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Managing Paradoxes in Coordinating Innovation

A qualitative study on how coordination reinforces innovation in a Swedish Automotive Company

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ABSTRACT

Innovation has become a widespread practice in the automotive industry for companies to stay relevant in the future. This paper aims to discuss how a large enterprise works with innovation in practice from the lenses of coordination and organizational routine theories. The study suggests that coordination and organizational routines can be used in organizations to orchestrate innovation since it is a complex phenomenon of interlinked ongoing dynamic activities involving many stakeholders. A qualitative empirical analysis based on document studies, observations, and interviews of 19 respondents has been done. The selected interviewees are from all levels, both non-managers and managers, in three sub-organizations of Volvo Group. Innovation is portrayed as a web of interconnected actions to bring an idea into commercialization. The study identified four main pillars; people, collaboration, freedom, and failure that affect innovation capabilities. The pillars work interdependently and involve many enablers and barriers in the innovation process highlighted in the findings. Moreover, the two identified paradoxes are seen as blockers of innovation. The study indicates a relationship between flexibility and steering in the organization. Thus, we suggest that organizations must understand the relationship between the pillars and paradoxes to address them when they aim for innovation.

Key Words

Innovation, Paradoxes, Coordination, Organizational Routines.

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INTRODUCTION

In today's fast-paced business environment, innovation has become central to supporting companies to stay ahead. The global business environment is changing fast, and it is more complex than ever before. Today's businesses are facing high competition from new actors entering the market. New technologies, higher consumer demands, and global macro trends increase the need for organizations to continuously improve their solutions (Goffin & Mitchell, 2017). Large organizations have for decades been seen as less innovative than smaller firms. Pisano (2019) challenges this in his recent research, saying that big companies can be successful innovators and refers to examples like Apple and Amazon. The answer to becoming fast is the company's capability, the DNA, meaning that the "DNA explains why a cheetah runs faster than an elephant". So, this means that a large company is the elephant and not running fast. However, DNA in a company is not inherited. Instead, it is designed by people. Thus, a large company can be as innovative as a small one if they know how to create and manage the company. Simpson, Siguaw and Enz (2006) believe that firms require continuous innovation, and to achieve it, they must have a set of organization-wide shared beliefs and understanding.

This paper aims to study how innovation is done in practice in a dynamic international environment through the lenses of coordination and organizational theories. The study is a case performed at Volvo Group, global automotive industry with a historical track record of innovation. The findings contribute to filling the research gap on how innovation can be done in practice and present new insights into how to work with coordination and routines in the context of innovation. Coordination is a known management control practice used to organize large international organizations. Compared to traditional control methods, it offers companies a cost-efficient, less authority and power-oriented system (Clemmons & Simon, 2001).

On the one hand, coordination is seen to be an efficient method that makes people interact. On the other hand, organizational routines render guidelines and rules for the people, which helps them perceive and perform interlinked actions systematically (Feldman & Pentland, 2003). An organization with language and cultural differences can cause challenges such as reducing communication efficiency, limiting information flow, and limiting interaction between people, which need to be addressed to overcome these hindrances (Hutchins, 1991; Klein, Ziegert, Knight, & Xiao, 2006).

Consequently, this thesis aims to identify the role of coordination and routines of the main pillars in innovation and answer the research question: *How is innovation done in practice?* The structure of the thesis is as follows: an overview of previous literature and a theoretical framework that describes the three theories, emergent coordination (EC), relational coordination (RC) and organizational routines (OR). The following section introduces the methodology, outlining the data collection, analysis, and ethical limitations and opportunities. Further sections outline the findings from the interviews and document studies, structured in four main pillars of innovation and two paradoxes presenting how innovation is done in practice. In the discussion, the findings and theories are connected to analyze how they are interlinked in practice. The final chapter presents the conclusion with contributions, limitations, and future research.

PREVIOUS LITERATURE

The focus of this section is to provide an overview of previous literature within the field of innovation and innovation management, as it is the focus of this thesis. Much research is done on innovation; however, not much about how it is done in practice. Therefore, the literature review focuses on the enablers and barriers of innovation from an organizational perspective.

Innovation and Innovation Management

The word "innovation" originates in Latin *innovatus* in the fifteenth century, and today, it has many different meanings for different people (Schumpeter, 1934). For Joseph Schumpeter, innovation should be commercialized, and it is a social activity created by combinations of, e.g., people, knowledge, and other resources (Fagerberg, 2008). Drucker (1985) further developed the meaning of innovation, saying that it is about new business opportunities. Thus, this explains why innovation is a hot topic, as it creates new businesses and supports economic growth. Innovation provides opportunities such as technological progress, increased productivity, and GDP growth regardless of the company's size (Aghion & Howitt, 2009).

Innovation management relates to how innovation is done. Goffin and Mitchell (2017) have developed the Pentathlon framework of five main elements influencing innovation. The first element is "people, culture and organization" being the foundation of innovation. It involves hiring routines, a culture to motivate employees through rewards systems and an organizational design enabling innovation. The other elements in the process are generating ideas, selection, implementation, and innovation strategy. Another framework that highlights critical innovation factors developed by Loewe and Dominiquini (2006) are leadership and organization, culture and values, people and skills and processes and tools.

Further research found that knowledge and information sharing in a cross-functional organization increase learning and enable innovation (Tsai, 2001; Karim, 2009). More recent literature on innovation suggests that innovation needs three things. 1. The right innovation strategy with a clear direction, 2. Establishing an innovation system that enables the people to execute innovation, and 3. The right innovation culture. Furthermore, there are many management methods for how to do innovation, but they all have limits. One piece of advice is to adapt them for the specific co mpany, and there is no one-size-fits-all solution. The second piece of advice to succeed in innovation is to focus on people as they create innovation. An organization needs people that are bold, ambiguous, and diverse thinkers to outstanding innovation. The author talks about "creative constructors" meaning someone who enjoys being different, searching for other paths, and challenging the status quo (Pisano, 2019). Another enabler is motivation and according to Styhre (2008) what motivates people in innovation is to explore the unknown rather than career advancements and financial rewards.

There are also different innovation barriers, such as the short-term focus on the return of investments and incentives in conflict with innovation (Loewe & Dominiquini, 2006). In addition, other barriers are identified, such as low employee engagement and lack of alignment on activities in the organization (Dooley & O'Sullivan, 2000). Further barriers identified are organizational silos and different routines, hindering knowledge sharing between organizations; therefore, cross-collaboration is vital (Dougherty, 1992). Even though

innovation is highly researched, little research has been done to understand how innovation is done in practice and how an organization can improve innovation. Thus, to contribute to this research field, it is interesting to study innovation in practice from the lenses of coordination and organizational routines.

THEORETICAL FRAMEWORK

Coordination Theory

Coordination theory has long been of interest to organizational theorists studying the phenomenon of aligning interrelated activities toward joint achievements (Jarzabkowski, Lê, & Feldman, 2012). The early research on coordination looked at it from the perspective of intentional tasks to master an environment in an organization (Faraj & Xiao, 2006; Okhuysen & Bechky, 2009). Later research in coordination theory focused on the coordination activities between people in an organization (Malone & Crowston, 1994; Thompson, 1967). In the more recent studies, coordination is described as collective work between people, tasks being interlinked, and tasks being accomplished (Okhuysen & Bechky, 2009). In addition, for coordination mechanisms to work sufficiently, there needs to be flexibility in the system to manage the complexity required to accomplish the wanted outcomes (Argote, 1982; Thompson, 1967). To support this, authors argue that coordination mechanisms are about ongoing and planned tasks that unfold due to uncertainties in the organization (Gittell, 2000; Okhuysen & Bechky, 2009). Building on the above understanding of coordination, EC and RC theories are outlined below.

Emergent Coordination Theory

Recent research highlights that activities in an organization are equally important as the company's structure. Emergent coordination theory (ECT) coordinates ongoing activities that emerge and need coordination regardless of the organizational structure (Okhuysen & Bechky, 2009). Since the technology trends are becoming even more complex, an increased need for coordination in organizations is needed since EC happens by the people regardless of how the organization is structured (Okhuysen & Bechky, 2009; Davis, 2003; Hargadon, 2003). Lately, companies' organizational structures have become more flat, flexible, and responsive to changes because of today's demanding environment in new complex technology and uncertainties to manage the activities proficiently (Okhuysen & Bechky, 2009).

Okhuysen and Bechky (2009) described three criteria for how efficient EC can be accomplished, namely through 1) accountability, 2) predictability, and 3) a shared understanding within the community of practice. Providing people with accountability clarifies who has the responsibility for coordinating the activities. Furthermore, it also supports identifying the responsibility for related activities in the organization. Establishing routines and governance to clarify the roles and responsibilities can set accountability (Okhuysen & Bechky, 2009). The second criterion, predictability, supports people in predicting and aligning future tasks in the community (Okhuysen & Bechky, 2009; Rico, Sánchez-Manzanares, Gil & Gibson, 2008). People can establish predictions by coordinating plans and routines (Feldman, 2000; Feldman & Pentland, 2003). The third criterion that supports coordination happens when

people have a common understanding of the activities between each other to work towards the same goals (Okhuysen & Bechky, 2009; Bennis, 1989).

The ECT happens through continuous interactions where employees can achieve shared results. Today, many organizations act in a dynamic environment where demands constantly change, which increases variating tasks where design details are not fully known; hence EC is needed (Faraj & Xiao, 2006; Kellogg, Orlikowski, & Yates, 2006). Further, when employees practice knowledge sharing, they create a relationship and become more familiar, resulting in more effective coordination (Reagans, Argote & Brooks, 2005). As a supplement, people interested in learning and collaborating with others to enhance knowledge or share new technologies are more interested in cultural aspects such as organizational values rather than policy outcomes. These collaborations are often de-centralized and independently organized in a collaborative setup and operate collectively towards shared goals outside any political interest. Further, in a collaboration setup, there needs to be an alignment of what each party contributes and how their interests can be preserved and distinguished (O'Mahony & Bechky, 2008).

The recent interests for EC are the organizational focus on innovation; thus, it is found to support good collaborations between people and teams to solve complex solutions together with decentralized decision making (Faraj & Xiao, 2006). In addition, Latour (1987) stated that the best way to make people collaborate is to adapt the work to be done to serve the interest of the people performing a task towards their goal. Organizations that facilitate collaboration encourage people and teams to organize their work according to their interests and enable different interests to co-exist yet collaborate towards common goals.

Emergent coordination serves its purpose in today's organizations, facing fast-changing environments and technology shifts in close collaboration across multiple stakeholders. Further, it allows people to accomplish tasks more proficiently. Additionally, it offers relevant mechanisms such as interactions, alignment and monitoring of activities, and keeping each other updated around ongoing activities to meet the fast-paced changes (Hutchins, 1991; Klein et al., 2006). As an example, Kellogg et al. (2006) acknowledged that establishing cross-functional groups increases the productivity and time efficiency to transfer input from people within the same community. Another example from Okhuysen and Bechky (2009) identified that people from different teams are involved in fast knowledge exchange to solve tasks together in complex situations to support each other collectively.

Bechky and Chung (2018) found that exercising EC is essential because companies cannot entirely set up the structure for coordinating dynamic and unforeseen needs. Therefore, people need to manage coordination during ongoing activities. Alvesson (1995) studied coordination from a different perspective and identified that for organizations to manage unpredictable demands, they recruit people with the correct skill set needed to handle dynamic and complex situations. In addition, Brown and Duguid (2001) found that knowledge-based firms are very dependent on their people to think and use their knowledge capacity to perform innovation. From this, work-related communities are formed and coordinated. These communities involve people who share common values and create a relationship where knowledge sharing happens within the team regardless of organizational structure.

As the authors referred to, collective occupations can develop innovative solutions by solving complex and uncertain problems collectively; hence EC mechanisms are needed in an

environment with many uncertainties and unclear tasks (Kellogg et al., 2006). Further, Briscoe (2006, 2007) presented that providing increased flexibility and work-life balance to employees while still practicing control and follow up of administrative character will not reduce employee satisfaction. In contrast, if managers follow up on the team's collective functional tasks, that can provoke resistance in the group and lower satisfaction.

Kellogg et al. (2006) found that cross-team coordination in flat organizations prevents the dynamics and interdependencies of the team setup. People engage in cross-coordination activities if it brings value to their work, makes it visible, or supports their work to progress. The authors mean that people establish cross-coordination on behalf of, e.g., lowering the quality and creating ambiguity. Further, along with the interdependencies, new power asymmetries are created.

The authors outline three different perspectives around coordination barriers across organizations. 1) This is about knowledge sharing triggered by a strategic decision about transferring knowledge of e.g., a software code between people. The barrier appears when language, protocols and other routines differ, thus hindering knowledge transfer. 2) This perspective is related to culture. When people are experts in an area that is not easy to articulate, this can result in less information being transferred to others in a community. Therefore, the competence stays within a few numbers of people. In these situations, common language and storage sources are recommended. 3) The last perspective highlights the community's interest in working in cross coordination to share knowledge. Here, people's knowledge and interests are seen to be closely linked; thus, knowledge sharing happens in the process of transferring knowledge. Since it requires time, individual effort, and establishing relationships, there needs to be an interest for the community to engage. The recommendation to remove this barrier is to have the same tools and methods to enhance a collective engagement. Understanding these three perspectives to facilitate cross coordination requires alignment in approaching these boundaries, e.g., implementing common protocols and processes (Kellogg et al., 2006).

Relational Coordination Theory

Relational coordination theory (RCT) renders a unique understanding of the relational dynamics present in work coordination. Relational coordination is defined as *"relationships of shared goals, shared knowledge, and mutual respect between workgroups or organizations promote frequent, timely, accurate, problem-solving communication and vice versa, allowing them to effectively coordinate their work."* (Gittell, 2018). Thus, it is *"a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task integration"* (Gittell, 2011). This RC approach is different from other coordination perspectives as it provides relationship and communication dimensions which enable an organization to achieve its desired goals and objectives.

The relationship perspective adheres to shared goals, shared knowledge, and mutual respect, whereas the communication dimension advocates frequent, timely, accurate problem-solving to achieve effective coordination within an organization. Under the relationship ties, firstly, shared goals refer to an individual's perception of gaining an interdependent plan while having a relationship with others engaged in the same work process (Daniel & Elin, 2020; Bolton, Logan & Gittell, 2021). Further, this also encourages emotional bonding between the

employees, which helps develop collaborative behavior in the organization. Secondly, shared knowledge implicates mutual understanding of the connection between the tasks performed to fulfill the organizational objectives (Daniel & Elin, 2020). Lastly, mutual respect suggests that during the work process, participants or actors have respect for each other, which strongly influences the working relationship (Gittell, 2011).

Moreover, the organization's RC is also influenced by the communication ties, adheres to 1) Frequent communication allows the actors to communicate via repeated interaction which also strengthens the relationship among participants and provides a continuity in the communication process that is helpful in the removal of barriers (Donna Havens, Joseph Vasey, Jody Gittell, Wei-Ting Lin, 2010; Gittell, 2011; Gittell, Godfrey, & Thistlethwaite, 2013 & Daniel & Elin, 2020). 2) Timely communication helps people be updated with information from other members to remove misunderstandings while engaging in a task. 3) Accurate communication can be achieved with frequent and timely communication so the interaction among participants must be transparent which supports the flow of information within the organization. 4) Problem-solving communication eradicates the blame game behavior from the organization's environment. This criticism-free environment helps in developing a bond in organization and provides participants with the freedom to grow (Donna et al., 2010; Gittell, 2011; Gittell et al., 2013 & Daniel & Elin, 2020).

RCT, according to Gittell et al. (2013) is not just about mutual or shared adjustments; it is also about how people and organizations work. RC enables the participants to work interdependently in an organization to gain efficient performance as they can achieve social support, which empowers them with resilience at the time of failures and downfalls, allowing them to resist the pressure and minimize wasting efforts (Gittell et al., 2013). Hence, the effective RC forms an organizational structure that provokes a connection between workgroups rather than encouraging working in silos and helps mitigate the challenges related to interdependent work tasks in an organization (Gittell, 2011 & Daniel & Elin, 2020). Here, we can see the organizational structure acts like a framework that helps compose workgroups necessary for coordination (Gittell et al., 2013). Gittell et al. (2013) argued that cross-functional teams, cross-functional conflict resolution, cross-functional performance measurement and rewards, and cross-functional information systems should be a part of relational structures rather than traditional hierarchical structures. Hence, the RCT concludes that professional identities and organizational culture have roots in their communication and relationship patterns.

Organizational Routines Theory

Organizational routines (OR) have been conceptualized mainly as a source of inertia, accountability, stability, and inflexibility (Feldman & Pentland, 2003). Unlike the traditional view, organizational routines theory (ORT) is now considered a source of change and flexibility, which helps us understand the dynamics of routines. According to Feldman and Pentland (2003) OR are complex and can be seen as a web since "*Nothing happens in a vacuum*". Hence actions are interlinked. In addition, this association of OR with change is not something new as it mainly was entitled to a time of crisis, ambiguity, and newly established organizations. The researchers have also noticed changes in old established organizations where the environment is stable.

Thus, routines are a source of organizational flexibility and change (Pentland & Rueter, 1994; Feldman, 2000).

According to Giddens (1984) routines are a composition of dualities, i.e., structure and agency. *'Structure'* refers to an abstract idea of routines, whereas 'agency' involves the actual performance done by people in a specific time and place. This view of OR also emphasizes the dependency of the structure and agency as neither alone can express the properties of OR.

A view of OR is considered relatively unchanged and fixed mechanisms as it does not consider agency (human activities). Hence, it regards three metaphors (program, habits, and genes), focusing on the source of inertia rather than variation (Feldman & Pentland, 2003). Moreover, these OR are a source of organizational learning that helps organizations avoid failures and minimize variability standardization. Furthermore, the traditional view of routines also recommends that a pattern can be formed and noticed when an organization's people repeat their more manageable actions than the harder ones. So, this theory recommends that people avoid more complex tasks (novel activities) and choose to perform more straightforward actions which emerge as patterns (Giddens, 1984). Furthermore, these novel actions are not a preference as it causes anxiety and loss of security. Routinization is analyzed from conflict and power, where managerial control is assessed over the employees that help the organization resolve conflicts (Feldman & Pentland, 2003).

Furthermore, the concept of structure and agency (Giddens, 1984) is also considered by Feldman and Pentland (2003) that propose OR as two aspects; ostensive and performative. "The *ostensive aspect* enables people to guide, account for, and refer to specific performances of a routine, and the *performative aspect* creates, maintains, and modifies the ostensive aspect of the routine" (Feldman & Pentland, 2003, p.94). The conceptualization from the authors enables the understanding of the OR as a source of stability and change which creates an on-going opportunity for variation, unlike the traditional view of OR. Still, these routines allow bureaucracies and the exercise of power to gain control and efficiency (Feldman & Pentland, 2003).

OR, from a stability and flexibility perspective, considers the importance of agency, power, and subjectivity, which helps the organization to understand the variation aspect. *'Agency'* is the engagement of individuals in routines where they perform those interdependent actions in the context of organizational structure. These interdependencies in activities create barriers for individuals while performing specific tasks (Pentland & Rueter, 1994). *'Power'* enforces and creates control over decisions made by the management that helps them to get control over their work. Thus, OR works as a tool for managers to dominate the employees (Feldman & Pentland, 2003). The theory explains that *'subjectivity'* is when perceptions and guidelines are used to perform specific tasks. However, objectivity is the collective performance that results in routines. Within OR, these two aspects are connected (Feldman & Pentland, 2003).

METHODOLOGY

In this section, an introduction to settings, research design, methods for collecting data, and data analysis will be in focus to present a comprehensive view of methodological approaches

used to conduct the study. Furthermore, ethical considerations will discuss the ethical reflections and limitations of the study.

Introducing the organization

The Volvo Group, a case company followed during the research, is one of Sweden's most significant automotive firms, with 95 years of experience (Volvogroup, 2022). This firm is recognized globally as an essential player in delivering transport solutions and services. Volvo Group has factories in 19 different countries and has approximately 100,000 employees worldwide. As the topic of interest for this research is innovation, an automotive company that serves the best of our interests is the largest industrial group in Sweden, with its headquarters in Gothenburg. This automotive industry is also our top priority as one of the authors is currently working in the Volvo Group, which made it easier for us to access people. We targeted candidates within three different sub-organizations of Volvo Group working with innovation for this study. Due to personal contacts, we availed an opportunity to directly access the people suitable for interviews that were approached and informed about the specifications, content, and intention behind this study. These participants helped us gain extra information about innovation at Volvo Group by providing valuable feedback needed to perform in-depth research. Furthermore, most participants were open to sharing their views, opinions, and information without hesitation. This automotive industry information rendered us with an in-depth and multilayered understanding of the phenomenon.
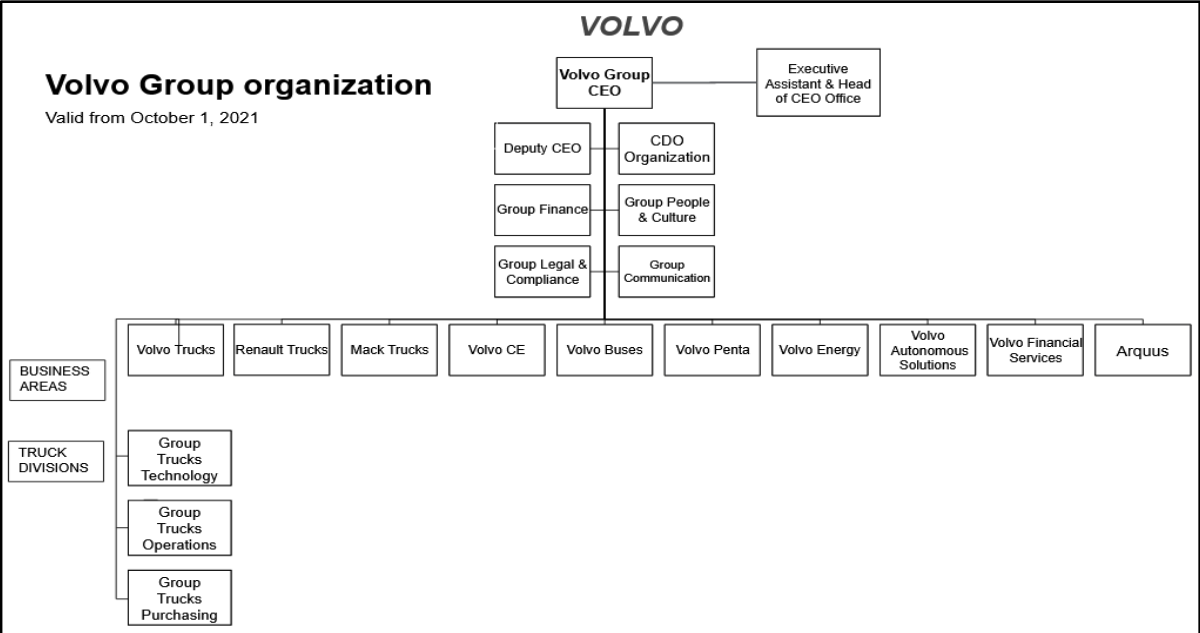

Figure 1: Volvo Group organizational chart

Research Design

A qualitative research approach serves as an appropriate research design to deeply understand and investigate the research question: *How is innovation done in practice?* (Silverman, 2019).

As Silverman (2019) said, the choice of method should be compatible with the research question. Thus, this case is a social science phenomenon which needs a good understanding where a qualitative method is a preferable approach to conduct this study (Flyvbjerg, 2006). Moreover, a single case study was conducted to answer the research question. Flyvbjerg (2006) supported the case study method as it renders specific context-dependent knowledge and an interesting narrative of phenomena favorable for the research. Furthermore, it could gain a comprehensive data set for analysis while using different methods to collect data (Silverman, 2019).

In this report, we aim to study innovation within an organization and gain in-depth knowledge about the challenges of innovation. For this reason, we have aligned the topic with an ethnographic framework where alternative data collection methods such as semi-structured interviews, observations and document studies are used (Silverman, 2019). All these methods help us insert ourselves into the prior settings and accumulate valuable data from interviews, meetings, and documents, which is a potential advantage to this research while keeping in mind the limitations highlighted by Silverman (2019) as too much data from observation can damage the study. Furthermore, we processed empirical findings through the grounded theory approach, which was suitable for the research when considering the qualitative research method (Silverman, 2019). To handle data collected during the study, the lens of the grounded theory method has granted a processual approach which encounters different patterns in the empirical findings and further leads our way to develop codes and themes. Lastly, the choice of a theory is based on the themes explored through a grounded theory approach.

Data Collection Strategy:

Primary Data

The collection of *primary data* from the case company includes interviews, observations, and document analysis, which helps strengthen the quality of the report and broader the understanding of the phenomenon (Silverman, 2019). The duration of data collection from mentioned sources lasted nine weeks. Initially, interviews have been held digitally over Microsoft Team meetings. The semi-structured interviews included open-ended questions to encourage the interviewees to speak spontaneously and share detailed information (Silverman, 2019; Kvale 2006). Further to maximize the respondents input to this study, all interviewees were informed beforehand that they will be kept anonymous, and their identity will remain confidential throughout the report. While following the ethical and moral standard in protecting the identities of respondents, we have allocated name codes to each participant that helped us anonymize the participant's identity.

Interviews started with a welcoming, soft approach by introducing ourselves, and the discussion topic about what would follow to inform the participants about the aim of the study. Thus, it enables the participants to mentally prepare for an interview while understanding the study's needs and providing transparency. According to Kvale (2006) transparency is vital to building trust and a warm and pleasing atmosphere that improves the quality of the results. During the interviews, the interview guide helped us keep track of the direction of the interview and remain focused with a list of questions while providing flexible space and freedom to the

respondents (Silverman, 2019). 19 interviews were conducted with employees at three sub-organizations at Volvo Group to understand their view of innovation in the workplace. The interviewees were managers from different seniority levels, non-managers and HR representatives. All the participants contributing to innovation in the company represented a diverse group of people representing three business units, with different roles, ages, experience, positions, and gender. Hence, this will be of high value to the study and compare the different views to understand the innovation and its challenges.

Interviews conducted for this purpose have mostly lasted for 65-75 minutes which allows us to cover all the areas needed for this report. In addition, all interviews were recorded and transcribed with respondents' consent to secure the valuable data that is in line with the views of (Martin & Turner, 1986). It enabled us to focus more on actively listening to interviewees' responses, which helped us ask additional questions to develop a keen understanding of the interviewee's perspective on the phenomenon (Czarniawska, 2014).

The understanding of the phenomenon also came from the observations, where we aimed to select people and shadow them from their daily work. We selected three participants to observe them in their operation which will bring dimension to our understanding and further insight to the study. As elaborated by Czarniawska (2007) where she also points out that it allows the researcher to observe the environment. Furthermore, Silverman (2019) added that it helps to see the interactions and dynamics between the people in the organization. The shadowing was done through virtual meetings where three HR managers were closely observed for their responses. This close observation was a thought through process where we learned about different perspectives from three HR managers and how they deal with the innovation within the organization.

Secondary Data

Secondary data collection has been extracted from the company's internal violin, annual reports, and other external sources (Volvo Group Violin, Google search engine, Gothenburg University library). The extraction of relevant company data is not easy as the organization's database has a high number of materials relevant to innovation. We started focusing on some common codes found during the interviews and retrieved many documents that included promising material enriched with an innovative perspective to get refined results. Further, to narrow it down, we started reading the papers and extracting the data used within this report. All these documents from the organizational database are used for document analysis that makes a contrastive view of the organizational and interviewee perspectives. We have also used peer-reviewed articles connected to innovative and other sources relevant to this study. This literature helps us get a better understanding of the phenomenon from different perspectives. All these documents are secondary data, which is of great value for qualitative research (Silverman, 2019).
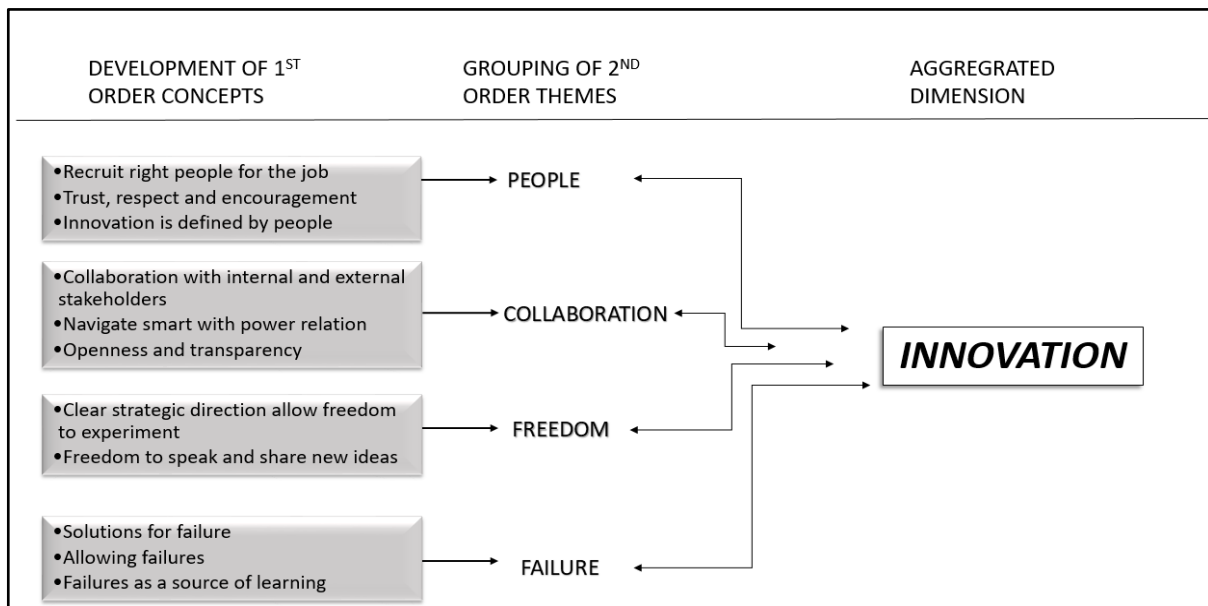
Data Analysis:

Figure 2: The data analysis process. Source: Authors

The empirical data was analyzed by taking a *grounded theory approach* as inspiration, since it provides a filter to process the field material. It also supported handling enormous amounts of data and helped in structuring it. As described by Charmaz (2006) a grounded theory allows freedom to learn about the case during collection and coding of the data and it enables the development of a theory for the purpose of the study. As data collection was done in stages and within a period of time thus, grounded theory is suggested as a good method (Silverman, 2019). Moreover, aligned with the grounded theory is to perform early analysis to create momentum, by collecting data early and drawing some quick patterns to set a direction. Furthermore, A grounded theory will be used to synthesize data and perform coding that later evolves into a theory. Hence in this process we sort, synthesize, and categorize the data which later is divided into codes and developed into themes to study a detailed account of the phenomena. A detailed account of the collected data led us to build a theory derived from data analyzed by using a grounded theory approach.

A *four-step procedure* was followed during the analysis which is in accordance with the approach of Martin and Turner (1986) based on the grounded theory method. During the first stage, interviews were recorded and transcribed simultaneously while more interviews were conducted to gather data until saturated. After a few interviews, while listening to the respondents, we started recognizing patterns which made us more focused towards points. All the interviews were recorded and transcribed through the 'Microsoft Teams transcription' application which helped us to save time and effort, but only one was transcribed manually. Moreover, transcripts were codified and shifted to the excel sheet in the meantime. This detailed coding was considered as part of *'Initial Coding'* which has almost 100 relevant and irrelevant codes. In the second stage, after all interviews were transcribed and coded, we got a chance to have a closer look at the detailed codes which helped us to identify the patterns in initial coding. This reviewing process led our way to a reduction of categories initially built which also helped us to eliminate irrelevant codes. Further, we developed an abstract picture of the relevant

concepts which was our *'1st order concept'* with 10 categories that were perfectly manageable. In the third stage, illustrative labels (1st order concepts) were further narrowed down to four major themes as each notion has its relevance to a specific theme which is explained in *'Figure 2'*. The group of four themes was then our *'2nd order theme'* which includes people, collaboration, freedom, and failure as our main themes presented in the empirical section. In the fourth and final stage, we mapped our themes that generated the *'aggregated dimension of innovation'* which helped us to track theoretical ideas recurrent in our themes in the empirical section.

The identified four themes and the two paradoxes of innovation display relevance with the theoretical perspective of *'Coordination'* and *'Organizational routines'* used in the study. Innovation is complex with many dynamic and ongoing activities that need close interaction. These theoretical perspectives allowed us to see the phenomenon of innovation from a micro and macro perspective. On the one hand, two associates of coordination theory were used, namely *'emergent coordination theory'* and *'relational coordination theory'* to highlight the ongoing activities among people in the organization and identify the relational dynamics present in the coordination work. It allowed us to see the interaction between activities through relationships and communication, and its effects in the innovation process. On the other hand, organizational routines theory helped us in conceptualizing the interlinked actions and have agency and structural perspectives allowing the people of an organization to perform a task by utilizing their perceptions (guidelines, rules, policies etc.).

Ethical Reflection, Limitations and Opportunities:

This study also considers several ethical limitations and risks, which is a need for this report. A confidentiality agreement (NDA) was signed beforehand to perform an in-depth study in the Volvo Group. This NDA includes terms and conditions to abide by the confidentiality of the company's data and sensitive information and not disclose interviewees' identities. Once the NDA was signed, data and documents were retrieved from the organization's database.

During the whole research process, anonymizing the interviewees was important from an ethical perspective and confidentiality agreement. Thus, we provide code names to the participants with respect to their positions and categorize them into 'A' and 'B', such as managers' code names starting with 'A' and non-managers code names with 'B'. Conducting the study in Volvo Group as an insider also implies limitations to this study. Since personal connections can influence the interviewer to draw conclusions, however, having pre-designed questionnaires and performing active listening lowers the limitation. There are also opportunities knowing the organization of the study, it is easier to retrieve relevant data and contact the persons to contribute to this study. Further, it can benefit the analysis with insights that otherwise might have been overlooked (Potter, 2018).

This case study focuses on only one Swedish company in a large international automotive industry, which is a limitation to our report. As Silverman (2019) stated that one population is enough to justify a single case for a qualitative research study. Thus, we believe that the results generated from this research paper will provide valuable contributions to other similar organizations working with innovation. As the results from this study come from one company it might limit the usage of different types of industries and perhaps smaller firms.

EMPIRICAL FINDINGS

This chapter outlines the findings to present how innovation is done in practice within Volvo Group. There is plenty of previous research on innovation since it is a central topic in today's organizations and society. The increasing demand for innovations also increases the need for further knowledge. This study focused on innovation and insight into the role of coordination and organizational routines in the innovation process. The data collected at Volvo Group is structured in the following order. The first section introduces how innovation is perceived within the company. The following sections present four identified themes: people, collaboration, freedom, and failure describing innovation in practice.

Innovation at Volvo Group

The company is recognized for its focus on innovation both by its employees and its customers. With a historical track record of technological renewals, Volvo Group is continuing that path to focus on new technologies to enhance value creation for customers and society. Data, electro-mobility, connectivity, and automation are four technology areas that the company heavily invests in to offer cleaner and smarter transport solutions to customers, partners, and the society in the entire transportation ecosystem. For the company, people are at the core.

> It means creative and innovative thinking, evolutionary and revolutionary problem solving [...]. The world does not stand still, nor does the Volvo Group. The Volvo Group's mission to drive prosperity through transport and infrastructure solutions is our way of shaping the world we want to live in. Our solutions to global challenges have people at its core and build upon a history of innovation. (Volvo Group annual & sustainability report 2021)

The company has a strong brand reputation connected to innovation which the interviewees confirm can result in retaining and attracting people. Further, the interviewees describe innovation as something new however innovation has many faces. Some participants refer to innovation as a new solution to a customer problem that provides value to a customer. While others outline innovation throughout a value chain as an idea from its birth to its usage by providing value to the customers. They mean that "an idea is just an idea". The idea needs to be implemented and fulfill a customer's needs and provide value to become an innovation. The below statement is one of many examples of how innovation is defined.

> It must be something new; it must be brought all the way into the market so it's not just an invention or patent, that's not innovation to me [...]. In my mind we must reach a user or a customer, someone that keeps value in the solution and uses it. (Director Innovation, A1)

Innovation includes many dynamic and ongoing diverse activities throughout a value chain. It also includes interaction with internal and external stakeholders. As found during the interviews, innovation also comes with a cultural side which most participants identified as stimulating innovation. Participants further describe innovation as less connected to the

organizational structure but more linked to the culture in the organization. The interviewees portray innovation culture as a mental environment where people are the foundation defining the standards of the behaviors. Further, the cultural attitudes that support innovation are cross-collaborations, openness to new ideas, trust, transparency, freedom to speak out and encouragement to perform innovation. Furthermore, as the Innovation Director (A13) stated, "it's a culture where the organization allows people to experiment", the environment offers acceptance for failures and failures are seen as learning and part of creating innovation.

> It is a mental environment that shows how you should behave towards each other. The culture needs to consider the mass of people because everyone is the foundation of innovation, embracing everyone is necessary and the organization needs extroverted behavior. Furthermore, information sharing is needed and there should be tolerance and curiosity where diversity can serve that purpose. (Director Innovation, A1)

Innovation culture is seen to be a fundamental condition for the organization's performance of innovation. Two senior managers added that having the right attitude and thinking about how you respond to questions can impact the culture and is something everyone should consider. Everyone has the power and responsibility to create the environment in which you are in, by contributing with positive acts influences the ability of people to walk the extra mile, which contributes to organizational innovation. As the Innovation Director (A13) stated, "It is about how we do small things consistently". In addition, a culture where an idea with innovation potential, anywhere, any level, anytime, has the same chance of being considered, with the openness, transparency, and rigor required to translate it into something meaningful and to emerge in the ecosystem.

This section introduces what innovation means to the company and the importance of considering the cultural aspect. The four pillars of innovation are outlined in the next section to explore this further.

The Four Pillars of Innovation

Findings indicate categories that emerged in four pillars of innovation: people, collaboration, freedom, and failure. They are presented as closely related to each other and are interdependent elements of innovation. This study also presents that it is difficult for organizations to achieve the desired innovation if they are not appropriately managed. Furthermore, it also highlights the challenges and inconsistencies.

People

During the interviews, we have identified the theme people which represents everyone internally and externally, the organization that contributes to innovation. The interviewees shared a common view that people are seen as the foundation of innovation, and one example from a manager explained that people are critical in driving innovation.

> I think it's interesting that all that stuff has all to do with people. It's all to do with people's attitude and mindset, and indeed the culture and very little to do with process. So, it boils down to people. (Vice President HR, A14)

Another manager supports her argument by explicitly mentioning people as an essential element of innovation.

> And if you have the best engineers and resources then it's easy to be the manager. So, I think that's the key, to find those and then to give them the place, the time, and the tools for them to explore and innovate. "Good people attract more good people" and that influences innovation. When this happens - the best ideas are born. So, it starts with the right people. (Global Technology Manager, A11)

The above statements outline that people make the foundation of innovation and are a central part of innovation. Therefore, as described by several interviewees, they need to have the right people in our organization. However, there is a real challenge to get the right people with the right mindset and competence because everyone in the industry is looking for the same competencies. Thus, it becomes even more critical to work with attracting and retaining the right people. A way to attract and retain people in the firm is to focus on innovation as it attracts many engineers. Further, one of the interviewees elaborated more on the right people and why they are needed.

> Finding the right people, with technical skills is very important, and a person that fits into the team, a person that is open, collaborative, highly driven that wants to make a change. Personality factors are very important. To build a team that is functioning well together as well so they can have fun at work and collaborate in a good way, so we get an efficient organization. (Group Manager, A10)

Therefore, the people factor is to be considered. It starts with the recruitment to attract the right individuals and keep the talents with the right mindset and competence as this sets the foundation of innovation. The organization reveals that innovation needs the right people with the right competence, as they are the foundation of innovation and its culture. People confirm that the tasks are complex and that there is no known receipt for how to solve many of the issues. For that reason, people want to iterate the work with others to get input and feedback to progress work. Further findings from most of the interviews indicate that both managers and non-managers are responsible for creating innovation. Furthermore, the statement also indicates the relationship between the right people and better collaboration which helps the organization perform well. As a Global Technology Manager (A6) added, "the culture is created through the people", so it starts with recruiting the right people with the right mindset and with small and big acts daily. It is also mentioned that if the company wants to change the culture, they need to start by changing the mindset of people.

In addition, interviewees believe that people should challenge decisions because decisions might be wrong and not well thought-through, limiting the capacity and growth in innovation. Further, some of the interviewees believe that management is there to support an

environment where innovation can grow, where people feel safe, and dare challenge the status quo. Subsequently, this will result in people making an extra effort for the company.

New insights provided by two interviewees mentioned two inconsistencies that can block innovation. They meant that innovation needs diverse thinkers providing different perspectives in an environment allowing that to happen. An innovation culture that allows original thinkers and diverse minds to support innovation. However, since people instead safeguard their career by not standing out this result is blocking innovation. The Swedish idea of "lagom" which means moderate and the "not invented here syndrome" creates two inconsistencies that work against innovation.

> [...] I think you know, the sort of Swedish idea of lagom, this thing of sort of everybody being in it together, that I think works against innovation, I know that's a controversial thing to say. But in organizations where it's OK to be different and think differently, I think you appreciate, acknowledge and benchmark yourself against the standard original thinkers. Whereas I found that even though you've got original thinkers in our company, they try not to stand out because to stand out is to catch career limitations in some way. So, I think that's a **real paradox** in this organization. (Vice President HR, A14)

> I agree here, but I think there's an **additional paradox**. If your bright idea can navigate the consensus culture, then it has a higher chance of being implemented later. Whereas, if you have a culture where you have the inventor alone who comes up with the bright idea and then reveals that later, I think that kind of thing is received worse in Swedish culture. (Director Strategy, A12)

These two inconsistencies can hinder innovation from reaching its full potential and are seen as barriers, acting as two forces against innovation. Thus, an organization aware of them can act consciously to remove these blockers. As described, people are perceived as an enable for innovation, but more factors influence innovation, which is discussed in the next section.

Collaboration

Collaboration is the second theme where participants share their views on collaboration related to innovation in practice. It seems to be an alignment among the interviewees that collaboration is essential to succeed with innovation. In addition, during the document studies, we understood how much Volvo Group emphasizes the collaboration aspect to support innovation.

> Working together is key. Collaboration speeds up the process and is vital throughout the journey. It can be within Volvo Group, the Volvo Group as a whole, and/or with external parties, such as suppliers, customers, and third parties. (Innovation Forum)

One example from an interviewee explained how important collaboration is to manage innovation and improve efficiency.

> Collaboration is extremely important when it comes to innovation. I think you need to have people to discuss your ideas with, and you need to have kind of a good

network, where you can have different views of what you are doing, and you can discuss different aspects with different people. (Research Engineer, B14)

Most of the participants view collaboration as an essential element in supporting innovation in an organization that is in line with the organization's view. Thus, collaboration is formed by people who have mutual understanding and practice sharing of ideas supported by clear communication and transparency within the organization. Below is 'ONE team' explained, which is about communication and sharing experiences.

> By communicating and sharing experiences we learn from each other and develop ideas and insights. We connect and build upon each other's knowledge. We are ONE team; we are the Volvo Group. (Innovation Forum)

Here the findings suggest that the management is playing a role in supporting the sense of collaboration among colleagues by considering the organization as 'ONE team' as collaboration is not about working in silos. The organization also has a clear objective on collaboration which they explain as communication and sharing experiences with each other to create close connections. One manager describes the collaborative work by defining their role within and outside the sub-organization.

> It's a lot about collaboration, cross-functional collaboration. [...] we're very used to it at innovation Lab to work together. [...] We put the right people together and then we start to work. [...]We also collaborate quite a lot with the other departments at the organization. Each of our projects, [...], is running together with a business area. So usually when we are on a project, we work very closely with them [...] and we have daily contact and meeting with others in person that can also help. (Innovation Manager, A3)

Hence, collaboration supports people working together with a mutual understanding to deliver desired results. Moreover, cross-collaboration provides an understanding of the needs of the business while having closer ties with internal and external parties. The participants from all sub-organizations responded that they work with internal and external partners and customers. The same manager responded about the way of working at sub-organization A and clarified the meaning of a collaborative environment.

> We are also working on the strategy level […]. And there I work a lot with different experts in the Volvo Group. It is one thing to represent the sub-organization A's view, but it's also to learn and understand the viewpoint of other parts of the organization, and I think mutual understanding is also very important for innovation, especially for a big organization like us because you know that the big companies usually have this symptom that the arm doesn't know what the leg is doing. So, communication and mutual understanding is also very important. (Innovation Manager, A3)

The innovation manager also supported her discussion by saying that "The partnership is the new leadership" (A3) aligned with the organization's core agenda and expresses that

collaboration includes many external partnerships, which helps the organization to tap into the more extensive transportation ecosystem. Thus, according to our perception, collaboration involves clear communication and mutual understanding within the organization. One non-manager interviewee stated that.

> I think the collaboration is better than it has been. Yeah, I think the new organization made it better because they are not just a big dragon. Now they are divided into 3 subdivisions. Which means that the power is equal and then it's easier to collaborate. (Product Manager, B13)

The condition of collaboration has become better over the years, especially after the reorganization of departments, as they are divided into smaller groups which enhances their access, speed, and transparency. A non-manager interviewee added that rules and policies are a constraint in collaboration.

> I think we are hindered by organizational rules and policies in the way we cooperate between teams and the sub-departments in the department. [...]. It's not like you have some informal relations with other people. And if you're a PO, you have a PO interaction with other teams, but I think we could heavily improve on having more open dialogue between teams and groups in the department and not just on a group manager level. (Senior Engineer, B5)

The organizational structure, policies, rules, and governance can hinder internal and external collaboration and even interaction between non-managers. Mostly, managerial activities have a clear governance defined by the organization, but the non-managers are not always familiar with the frameworks and are not always encouraged to interact informally. That would support the interaction between people. Most managerial level participants have a formal or informal interaction with the higher management. However, the non-managers have fewer opportunities to interact with the executive management in the same manner, which they expressed could be valuable.

While reflecting on collaboration, two participants shared different views and stated that knowledge sharing is the key to making tight connections. Sharing ideas with team members contributes to innovation. Furthermore, cross-organization knowledge sharing brings in external competencies that can contribute with new perspectives. Another participant stated that:

> Knowledge sharing can improve by making senior people teach juniors, join conferences, learn by doing, collaborate with universities, community of practices, thesis workers to keep yourself updated. All in all, it is important to keep yourself up to date on the latest research in your field. We really need to know the latest and greatest. (Global Technology Manager, A11)

This example shows that the organization collaborates with internal and external parties and brings new knowledge into the organization to get profound feedback sharing information. Our findings also indicate that knowledge sharing is mostly understood as the flow of information sharing. However, findings show that it also endorses sharing failures and learnings from past

experiences within the organization to integrate tacit knowledge. This will result in a better collaboration that helps build better relationships (formal and informal) within the organization. Further, the company can improve to encourage their people to visit other departments, groups and countries, which helps them develop knowledge. All these activities are not just individual efforts to create better interaction and support innovation.

One of the interviewees described it as an area of improvement and where politics often enter the game. She proposes a way to improve cross-functional collaborations by rewarding people from an ecosystem delivery. Thus, this can break silos and connect people through collaboration. The quote below refers to an ego, being a self-oriented person, and an organization can navigate a person's self-orientation if the reward is done from an ecosystem perspective.

> If you reward an ego for ecosystem deliverables, they will work across functional boundaries and deliver. If you only reward an ego for what they can deliver through their formalized organization, that will lead to kingdoms that don't talk to each other and don't operate. (Vice President HR, A14)

The statements above reflect the fact that the organization has the potential to improve the cross-organizational collaboration to unleash the best innovation. Working together internally and with other stakeholders will better understand business needs, customers, and partners. In addition, the organization has the potential for improvement of knowledge sharing, which can be done via collaboration. Our findings also indicate that knowledge sharing accelerates innovation in the organization, resulting in stronger relationships by having cross-functional teams and other cross-communication channels. The interviewees have pointed toward the need to build more bridges between people to improve interaction in the organization at all levels, promote knowledge sharing, and identify new ideas and alternative ways of thinking. For people to collaborate, they need more than just a structure. Collaboration is essential for innovation as it speeds up the process and enables people to discuss and share ideas from different perspectives, which is vital for innovation. Our findings indicate that collaboration is formed by people with mutual understanding and practice sharing of ideas with clear communication that provides transparency within the organization. So, the next pillar of innovation is freedom, where people have the free space to fail and invent freely.

Freedom

Freedom was mentioned as necessary for innovation. Freedom refers to designing a work situation, delegating responsibility, innovating, speaking up, not meeting deadlines, and having the freedom to fail. Two interviewees highlighted that innovation is possible in an organization that allows freedom to do things differently while abiding by the responsibilities given by the organization.

> Well, I've been working with innovation [...] having [...] freedom in delegated responsibility is extremely important. For instance, we have a budget on our own. [...] It gives us the freedom to do things that we think are important. (Director Innovation, A1)

Further, many of the interviewees believe innovation is about allowing encouragement and openness to new ideas, and organization needs to provide freedom for people to innovate otherwise, it becomes a hindrance to innovation. For some interviewees, management has a role in nurturing freedom in the organization, if the management lacks encouragement towards thinking outside the box, the innovation process becomes weaker. Similarly, an HR manager elaborated on the significance of letting people bring new thoughts to the workplace, encouraged by the organization, and stated.

> An organization from an HR point of view needs to learn to be open and listen to the ideas that people are having and give people freedom and the opportunity to develop those ideas. Because for me, people aren't innovating all the time. It kind of comes and goes. (Director Strategy, A12)

The above statements reflect that people felt more engaged and encouraged when they have the freedom to take innovation initiatives. The organization can have a controlled environment but at the same time allow people to freely bring their ideas, speak about different perspectives and practice new ideas implementations regardless of the work pressure and defined protocols. Most of the participants shared that the freedom aspect is the best part of Volvo's innovation culture as it gives them the ability to come up with new ideas and the possibility to work with them. Freedom to explore is seen to boost innovation and a criticism-free environment and not to treat innovation as short-term deliveries that end up in panic deliveries. The organization indicates that innovation is not about scheduling time for working on innovation. It happens when an idea arises or is part of an iterative process of exploring and learning, resulting in innovation.

To sum up, the organization needs to enable people the freedom to be creative and come up with new ideas. Thus, the organization empowers employees to strengthen innovation. The following section will describe how allowing failures for people enables innovation.

Failure

In this section, the data indicates that allowing failures and enabling a safe environment to fail supports innovation. It is also about failing fast, getting feedback, and learning from the failures as there are a lot of dynamic, ongoing activities happening simultaneously. Hence, being afraid of failing can limit an innovative mind, and not utilizing the creative minds of people means that the organization does not leverage everyone's full potential.

> For innovation to happen, you must be safe to fail, because innovation happens because you rapidly process lots of different hypotheses and find your way through the complexity of the issue that you're dealing with. If you're not safe to fail, that adds time, and it can subvert the more cutting edge thinking and we're finding that in our organization. [...] So, I would suggest that the fact that we do not have a safe to fail environment means that we are under-leveraging the creative minds that we've employed. (Vice President HR, A14)

Many of the interviewees mentioned that having a culture that allows failures contributes to innovation. In addition, the findings also point out that innovation is born out of failures, and

failure provides learning. Many participants believe that there cannot be innovation without failures, and there cannot be innovation without explorations. The above statement is an example of why failures are needed in an organization working with innovation. According to most interviewees, there is a high awareness of how failures contribute to learning and innovation. There is a willingness to work on improving the concept of failures and establish a safer environment for failure. However, there are not many ongoing initiatives to improve this area. There is a willingness to support more failures, and here, the participant shared his view on failures.

> We do not fail fast, however that would be a good path to enter, to understand the status quickly and to take a new decision. Our failures are written in a white book but are seldom read and shared. (Senior Engineer, B3)

The above example shows that failures happen, but not enough fast. Failures are documented but not always shared or used for learning. For the company to improve innovation, it is suggested to work more on proof of concepts that allows failing fast. One of the sub-organization A stands out in using the trial-and-error criteria to get the best results out of ideas quickly. This exception is its formation as the sub-organization A specialized in innovation and intentionally separated from the development train to reach its full potential.

> Yes, fail fast, fail smart is the core of innovation because it works like a funnel, right? Usually, in the beginning, you have a lot of different ideas and then it goes through the process and then you reduce, reduce, reduce and in the end, it may be just a few that can be successful because not all innovative ideas can fly. (Innovation Manager, A3)

One of the participants stated that the role of managers in sponsoring failures also affects the employee's growth and improves the result of innovation within the organization. Interviewees proposed encouraging more people to feel safe to fail by having champions and coaches. For example, to have coaches that play a role in presentations, so when someone has presented a failure, the coach steps in from the audience to support the presenter and endorse the failure. More examples are sharing learnings through demonstrations regularly or establishing the 'Dragons Den' concept, where the ideas can be pitched and where experienced senior people act as advisors.

What could be added as a constraint to failures is the financial perspective. The return of the investments are followed up, and the difficulty is to find the arguments for the returns from the failures.

> Whenever money is involved in creating a safe to fail environment is hard, because there's a monetary connection and trying to create, you know, trying to argue for return on investment for a high safety fail environment is quite difficult. I do not think anybody has really cracked it. Yes, it's those organizations that you know that see themselves as ahead of the curve and risk friendly. Those are the organizations that will create hubs where you are safe to fail. But an ecosystem that is safe to fail, I've never come across one. (Vice President HR, A14)

As explained above, when money is in the picture, failures are less acceptable. The monetary connection is a blocker to allowing failures of new ideas, and it is suggested to have less focus on cost and cost reporting. The company has guidelines that support failures but highlight not using the word failure instead of emphasizing it as a learning. "Stop using the word "failure." Start using the words "learn and experiment.". Further, the company wants to celebrate failures every quarter. "Celebrate one failed experiment every quarter, and don't just celebrate the successes". Thus, the organization supports failures and sees the value in the learning and experimental process in innovation. The results show that sharing failures helps create trust and a fear-free environment to support innovation, and it can be done in several ways proposed above. The findings show that reduction in failures can cause damage to innovation as it is a barrier to people's learning process.

To sum up, innovation depends on the four pillars described in this section. Innovation is part of a web with many dependencies to balance at the same time. The following section will discuss the findings from the coordination and OR perspective.

DISCUSSION

Although innovation is a common research field, there are still gaps to fill. Previous research describes different tools, frameworks, enablers, and barriers. However, all organizations are unique, and more insights are needed to understand innovation in practice. Thus, this paper aims to answer the research question *How is innovation done in practice?* based on an in-depth study at Volvo Group. The empirical findings outlined Innovation at Volvo Group and the four main pillars of innovation that highlights enablers and barriers of innovation. These enablers and barriers will be discussed below and analyzed through the coordination and organizational routines (OR) theories. The discussion focuses on describing how coordination and OR can support and remove innovation barriers in practice. These findings provide new insights into the current innovation literature, further elaborated in the discussion.

Coordination and Routines in Innovation

As found, the organization is dealing with highly ambiguous and complex problems. Therefore, as Gittell (2000); Okhuysen and Bechky (2009); Davis, (2003) and Hargadon, (2003) reasoned in the ECT, there need to be coordination activities to orchestrate the relationship between people and tasks within the organization. In addition, Feldman & Pentland (2003) says that OR is complex and can be seen as a web since "Nothing happens in a vacuum", which refers to that actions are interlinked. Innovation involves different activities, elements and stakeholders that work in close connection. Seemingly, findings indicate a need for coordination of those pillars to improve innovation in the organization.

Further, the people's routines and activities reflect that the organization shares a common ground of the goals. In line with the ECT saying that if the overall goals are well understood and communicated, this is orchestrated in practice (Okhuysen & Bechky, 2009; Bennis, 1989). The findings showcase that Volvo Group's employees believe that the overall goals are clear, and everyone confesses that they enjoy what they are doing at work. The study shows that EC activities influence them. Further findings showcase that all three sub-organizations work according to an agile approach and have established organizational structures. Providing

organizational structure is not enough to support innovation (Okhuysen & Bechky, 2009). The findings show that the organization needs many enablers for innovation, which have been identified as the four main pillars of innovation. Those enablers are all connected and require coordination activities.

Right people still need coordination and routines

Volvo Group is recruiting many new people with the right competencies to work with innovation. Referring to Okhuysen and Bechky (2009) collective knowledge solves complex problems, and it is needed for innovation. According to the authors ECT suggests that people need to align activities, communicate, and share knowledge. As mentioned earlier, the organizational environment is dynamic and highly ambiguous, so it becomes crucial to coordinate activities between people. One aspect to consider is the people that are new in the organization and, for logical reasons, do not have a vast contact network within the company. Following Bechky and Chung (2018) suggestion on EC, it allows people to coordinate unforeseen and ongoing activities to solve complex problems. EC will not happen just by setting up a structure. However, it needs people to interact with each other. This view is different from Gittell (2011), Daniel and Elin (2020) meaning that effective RC provides a structure that connects people by making relational and communicative bridges, encouraging people to collaborate. Alvesson (1995) suggested that for an organization to manage dynamic demands, they shall recruit people with the right skills to manage the situation, thus enabling EC. Consequently, the study shows that it starts with the recruitment of the right people and retaining the right people. However, what are the right people, and what skills do they need? Based on the above, the right people enjoy work-related ambiguity, connect easily with new people, communicate efficiently, and prioritize team effort before their results. If the company provides a structure where people can connect, the study suggests that it can support creating new relationships. Further, the right people may also consider taking initiatives to connect with other people outside the structure to coordinate ongoing activities. As the findings suggest, embracing everyone is needed as they are the organization's foundation and empirical findings show that the organization is asking for coordinated activities. Following this organizational need, Feldman and Pentland (2003) pointed out that OR reduces flexibility and change in an organization. Therefore, using recruitment as an example, routines can result in no change in the hiring process due to habits; hence, no changes are seen in the recruitment of the people. In contrast to this, Feldman and Pentland (2003) presented a different view of OR, saying that in a hiring process, routines shall include both "objective and subjective" and "ostensive and performative" aspects. Thus, these relationships provide new patterns and perspectives in the recruitment process. Our case found that "good people attract more good people", hence the study shows that this supports the latter theory, and the recruitment process can result in changes. The study shows that one way to attract and retain people in the organization is innovation, as the job provides individual challenges and personal growth. This contradicts the ORT by Giddens (1984) which pointed out that novelty can cause anxiety and insecurity for people, and routines help people feel secure. According to the ECT, a company can attract and retain employees by offering increased flexibility and work-life balance. However, they shall avoid practicing control as it can result in resistance and reduce employee satisfaction (Briscoe

2006, 2007).

Perhaps it is not surprising that the people need to be coordinated, and this seems to be easier said than done. According to Brown and Duguid (2001) dynamic organizations need EC, and for that, they are dependent on people's knowledge, and their capability to collaborate and establish relationships. It is shown by the authors that when people share common values, they create communities, and as a result, they share knowledge. Collaboration is not dependent on organizational structure but on people's willingness to collaborate. Following this argument, Reagans, Argote and Brooks (2005) stated that when people share knowledge, this results in EC between people as they get to know each other. As Kellogg et al. (2006) pointed out, people do not engage if it does not bring them any direct value. The study shows that people prefer to collaborate with similar minds or when they can get direct benefits. Consequently, since the organization acknowledges the need for diverse thinkers for innovation, the study indicates that EC is a challenge in an organization with a high diversity of people with different values and knowledge, which creates a paradox. Therefore, as suggested by the RCT, practicing frequent, timely and accurate communication, sharing information, interacting, and engaging in collective tasks will strengthen relationships between people (Donna et al., 2010; Gittell, 2011; Gittell et al., 2013 & Daniel & Elin, 2020). In addition, to remove coordination barriers in the company, Kellogg et al. (2006) recommend having common tools and methods in the organization that will support coordination between people. This can increase the visibility of ongoing activities, support coordination between people, and enable information sharing and communication.

In sum, people prefer to connect with similar minds, therefore coordination can act as a bridge together with supportive structures and routines to improve relationships. Doing so supports diverse thinkers to act together, collaborate, and solve problems. While mentioning collaboration, it is of interest to understand its role in innovation and how coordination and routines can support it.

Coordination break silos

The results suggest that collaboration enables knowledge sharing and is shown to be significant in making tight connections within the organization. In line with the ECT, knowledge sharing is the key to efficient and effective coordination and collaboration (Reagans, Argote & Brooks, 2005; Daniel & Elin, 2020). Moreover, Reagans, Argote and Brooks, (2005) and Gittell et al. (2013) stated that by practicing knowledge sharing, people create a relationship and become more familiar with each other, resulting in more effective coordination. The coordination activities bring in new knowledge and ideas, which helps to understand the solution's requirements at all levels of the organization. Seemingly, as findings shown, collaboration at only one level is not enough to help attain deep innovation roots. However, the whole organization needs to engage as 'ONE team' toward the organization's objectives with encouragement from the management. Kellogg et al. (2006); Faraj and Xiao (2006) have a parallel view of RCT, as effective coordination happens through continuous interactions where employees can achieve joint results. But to make this happen according to ECT, in a collaboration setup, there needs to be an alignment of what each party contributes with (O'Mahony & Bechky, 2008). Our findings indicate a gap as the collaboration between the sub-

organizations does not work efficiently because people's interests are not preserved. Therefore, our case indicates that the interest of all people at all levels should be considered, to gain collaborative spirit and improve innovation. Moreover, another challenge in collaboration between people and sub-organizations is that they have their prioritizations, that end up in lack of collaboration, therefore EC is vital (O'Mahony & Bechky, 2008).

Our findings described collaboration among people and sub-organizations as an area of improvement since there are silos and power struggles between those. Consequently, these silos can be a product of organizations' different structures, rules, and policies. It hinders the people from collaborating freely with internal and external stakeholders and limits mutual understanding. The ORT shows contrasting views from our findings. It argues that routines enacted in organizational structures expose the participants to several different opportunities as individuals need to engage in OR to carry out tasks interdependently (Pentland & Rueter, 1994). Moreover, it stated that individual constraints could appear due to interdependence. Our case study shows contrasting results as these organizational structures and routines create barriers in collaboration between sub-organizations and limit individuals from working interdependently. Thus, it shows clear rejection of the essence of coordination. From findings, sub-organization A shows some contrasting results of working in silos. The organization has deliberately separated sub-organization A from the cross-functional development team to work closely with innovation projects. While following Faraj and Xiao (2006); Kellogg et al. (2006), such findings contrast with RCT, saying that ongoing activities require informal and formal coordination. However, it is clear from our case that sometimes organizations choose alternative paths, such as working in silos to enhance innovation, but it contrasts with the core of coordination perspective. In addition, it showcases that working in a standalone setup brings cross-organization collaboration challenges, mainly to align activities and prioritizations. Consequently, the sub-organization A has established a different language and protocol, which is not aligned with the other sub-organizations. This finding contrasts with the ECT as Kellogg et al. (2006) stated that people's knowledge and interests are closely linked; thus, coordination happens in transferring knowledge. Further, the authors recommended that the barrier can be removed by having common tools and methods to improve collaboration.

Power struggles are also daunting when discussing solid collaboration in the organization. If the organization rewards people from an ecosystem delivery, this can break silos, discourage power struggles, and improve cross-functional collaboration. This is inconsistent with the view of ORT, as researchers have drawn attention to the inevitable importance of power used in the formation of OR. According to Feldman and Pentland (2003) power helps create and enforce OR, which is a tool for management to control people. However, our findings indicate that power struggle in management creates barriers to establishing better collaboration among sub-organizations. In addition, it encourages managers to seek ego satisfaction rather than organizational benefits. Hence, these powers sometimes stimulate conflict to control territories.

To summarize, for a large corporation as Volvo Group coordination supports collaboration in building strong bonds, sharing knowledge, removing silos and power struggles which brings several advantages in relation to innovation.

Freedom to balance routines & rules

The findings indicate that people need to have the freedom to innovate when the idea pops up and not to wait until a scheduled slot. This freedom at work is about speaking, communicating, collaborating, and sharing knowledge with other people and sub-organizations. People are interested in redesigning their work, similar as Latour (1987) proposed in the ECT, increased freedom can be achieved when people adapt their work to serve the interest of the people performing a task towards their goal. Consequently, organizations that facilitate coordination encourage people and teams to organize their work according to their interests, enabling different interests to co-exist yet collaborate towards common goals. The view from ECT is in line with our case study as the organization encourages the people to take initiatives, e.g., to reach out to other sub-organizations and discuss common topics of interest, to propose new activities for the backlogs etc. The result is the generation of more innovative ideas while focusing on the overall common goals. Our findings also show that organizations provide different opportunities for the employees to work with challenges because innovation is boosted when freedom to explore is allowed. Due to this empowerment, people also gain the freedom to challenge the decisions made by the managers and take more initiatives needed for innovation. However, this finding contradicts the ORT that argues that power is about managers having control over decisions (Feldman & Pentland, 2003). Our case showcases that decision control reduces people empowerment, reducing the satisfaction and growth mindset needed for innovation. In addition, our case shows that people should challenge decisions because decisions might be wrong, or it needs to be re-evaluated because of new information. As a result, this empowers people who support innovation and a creative mindset.

The traditional approach to ORT by Feldman and Pentland (2003) is truly an adverse approach to innovation and coordination theory, as findings indicate that innovation and coordination need dynamic capabilities that can be enhanced if people have the freedom to interact and prioritize their tasks. In other words, findings suggest routines that support less flexibility and freedom allow more managerial control, which provokes resistance to innovation. Our findings also indicate that a fear-free environment supports innovation where employees take more initiatives, dare to challenge, and fail. The findings contrast the ECT, as coordination requires predictability. According to Okhuysen and Bechky (2009) and Rico et al. (2008) predictability supports people to predict and align future tasks in the community. Furthermore, prediction can be established by coordinating plans and routines (Feldman, 2000; Feldman & Pentland, 2003). The case study shows that implementing routines to do predictability hinders the innovation process as it eliminates people's freedom to innovate. Thus, resulting in less freedom to innovate and fail. Moreover, these findings also contradict RCT, referring to accurate and timely communication. According to Donna et al. (2010); Gittell (2011); Gittell et al. (2013) and Daniel and Elin (2020) timely communication help the employees eliminate errors, failures or delays, and accurate communication can be achieved with frequent and timely communication.

The findings indicate that freedom is about balancing individual needs versus organizational needs to find a good mix of freedom to achieve the best result in innovation. Despite all the organizational effort to encourage coordination, our findings indicate that organizational rules and policies hinder freedom to collaborate as it does not always support

cooperation between people and sub-organizations. According to ECT, Okhuysen and Bechky (2009) those rules and routines help the organization ensure accountability and define responsibilities. This statement contradicts the findings as it may kill the freedom aspect, and people may find themselves in a rigid box of rules and policies with low flexibility of moving outside the box.

To sum up, when people have the freedom to innovate, it influences the creative minds needed for innovation. Further, too many policies, rules, and control and rigid organizational structures can reduce innovation.

Failures will boost cutting-edge thinkers

Drawing on the perception of innovation, findings show that the organization needs to provide a fear-free environment that allows people to fail. As learned by the findings, sharing failures makes a difference as it allows new learnings and boosts innovation within the organization. Following Feldman and Pentland (2003) such findings contrast with the OR, which refers to organizational learning as more about avoiding failures. However, our case showcases those failures as a source of learning, and the organization should allow freedom to fail. The views of Reagans, Argote and Brooks (2005); Daniel and Elin, (2020); Bolton et al. (2021) are similar as they talk about failures as knowledge sharing and shared goals. In addition, the authors pointed out that the environment needs to be fear-free and allow learning from failures to establish strong EC among stakeholders. The ECT perspective from O'Mahony and Bechky (2008) believes in learning from failures which supports Volvo Group's approach. As the word 'failure' is perceived as 'learning and experimentation' for the organization. Our findings showcase people's agreement to learning as key to innovation and encourages sharing more knowledge. This is supported by ECT where O'Mahony and Bechky (2008) point out that learning and collaboration help people enhance their knowledge. Further, failures are seen as a critical component of creating innovation because of their complex nature, and it requires iterations of exploring different hypotheses. The study suggests that if people feel safe to fail, it boosts cutting edge thinkers needed for innovation.

The study shows that there needs to be a bond between people to feel safe in an environment. As the authors say, relationships are made from having common goals, shared knowledge, and respect for each other (Daniel & Elin, 2020; Bolton et al., 2021). Findings indicate that recognizing failures as learning can result in people feeling safe to fail, and people get together to iterate their ideas to share collective learnings. However, findings indicate that few people want to share their failures, which creates a paradoxical relation. Findings suggest that one way for people to share more failures is to celebrate failed experiments and share the cross-organization learning as it brings awareness and knowledge in a broader perspective. This is supported by Gittell (2018, 2011) meaning that RC reinforces the interaction between people through frequent communication to share knowledge.

A barrier to failures is financially related since the company monitors the return of investment, and failures come with a direct cost, at least from a short-term perspective. However, since innovation is born from failures, today's investment needs a more extended return of investment plan, or else long-term success is at stake. It is found that innovation culture is an enabler of failing fast and smart. The empirical data points to a need to share more

failures in practice, a cultural change, and a mindset to share failures and feel safe about them. According to RCT problem-solving communication can erase blame game behavior and create a criticism-free environment which further strengthens people´s growth and the relationship between people and organizations (Donna et al., 2010; Gittell, 2011; Gittell et al., 2013; Daniel & Elin, 2020). From the findings, it is recommended that leaders sponsor failures to support employees and companies' growth. However, leaders often focus on not letting anyone fail, which blocks the innovative mindset. Either the company will waste money and sponsor failures while focusing on the long-term return of investment and innovation growth, or the company will waste money on failures with the short-term return of investment and decrease innovation growth.

To sum up, failures are seen as a source of learning, and the organization should allow freedom to fail. Innovation requires iterations, and coordination has a role in supporting the interactions needed. It is also vital that people feel safe to fail to boost cutting edge thinkers. We are now moving into the last discussion section about the two paradoxes that work against innovation.

The Paradoxes Between Diversity and Uniformity

From what is discussed above, innovation has four main pillars, and the two paradoxes found in the empirical findings undermine those pillars. Thus, there is a need to understand these two paradoxes since they act as hindrances for the organization to progress with innovation in practice.

The first paradox, 'Lagom' (stay moderate) undermines the pillars: people, collaboration, freedom, and failure. This paradox hinders the appreciation, acknowledgement, and benchmarking of people with different opinions and innovative ideas. Moreover, it diverts the freedom of people to think differently as the organizational culture does not support resolving the conflict it causes of not excelling in their careers if they stand indifferent. These findings from the paradox are in line with the concept of OR. According to Giddens (1984) people can face a situation of anxiety and lack of security when they opt for novelty. Similarly, the case shows a fear of low career growth in people who think differently and have new or unique ideas. So, the findings indicate that this paradox blocks learning from failures and experimentations, which is key to innovation. It also erodes the collaboration of diverse people with unique ideas in the organization. This finding is contradictory to what coordination theory reflects. According to Kellogg et al. (2006) to support collaboration and remove barriers to knowledge transfer, the recommendation is to share common tools, methods, and document storage.

Further, the study shows that if an organization chooses to stay moderate (lagom) they limit its opportunity to have an innovation culture. The organization needs to have a culture that appreciates and encourages a 'different' mindset for innovation. Furthermore, from the above discussion, the study shows that the 'lagom' paradox opposes the coordination perspective. According to RCT, frequent communication strengthens people's relationships and removes barriers (Donna et al., 2010; Gittell, 2011; Gittell et al., 2013; Daniel & Elin, 2020). This statement from coordination theory suggests that frequent communication helps evolve transparent communication between people, promotes a criticism-free environment, and

reduces the blame game in the organization. Instead, findings show that the paradox 'Lagom' hinders people from sharing the information and accurately communicating as they are afraid to stand out differently. Further, as referred by ECT, sharing common tools and methods helps in coordination to improve knowledge sharing (Kellogg et al., 2006). As our case study shows, it is not enough to make people share their ideas, but the study suggests that diverse thinkers should be encouraged. The organization should proactively work on changing the mindset of people at all levels.

The second paradox, "Not invented here syndrome" is related to knowing how to navigate in the organization to get your idea supported. The study shows that, by avoiding such challenges, the paradox could potentially be removed and no longer act as a barrier to innovation. The study suggests a support system that ensures everyone has the same chance to come through with good ideas. This finding is a contrast to ECT, coordination happens between people regardless of organizational structure (Okhuysen & Bechky, 2009; Davis, 2003; Hargadon, 2003). The findings indicate that the paradox of 'not invented here syndrome' hinders coordination during the innovation process. Instead, according to ECT, there needs to be an alignment of what each party contributes and how their interests can be preserved (O'Mahony & Bechky, 2008). The study suggests that this paradox is, on the one hand, asking for collaboration needed for innovation. However, it also hinders good ideas if the inventor does not know how to navigate the organization and does not follow the rules and routines. In addition, it seems to be important that the local interests can be maintained as the innovation spreads in the organization, and perhaps even celebrated. Further, the study and previous research argue that freedom to invent is considered the right approach for innovation. Thus, the paradox is a potential hindrance. Therefore, the study suggests that coordination can work as an incentive to remove the hindrance. Referring to Brown and Duguid, (2001) knowledge-based companies are dependent on their people's capacity to utilize their knowledge to innovate. According to the authors, their work results bring people together, which contrasts with the "not invented here syndrome".

To summarize, the findings show a need to balance diversity with uniformity to remove the conflicting forces by acknowledging people's contributions and diverse thinking while having "ONE" team in mind and bringing awareness that cross-collaboration offers value to everyone.

CONCLUSION AND IMPLICATIONS

In contrast to much previous literature, we conclude that innovation in practice requires solid coordination to balance the need for people's flexibility and freedom with direct steering. There must be a continuous orchestration of all the ongoing dynamic elements to ensure people's flexibility to innovate and increase knowledge sharing and collaboration to fulfill the company's objectives. Further, the study also found the need to balance the aspects of diversity and uniformity. This paper contributes to innovation literature by providing a qualitative in-depth case study of how innovation activities enact in a dynamic environment in Volvo Group. This is done by connecting it to literature within coordination and organizational routines. Previous research on large organizations and innovation in practice is sparse. For the research question: How is innovation done in practice? This study provides new insights into innovation by

understanding its main pillars and paradoxes, the enablers and barriers that influence innovation in practice, practical examples of how to improve innovation and the role of coordination and organizational routines in managing innovation. Moreover, this study showcases that innovation is a web of interrelated ongoing activities and that coordination and organizational routines play a pivotal role in supporting innovation in practice. As a large corporation with many sub-organizations and employees, Volvo Group requires active coordination to manage the dynamic and ambiguous environment that comes with innovation. Moreover, they also need flexible organizational routines that allow active coordination. The authors conducted interviews with employees at Volvo Group and performed observations and document studies to support the research.

As managerial contributions from this in-depth study, it provides inspiration and practical use cases to Volvo Group and other large corporations working with innovation. We have identified the primary enablers and barriers to innovation within three sub-organizations in Volvo Group. We have found several ways in which coordination and routines can improve innovation in practice.

First, we have found that Volvo Group focuses on innovation and that innovation is possible in large corporations having the right people. The company designs its DNA by choosing its people and establishing all capabilities needed. The company can actively choose to engage in coordination to support interaction between people and organizations, which this study has found vital.

Second, we have found that coordination improves relationships between people and organizations. Coordination is a crucial instrument as people prefer to connect with similar people or only if it provides direct value to themselves. However, if the company engages in coordination, this results in increased knowledge sharing, reduced power struggles, and removal of silos.

Third, we have found a solution that suggests that a company should reward people for ecosystem delivery. Thus, this will incentivize people to collaborate and share more knowledge. One suggestion from the study is to remove silos and implement common tools and methods between the organizations while balancing the need for having unique requirements. We found that combining these efforts of rewarding ecosystem perspectives and sharing information can support innovation.

Fourth, we have found that both the organization and the employees understand that failures are key for innovation. However, the organization needs to facilitate people and teams, to capture failures as learnings to a broader audience. In practice, managers can share their failures or facilitate open discussions to share failures. Another recommendation from the study is to introduce the concept of Dragon´s Den for people to share their ideas and get feedback and guidance on how to bring the ideas best forward.

Fifth, we have found that if routines incorporate task flexibility for everyone to feel free to share their new ideas, and collaborate cross-organization both vertically and horizontally, it can be a source of innovation.

Sixth, we have found that innovation requires diverse thinkers, but at the same time, people fear being different, which can result in low career growth and alienation. In addition, the study identified that uniformity aspects make people connect, and collaboration is a must for innovation. Therefore, the study recommends coordination as a tool to balance these two

contrasts to bring out cutting-edge thinkers and maintain a good collaboration.

Seventh, we have found that to encourage active coordination in innovation, the organization needs to develop flexible organizational routines that support innovation processes; otherwise, strict organizational routines can undermine active coordination and employee engagement. Therefore, the recommendation is to develop organizational routines that enhance flexibility and change within the organization.

The recommendations from this research add value to the automotive industry as innovation is today's agenda, and every organization is facing challenges in managing the dynamic environment while keeping a balance.

This study has limitations since it only considers one company and one geographical location in the automotive industry. Therefore, the results can arguably be limited to larger corporations within the same industry and geographical location.

With regards to future research, we suggest the following areas to explore. It is proposed to be geared towards other locations in the same field and other industries in an international context to examine further how innovation is done in practice. Another possible future research is to perform a quantitative study measuring the performance index for innovation using the five main managerial recommendations of innovation as the influential factors. Another potential area is to explore alternative paradoxes of innovation that influence innovation in practice.

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