities and shape the direction of their EDI initiative. Following this exploratory phase, the process transitions into the 'backend' phase, which is more structured and integrated. At this stage, the EDI initiative, is further refined, developed, and the focus shifts to practical application and integration into the existing systems and processes of the organization. These two phases underline the dynamic and evolving nature of the EDI initiatives at Stedin, reflecting the importance of both the exploratory process and the practical implementation.

4.9.2 Findings – Collaborative Activities in- and Drivers of- EDI Development and Implementation

The subsequent sub-questions (three and four) are created to illuminate the collaborative activities and their characteristics during the development and implementation process of EDI initiatives, along with the potential contributions these activities may offer to the EDI does.

Insights from the findings indicate a spectrum of unique collaborative activities and characteristics that are prominent during the EDI development and implementation phase. These unique characteristics of collaboration are combined and visualized in Figure 13.

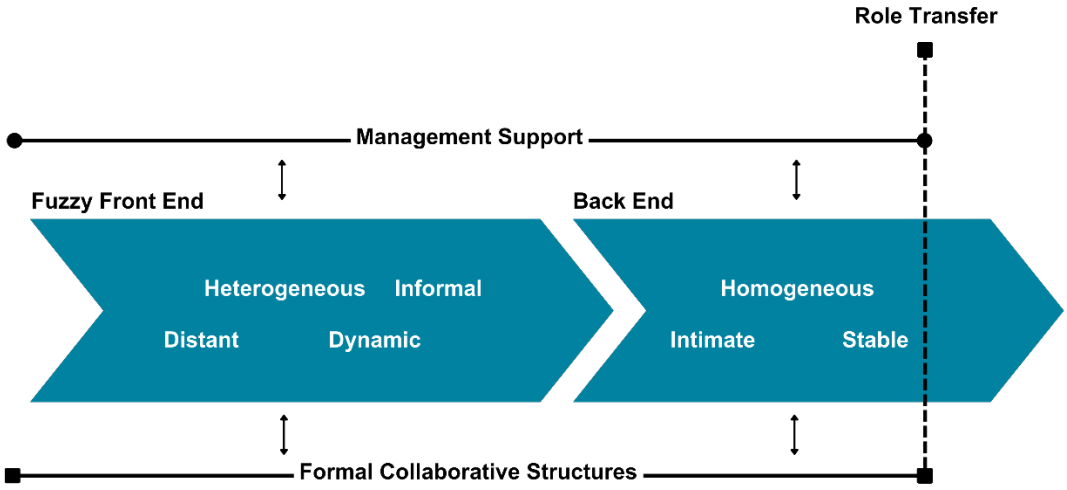

Figure 13, framework indicating collaborative activities through the development and implementation phase of EDI initiatives

Before delving into the collaboration aspect, it is crucial to understand the balance between autonomy, freedom, collaboration, and structure. Autonomy and freedom facilitate EDI initiatives by enabling independent decision-making, but excessive autonomy and freedom can impede innovation due to increased uncertainty. The key lies in finding a balance between autonomy, freedom, collaboration, and structure. Autonomy and freedom offer agility and exploration, while structure and collaboration provide accountability, guidance, and facilitates collaboration. This balance is essential for navigating complex tasks and prioritizing initiatives, underscoring the importance of collaboration in the development and implementation process of EDI.

The findings suggest that it is challenging to separate the identification of collaborative activities from the drivers associated with them, as done in the third and fourth research questions. Therefore, this section provides information on both research questions simultaneously, linking collaborative activities and characteristics to the drivers of EDI development and implementation.

Starting with the fuzzy front end. During the fuzzy front end, heterogeneous collaboration - involving individuals with diverse experiences and backgrounds - is crucial. This collaborative characteristic broadens the scope of exploration, drawing on various expertise to expand the initial innovative idea. It also facilitates communication beyond one's usual sphere, especially with departments potentially affected by the innovation. Simultaneously, three collaborative characteristics prove essential in this phase: informal (emergent social interactions), dynamic (short-term, quick interactions), and distant (low interdependence) collaborations. These characteristics foster flexibility, allowing quick navigation of organizational hurdles, and drive exploration to foster new knowledge and progress ultimately driving EDI development and implementation.

As the process progresses towards the back end, role transfers become vital. Recognizing that an initiator cannot assume all roles throughout the innovation process, the need for collaborations to fulfil the roles of activators, browsers, creators, developers, executors, and facilitators arises. Collaboration becomes more stable and intimate, often involving individuals with similar knowledge bases, understanding, and hierarchical positions, to increase knowledge sharing and with this facilitating task delegation and role transfers. However, when end users lack a similar knowledge base, the need for a stable, intimate collaboration pathway is even more critical.

Additionally, two additional collaborative characteristics that can drive the development and implementation of EDI are identified. The first characteristic is the utilization of formal collaborative structures, also referred to as Strategic EDI programs, to facilitate the process.

The findings of this study highlight the importance of formal collaborative structures in driving the development and implementation of EDI initiatives. Autonomy and freedom are crucial for innovation, but they can also lead to non-committal attitudes and a lack of accountability. To address this, formal collaborative structures, such as strategic EDI programs, are necessary to provide support and structure while still allowing for organic growth and exploration.

These strategic EDI programs promote accountability by establishing clear roles and responsibilities, ensuring that individuals feel a sense of ownership and commitment to the initiative. They also establish consistency in the EDI process, reducing disparities in execution and creating a common understanding among stakeholders. By providing guidance and consultation, these programs assist initiators in navigating the challenges of innovation and ensure a clear direction and tangible objectives for the initiative.

Moreover, strategic EDI programs clarify roles, facilitate support from management, and provide motivation and recognition for initiators. They foster collaboration by balancing freedom and autonomy with the necessary guidance and structure. However, a major drawback is the additional time they require, making it essential for these programs to be flexible and accommodate the varying time capacities of different employees.

In addition to formal collaborative structures, power relations with higher hierarchical entities play a significant role in driving EDI development and implementation. Managers provide guidance, grant autonomy, act as liaisons, allocate resources, delegate decision-making authority, grant a mandate, and demonstrate external confidence, all of which contribute to the success of EDI initiatives. Trust in the employee and confidence in their idea are essential for obtaining management support, and the recognition of the value of an idea also influences this support.

Collaboration with higher management or leaders is crucial in driving EDI initiatives forward. The presence of a catalyst, such as an EDI program or an organizational disruption, can attract attention and support from higher-level stakeholders. However, personal hierarchy within the organization can act as an influential factor for the need of management support.

4.9.3 Findings – Factors Influencing Collaborative Activity

The last sub-question of this research aims to examine the factors that can influence collaborative activity during the development and implementation phases of EDI initiatives. he interview findings reveal several factors that influence employees' engagement in collaborative activities.

Organizational culture, available resources, and attitudes towards innovation play significant roles in either promoting or hindering collaborative activity. A culture that encourages innovation stimulates collaboration, but resistance to change can be a barrier. Linked to this are time and capacity constraints, as employees may be willing to collaborate but limited by organizational priorities. However, the commitment to core work fosters a sense of community and responsibility that inspires support for EDI initiatives, although capacity restrictions may still hinder collaboration.

Informal collaborations driven by individual traits and goodwill are critical to the organic growth of EDI initiatives. Proactive individuals with deep-rooted motivation take the initiative to connect with management and engage in collaborative activities.

Active stakeholder management is crucial in facilitating collaboration, strategically engaging stakeholders to avoid unnecessary efforts and delays in decision-making. Communication and regular information sharing are key elements for effective collaboration, particularly in scenarios requiring autonomous decision-making.

Alignment of individual goals and ideas with the organizational vision fosters collaboration and garners support for EDI initiatives. However, if the organization's priorities are not focused on EDI, the innovative culture may suffer, discouraging collaborations and exploration of innovation without organizational support.

5. Discussion

The outcomes of this research have provided insight into how collaborative activity drives the development and implementation process of Employee-Driven Innovation initiatives. This chapter offers a comprehensive review of the research process, discussing the challenges encountered and the interpretation of its results.

This research primarily aims to investigate the effect of collaborative activities on the development and implementation phase of EDI initiatives. With organizations wrestling with efficient development and implementation of EDI initiatives and a notable literature gap existing in the context of the role of collaborative activities in promoting collaboration, this research could significantly benefit such organizations and enrich the literature on EDI.

The first subset of findings provides a deep dive into the definitions of EDI and collaboration and provides an answer to the first two research questions. The definition of innovation in a broad term is assumed to be the generation of new ideas and their implementation into a new product process or service leading to new value for the organization (O'Sullivan & Dooley, 2009; Schilling, 2019; Urabe, 2018). This view on innovation in a broad scope is partly opposed by the research findings. In the context of this research, the findings reveal that innovation is not solely defined by the end result of implementing a new process or product as described in the literature. Instead, it is viewed as a comprehensive process that encompasses the steps an employee takes in their innovative journey. These incremental steps are seen as part of or even already an innovation. In this case, innovation is about the path of the employee breaking new ground, creating shortcuts, inspiring others, learning new things and laying the groundwork for future innovation. It is stated that the different incremental steps in the innovation process can, together, lead to a fully implemented innovative idea. This view is supported by Haapasaari et al. (2018), who state that a larger innovation can comprise several smaller innovations.

Additionally, the findings state that EDI is primarily a bottom-up, action-oriented approach to innovation embedded in employees' everyday work and that it is seen as an organic and exploratory process led by primarily autonomous execution. This definition is in resemblance to the definition of Høyrup (2012), except for the primarily bottom-up part. Høyrup (2012) distinguishes between various types of EDI varying from bottom-up to top-down. The findings reveal only bottom-up EDI initiatives. This can be due to the possible selection of EDI cases within one specific company. The majority of the initiatives were developed and implemented with the use of a supporting EDI program, these are mainly centred around bottom-up initiatives.

An intriguing and unexpected discovery within the research is the a differentiation between phases within the development and implementation phases of the EDI process. The findings differentiate between the early exploratory phase, known as the 'fuzzy front end,' and the 'back end' phase, where initiatives are realized and implemented. This distinction is not mirrored within the existing literature on EDI, likely due to the unique focus of this research on the specific phase of development and implementation. This newfound insight offers a fresh perspective on the development and implementation process of EDI initiatives. By distinguishing between the phases, organizations and employees can gain valuable insights into how to approach each stage and develop a deeper understanding of their unique characteristics. This distinction brings greater awareness to the specific nuances and considerations involved in the development and implementation of EDI initiatives.

However, it's important to highlight that these stages probably don't follow a strictly linear progression as can be viewed in the findings; meaning they can overlap and coexist. The back-end implementation can occur in parallel with the exploratory fuzzy front-end phase, a complex nuance not explicitly outlined in the initial findings. This discovery also prompts the question of when an Employee Driven Innovation (EDI) is truly an EDI. The findings imply that an EDI is recognized as such in its early development and implementation stages, but as it nears organization-wide implementation, it morphs into a "standard" change or innovation and only background information could indicate it as employee-driven.

In the broader context of innovation, collaboration is typically defined as a collective effort where parties work together to achieve a goal, sharing resources, information, risks, and responsibilities (Dean, 2010; González-Benito et al., 2016). In the findings of this research, collaboration is closely associated with autonomy.

Autonomy is regarded as a significant factor, if not the most crucial one, propelling progress and speed in developing and implementing an EDI initiative, as in accordance with the findings of Echebiri (2020) and Smith et al. (2012). Nonetheless, achieving every task autonomously is not feasible, reflecting the observations of Tirabeni & Soderquist (2019). Therefore, within the scope of EDI development and implementation, collaboration and autonomy are interconnected. Collaboration, in this case, involves carrying out diverse roles independently, understanding the limits of one's autonomous efforts, and when autonomy falls short, delegating specific tasks or entire roles within the innovation process.

The balance between autonomy and collaboration has emerged as a central theme in this research, shaping the trajectory of EDI development and implementation. This finding indicates that collaboration can both function as a driver and barrier for EDI development and implementation. Striking a balance between freedom (autonomy) and structure (collaboration) appears to be a critical factor in making collaboration acting as a driver for EDI development and implementation. This phenomenon resonates with the views of Flocco et al. (2022), Kesting & Parm Ulhøi (2010), and Voxted (2018), who suggest that autonomy is important in driving EDI but an excess of autonomy can lead to negative outcomes for organizations and imply that structure is necessary for implementing employees' ideas. This study's findings illuminate that not only organizational structures can mitigate the adverse effects of excessive autonomy, but collaborative activities can also help realign this balance. Delegation of tasks and transfer of roles, both outcomes of collaboration, can ease the struggles often encountered when autonomy turns into a barrier.

The second set of findings resembles the body of the thesis and can provide an answer to the main research question. It considers both sub-questions about what specific collaborative activities are prevalent during the development and implementation phase of EDI initiatives and how these activities relate to drivers for EDI development and implementation.

Following Tirabeni & Soderquist (2019), collaboration is vital to facilitate an effective EDI environment. Also, Dean (2010) and Smith et al. (2012) agree to the fact that collaboration is a very important aspect of EDI. While the overarching relationship between collaboration and innovation, as well as the effect of collaboration on EDI, is clear, the specific dynamics remain ill-defined.

The findings reveal a complex interplay of collaborative activities and characteristics that drive EDI initiatives' development and implementation phases as can be seen in Figure 13. The findings offer a differentiation between phases within the development and implementation processes, specifically between the "fuzzy front end" and the "back end". These phases continue through collaborative activities in EDI development and implementation. The fuzzy front end, which focuses on primarily exploration, benefits positively from dynamic, distant, and informal collaborative characteristics. Alternatively, the back end benefits from more stable, intimate, and often homogenous collaborative characteristics, ensuring that often specialized and complex initiatives are implemented effectively, and ownership transitions from an EDI to an organization-wide innovation and the end-users of the innovation.

These findings are not relatable to any literature on EDI. The only literature that offers a deeper understanding into the collaborative characteristics associated with Employee-Driven Innovation (EDI) is the work by Smith et al. (2012). They suggest that heterogeneous and homogeneous collaborative characteristics hold significance at different phases of the innovation process. More specifically, heterogeneity plays a crucial role during the idea-generation phase, whereas homogeneity becomes vital closer to the development and implementation phases. This perspective aligns partly with the findings of this research, despite its primary focus on the development and implementation phases. Similar concepts of heterogeneity and homogeneity surface in the differentiation between the 'fuzzy front end' and 'back end' phases of the development and implementation process. The 'fuzzy front end', marked by exploratory freedom, echoes the idea-generation phase's need for heterogeneity. Conversely, the 'back end' phase, characterized by stability and commitment, reflects the homogeneous characteristics needed during development and implementation. Hence, the insights from both research efforts align, even though they explore different scopes within the innovation process.

This research also incorporates a comprehensive analysis of the literature regarding collaborative characteristics in innovation processes. Studies by Tsai & Ghoshal (1998) highlighted that informal collaborative structures may be more adaptable and flexible compared to their formal counterparts. Expanding on this, Tsai (2002) suggested that an organization's knowledge sharing capabilities could be significantly improved through informal collaborative networks, an idea that aligns with the findings from this study on collaborative characteristics and EDI. Also, the research findings support Welborn's

(2003) arguments about the potential outcomes of dynamism and intimacy in collaboration. The results indicate that dynamic collaboration can effectively handle changing conditions and encourage frequent adjustments. High levels of intimate collaboration were found to be crucial for nurturing mutual understanding, while more transactional, distant interactions were deemed important for more transactional exchanges.

In addition to the mentioned collaborative structures that drive specific sections within the development and implementation process of EDI initiatives, there are two further attributes that span the entire phase and serve as catalysts for driving EDI development and implementation. These include strategic EDI programs (representing formal collaboration structures) and power relations, both of which impact every facet of the development and implementation process as can be seen in Figure 13.
These findings align with the mention of Voxted (2018) who states that employee-driven innovation needs a formal structure to ensure successful implementation. In the work of Voxted (2018) these findings were not framed in light of collaboration. This result adds to the work of Kaya (2019, Tsai (2002) and Tsai & Ghoshal (1998), by finding that formal structures of collaboration can act as a means for supporting informal, dynamic and distant collaboration as well as collaborations in the back end of the development and implementation process. Besides formal collaborative structures, power relations - often represented as management or leader support - are identified by de Jong & Den Hartog (2007) and Smith et al. (2012) as critical drivers in the EDI process. Their findings align with those of this research, further emphasizing that management support can facilitate the development and implementation of EDI in numerous distinct ways, as illustrated in Figure 11. This research provides additional insights to the work of de Jong & Den Hartog (2007) and Smith et al. (2012), on the specific ways in which management support influences the EDI development and implementation phases.

As this topic has not been researched in detail up until now, the findings provide a first exploration on the relation between specific collaborative activities and characteristics and the development and implementation phase of EDI initiatives.

The third subset of results delves into factors that impact collaborative activity in EDI development and implementation. It is evident from the research that fostering a culture that encourages innovation, ensures adequate resources, and maintains an optimistic attitude towards change can enhance collaboration. On the contrary, obstacles such as resistance to change and constraints in time and capacity can inhibit collaboration. The study underscores the role of informal collaborations, proactive contributors, active stakeholder management, effective communication, and the alignment of personal and organizational objectives in nurturing collaboration and propelling EDI efforts.

Existing literature predominantly discusses the factors influencing collaborative activity in the context of inter-organizational collaboration. However, in this scenario, most collaborative activities are concentrated on intra-organizational collaboration. Dean (2010) outlines several drivers for nurturing a collaborative culture in his work, which aligns with this study's findings, specifically, the notion of shared goals and shared identity. A shared goal and identity can provide a collaborative environment where everyone is willing to collaborate and provide support. The findings suggest an important nuance, namely that the ability of employees to collaborate effectively is influenced by the organization's overarching priorities regarding "normal work". While employees may possess the willingness and motivation to collaborate due to shared goals and identity, it is crucial for the organization to create an environment that allows for the necessary space and freedom to foster collaboration.

The overall findings about the factors influencing collaborative activity in the development and implementation process of EDI create new insights specific to this innovation type (EDI) and specific to the development and implementation phase. This perspective has not yet been investigated and adds to the body of knowledge about the factors driving (mainly intra-organizational) collaborative activities during innovative efforts.

6. Practical Implications

As the findings provide new insights into the realm of EDI in relation with collaboration, there could potentially be some practical implications connected to them. In this section these potential practical implications, resulting from the three sets of findings in the previous section, are suggested. This will give insight to organizations, employees and other stakeholders on how to interpret and maybe even use the findings in the real world.

The initial set of findings further explains the concepts of EDI and collaboration within the scope of the studied EDI initiatives. These insights offer a fresh perspective on how these two elements operate within an organization striving to implement EDI practices. The findings primarily represent the perspectives of employees actively participating in and affected by EDI initiatives. This could offer organizations a practical viewpoint on EDI and collaboration, which shows distinct variations compared to the definitions present in existing literature.

The findings suggest that innovation should not just be seen as a final product or outcome but also the process and incremental steps taken to achieve it. This could shift how organizations approach innovation, encouraging them to value and reward the journey as much as the destination. It could also lead to more granular tracking of progress, with recognition for 'micro-innovations' along the way.

Additionally, the findings highlight the importance of striking a balance between autonomy and collaboration when considering EDI development and implementation. Encouraging employees to understand their limits and know when to seek help can lead to a more effective use of resources and improve the overall process of innovation. This gives organizations the insight that autonomy has to be provided but support also has to be organized for employees to seek collaboration and transfer roles when autonomy becomes a barrier.

In the context of EDI initiatives within an organization, the development and implementation phase has been further distinguished into two separate phases. The identification of two phases, the 'fuzzy front end' and the 'back end', can enhance both the organization's and employees' understanding of the process. EDI development and implementation involves an initial exploratory phase and a later stage of transferring the idea to the organization - a transition likened to the challenging experience of 'giving away your child'. By becoming aware of these distinct stages, both the organization and its employees could navigate the innovation process more effectively, mitigating the impact of unexpected surprises.

The second set of findings, which provides insights into how collaborative activities can drive EDI development and implementation, potentially carries practical implications. This has not yet been explored within the specific context of EDI development and implementation, thus presenting organizations with a potential new opportunity; leveraging these findings to enhance EDI development and implementation. The same applies to employees involved in such initiatives; they can utilize these insights to bolster their own EDI projects through collaborative activity. This can be achieved in several ways.

The identification of distinct phases in the EDI process, namely the "fuzzy front end" and the "back end", can guide employees to tailor their strategies and resources to the unique requirements of each phase. For instance, during the exploratory, "fuzzy front end" phase, the research suggests that a more dynamic, distant, and informal collaboration may be beneficial. This could guide employees to foster a more flexible and fluid work environment that encourages experimentation and idea generation. Avoiding the premature or ill-timed introduction of stable and intimate collaborative traits may prevent potential resistance to change or collective decision-making, thereby averting slowdowns in the process.

The study further underscores the importance of strategic EDI programs. It sheds light on the need for a balance between autonomy - typically granted by the organization - and structure to promote the development and implementation of EDI initiatives, which can be achieved by integrating formal collaborative structures like strategic EDI programs. This insight might prompt organizations to re-evaluate their current structures and potentially overhaul them to better support EDI initiatives through the incorporation of strategic EDI programs and formal structures, while not interfering with the organic pathway of these EDI initiatives. Organizations should strive for the right balance between autonomy and structure by using these formal collaborative structures.

A similar approach could be taken as a result on the insights of the role of power relations in driving EDI development and implementation. First of all by ensuring this type of collaborative activity is accessible and culturally accepted within the organization. Secondly by overseeing and creating awareness that the power relations have to actively act as a driver of innovation. Managers and leaders need to be not just overseers of productivity, but also facilitators of innovation by; granting autonomy, allocating resources, and actively supporting new ideas. Thirdly, employees involved in the EDI process need to understand the importance of having confidence in their ideas, and being intrinsically motivated in order to drive collaboration with higher-ranking individuals. Moreover, employees should recognize that such interaction is a two-way street, and they should strive to actively engage with these higher hierarchies to establish a collaboration. An organization that encourages support and engagement stemming from management or leaders and employees who actively engage with higher hierarchies can guide EDI initiatives towards a more successful development and implementation process.

The findings indicate that organizations should foster a collaborative culture and provide freedom for collaboration. One specific barrier in using collaborative activity to drive collaboration is resistance to change and time constraints due to organizational priorities. Organization could shift their strategy to provide freedom for employees to actively engage in such initiatives as collaborators and prevent continues and structural interference with other organizational priorities. Of course, there needs to be a balance, not every employee can engage in EDI initiatives all the time, but this is about structurally not being able to collaborate due to these barriers. Fostering a collaborative culture could drive collaborative activities that result in successful EDI development and implementation.

The final set of findings discuss the factors that drive collaborative activities within the EDI development and implementation process. Collaborative activities is found to be a driving factor for the development and implementation of EDI initiatives. For collaborative activities to be able to drive EDI implementation, these activities need to come to the surface. Literature (Dean, 2010) describes these factors on a broad level, not specifically related to EDI. The research findings reveal additional driving factors that specifically focussed on collaborative activities in the context of EDI.

These findings can, for example, prove to be important for organizations and employees looking to enhance collaborative activities in the development and implementation process of EDI. These findings highlight the interconnected nature of various factors that can influence the success of collaborative activities. These organizational factors can be used to stimulate collaborative activities and with this driving the development and implementation phase of EDI initiatives.

7. Limitations and Future Research

Every study, regardless of its scope and rigor, inherently possesses limitations that require acknowledgment and articulation. Acknowledging these limitations is crucial for maintaining transparency and ensuring the credibility of the research. It also provides an opportunity for future research to build upon the existing findings and address the gaps in knowledge. This section aims to highlight the limitations encountered in the study and outline potential opportunities for future research

This research and the findings are revolved around a single case study within a single organization, which inherently limits the scope and variation of context. This results into a triad of possible limitations. First, the unique organizational culture, practices, and structure of the case study may influence the observed phenomena, making it challenging to generalize the findings across different organizations. Second, the selection of cases within a single environment might create biased results and inclusion of pre-formed ideas. This approach could result in a limited and biased view of the research topics. So, including different environments in future studies could give a more complete understanding of the subjects being researched. Third, the small sample size inherent in a single case study could limit the statistical power and robustness of the findings. As such, the conclusions derived might not be fully representative of the wider population or other similar contexts.

Future research could aim to diversify the range of investigated organizations and industries. This would not only enhance the breadth and depth of the research, but it would also offer more varied insights into how an organization's unique culture and structure can shape collaborative activities, as well as influence the development and implementation of EDI.

Additionally, future research could try and aim to quantify the findings using statistical methods and/or perform a longitudinal study, potentially leading to more precise and concrete results. The findings of collaborative characteristics and engagement driving EDI development and implementation or the factors influencing collaborative activity in EDI processes could benefit from these quantitative studies making them more robust.

Considering the uniqueness of the findings in this limited scope, replication studies can be conducted to assess the generalizability of the results and further validate the findings and methodology. The distinction between the fuzzy front end and back end within the development and implementation process, for example, could be a one-off finding. Also the way collaborative activity is researched is a unique feature of this research. Therefore, these findings and methods could benefit from replication studies.

Additionally, the scope of the EDI initiatives examined in this study did not deliver the range of variation initially intended. The initiatives included in the research were primarily developed in specific EDI programs, with only two of the initiatives traced back to the organization's grassroots level. This constraint on the diversity of initiatives did not make it possible to enrich the understanding of the differences between various EDI types. The insights obtained primarily reflect the characteristics and efficacy of EDI initiatives developed and implemented through this strategic EDI program. Also solely bottom-up initiatives have been researched due to the definition of EDI used within the organization. Following Hoyrup (2012), EDI initiatives range from bottom-up to top-down. In this research only bottom-up initiatives where researched and this gives a limited view on EDI. Also, despite incorporating variations in innovation types in choosing EDI initiatives, no significant differences in collaborative activity were observed based on these EDI characteristics. The divergence between product and process innovations did not provide information on different collaborative activities or approaches for these specific innovation types.

Given the constraints of the current study, there exists an opportunity for future research to explore a more broad array of EDI initiatives. It would be beneficial to incorporate more initiatives initiated and developed at the grassroots levels of organizations, as well as those that are not strictly bottom-up in their approach. Future research could explore the possible divergencies between these different types of EDI. This could help in understanding how collaborative activities affects different kinds of initiatives and the success of EDI development and implementation. Moreover, future studies could delve more deeply into how variations in the types of innovation impact collaborative activities. This can potentially result in findings that highlights the effects of collaborative activities specifically focussed on product or process innovations.

Furthermore, this research primarily investigates intra-organizational collaboration, as most collaborative activities examined took place within the firm. While this focus provides valuable insights into the dynamics of in-firm collaboration, it poses a limitation in understanding the differences and potential interactions between intra- and inter-organizational collaboration. The limited data on inter-organizational collaborations may restrict the research's scope and may not address the broader landscape of collaboration in EDI development and implementation.

Therefore, future research should aim to explore both intra- and inter-organizational collaborations more evenly. By broadening the scope to include interactions between different firms, researchers could gain valuable insights into the dynamics of collaboration that span organizational boundaries. This will allow for a comparison of collaborative practices within and between organizations, potentially shedding light on differences in approach, effectiveness, and impact.

Finally, the method in which collaborative activities are researched could potentially introduce some limitations. Collaboration, being a complex and nuanced concept, is studied in this research by identifying specific characteristics. This approach makes collaboration a more researchable subject, but it also confines it within a pre-defined scope, which could potentially restrict the exploration of other related aspects of collaborative activities. This may limit the full understanding of collaborative activity related to the development and implementation of EDI initiatives.

As such, future research should aim to broaden its research approach to explore collaboration in a more general manner. This may include developing more flexible methodologies and considering even more open-ended approaches that allow for the exploration of collaboration in its fullest complexity

8. Conclusion

This qualitative study is designed to explore the role of collaborative activities in driving the development and implementation of employee-driven innovation (EDI) initiatives. The research is conducted within Stedin, a grid operator in the south of the Netherlands, which has a clear strategy for fostering EDI initiatives. The methodology involves twelve in-depth, semi-structured interviews with both initiators of EDI initiatives and individuals who played a role as collaborators in these initiatives.

The results of the study indicate that collaborative activities do indeed have the potential to drive the development and implementation of EDI initiatives. The findings reveal a complex interplay of collaborative activities and characteristics that drive the different phases of EDI initiatives' development and implementation.

The study establishes a clear contrast between the "fuzzy front end" and the "back end" of the EDI process. The fuzzy front end, with its primary focus on exploration, benefits positively from dynamic, distant, and informal collaborative characteristics. These characteristics drive exploration through swift and transactional interactions, and they help overcome organizational resistance and boundaries by ensuring speed, flexibility, and prevention of collective decision-making structures.

In contrast, the back end, which is often more specialized and complex, benefits from more stable, intimate, and homogeneous collaborative characteristics. Managing the back end of this development and implementation involves a role transfer or initiative handover to become an innovation that can be adopted organization-wide. This role transfer is time-consuming and complex, and therefore benefits from stable, intimate, and often homogeneous collaborative characteristics. This process ensures effective implementation and a smooth transition of ownership from an EDI to an organization-wide innovation.

In addition to these specific collaborative structures, the study highlighted two overarching attributes that extend across the entire phase of EDI development and implementation. These are strategic EDI programs, which embody formal collaboration structures, and power relations. Both of these elements were found to impact every aspect of the development and implementation process. Formal collaborative structures provide the balance needed to counter the negative effects of too much autonomy and freedom. By offering a more structured approach without stifling the organic nature of the innovation process, formal structures can encourage support, credibility, and accountability, among other things, and propel the implementation process. The same holds true for power relations. These collaborative activities can enhance the EDI development and implementation by, for example, providing support, mandate and autonomy.

The study also addressed a additional triad of sub-research questions, providing insight into the definition of EDI and collaboration from the employees' perspective and identifying potential factors driving collaborative activity in the development and implementation phase of EDI initiatives. These findings, outside of the scope of the main research objective, adds information to the existing body of literature specific to the EDI development and implementation process and have helped in answering the main research question.

This research addresses a significant knowledge gap in the current understanding of the factors and mechanisms that underpin the EDI process. While previous research, such as that by Smith et al. (2012), has acknowledged the importance of collaboration, the literature lacked a comprehensive exploration of the specific effects of collaborative activity on the EDI process. This study provides a new and unique insight into this area, transforming the understanding of how collaboration functions in the development and implementation phase of EDI. This insight can help both executive management and employees to be aware of and act on the differences in collaborative activity during EDI development and implementation to get the full potential out of the innovation and be more sure of a successful and more effective implementation. However, the current research, being conducted within a single organizational context, does pose certain limitations. Its unique nature and specificity of context mean that the findings may not be directly applicable or generalizable to other settings.

Despite these constraints, this research serves as a forerunner in exploring the relationship between collaboration and the development and implementation of employee-driven innovation. It takes the first steps into a new micro-domain within EDI research, providing a foundation and a launching point for further research. The research has yielded intriguing results on context-dependent definitions of EDI and collaboration, as well as new insights into the interplay between EDI and collaborative activities. Accordingly, the findings add to the existing knowledge and offer new perspectives for understanding EDI, but future research is necessary to validate and reinforce these findings, enhancing their robustness and applicability across various contexts as this is research functions as a first exploratory research in the specific domain of collaboration in relation to EDI.

Literature

Aaltonen, S., & Hytti, U. (2014). Barriers to Employee-Driven Innovation: A Study of a Regional Medium-Sized Bakery. *The International Journal of Entrepreneurship and Innovation*, *15*(3), 159–168. https://doi.org/10.5367/ijei.2014.0157

Aasen, T. M., Amundsen, O., Gressgård, L. J., & Hansen, K. (2012). In Search of Best Practices for Employee-Driven Innovation: Experiences from Norwegian Work Life. In S. Høyrup, M. Bonnafous-Boucher, C. Hasse, M. Lotz, & K. Møller (Eds.), *Employee-Driven Innovation: A New Approach* (pp. 57–74). Palgrave Macmillan UK. https://doi.org/10.1057/9781137014764_3

Albrecht, T. L., & Ropp, V. A. (1984). Communicating about innovation in networks of three U.S. organizations. *Journal of Communication*, *34*, 78–91. https://doi.org/10.1111/j.1460-2466.1984.tb02175.x

Amundsen, O., Aasen, T. M., Gressgård, L. J., & Hansen, K. (2014). Preparing organisations for employee-driven open innovation. *International Journal of Business Science and Applied Management*, *9*, 24–35.

An innovative and sustainable Norway (7.; St. Report No. 7 (2008-2009), p. 114). (2008). Ministry of Trade and Industry.

Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shopfloor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology*, *73*(3), 265–285. https://doi.org/10.1348/096317900167029

Bäckström, I., & Lindberg, M. (2018). Behavioural implications of employee-driven innovation—A critical discourse analysis. *International Journal of Innovation Management*, *22*(07), 1850058. https://doi.org/10.1142/S1363919618500585

Berisha, B., Ramadani, V., Gërguri-Rashiti, S., & Palalić, R. (2020). The Impact of Innovative Working Behaviour on Employees' Working Performance. In J. Leitão, A. Nunes, D. Pereira, & V. Ramadani (Eds.), *Intrapreneurship and Sustainable Human Capital: Digital Transformation Through Dynamic Competences* (pp. 37–49). Springer International Publishing. https://doi.org/10.1007/978-3-030-49410-0_3

Beyerlein, M., Beyerlein, S. T., & Kennedy, F. A. (2006, August 8). *Innovation through Collaboration*. https://www.semanticscholar.org/paper/Innovation-through-Collaboration-Beyerlein-Beyerlein/72400f1e57b49f6cc182e83d442debac9b7826bb

Beyerlein, M., Kennedy, F., & Beyerlein, S. (2006). Introduction. In *Advances in Interdisciplinary Studies of Work Teams* (Vol. 12, pp. xiii–xviii). Emerald (MCB UP). https://doi.org/10.1016/S1572-0977(06)12014-2

Buhl, A., Blazejewski, S., & Dittmer, F. (2016). The More, the Merrier: Why and How Employee-Driven Eco-Innovation Enhances Environmental and Competitive Advantage. *Sustainability*, *8*(9), Article 9. https://doi.org/10.3390/su8090946

Bunderson, J. S., & Sutcliffe, K. M. (2002). Comparing Alternative Conceptualizations of Functional Diversity in Management Teams: Process and Performance Effects. *The Academy of Management Journal*, *45*(5), 875–893. https://doi.org/10.2307/3069319

Chasanidou, D., Sivertstøl, N., & Hildrum, J. (2018). Exploring employee interactions and quality of contributions in intra-organisational innovation platforms. *Creativity and Innovation Management*, *27*(4), 458–475. https://doi.org/10.1111/caim.12290

de Jong, J. P. J., & Den Hartog, D. N. (2007). How leaders influence employees' innovative behaviour. *European Journal of Innovation Management*, *10*(1), 41–64. https://doi.org/10.1108/14601060710720546

Dean, K. (2010). *Strategies and Benefits of Fostering Intra-Organizational Collaboration*. https://www.semanticscholar.org/paper/Strategies-and-Benefits-of-Fostering-Collaboration-Dean/905ee8ee68f91d36170234e7b57d351ca92986ab

Deslée, C., & Dahan, A. (2018). Employee-driven innovation into practice: Managing the tension between organisation and innovation. *International Journal of Entrepreneurship and Innovation Management*, *22*(4/5), 323. https://doi.org/10.1504/IJEIM.2018.092957

Echebiri, C. (2020). An Empirical Study into the Individual-Level Antecedents to Employee-Driven Innovation. *Technology Innovation Management Review*, *6*(6), 42–52. https://doi.org/10.22215/timreview/1367

Eisenberger, R., Fasolo, P., & Davis-LaMastro, V. (1990). Perceived organizational support and employee diligence, commitment, and innovation. *Journal of Applied Psychology*, *75*(1), 51–59. https://doi.org/10.1037/0021-9010.75.1.51

González-Benito, Ó., Muñoz-Gallego, P., & García-Zamora, E. (2016). Role of collaboration in innovation success: Differences for large and small businesses. *Journal of Business Economics and Management*, *17*, 645–662. https://doi.org/10.3846/16111699.2013.823103

Gupta, A. K., & Govindarajan, V. (1986). Resource Sharing among SBUs: Strategic Antecedents and Administrative Implications. *The Academy of Management Journal*, *29*(4), 695–714. https://doi.org/10.2307/255940

Guzzo, R. A., & Dickson, M. W. (1996). TEAMS IN ORGANIZATIONS: Recent Research on Performance and Effectiveness. *Annual Review of Psychology*, *47*(1), 307–338. https://doi.org/10.1146/annurev.psych.47.1.307

Haapasaari, A., Engeström, Y., & Kerosuo, H. (2018). From initiatives to employee-driven innovations. *European Journal of Innovation Management*, *21*(2), 206–226. Scopus. https://doi.org/10.1108/EJIM-09-2016-0085

Hagdahl, A. (2002). *Development of IT-supported Inter-organisational Collaboration: A Case Study in the Swedish Public Sector*. https://www.semanticscholar.org/paper/Development-of-IT-supported-Inter-organisational-A-Hagdahl/1b042c7567b8d0c401e0e0669db16c3db50459f3

Hansen, K., Amundsen, O., Aasen, T. M. B., & Gressgård, L. J. (2017). Management Practices for Promoting Employee-Driven Innovation. In P. Oeij, D. Rus, & F. D. Pot (Eds.), *Workplace Innovation: Theory, Research and Practice* (pp. 321–338). Springer International Publishing. https://doi.org/10.1007/978-3-319-56333-6_19

Hardy, C., Phillips, N., & Lawrence, T. B. (2003). Resources, Knowledge and Influence: The Organizational Effects of Interorganizational Collaboration*: Resources, Knowledge and Influence. *Journal of Management Studies*, *40*(2), 321–347. https://doi.org/10.1111/1467-6486.00342

Høyrup, S. (2012). *Employee-Driven Innovation: A New Phenomenon, Concept and Mode of Innovation* (S. Høyrup, M. Bonnafous-Boucher, C. Hasse, M. Lotz, & K. Møller, Eds.). Palgrave Macmillan UK. https://doi.org/10.1057/9781137014764_1

Huang, F., & Rice, J. (2009). The role of absorptive capacity in facilitating 'open innovation' outcomes: A study of Australian SMEs in the manufacturing sector. *International Journal of Innovation Management*, *13*(02), 201–220. https://doi.org/10.1142/S1363919609002261

Kallevig, A. (2014, July 16). *Employee Driven Innovation—An Organisational Challenge*. XVIII ISA World Congress of Sociology (July 13-19, 2014). https://isaconf.confex.com/isaconf/wc2014/webprogram/Paper41003.html

Kaya, D. (2019). *Intra-organizational collaboration for innovation.: Understanding the dynamics of formal and informal structures.* http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-263170

Kelchtermans, S., & Beule, F. de. (2013). *Proceedings for the 8th Europen Conference on Innovation and Entrepreneurship: ECIE 2013*. Academic Conferences Limited.

Kesselring, A. (2014). *Workplace Innovation, Concepts and indicators* [Exploratory report]. © European Union. https://single-market-economy.ec.europa.eu/industry/strategy/innovation/workplace-innovation_en

Kesting, P., & Parm Ulhøi, J. (2010). Employee-driven innovation: Extending the license to foster innovation. *Management Decision*, *48*(1), 65–84. https://doi.org/10.1108/00251741011014463

Keum, D. D., & See, K. E. (2014). The Influence of Hierarchy on Innovation and Idea Selection: A Process View. *Academy of Management Proceedings*, *2014*(1), 10283. https://doi.org/10.5465/ambpp.2014.125

Laviolette, E. M., Redien-Collot, R., & Teglborg, A.-C. (2016). Open innovation from the inside: Employee-driven innovation in support of absorptive capacity for inbound open innovation. *The International Journal of Entrepreneurship and Innovation*, *17*(4), 228–239. https://doi.org/10.1177/1465750316670490

Lawler, E., Benson, G., & Kimmel, M. (2013). Adoption of Employee Involvement Practices: Organizational Change Issues and Insights. *Research in Organizational Change and Development*, *21*, 23–57. https://doi.org/10.1108/S0897-3016(2013)0000021011

Louise Barriball, K., & While, A. (1994). Collecting data using a semi-structured interview: A discussion paper. *Journal of Advanced Nursing*, *19*(2), 328–335. https://doi.org/10.1111/j.1365-2648.1994.tb01088.x

Oslo Manual 2018, Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition (4th ed.). (2018). OECD. https://www.oecd.org/science/oslo-manual-2018-9789264304604-en.htm

O'Sullivan, D., & Dooley, L. (2009). *Applying Innovation*. https://doi.org/10.4135/9781452274898

Parjanen, S. (2012). Experiencing Creativity in the Organization: From Individual Creativity to Collective Creativity. *Interdisciplinary Journal of Information, Knowledge, and Management*, *7*, 109–128.

Popadiuk, S., & Choo, C. (2006). Innovation and Knowledge Creation: How Are These Concepts Related? *International Journal of Information Management - INT J INFORM MANAGE*, *26*, 302–312. https://doi.org/10.1016/j.ijinfomgt.2006.03.011

Savvides, S. C. (1979). Organisational Structure and Innovation. *O&M: Structures & Processes in Organizations EJournal*. https://ssrn.com/abstract=2251203

Schilling, M. (2019). *Strategic Management of Technological Innovation* (6th ed.). McGraw Hill.

Smith, P., Ulhøi, J. P., & Kesting, P. (2012). Mapping key antecedents of employee-driven innovations. *International Journal of Human Resources Development and Management*, *12*(3), 224–236. https://doi.org/10.1504/IJHRDM.2012.048629

Tirabeni, L., & Soderquist, K. E. (2019). Connecting the Dots: Framing Employee-Driven Innovation in Open Innovation Contexts. *International Journal of Innovation and Technology Management*, *16*(04), 1950031. https://doi.org/10.1016/j.protcy.2012.02.116

Tirabeni, L., Soderquist, K. E., & Pisano, P. (2016). Driving Innovation by Enhancing Employee Roles: The Balancing Act of Employee-Driven Innovation. *International Journal of Economics and Management Engineering*, *10*(1), 143–151. https://doi.org/10.5281/zenodo.1338674

Tohidi, H., & Jabbari, M. M. (2012). The important of Innovation and its Crucial Role in Growth, Survival and Success of Organizations. *Procedia Technology*, *1*, 535–538. https://doi.org/10.1016/j.protcy.2012.02.116

Tsai, W. (2002). Social Structure of 'Coopetition' within a Multiunit Organization: Coordination, Competition, and Intraorganizational Knowledge Sharing. *Organization Science*, *13*(2), 179–190.

Tsai, W., & Ghoshal, S. (1998). Social Capital and Value Creation: The Role of Intrafirm Networks. *The Academy of Management Journal*, *41*(4), 464–476. https://doi.org/10.2307/257085

Tuomo, A. (2013). *Promoting employee-driven innovation: Putting broad-based innovation policy into practice*. International Helix Conference, Linköping. https://nrw.dgb.de/themen/++co++5f6b88d0-de5f-11e2-a200-00188b4dc422

Urabe, K. (2018). Innovation and the Japanese Management System. In *Innovation and the Japanese Management System* (pp. 3–26). De Gruyter. https://doi.org/10.1515/9783110864519-005

Voxted, søren. (2018). Conditions of implementation of employee-driven innovation. *International Journal of Entrepreneurship and Innovation Management*, *22*, 471. https://doi.org/10.1504/IJEIM.2018.10013643

Watson, W. E., Kumar, K., & Michaelsen, L. K. (1993). Cultural Diversity's Impact on Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups. *The Academy of Management Journal*, *36*(3), 590–602. https://doi.org/10.2307/256593

Welborn, R. (2003). *The Jericho Principle: How Companies Use Strategic Collaboration to Find New Sources of Value* (1st ed.).

Yin, R. K. (2018). *Case Study Research and Applications* (1st ed.). SAGE Inc.

Appendices

Appendix I – Semi-Structured Interview Questions

No.	Interview Question – The Initiators of the EDI Initiative
1.	Can you describe your role in the organization and the responsibilities in your 'normal' job?
2.	This research is about Employee-Driven Innovation. How would you define or describe this concept?
3.	Could you provide a brief overview of your idea/initiative, including its essence, objectives, and expected/realized outcomes?
4.	Could you please share your experiences during the innovation process, with a particular focus on the development and implementation phase? • 4.1. Were there any factors that either helped or hindered your progress?
5.	What has been the outcome of your idea thus far? Has it been successfully implemented, and what benefits or results have been realized? • 5.1. When do you consider implementation to be successful? • 5.2. Was the development and implementation process effective according to you? • 5.3. How do you think the development and implementation process could have been more effective or successful?
6.	Can you share your perspective on the role of collaboration in the innovation process at your workplace and how you would define or describe it in this context?
7.	Did you collaborate with others during the development and implementation of your idea?
8.	If so, could you describe the nature of the collaboration, the individuals involved, and the structure of the collaboration? Can you provide more details about your collaborators, such as their background, expertise, hierarchical level, and whether they were from within or outside Stedin? • 8.1. Were these individuals from within or outside Stedin? • 8.2. Was the collaboration short-term or long-term and continuous throughout the entire process? • 8.3. Did the collaboration involve frequent interactive sessions and ongoing information sharing, or was it more sporadic? • 8.4. Did the collaboration emerge from a structured process within Stedin or develop organically through your own network? • 8.5. What expertise did the collaborators bring to the table? Did the collaboration involve individuals with similar disciplines or diverse backgrounds and expertise? • 8.6. Did the collaboration involve individuals at the same hierarchical level, or did it span across different levels? • 8.7. During the development and implementation of your idea, did you employ specific collaborative strategies or tools that enhanced the efficiency and/or effectiveness of the process? ○ 8.7.1. If so, please describe these strategies or tools and explain how they contributed to the success of your innovation initiative.
9.	How did the collaboration activity influence the implementation phase of the innovation process? • 9.1. Did it result in quicker development or implementation? • 9.2 Did it prevent the innovation to be not implemented at all?
10.	Can you pinpoint specific aspects of the process or actions that were impacted by collaborative activities? • 10.1. What benefits or challenges did the collaborative activities contribute during the development and implementation phase of the innovation process?
11.	Do you think any particular characteristic or form of collaboration significantly influenced these impacts on the development and implementation phase of the innovation process? • 11.1. E.g. resource allocation, and overcoming resistance to change.
12.	What do you think are factors that contribute to the effectiveness and existence of collaborative activities in an EDI process?

No.	Interview Question – Collaborative Network of the Initiator / Initiative
1.	Can you describe your role in the organization and the responsibilities in your 'normal' job?
2.	This research is about Employee-Driven Innovation. How would you define or describe this concept?
3.	Can you share your perspective on the role of collaboration in the innovation process at your workplace and how you would define or describe it in this context?
4.	From your perspective, how would you describe your experience in collaborating in the innovation process, specifically in the development and implementation phase of the innovation process?
5.	What role did you have in the development and implementation of the initiative? 5.1. Did you offer support, provided resources or actively collaborate with the innovation initiator?
6.	How do you think your role as a [put in the position of the participant (manager/leader/colleague/external partner)] contributed to the development and implementation of this specific idea?
7.	Has the initiative been successfully implemented, and what benefits or results have been realized? 7.1. When do you consider implementation to be successful? 7.2. Was the development and implementation process effective? 7.3. How do you think the development and implementation process could have been more effective or successful?
8.	Could you describe the nature of the collaboration, the individuals involved, and the structure of the collaboration? 8.2. Was the collaboration short-term and emergent or long-term and continuous throughout the entire innovation process? 8.3. Did the collaboration involve frequent interactive sessions and ongoing information sharing, or was it more sporadic? 8.4. Did the collaboration emerge from a structured process within Stedin or develop organically through your own network? 8.5. What expertise did the collaborators bring to the table? Did the collaboration involve individuals with similar disciplines or diverse backgrounds and expertise? 8.6. Did the collaboration involve individuals at the same hierarchical level, or did it span across different levels? 8.7. During the development and implementation of the idea, were any specific collaborative strategies or tools employed that improved the efficiency and/or effectiveness of the process? 8.7.1. If so, please describe these strategies or tools and explain how they contributed to the success of your innovation initiative.
9.	[optional] As a manager or leader, how do you promote and enable collaboration during the innovation process and what are the expected outcomes of it?
10.	What strategies or structures have been implemented within Stedin to encourage and foster collaboration among employees working on innovation initiatives?
11.	What do you think are factors that contribute to the effectiveness and existence of collaborative activities in an EDI process?