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Startup Collaborations in the Aerospace Industry: Identifying Challenges, Fit and Practice Gaps

Master's thesis in Management and Economics of Innovation

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ABSTRACT
This thesis explores how a Tier-1 aerospace supplier, acting as a representative case of a corporation novice to startup collaboration, can internalize startup innovation through external engagement. It identifies challenges which can be addressed either by startups' solutions, or through collaborations with them, and examines the practice gaps between the current organizational way of working and the conditions required for successful collaborations within a highly regulated industry.

Based on an abductive, qualitative research design, this study was conducted as a single-case organizational study at *Company X,* a global aerospace engineering and manufacturing supplier. Empirical data was collected through a series of semi-structured interviews, which was further built upon and validated through a workshop. The findings were analyzed iteratively against the data from the literature review.

The research identified two broader categories of challenges which could be addressed through startup collaboration at Company X. The first cluster relates to the specific technological needs of the company, while the second cluster addresses broader systemic challenges. Startups were found to offer value as external agents of dynamic capabilities, helping the collaborating firm develop sensing, seizing and reconfiguration capabilities. Realizing this value, however, depends on bridging a set of practice gaps. The study found that Company X possesses fundamental enabling factors, including existing collaboration pathways, the structural isolation of early-stage activity and a demonstrated capability to actively shape its partner ecosystem. However, a set of strategic, cultural, structural and procedural barriers constrain systematic collaboration.

The prevailing preference for confining collaboration to peripheral areas was found to be partly a symptom of these barriers rather than a principled choice, and the absence of dedicated mechanisms, champions at the project level and an alliance function at the organizational level, was found to keep collaboration efforts dispersed rather than coordinated. While the findings stem from a single case, they contribute insight into the early considerations involved when novice collaborators in regulated industries begin building the foundations for systematic startup collaboration.

Keywords: Organizational Ambidexterity, Startup-Corporate Collaboration, Novice Collaboration, Dynamic Capabilities.

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1. Introduction

This chapter introduces the background of the thesis and the specific context of the research setting. It also presents the purpose and objectives of the thesis together with the problem formulation. Lastly, the scope of the thesis will be addressed.

1.1 Background

A central capacity needed by companies in today's rapidly changing environment is organizational ambidexterity. Companies need to successfully compete both by aligning strategy, structure, culture and processes, while at the same time preparing for the revolutions required by discontinuous environmental change. This requires competitive skills in a mature market, where cost, efficiency, and incremental innovations are key. In addition, the capacity to develop new products and services is essential, where radical innovation, speed, and flexibility are needed. The focus on one field guarantees short-term success but long-term failure (Tushman & O'Reilly, 1996).

However, the act of being ambidextrous is not a simple one. Freeman and Engel (2007) address the complexity of balancing creativity with operational excellence. To organize for creativity requires de-emphasizing bureaucratic structures, fixed job responsibilities, and written communications formalized in fixed filing systems. But in order to develop a new design or invention, in predictable quantities and consistent quality, planning and coordination are required. These capabilities, in turn, require discipline. The same organizational capacities needed for discipline have properties on the opposite end of those enhancing creativity. For example, through processes of institutionalization and by creating highly standardized routines, companies acquire increased reproducibility of structure. These are properties of discipline, but they increase structural inertia. Structural inertia refers to the difficulties of making radical changes in strategy and structure in the face of environmental threats (Hannan & Freeman, 1984).

One solution to the challenge of organizational ambidexterity is to collaborate with startups. While established corporations command resources, scale, and efficient routines, startups operate with promising ideas, organizational agility, and a willingness to take risks (Weiblen & Chesbrough, 2015). By engaging with startups, corporations can insource entrepreneurial creativity and access innovation that is often difficult to develop within their own structures,

while startups in turn gain access to resources, market infrastructure, and credibility that they typically lack (Gaim et al., 2026).

The body of literature on corporate-startup collaboration has largely developed around corporations that have already established dedicated structures for such engagement, including accelerators, corporate venture units, and formal partnership programs (Weiblen & Chesbrough, 2015). The mechanisms, enablers, and barriers identified in this literature are therefore typically described in the context of firms that have already made the strategic and organizational commitment to collaborating with startups. Considerably less attention has been given to corporations at an earlier stage, those that lack established infrastructure for startup collaboration and engage with startups only sporadically, if at all. For such novice collaborators, the question is not how to optimize existing collaboration practice, but how to begin building it in the first place, and how to translate learnings from more experienced corporations into a context where the foundational conditions are not yet in place.

This challenge is particularly relevant when corporations engage with startups without systematic engagement strategies, as the mechanisms documented in the literature implicitly assume infrastructure that such firms have yet to build (Gaim et al., 2025). Contextual factors specific to certain industries further compound this challenge by raising the barriers to engaging with unproven external actors (Bannerjee et al., 2016).

1.2 Research Setting

The thesis was conducted with a global aerospace engineering and manufacturing company, more specifically a Tier 1 supplier of aircraft structures and engine systems and components, which from here on will be referred to as Company X. Company X is a supplier to a wide range of actors in the aerospace industry, including commercial aircraft manufacturers, jet engine manufacturers, defense contractors, and other Tier 1 suppliers. The thesis was conducted mainly within the R&D department of the company, while also incorporating other divisions within the company.

A significant part of the R&D department's work aims to develop ideas in cooperation with external actors such as universities, research institutes and governmental entities as such collaboration allows each separate entity to leverage their individual knowledge and expertise and combine them to achieve a desirable outcome for all parties. Additionally, the company is engaged in several innovation projects and ecosystems, both national and European, with the aims to strengthen aerospace research capacity, industrial competitiveness and long-term

sustainability. Collectively, these engagements are characterized by a high degree of collaborative public-private partnerships where government agencies such as Sweden's innovation agency, Vinnova, are typically providers of financial resources.

Firms in the aerospace industry typically operate under non-traditional market conditions, as the industry does not adhere to a conventional buyer-seller model (Errico et al., 2014). As the development of new aircraft engines typically require heavy investments in the initial phases of the engine lifecycle for technology and product development, profitability is typically deferred until the later phases of the engine lifecycle. As depicted by Figure 1.2, it is only once serial production is established and aftermarket services are commenced, that an engine program shifts from heavy investment to profit generation. As a result of this, new aircraft engine development is signified by intensified collaboration and risk-sharing between original equipment manufacturers (OEMs) and suppliers, which allows sharing of initially uncertain costs, risks and returns. This collaboration and risk-sharing is typically conducted through risk and revenue sharing partnerships (RRSPs). RRSPs are set up in conjunction with new engines being introduced, with each partner owning a pre-determined percentage of the engine program, with OEMs typically owning a majority share (Melrose Industries PLC, 2024). Each partner of the RRSP thus contributes their percentage of the program's costs and receives the same percentage of the program's returns.

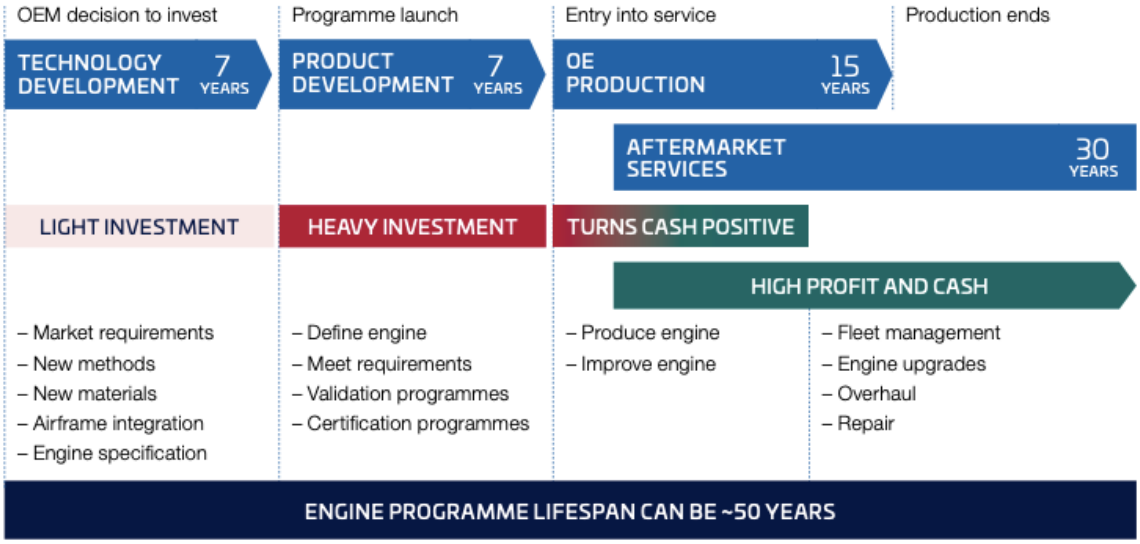

Figure 1.2: RRSP Engine Lifecycle (Melrose Industries PLC, 2024)

In contrast to other industries, such as automotive and telecommunications, the aerospace industry is bound by exceptionally strict quality criteria and certifications. Company X must

comply with the standards and criteria of the Federal Aviation Administration (FAA). Furthermore, Company X shares the responsibility for the parts from their own suppliers. All parts and components used in the products Company X produce are their responsibility. This entails a need for certifications across the entire supply chain. All parts of the supply chain operate under strict quality control, frequent inspections, and rigid processes.

1.3 Purpose and Objectives

The purpose of the thesis is to explore how a Tier-1 aerospace supplier, taken as a representative case of a corporation without established infrastructure for systematic startup collaboration, can begin to internalize startup innovation through external engagement. The focus lies in identifying which needs and challenges startups can help address, and in understanding the conditions under which such collaboration becomes viable in a setting shaped by industry-specific constraints. To achieve this, a comparison is conducted between current collaboration-related practices at Company X and the mechanisms that the literature identifies as enablers of, and barriers to, successful startup collaboration.

By concentrating on a corporation novice to startup collaborations and without established structures for systematic startup collaboration, the thesis addresses a category of firms that has received comparatively less attention in the existing literature, which has primarily examined corporations with established collaboration infrastructure. The intent is therefore to contribute insight valuable to the broader question of what early considerations are involved when novice collaborators in regulated industries begin to build the foundations for systematic startup collaborations.

1.4 Research Questions

To address the purpose of the thesis and reach the intended objectives, two main research questions have been formulated:

1. What key challenges and needs within Company X present opportunities that can be addressed through collaborations with startups?
2. What gaps exist between Company X’s current practices and the conditions required for successful collaboration with startups?

1.5 Scope

The scope of the thesis allows for delimitations that enable a deep and rigorous analysis of the specific case company and its context. As the thesis was conducted as a single case study, its applicability to other contexts is inherently limited. While the framing of Company X as a representative case of a novice collaborator suggests that the findings may also inform other corporations in comparable situations, such transferability is not a methodological aim of the thesis.

The primary delimitation is that the empirical findings were drawn exclusively from Company X, consistent with the single-case design of this thesis and due to the confidentiality purposes, company details and specifics are kept confidential, although no such details are planned to be needed to fulfill the purpose or reach the intended objectives of the thesis.

2. Methodology

This chapter will outline the methods used to conduct the thesis. The aim is to paint a vivid picture of all the elements used, such as research design, research process, and ethical considerations, to establish transparency.

2.1 Research Design

The study was designed as a single-organization case study. According to Dyer and Wilkins (1991) single-case studies are able to produce deep and nuanced descriptions of general phenomena found within the organization that are easy for others to find within their own experiences and research. The detail and depth of single-case studies creates clear examples of new relationships, perspectives or phenomena that current theory and theoretical perspectives have yet to discover. Dubois and Gadde (2002) states that single-case studies allow the researcher to move between the empirical findings in the specific organization and the evolving theoretical framework, leading to refinement of insight as new data emerges within the same ecosystem. In the case of our study, this approach is fitting to build and create accurate and insightful theoretical models and frameworks.

This study deployed a qualitative research methodology with the goal to explore the complex innovative dynamics within the aerospace industry. The use of qualitative research methodology increases the understanding of social reality by providing rich descriptions within the setting of the natural environment (Bell et al., 2022). This is central to creating a better understanding of what contextual factors affect the innovation process at Company X. In addition, qualitative research allows theory to emerge abductively from the research. As a result, the observance of patterns and phenomena emerges rather than being forced through preconceived ideas on the data (Bell et al., 2022).

An abductive approach was used in this study. According to Bell et al. (2022), an abductive research approach aims to explain an observed phenomena or situation. By investigating the conditions which would help explain the phenomena, the emergence of data guides the course of research. This process involves a back-and-forth between the social world as the empirical source of theoretical ideas, and with literature as the base of previous knowledge. Through this process, the researcher(s) select the best explanation for competing explanations or interpretations of the data. Alvesson and Kärreman (2007) argues that this capacity is crucial for researchers to remain open to the possibility of being surprised by data, rather than using it

to confirm their previously held understandings. Based on these insights, the most beneficial approach to this study was found to be an abductive one.

2.2 Research Process

The research process was designed to consist of two main phases, the initial phase being the exploratory phase, followed by the iterative refinement phase. Following such sequential, yet flexible, structure, allowed for a transition from initial broad exploration of Company X and identification of initial, relevant theory to a narrowed and validated focus.

2.2.1 Exploratory Phase

The exploratory phase was initiated through a series of exploratory, internal interviews aimed at establishing a foundational understanding of Company X, its organizational structure and the specific industrial context in which it operates. The initial interviews were conducted with employees, with varying roles, from the R&D department and have provided an in-depth understanding of the organization and how the different business areas and departments interact with each other. Interviewees were selected based on their functional responsibilities, which varied between them, to ensure a necessary breadth of insights, and that both operational and strategic perspectives were presented. The findings were documented and thematically analyzed to identify key areas of relevance which allowed the refinement of the problem formulation and clarified the central research focus, identifying the areas that were relevant for investigation.

In parallel, an initial literature review was conducted to establish existing and relevant theory. According to Bell et al. (2022), a literature review is a critical component of the research process, as it situates a study within the existing body of knowledge, clarifies key concepts and helps refine the research problem. By engaging with prior research, the insights from the exploratory interviews could be positioned within a broader academic and industrial context, thereby strengthening the study's theoretical foundation and overall relevance. The literature search was carried out using established academic databases, including ScienceDirect, Scopus and Web of Science.

2.2.2 Iterative Phase

The iterative phase of the thesis builds directly upon the insights generated during the exploratory phase. While initial interviews were primarily conducted within the R&D function, this phase expands the empirical scope to include stakeholders both within and beyond the R&D department. By incorporating perspectives from multiple functional areas and

hierarchical levels, the research sought to ensure sufficient organizational breadth and depth to address the research questions comprehensively and to fulfill the overall purpose of the thesis.

In line with Bell et al. (2022), the interviews were guided by a carefully developed interview guide. The interview guide served to align the data collection with the research questions while still allowing for flexibility in the interaction with interviewees. Although the overall structure of interviews remained consistent, minor adaptations were made to reflect the functional responsibilities and expertise of each interviewee. The interviews were initiated with overarching questions with the aim of understanding the interviewee's role in the organization and their experience with startup collaboration. Establishing this contextual background was essential for interpreting subsequent responses and situating them within the relevant context. Following this, the intention of the interview shifted the discussion to an in-depth exploration of current challenges that may create opportunities for startup collaboration and organizational practices that enable or hinder startup collaboration. As mentioned by Bell et al. (2022), qualitative research tends to evolve iteratively, where emerging empirical insights inform subsequent data collection and engagement with additional literature. Thus, as new and complementary insights were discovered, further relevant literature was drawn upon, allowing the research process to remain dynamic and responsive. With this investigational nature in mind, a semi-structured format was preferred, and thus implemented specifically for its flexibility and depth. The semi-structured format both ensured comparability across interviews while preserving openness to unexpected findings, and enabled interviewees to articulate their experiences, perceptions and reflections in their own terms, thereby generating rich and detailed data. Simultaneously, the interview guide ensured that the discussion remained aligned with the intended objectives.

Table 2.2.2: Overview of interviewees.

ID	Title of Interviewee	Department
I1	Technology Project Manager	Research and Development (R&D)
I2	Technology Project Manager	Research and Development (R&D)
I3	Senior Research Engineer	Research and Development (R&D)
I4	Technology Portfolio Manager	Research and Development (R&D)
I5	Director	Research and Development (R&D)
I6	Vice President	Research and Development (R&D)
I7	Strategy Initiatives Director	Strategy
I8	Anonymous	Anonymous
I9	Procurement Manager	Strategic Sourcing
I10	Head of Digital Office	Digitalization and IT
I11	Vice President	Engineering and Technologies
I12	Engineering Manager	Research and Development (R&D)
I13	Engineering Manager	Research and Development (R&D)
I14	Senior Research Engineer	Research and Development (R&D)
I15	Data Scientist	Data & Analytics

Note: One interviewee chose to remain fully anonymous and is therefore listed without title or department in accordance with the ethical principles outlined in Section 2.4.

In addition to the interviews, a workshop was conducted to discuss findings. The workshop was conducted to verify or dispute what had been discovered during previous interviews and build upon the most relevant discussions, which aligns with what Bell et al. (2022) describes as respondent validation or member validation. The authors describe respondent validation as popular among qualitative research due to its ability to confirm the validity of individual accounts. The interviewees I5, I7, and I8 attended the workshop.

2.3 Research Quality

According to Malterud (2001) the background and position of the researcher(s) will affect the research conducted regardless of the type of study. As a result, the effect of the researcher's position and perspectives disputes the belief of a neutral observer. The human touch is especially prevalent within the field of qualitative research, and therefore cautionary measures are needed. Furthermore, the author explains that in the case of qualitative research, multiple approaches to the same subject results in a greater understanding of the complex phenomenon, not in a failure of reliability. Validation by consensus or repeatability is seldom adequate in qualitative research.

The interpretation of data from both literature and interviews in qualitative research carries the inherent risk of being influenced by the perception of the researchers. To combat this issue,

several safeguarding mechanisms were deployed. When unclear answers from interviews were given, follow-up questions were posed to decrease the risk of misinterpretation and ensure correct interpretation. As interpretation of the data was conducted both during and after interviews, follow-up questions were addressed both during the interviews and via email after the interview to provide additional explanations. Furthermore, the process of the study and the results of the analysis were shared with the participants to fulfill the goal of producing transparent research and accurate findings.

2.4 Ethics

To ensure that the thesis followed ethical practices and was conducted responsibly, the thesis adhered to the four key ethical principles highlighted by Bell et al. (2022): avoidance of harm, informed consent, protection of privacy and prevention of deception. The research design prioritized the well-being of participants and minimized possibility of harm as participants' data was used solely for academic purposes and handled with strict confidentiality. As follows, great care was taken when findings were published to ensure that neither the participating individuals nor organizations will be identifiable or compromised. Participation was completely voluntary, and participants were clearly informed of the purpose of the thesis and the intended methodology, allowing them to make free and informed decisions regarding their involvement. To respect the private domain of participants, all participants had the option for complete anonymity and maintained the freedom to withdraw from participation at any point during the process without needing to provide a justification. Lastly, the study is committed to transparency and thus refrained from any form of deception, attempting to represent the research as something other than what it is, to maintain the integrity of both participants and the research itself.

3. Literature review

This chapter establishes the theoretical foundation of the thesis. It is structured around two main areas. The first addresses corporate innovation, covering how firms organize for innovation, create and transfer knowledge, and develop the dynamic capabilities required to remain competitive in changing environments. The second turns to corporate collaboration with startups, examining the value startups offer corporations together with the enablers of, and barriers to, successful collaboration.

3.1 Corporate Innovation

To survive in changing environments, corporations must balance the optimization of current operations with the pursuit of new, future sources of profit (Andriopoulos & Lewis, 2009). The following chapter addresses how firms should act to enable innovative behavior and subsequently corporate innovation.

3.1.1 Organizing for Corporate Innovation

Throughout the literature, a persistent need for isolation, or decentralization, from the core organization and its structures is emphasized (Chandy & Tellis, 2000; Leonard-Barton, 1992; Tushman & O'Reilly, 1996). The need for autonomy and increased authority over decisions is argued to be a crucial driver for projects operating within innovative fields. Leonard-Barton (1992) describes how historical projects with innovative initiatives have created physical and psychological separation from the core business in order to promote the group as hardy pioneers fighting corporate rigidity. In other cases, the organizations themselves opted to create autonomous business units with increased authority and separate profit and loss responsibilities (Chandy & Tellis, 2000). The point of separating the new ventures from the core is to increase the sense of ownership and responsibility of results for the employees working with the projects. The increased ownership creates a culture of autonomy and risk taking which is impossible to establish in a large, centralized organization (Tushman & O'Reilly, 1996).

On the same topic, Teece (2007) addresses the importance of autonomy in general within organizations aiming for innovativeness. A popular restructuring includes decomposition and the devolution of decision rights to independent units. The fast-paced environments of organizational units must have significant autonomy—in order to make rapid decisions—but stay connected to activities that must be coordinated. This balance has been named near decomposability and is deemed to be an important foundation of dynamic capabilities.

Similarly, Andriopoulos & Lewis (2009) discuss the balance of discipline and passion. Discipline is described as the means of control, accountability and structure within projects. On the other end, passion is described as a powerful blend of personal expression, challenge, and pride. The authors found evidence of the importance of both. Evidence stressed how well-defined processes increase individual contribution; explicit targets help ensure project execution, and specified roles enable focus. However, the constraints imposed by such discipline can severely limit the passion for the project. If the predetermined structure of a project imposes strong discipline, people can only act on the responsibility frame they're given. Thus, the risk of losing passion for the project increases. Similarly, Freeman & Engel (2007) argue that innovation needs two underlying properties to occur: mobile resources and aligned incentives. The lack of one or both of these properties slows down the innovation process. If new projects constantly must extract resources from their current allocations, the project experiences inefficiencies as managers seek to retain resources and means within the areas that benefit their own responsibilities. Additionally, Teece (2007) adds the dimension of business model alignment between the incumbent and the startup. The business models function serves as an articulation of the value proposition, selection of technologies, target market segments, define structure of value chain and estimate cost and profit potential.

Gaim et al. (2026) point out one of the major challenges of startup collaboration to be the absence of representatives from the organization with sufficient decision-making authority, relevant functional expertise and operational knowledge. The most prominent bottlenecks hindering progression in collaborations have been found to be the lack of such people. As the collaboration progresses, the need owners must maintain the support of key decision-makers, which will take the final decisions on the collaboration. Freeman and Engel (2007) name representatives Champions. The individuals which take on the formal responsibility of champions are not necessarily highly technologically competent people. The main goal is to protect the project and thus, they are often managers with political skills, contacts, and reputation required to secure resources and keep the project afloat. Champions also help shield the team from interference based on rivalry and cultural incompatibility from the rest of the organization. On the topic of collaboration protection, Eisenhardt and Martin (2000) discuss the importance of dedicated alliance functions. In their research, they have found that dedicated alliance functions were a more powerful predictor of the success rate of alliances than experience. The authors draw the conclusion that such functions establish formalization

mechanisms that create routines and knowledge, which can be articulated, codified, shared, and internalized within the rest of the organization.

3.1.2 Knowledge Creation and Transfer

A common subject within the literature of corporation-startup collaboration is knowledge creation and transfer (Chandy & Tellis, 2000; Eisenhardt & Martin, 2000; Freeman & Engel, 2007; Gaim et al., 2026; Leonard-Barton, 1992). Developmental collaborations within innovative fields require rapid execution and development (Freeman & Engel, 2007). Within rapidly changing industries, the approach of learning-by-doing was shown to be advantageous compared to the more traditional learning-before-doing. The process relies on engagement in experimental actions with the purpose of quickly learning and thereby compensation for the lack of relevant knowledge of the current situation. Artifacts such as prototypes are often deployed to gain immediate feedback and learn rapidly from small losses (Eisenhardt & Martin, 2000).

According to Eisenhardt and Martin (2000), one of the most common features of highly effective knowledge creation firms are their explicit linkages between the focal firm and other, external sources of knowledge. These external linkages, or bridges, were shown to be established and maintained by gatekeepers within the firm. Such individuals spent significant time interacting and communicating with universities, government laboratories and scientists at other firms. The linkages themselves were essential for effective knowledge creation, but the specific form they held mattered less. Eisenhardt and Martin found that the effective linkages could stem from informal personal relationships, relationships driven by promotion criterion, and formal alliances. Furthermore, the authors highlight that external linkages in the form of significant alliance relationships led to superior R&D performance.

Leonard-Barton (1992) addresses the importance of developing characteristics of learning organizations. One characteristic of the capability is to value organizational learning over immediate output. If the associated behaviors of such thinking are not rewarded, new values will not be able to take root. Therefore, when projects encounter rigidities and challenges, they should be managed as generative actions and emphasis should be put on its value as an organizational learning tool. In extension, project managers who constructively discredit current systems, skills and values which are traditionally revered by companies could be catalysts of redefinition of core capabilities and even initiate new ones. Gaim et al. (2026) continues the line of argument and adds that managers need to look beyond tangible metrics

and recognize the value in the intangible value of spillover to participants. The project's repeated engagement acts as a learning process and results in experience accumulation within both parties. These intangible benefits often manifest as improved collaboration experience, enhanced negotiation skills, and stronger trust between parties.

Another interesting dynamic within the startup-corporate collaborations is the transfer of personnel between the parties. Freeman and Engel (2007) state that entrepreneurs holding senior management positions within their young companies are often replaced by people who come from the ranks of experienced managers of big companies. At the same time, the reverse flow occurs as people from the small company acquire management roles in the larger company. In the case of an acquisition of a smaller company, there is often a premium paid associated with the intimate knowledge and experience of the technology flowing out of the innovation process.

One of the most important aspects of knowledge capture is absorptive capacity. Andriopoulos and Lewis (2009) describe that the learning synergy is demonstrated in firms' ability to utilize their knowledge base, extending, improving, and leveraging their industry and product specializations, while simultaneously broadening their competencies by seeking out radical innovation and developing internal projects to explore emerging markets and technologies. One such approach is to create new companies focused on exploring potential technologies and creating work internally and chasing more clients. Instead of waiting for the opportunity, companies can create them themselves.

3.1.3 Dynamic Capabilities

Dynamic capabilities refer to a firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments (Teece et al., 1997). Additionally, Teece (2007) split dynamic capabilities into three capacities: 1) to sense and shape opportunities, 2) to seize opportunities, and 3) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise’s intangible and tangible assets. Eisenhardt and Martin (2000) explains that by nature, the dynamic capabilities are highly idiosyncratic, yet they exhibit common features associated with effective processes across firms. The commonalities are a result of the fact that there are more or less effective ways of dealing with the specific challenges that must be addressed by a given capability.

Eisenhardt and Martin (2000) argues that the functionality of dynamic capabilities can be duplicated across firms, and thus, the competitive edge they bring comes from resource configurations, not from the capabilities themselves. As a result, the pursuit for long-term competitive advantage is better realized through managers' resource configuration using dynamic capabilities, rather than the capabilities themselves. Effective dynamic capabilities are not sufficient for competitive advantage, but they are required. In dynamic markets it makes sense to build new resource configurations through dynamic capabilities and move into fresh competitive positions using path-breaking strategic logic to change. Eisenhardt and Martin conclude that the potential for long-term competitive advantage lies in using dynamic capabilities earlier, more perspicaciously, or more fortuitously than the competition to create resource configurations that possess that advantage.

Teece (2007) states that the current state of flux modern firms exist in present opportunities for both newcomers and incumbents. However, Teece notes that most emerging trajectories are hard to discern and require scanning, creation, learning, and active interpretation. This process usually entails investments in research and related activities. According to Andriopoulos & Lewis (2009), exploratory projects often require proactive searches. The shape of the search varies, and some examples include collaboration with clients and/or suppliers in joint ventures or working potential equity with startup ventures. Teece (2007) describes a similar search mechanism. Enterprises that are alert and sense opportunities are often able to rely on customer-led efforts into new products and services, as the customers themselves are ill equipped with the resources needed to carry prototyping forward. Even better equipped are those firms with superior position in complementary assets which enable them to let new entrants to the prospecting and only invest once the market and technological risk have diminished. Furthermore, firms can benefit from continuous and rapid designs around new technology from current suppliers. Rapid innovation within suppliers can create a downstream competitive success stemming from the ability of the enterprise to continuously tap into external innovations ahead of competition. Teece concludes by remarking on the benefit of relying on a distributed model of innovation. One with the focus of reaching outside enterprise boundaries to access and integrate technology developed by others.

Tushman and O'Reilly (1996) argue that in order for firms to prosper, or even survive, they need to excel at both exploitative and exploratory innovations; they need to be ambidextrous. Andriopoulos and Lewis (2009) describe exploitation as the process of honing and extending current knowledge, seeking improved efficiency and creating environments that enable

incremental innovation. On the other hand, the authors describe exploration as the process of creating new knowledge, experimentation aimed at developing variation and novelty, and creating environments needed for more radical innovations. Tushman and O'Reilly (1996) describe that the ability to simultaneously pursue both incremental and radical innovation is achieved by hosting multiple contradictory structures, processes, and cultures within a single firm.

The importance of ambidexterity is highlighted in several articles. Andriopoulos and Lewis (2009) raise views from the CEO of an ambidextrous organization. The individual in question states that organizations must be profitable and creative. Everybody within the entity must internalize dual thinking, even down to the interns. The people that make up the organization must understand both sides of the equation, as they're both important for growth. Another firm's CEO highlights the need to embrace a dual vision. According to the respondent, a firm cannot truly drive profitability without an explicit focus on creativity. Andriopoulos and Lewis continue that the integration of ambidextrous behavior entailed cultivation of this paradoxical vision that accommodates the dual emphasis. Furthermore, Tushman and O'Reilly (1996) state that ambidextrous organizations learn by the same mechanism which occasionally kills successful firms: variation, selection, and retention. In contrast to other firms, ambidextrous entities promote variation through persistent decentralization. The aim of such efforts is to eliminate bureaucracy, encourage individual autonomy and accountability, and to experiment and take risks. The approaches to achieve such effects are numerous. One approach, described by Andriopoulos and Lewis (2009), is segregation. Segregation tactics revolve around spatial and/or temporal separation of exploitation and exploration. Spatial separation divides work into distinct units, whereas temporal separation uses the same unit but separates when either exploration or exploitation is conducted. In some cases, the authors continue, a hybrid approach between spatial and temporal separation has been shown to increase personal drivers lacking in the separate modes.

3.2 Corporate Collaboration with Startups

Although large corporations and startups are inherently different organizations, each possesses qualities that the other lacks. While established corporations command immense resources, scale and efficient routines, startups operate with promising ideas, organizational agility and a willingness to take risks (Weiblen & Chesbrough, 2015). Combining these contrasting strengths may allow for successful collaboration, but such contrasts also make collaboration

difficult due to cultural clashes, differing organizational timelines and the sheer challenge for startups to navigate complex corporate bureaucracy.

3.2.1 Value Proposition of Startups for Corporations

Weiblen and Chesbrough (2015) highlight corporations shifting views, transitioning from only seeing startups as mere agents of market disruption to trying to leverage their ability to act as engines of corporate innovation. By engaging with the startup ecosystem, corporations can insource entrepreneurial creativity and tap into the speed, innovativeness and growth potential that such young companies offer. Since there are various models for collaborating with startups, the models naturally have differing features and rationales behind them, but regardless of the collaboration model, there is a collective set of strategic advantages that collaborations in general yield for large corporations.

Banka et al. (2025) highlight a key strategic advantage of collaboration for corporations as gaining access to innovation and emerging technologies that are often unavailable within their internal structures. Such access is valuable in two main ways. First, it enables corporations to identify new opportunities, including potentially disruptive innovations, particularly in both core and adjacent business areas. Second, it serves as a safeguard against obsolescence by increasing awareness of market shifts driven by technological change (Gutmann & Lang, 2022). In this context, collaboration with startups becomes particularly important, as external innovators are less constrained by existing business models and therefore better positioned to develop disruptive solutions. While internal innovation efforts are often limited by the need to protect established revenue streams, engaging with startups can facilitate the exploration of new business fields and even support the disruption of existing models. Consequently, such collaborations not only contribute to sustaining competitive advantage in current operations but also enable corporations to strategically position themselves for future market developments (World Economic Forum, 2018).

Followingly, startups operate with an agility and flexibility that corporations typically are not used to. The agility and flexibility that startups introduce to collaborations with corporations typically enables faster and more effective development of new products, services and disruptive technologies, compared to corporations' internal development processes. Thus, startups' inherent flexibility provides corporations with a strategic advantage in allowing them to bypass their own internal bottlenecks and allowing them to better manage external uncertainty due to unpredictable changes and events (Banka et al., 2025; Sbampato et al.,

2025). Kurpjuweit & Wagner (2020) further highlight the agility that startups impose on corporations in collaboration initiatives in their case study when pointing out that the corporations they studied would accelerate their pace of working by establishing project teams with characteristics similar to startups' characteristics. In dynamic business environments, actively promoting an agile culture is of even greater importance, thus collaborating with a startup that brings such agility provides value for corporations in their efforts to keep up with market developments (World Economic Forum, 2018). Further, adopting startups' agile ways of working, through collaborating with them, allows corporations to embrace an entrepreneurial mindset that is less risk averse and thus better equipped to handle the failure that is necessary for innovation development (Brigl et al., 2019).

Banka et al. (2025) also mention collaborations with startups as a way for corporations to access resources related to advanced knowledge and niche expertise that they lack internally. Thus, startups function as providers of complementary resources and knowledge for corporations, filling both innovation gaps and process gaps in large organizations. Not only does such knowledge allow for innovations and products that corporations can pass on to their customers, but it also presents opportunities for corporations to gain access to solutions of both known and unknown internal problems. Banka et al. (2025) further confirms that a key objective of corporations seeking to collaborate with startups is to fix internal inefficiencies using startup ingenuity. Kurpjuweit and Wagner (2020) explicitly note that certain collaboration models are designed to help corporations access innovations that not only increase the competitiveness of their products but also increase the productivity of their processes. The authors highlight examples of corporations deliberately seeking startups to solve internal problems related to production and distribution. Similarly, Weiblen and Chesbrough (2015) provide concrete examples of startups solving corporations' large-scale internal problems through collaboration initiatives. The authors emphasize that by engaging startups in collaboration projects, corporations can bypass their own traditionally slow innovation cycles, allowing them to pursue multiple approaches in parallel, enabling them to uncover and integrate solutions to internal problems faster and more thoroughly than if they relied entirely upon their internal R&D resources.

3.2.2 Corporate Enablers of Collaborations with Startups

Successful collaborations between corporations and startups are typically heavily dependent on a set of mechanisms found internally in corporations. These mechanisms act as enablers

which shape corporations' ability to initiate, manage and scale collaborations with startups, in contexts characterized by uncertainty and differing organizational logics (Gaim et al., 2025).

One such fundamental enabler is a corporations' innovation maturity, which refers to its organizational and leadership capacity to build an innovation culture, manage processes and dedicate resources to execute collaboration initiatives (Demir & Lukes, 2025). Mature corporations establish a clear and structured collaboration strategy with clearly defined objectives from the outset with top-down executive sponsorship. Such senior management support is crucial as it removes risks for employees and ensures that collaboration initiatives receive the necessary alignment and resource allocation. Additionally, setting a clear collaboration governance and defining who possess internal power, accountability and decision-making authority helps align internal expectations and ensures a maintained focus on the collective purpose of said collaboration (Banka et al., 2025; World Economic Forum, 2018). Followingly, mature corporations tend to have dedicated interface units that shield startups from the heavy bureaucracy that corporations typically deal with. These units' capabilities are twofold, both ensuring internal alignment between the involved stakeholders from the corporation and alignment between the corporation and the startup. Typically, the individuals in these units possess a rare blend of entrepreneurial experience and deep knowledge and familiarity of the corporation. This blend allows them to act as matchmakers who unify the corporations' scattered competence and expectations while also helping startups navigate complex organizational structures, find internal use cases and facilitate communication between the two entities (Dizdarevic et al., 2024; Kurpjuweit & Wagner, 2020).

Successful collaborations between startups and corporations also require corporations to match startups' needs for speed. Thus, implementing a simplified governance model that allows for initiating and managing collaborations with startups proves to be a valuable mechanism for corporations in their efforts to collaborate with startups (Weiblen & Chesbrough, 2015). This may involve standardizing approaches to engage with startups efficiently, minimizing complex terms and conditions, and accelerating procurement processes as highlighted by Dizdarevic et al. (2024). The authors continue by pointing out stage-gate processes as another enabler of successful collaborations as they allow for breaking the collaboration procedure into structured phases with evaluation gates, ensuring consistent and thorough evaluation while also allowing for flexible timetables and optimal resource allocation.

Furthermore, deeper integrated solutions for corporations are made possible through co-creation and co-location mechanisms. Co-creation encompasses various collaborative approaches deployed in any phase of the innovation process (Demir & Lukes, 2025). The authors explain that this hands-on collaboration allows for rapid business prototyping and iterative learning, enabling faster customization of the startup's technology to meet the corporation's specific needs. Co-location provides similar value in its ability to contribute to solutions that are customized to the corporation's needs. By providing physical environments and facilities, corporations grant startups direct proximity to corporate experts, testing facilities, and specialized equipment which has an indirect benefit for the corporations themselves in that solutions are more likely to be tailor-made to fit the corporation's requirements and needs (Kurpjuweit & Wagner, 2020).

Lastly, the cultural mechanisms associated with corporations collaborating with startups prove to be a key enabler for successful collaborations. Understanding and embracing the entrepreneurial culture that startups possess is vital when entering collaborations with startups (Banka et al., 2024). Kelly et al. (2002) points out that the success of a collaboration tends to rely on finding common ground and bridging the difference between traditional rigid corporate culture and the entrepreneurial spirit that signifies startup culture. Conversely, the authors make a point of the cultural differences not necessarily needing to disappear altogether, but rather that they need to be managed effectively. The cultural differences themselves are not what need to be omitted, as the authors describe their ability to bring positive benefits to collaborations by creating opportunities to leverage the competence and knowledge that is contained in the different cultures for the benefit of the collaboration. When such cultural differences are managed effectively and in a creative manner, the authors argue that they can lead to a larger variety of ideas which in turn creates enhanced innovation and dynamism, leading to higher chances of collaborations being successful.

3.2.3 Corporate Barriers to Collaboration with Startups

Banka et al. (2024) point out that large corporations tend to be hesitant to engage in collaborations with startups due to a variety of barriers that typically lead to failed or suboptimal collaborations. Bannerjee et al. (2016) identifies four classifications of barriers within corporates: strategic, cultural, structural, and procedural. Although the classification is not completely mutually exclusive, as barriers may fall into more than one category, the classification provides an intuitive framework for understanding corporate barriers to collaborations with startups.

The strategic barriers relate to large corporations being complex organizations where internal goals and objectives often are conflicting. Thus, the strategic misalignment between departments regarding the function and objective of startup collaborations poses a significant barrier. Followingly, without an aligned view of innovation within a corporation, goals and priorities are diverse, which proves to hinder speedy decision-making, and ultimately, hindering successful development of collaborations with startups. The lack of an aligned view proved to be most evident when handing responsibility of a startup collaboration from one department to another. Minshall et al. (2010) exemplify this when describing collaborations that are transferred from the R&D team, who have nurtured the relationship and have deep understanding of the nature of the relationship, to procurement and legal teams, who lack the same understanding and therefore treat the startup as a conventional established vendor. The lack of an aligned view also poses a challenge not only due to the general complexity when corporations' departments formulate differing requirements for the startup collaboration, but also due to the delays that are inflicted. As startups are typically faced with liquidity constraints, delays are an exponentially larger financial burden on startups than corporations. Banka et al. (2024) seconds misaligned goals as a strategic barrier to collaboration for corporations, albeit through a different lens. Instead, they point out that the goals set out by corporations are not always aligned with what startups provide. The common corporate expectation of superior performance and rapid development of solutions result in startups being restricted in terms of novel and innovative processes. The expectation of rapid development is also strongly correlated with discontinuing startup collaborations prior to the collaborations providing tangible results. As large corporations' expectations are typically rather impatient, there is a tendency to not grant collaboration initiatives with the time they need, either due to leadership or strategy changes (Weiblen & Chesbrough, 2015). Bannerjee et al. (2016) reinforces the notion of corporations' flawed expectations when highlighting corporations' common misconception of what startups are. This fundamental misconception of what startups are and the value they provide is typically compounded by poor internal communication as this misconception is communicated throughout the organization without being corrected. Poor internal communication also proves detrimental in other manners, both through under-sharing and over-sharing. Both under-sharing, withholding or sparingly sharing information, and over-sharing, providing excessive information to take in, potentially hinder internal stakeholders from properly understanding why the organization is collaborating with startups and thereby impeding their understanding of how they could help or hinder.

Cultural barriers that impede corporate collaboration with startups are related to a mismatch between the entrepreneurial culture of startups—encouraging risk-taking, tolerating failure, expecting creativity—and corporations' lack thereof (Kelly et al., 2002). Bannerjee et al. (2016) point to the common rationale, which is supported by Banka et al. (2024), that employees are not incentivized to think or act outside their immediate job description as a key cause for corporations' lack of entrepreneurial culture. Without such an incentive, there is no rational reason for corporate employees to engage in activities or initiatives that are not explicitly expected of them. Thus, the result is a corporate culture that is typically signified by risk aversion. Risk aversion is not only a result of incentives for corporate employees. A significant driver of risk aversion can be directly related to the large costs that failures incur for corporations (World Economic Forum, 2018). Similarly, cultural barriers are also signified by not-invented-here behavior. Such internal opposition has a variety of underlying causes. One such reason is a general difficulty for corporations to adopt solutions that were not developed completely internally (Bannerjee et al., 2016).

Structural barriers are prominent factors, particularly for well-established companies and in heavy regulated industries (Bannerjee et al., 2016). Stagnant and heavy regulatory environments hinder both innovative and collaboration projects as the involvement of new actors is typically heavily scrutinized and requires approval from certain governing bodies which involve excessive bureaucratic procedures. In addition, well-established companies typically have complex corporate structure processes that pose significant challenges to collaboration initiatives (Banka et al., 2024). A key cause for such structural barriers are the rigidly hierarchical decision-making structures that characterize large corporations (Bannerjee et al., 2016). The authors argue that as the degree of verticalization of an organization increases, the longer it takes for decisions to be approved, specifically decisions related to initiating partnerships. Further, as a high degree of verticalization typically involves a lack of delegated responsibility, the decision makers are even further removed from the internal stakeholders who are typically best suited to make the judgement. Similarly, the authors also argue that organizations with a matrix structure face structural barriers relating to decision-making, albeit in a different fashion. Instead, collaboration initiatives may be impeded by vague or overcomplicated decision-making structures where there is a lack of clarification whether project managers or functional managers are responsible for decision-making. Kelly et al. (2002) also highlights ambiguity in decision-making as a prominent challenge for corporations in their efforts to collaborate with startups. The uncertainty of roles and responsibilities

together with poor understanding of who are responsible for which decisions lead to confusion and uncertainty which are part of the structural barriers that are detrimental to the establishment of collaborations. The report by World Economic Forum (World Economic Forum, 2018) highlights corporations' internal structure as another challenging structural barrier that corporation face due to a tendency to adopt a siloed approach where business units are not entirely aligned on a collaboration and the potential outcomes.

Lastly, Bannerjee et al. (2016) point to process barriers as a point of emphasis when discussing corporate barriers. One such process barrier they highlight is the inflexible processes that large organizations must deal with, which places unreasonable expectations on the startups they collaborate with, thus giving startups the same treatment as corporations. The inflexible processes combined with extensive and complicated procedures, that are typically suitable for large industrial partners, prove to be unmanageable for collaborations with startups. These procedures typically occur where throughput flow is high and quite standardized—characteristic of manufacturing sectors and business functions such as procurement—where strict qualification processes and ISO certifications are common. However, although abovementioned procedures hinder collaboration with startups, there is a reason for why they exist, and they are often optimized for routine activities. As such, an unfortunate consequence of optimizing for routine activities is that such streamlined processes lack the required flexibility to handle and manage the uncertainty that is reflected in collaborations with startups. The authors argue that the corporate phenomenon of, over time, progressing towards exploiting existing opportunities, rather than exploring new opportunities is quite common and result in core competencies instead turning into core rigidities.

4. Empirical Findings

This chapter presents the empirical findings. It is organized around the two research questions. The first section addresses the key challenges and needs identified within Company X, distinguishing between specific technological needs and broader general challenges. The second turns to the practice gaps, presenting both the enabling factors that favor startup collaboration and the barriers that currently constrain it.

4.1 Key Challenges and Needs

The initial objective of the study was to identify specific challenges and needs that could be directly addressed by startups. The findings were systematically grouped into two broader categories, reflecting the broader underlying structure in the data.

4.1.1 Technological Needs

The technological needs identified from the interviews varied in nature. This variation can be attributed to the fact that interviewees represented different departments within Company X, and therefore brought distinct perspectives on technological challenges and requirements. The broader categories of technological needs are summarized in table 4.1.1.

Table 4.1.1: Synthesized findings of technological needs

Technological need	Description	Supporting Interviewee
Advanced Manufacturing Technologies	Manufacturing conditions become increasingly complex and thus the need for improved/new manufacturing solutions increases.	I10, I11, I12
Simulation and Predictive Capabilities	Increase predictive capability of quality outcomes to anticipate and mitigate deficiencies within production.	I8
Peripheral and Operational improvements	Company X sees challenges to implement external solutions into sensitive systems but recognize the value created by startups within areas Company X lacks expertise.	I7, I12

One prominent need was highlighted by I12, relating to the additive manufacturing of advanced and geometrically complex components. According to I12, traditional additive manufacturing processes rely on fixed parameters to control production, which in turn determine the characteristics of the final component. However, as component geometries for products that Company X manufactures become increasingly complex, these fixed parameters are no longer sufficient to ensure optimal manufacturing conditions or desired material properties.

Consequently, I12 emphasized the need for more advanced manufacturing technologies that utilize dynamic parameters, enabling real-time adjustments to optimize both process performance and component quality.

A related but more operational technological need was identified by I10 and I11, focusing on quality assurance within additive manufacturing. Given that additive manufacturing involves the layer-by-layer construction of components, often comprising thousands of layers, I10 stressed the importance of reliably monitoring and inspecting each individual layer. This creates a fundamental need for robust quality assurance systems capable of handling high data volumes while ensuring efficiency and accuracy. In response to this challenge, Company X has initiated a collaboration with a startup possessing the necessary expertise to develop automated solutions for complex workflows. As noted by I11, previous internal efforts to develop such capabilities did not yield satisfactory results, which ultimately motivated the decision to seek external collaboration to satisfy the existing need. I11 pointed out that the value proposition that the startup could provide for Company X was evident, and Company X subsequently initiated the collaboration and supported the startup in refining the solution to fit Company X's specific needs. As the collaboration progressed, the solution that was tailored to the needs of Company X met their expectations and criteria along the development process and thus was continued and as of now are close to being fully integrated in Company X's additive manufacturing processes.

I12, although not as actively involved in the aforementioned collaboration, somewhat confirmed the value that the startup's developed solution could contribute to Company X. However, they were still hesitant to startup collaborations for matters relating to core processes. As previously mentioned, relating to the technical needs identified, I12 expressed concerns regarding the feasibility of implementing products and services produced by startups. I12 argues that startups can produce valuable ideas and acquire great capabilities within their given field but still fall short of the technological maturity required to have an impact within the aerospace industry and consequently for Company X as well. Similar concerns were raised by I7, who stated that it's difficult for startups to reach the competence needed to produce sufficient products for Company X's core areas.

In addition, I8 highlighted a broader technological need related to simulation and predictive capabilities in production and manufacturing processes. Specifically, the ability to simulate and predict quality outcomes in complex systems was identified as a key enabler for improving

production performance. Such technologies could allow Company X to anticipate and mitigate quality deficiencies, potentially reducing or even eliminating them altogether.

Beyond these specific examples, I12 suggested that additional technological needs likely exist within Company X, particularly in areas outside core processes. These needs are expected to be found in peripheral domains, where solutions may not require deep integration with sensitive systems or proprietary information. As an illustrative example, I12 mentioned the potential value of a simple yet innovative mechanical solution for lifting devices into manufacturing cells. Such a solution, while relatively low in complexity, could significantly improve operational efficiency and would be easier to implement due to limited integration requirements. Furthermore, I7 believed that collaborating with startups is a viable option within adjacent areas, separate from their core business, where Company X lacks the expertise and knowledge to develop superior solutions. As highlighted by the example above, such initiatives of collaboration could be viable within their current practices.

4.1.2 General Challenges

The interviews revealed a range of challenges faced by Company X across several domains. Unlike the previously identified technological needs, these challenges are broader in nature and not necessarily suited for direct intervention by startups. Instead, they reflect internal organizational, structural, and strategic matters. The challenges are summarized in table 4.1.2.

Table 4.1.2: Synthesized findings of general challenges

General challenge	Description	Supporting Interviewee
Digitalization and Data Management	Lack of infrastructure and knowledge limits Company X's ability to fully leverage digital solutions.	I8, I10, I13
Realizing Internally Generated Ideas	Company X produces many internally generated ideas, and many of them never move past the research stage, leaving value on the table.	I1, I2, I5, I6, I12, I13
Problem Identification and Internal Focus	Difficulties of navigating internal initiatives create internal focus and hinders search for external solution providers.	I5, I8

One prominent domain mentioned concerns the different dimensions of digitalization and increased importance of data management. Multiple interviewees (I8, I10, I13) noted that a key challenge for Company X was related to digitalization and data management albeit in various contexts. While these challenges were described from different perspectives, they collectively

point to gaps in both competence and organizational infrastructure. Both I10 and I13 mentioned a lack of competence within data management as a challenge that needs to be addressed. I10, working as Head of Digital Office, highlighted that Company X is proficient in evaluating hardware as part of their export control processes, but they are faced with challenges in evaluating the data and IT aspects of their business. Consequently, such challenges need to be addressed for Company X to avoid neglecting the technical importance of their data. Conversely, I13 highlighted the challenge of data management in a different manner. As I13 manages engineers and researchers working with R&D, I13 has noticed challenges faced by engineers in terms of data management in relation to the usage of Artificial Intelligence (AI). As a result of the increased capabilities of AI products and services, such products and services have become a staple for engineers as a way to improve efficiency and streamline current workflows. However, I13 emphasized that there is both a lack of established structures needed, and competences required, to manage the data for usage of AI products and services and as a result, Company X cannot fully reap the benefits that AI products and services yield. I14 emphasized the technical value that startups can provide to corporations, particularly highlighting the importance of their specialized expertise. Notably, I14 argued that even when startups lack direct experience within the aerospace industry, their knowledge derived from other sectors remains highly valuable. By leveraging these cross-industry insights, Company X can adapt and refine technologies and solutions to better suit its specific needs. Similarly, I8 mentioned that with the development of AI and its applications, Company X is faced with the uncertainty of not fully grasping what such applications can or will achieve. As there exists uncertainty surrounding what AI can achieve for Company X, the challenge is for Company X to define and realize the benefits of AI, not solely focusing on the features of AI products and services. Furthermore, I8 mentioned that the R&D function in general is subjected to the issue of focusing on technologies and their features rather than the benefits that said technologies yield.

The empirical data highlighted the challenge for Company X to realize internally generated ideas and initiatives. I1 stated that there is no lack of ideas within Company X. This statement held true for other interviewees as well. I13 described that relevant R&D engineers are responsible for generating ideas according to a Technology Development Plan (TDP), which is a structured approach to evaluate and develop new technologies through Technology Readiness Levels (TRLs). I2 described how the approach was used to establish requirements on the technology, produce a viable verification matrix, including tests of requirements, and a

plan for future steps. I12 described the process of how ideas generated by engineers were pitched to one of the technology portfolios to initiate a project in developing that idea. Portfolio managers/officers followingly give or deny approval, and for ideas that gain approval, financial means and manpower are thereby allocated to the new project. Both I5 and I6 stated that most emerging ideas come from the engineering functions of Company X, which is the same functions responsible for manpower and execution of projects. I13 explained how the system of TDPs, in combination with the current structures of the R&D function, allowed engineers to be particularly explorative in their research. However, I13 further stated that since the current structure for R&D does not necessarily involve explicit goals, several projects tend to never leave the research stage, thus never resulting in any tangible value or benefit for Company X.

Furthermore, Company X has encountered challenges with systematically identifying current problems. I8 describes the challenge of accurately formulating specific problem descriptions and subsequently identifying what specific tasks are to be achieved. I8 continued by expressing the viewpoint that Company X already faces an abundance of tasks and has difficulties navigating among the current initiatives which increase the internal focus, thereby hindering them from searching for alternative external solution providers. I5 also described the problem identification process as insufficient and proposes solving this through addressing simpler problems with generic solutions. I5 states that it would be easier to establish systematic problem identification, starting with easier tasks which could be solved with generic solutions. This approach would allow both systematic problem identification and opportunities to collaborate with startups.

4.2 Practice Gaps

The empirical study sought to investigate the current position of Company X, and how its situation affected the opportunities to establish collaborations with startups. The findings are grouped into enabling factors, which include current practices well suited for collaboration, and barriers to collaboration, which include current practices limiting opportunities for collaboration.

4.2.1 Enabling Factors

Company X has established structures for collaborations already in place, a summary of these structures is listed in table 4.2.1.

Table 4.2.1: Synthesized findings of enabling factors

Enabling factor	Description	Supporting Interviewee
Established pathways for new initiatives	Streamlined approval for initiatives with new suppliers, and a simple route to start technology projects by pitching to a portfolio manager who allocates resources.	I12, I13
Structural isolation of non-core, early-stage activity	Startups are easier to involve in projects without active client engagement; isolated, early-stage environments carry fewer certification requirements and allow more freedom in supplier selection.	I9, I12
Capability to assist with certification	Prior projects helped local producers obtain certification; similar support could turn startups into certified, viable partners with access to better margins.	I7, I9
Suitability of non-core areas and acceptable solutions	Collaboration is easiest outside core functions, and solutions deemed acceptable rather than perfect still offer substantial benefits, including in supporting functions.	I5, I7, I8
Autonomous decision-making at small scale	The small scale of the additive manufacturing quality assurance collaboration allowed it to be initiated without approval from higher organizational levels.	I11

Initiatives with new customers and suppliers are also well established, according to I13, as they explained that the approval process for new initiatives is relatively streamlined and allows engineers to seek out promising opportunities. The pathways for new technological initiatives are also well established within the company. As previously detailed regarding idea generation, I12 explained that it's relatively simple to initiate new projects for technology development as it only needs pitching to the portfolio manager who then decides on the allocation of resources.

The interviewees also brought a series of environmental factors to light which increase the viability of startup collaboration. As mentioned earlier, I12 argued that it's easier to incorporate startups into projects without active client engagement and where no critical deliveries are made. I12 pointed out that in environments where the startup is isolated from the core parts of the company, there are less restrictions in terms of needing to comply with rigorous standards and certifications. Likewise, I9 points out, research that is still in pilot phases and early-stage development allows for more margin of freedom in terms of selecting suppliers due to their early nature. The difference in criteria and volumes of purchases creates opportunities for collaborations with parties outside of Company X's current partners and suppliers.

Another way in which Company X could increase its opportunities to collaborate with startups is by offering help getting companies certified. I9 describes that previous projects have been successful in helping local producers get certified and thus viable for collaboration. Similar

processes could be established to help startups understand the specific demands of quality and turn them into certified parties capable of collaboration. I7 adds that certified companies reap the benefits of operating under entirely different margins than non-certified counterparts. This would also increase incentives for companies to collaborate with Company X.

The workshop participants discussed the areas in which collaboration would be best suited. I5, I7 and I8 agreed that it would be easiest to incorporate collaboration within areas outside the core functions and business areas. I7 stated that the general view today is that solutions must be perfect, but that solutions deemed acceptable also offer substantial benefits to the organization. The current software collaboration mentioned earlier was raised as one of the solutions explored in a suitable environment. I8 pointed out the fact that the initiative was good in the sense that Company X already had pinpointed the problem they wanted to solve, and the specific startup offered a solution which could be integrated and developed within established situations. I5 further discussed that solutions regarding supporting functions, such as a new, singular and comprehensive finance system, would be beneficial to explore outside of the company, as many parties already have solutions which could be tailored to Company X.

Furthermore, when referring to the specific case of collaborating with a startup for a quality assurance solution in the additive manufacturing process, I11 explained that due to the small scale of that initiative, there was freedom to engage in the collaboration without needing approval from higher instances.

4.2.2 Barriers to Collaboration

The interviews provided a variety of perspectives on different mechanisms that currently hinder collaboration with startups at Company X. These mechanisms differ in character. Certain barriers are related to the high barriers to entry for startups looking to collaborate with Company X, manifesting in identifiable processes, timelines and requirements to which interviewees could point directly. Other barriers are more diffuse, articulated through prevailing mentalities, organizational outlooks and cultural views that shape how collaboration is approached. A summary of the barriers is presented in table 4.2.2.

Table 4.2.2: Synthesized findings of barriers to collaboration

Barrier	Description	Supporting Interviewee
Regulatory and temporal constraints on unproven actors	Protected-site status, certification demands, and the need for real-world validation make engaging unproven actors difficult; collaboration is confined to early-stage, non-critical work, and the decades-long project horizon mismatches startups' need for fast capital, leaving acquisition or licensing as the only continuation paths.	I5, I7, I8, I10, I12
Disconnected alignment and dedicated representatives	Shared objectives and a common understanding of value are inconsistent, with initiatives pursued in isolated departments; champions with a tangible stake are needed, and success criteria drift over a project rather than being documented at the outset.	I5, I7, I8, I14, I15
Rigid procurement and funding with no structured approach	The purchasing process is seen as unnecessarily slow yet is occasionally bypassed; funding criteria leave little room for exploration, and the absence of established ways of working means initiatives are treated as one-off, case-by-case efforts.	I5, I7, I8, I9, I13
Risk-averse, not-invented-here culture	A belief that Company X's context is uniquely complex and an R&D bias toward internal development discourage seeking external solutions; stakeholders expect perfect solutions immediately, while an act-fast-but-do-not-fail mentality and IP concerns make declining feel safer.	I5, I7, I8, I9 I10, I11, I12, I13
Deprioritized support functions and entrenched outlook	Supporting functions are seen as non-value-creating and under-resourced despite a digitalization strategy, and small-benefit solutions are dismissed; a culture rooted in old-school manufacturing with low turnover sustains long-held, startup-unfamiliar perspectives.	I5, I8, I10

Several interviewees underscored that due to Company X's complex context and environment in which it operates, collaborating with unproven actors is complicated in most respects. Similarly, I10 emphasized that since the status of the facilities is a protected site, bringing in unproven actors to collaborate with is naturally quite difficult. As such, I10 suggested that although solutions from, and collaborations with, unproven actors can be tested in virtual environments, it is still essential to prove that solutions are viable in real-world environments, which is difficult to do for unproven actors. Furthermore, I12 highlighted the difficulties of directly involving unproven and uncertified actors for active client deliveries as clients would typically not want to involve such actors due to the confidential nature of the projects. As mentioned earlier and related to enabling factors, I12 rather believes that collaborations with startups need to be contained in confined environments which focus on early-stage testing and development where there are no critical deliverables. I12 pointed out that such an environment

already exists, as Company X is currently engaged in a project involving a startup, a university, and governmental entities among others.

An example I12 brought up, illustrating the nature of this project, was that Company X could bypass their internal purchasing procedure, which was deemed unnecessarily time-consuming for this purchasing order, by having another partner in the project, without strict purchasing procedures, complete the purchasing order. This could be done since the context of the project allowed for more freedom compared to projects with explicit deliverables to clients which require strict following of formal procedures. I12 further believed that if the project would show promise and progress to a stage involving deliverables to a client—in this case a governmental entity, as they initiated the project—it would be nearly impossible to keep the startup involved given that clients are typically unwilling to depend on an unproven actor for key deliverables. Thus, I12 argues that if a collaboration with a startup showed enough promise for Company X, they would most likely need to secure that resource for the long-term, either through acquiring the startup completely, or through a licensing deal where they have access to the developed solution. Consequently, I12 argues that collaborations with startups are promising for early-stage testing and development of innovative solutions, but not viable for long-term development or active client projects.

Similarly, regarding the temporal perspective of collaborating with startups, I8 and I12 agreed on the difficulty of the mismatch in the timelines between Company X and typical startups. I8 mentioned cash-flow mismatch as a key difficulty as startups typically need to secure capital in the early stages for their capabilities to be fully deployed. Whereas typical development projects at Company X require substantial time periods to conduct and complete. I12 pointed out that from the point of initiation of a development project, it could be close to 10 years until the developed solution even reaches implementation, thus the value proposition for startups to be engaged is typically not as attractive. The workshop participants confirmed that the time horizons for startup initiatives are misaligned with the current timelines for conventional projects and to be able to benefit from the rapid developmental capability of startups the participants agreed that they must try to match startups' speed. Further, the workshop participants highlighted the potential benefit of a system for categorizing startup initiatives and allotting a specified champion from Company X who would be responsible for the project, which Company X currently lacks. On a similar note, I15 discussed the importance of establishing such representatives from Company X with a tangible stake in such projects. These

representatives would provide channels for effective and frequent communication with the startup.

Further, I14 identified a lack of internal alignment within Company X as a potential barrier to effective collaboration with startups. I14 stresses that successful partnerships require coherence among relevant stakeholders, particularly in terms of shared objectives and a common understanding of the value such collaborations are intended to generate. However, this alignment is not consistently present within the organization. According to I14, insufficient communication between stakeholders contributes significantly to this misalignment, thereby hindering collaboration efforts. In addition, initiatives are often pursued within isolated departments, limiting the extent to which their outcomes can be leveraged across the broader organization.

Similarly, a barrier raised by I15 concerns the management of expectations over the course of a collaboration. According to I15, the criteria against which success is judged tend to shift as a project progresses and shows potential, with the consequence that outcomes are evaluated against revised and often unreasonable benchmarks rather than those set at the outset. I15 noted that this drift could be mitigated through the documentation of early expectations and the explicit definition of success criteria at the start of the project, providing a stable reference point for evaluating results. In the absence of such documentation, the shifting nature of expectations functions as a recurring obstacle to recognizing the value generated through startup collaboration.

Although not directly tied to startup collaboration, a further set of barriers emerged in relation to internal processes, particularly within procurement. I13, who manages R&D initiatives, described the purchasing process for evaluating and incorporating new suppliers as unnecessarily time-consuming. While acknowledging the legitimacy of supplier evaluation and comparison, I13 noted that conducting such comparisons can feel unnecessarily troublesome in cases where the preferred supplier has effectively already been identified. Conversely, I9, who works as a Purchaser for R&D projects, raised the opposite concern, namely that engineers occasionally bypass the formal purchasing process, negotiating terms and conditions independently and failing to adequately compare suppliers on price and lead times. The consequence, I9 explained, is faulty terms, incorrect purchasing orders, or insufficient supplier comparisons that must subsequently be rectified.

The workshop participants highlighted that current practices and funding processes define the criterion needed to be achieved to get approved funding, and such processes do not leave much room for purely explorative initiatives, which in extension limit the possibilities to collaborate with startups. Further, the participants discussed the lack of established ways of working with startups as all new initiatives are currently one-offs and evaluated on a case-to-case basis. Thus, they highlighted the lack of a structured approach to enabling effective and systematic collaborations.

Beyond the barriers related to high barriers to entry, the interviewees also raised a set of more implicit barriers rooted in mentality and organizational outlook. Several interviewees (I5, I8, I9, I10, I11, I12) highlighted varying cultural aspects as a relevant factor. I10 pointed out that a common occurrence at Company X was that there tends to be a collective opinion that stakeholders at Company X view Company X's context and environment as unique, and thus they believe that only they themselves have the competence to solve their problems. I10 also pointed out their conflicting outlooks with the general outlooks of R&D stakeholders as the R&D function typically look to develop all solutions internally whereas I10 sees greater benefit in applying solutions that are not necessarily developed internally. I10 rather points out that leveraging existing solutions or co-developing solutions with actors that possess expertise in the areas outside of Company X's domains are more viable options. I8 reinforced such claims when pointing out that stakeholders at Company X typically want perfect solutions immediately without even having a clear-cut definition as to what it is they want to have solved. This mentality has contributed to the reluctance of stakeholders within Company X to engage in external collaborations to solve internal challenges. I8 emphasized however that initial phases of collaborations with startups tend to provide subpar solutions but if they were to be patient and continually nurture the collaborations, they would be able to realize tangible benefits in the future. Furthermore, I8 underscored a general cultural clash in the ways of working between a typical startup and the corporate environment in which Company X operates, and that this culture clash generally complicates Company X's collaborations with startups.

Additionally, I10 pointed to a general viewpoint within Company X that several functions which support the main business functions are not regarded as direct value creating or anchored in any explicit benefit and thus are deprioritized and not allocated the resources they need to perform optimally. On the same topic, I10 mentioned that there is an explicit strategy for Company X to digitize their operations and processes, but they lack the willingness to invest

in the IT function. As a result, there is a lack of the necessary infrastructure to support systematically managing new solutions and incorporating implementations. Thus, when new solutions are implemented, the process is treated as an isolated instance which I10 deemed slow, unsustainable, and not optimally integrated for future solutions to be implemented.

Further, I10 mentioned that the culture of Company X is rooted in old-school manufacturing. As stated by I10, the staff turnover at Company X is quite low and most of the staff have been employed for long periods. As a result, views and perspectives have been consistent across Company X for a long time, lacking a significant influx of new influences. However, new perspectives are emerging across Company X. I13 expressed a wish to move towards a culture which cultivates quick failures. Instead of decisions being made slowly, I13 argued that projects should be allowed to move and develop swiftly to quickly figure out what works, and what does not work. I13 stated that staff should be entrusted with confidence to take action and responsibility for progressing projects and initiatives without sensing frustration when projects fail or do not meet initial expectations. During the workshops, the attendees discussed the idea of failing fast. I5 and I7 agreed that the company operates under an act fast mentality, but stated that the company refrain from the idea of failing. As a result, the company promotes acting in general, but discourages failing, which causes a mismatch for more risk-prone novel ideas. In relation, I11 expressed a similar wish to become more comfortable, as an organization, with outsourcing new ideas and initiatives to external actors. The workshop discussed the same topic. I5 stated that Company X are foreign to investing in collaborations with startups, as they are used to long-term partnerships and deal in the aerospace industry. The same mentality, continues I5, makes the company view required support systems as purely costs, not as potential value creators. I5 posed the question “Do people even ask if there might be external parties able to help?” Company X’s attitude towards such collaborations makes employees unaware of the options available. They do not have any opinions regarding startups since they have low awareness of them.

The workshop participants discussed the current culture of disregarding external solutions as Company X expresses a view that solutions produced outside of their core business cannot be sold. The culture also enforces a hesitancy to ask for help. I8 repeated the notion that the company is in a special situation with very specialized capabilities and thus viewed external solution as insufficient. I8 believed that the culture should be changed to address the value found outside the company and promote a culture that is not afraid of asking for help. Addressing a similar issue, I7 believed a lot of ideas are shut down because employees find it

easier to say no as they do not risk doing anything wrong. One such example relates to the current way of working with IP. I5 states that startup collaborations often get disregarded as it will be a risk of leaking sensitive information. However, I5 states that early development of technologies does not have to be so secretive. Technologies in infancy do not pose much threat to leak sensitive information anyways and should therefore be able to collaborate with startups. I7 adds that the company should promote a view of acceptance of failure. I7 argued that projects do not always have to guarantee profit from the start. Furthermore, I8 raises the issue of not viewing small solutions as sufficient value. If a solution only offers a small benefit, the initiative in its entirety is often disregarded as it's not deemed to be worthwhile.

5. Analysis

This chapter analyzes the empirical findings against the literature. It is structured in two parts. The first examines the strategic fit of startups, analyzing how they can address the needs and challenges identified within Company X. The second examines the practice gaps, comparing Company X's current practices against the conditions the literature identifies as necessary for successful startup collaboration.

5.1 Strategic Fit of Startups

The following chapter analyzes how the challenges identified through the empirical data collection relates to the literature review. The analysis is conducted to establish the strategic fit of startup collaboration for the addressed challenges.

5.1.1 Technological Needs

The empirical findings highlighted the growing need for Company X to develop increasingly advanced manufacturing technologies, such as the use of dynamic parameters within complex products, in addition to improved quality assurance systems in the production. The literature argues that startups function as providers of complementary resources and niche expertise in addition to enabling faster and more effective development of new products, compared to internal processes (Banka et al., 2025). Additionally, the literature emphasizes that engagement in startup collaboration helps larger firms bypass their own slow innovation cycles, pursue multiple approaches in parallel, and integrate solutions to internal problems faster than if they rely completely on internal R&D resources (Weiblen & Chesbrough, 2015). Furthermore, startups' inherent flexibility provides the benefit of allowing firms to bypass their own internal bottlenecks (Banka et al., 2025; Sbampato et al., 2025). Several examples can be found of corporations deliberately seeking out startups to solve internal issues regarding production (Kurpjuweit & Wagner, 2020). The empirical data emphasizes a need for complex solutions, and the literature advocates for the search for such solutions within startups. By increasing collaborative efforts with startups possessing high technical expertise, Company X could bypass current bottlenecks, fill innovative gaps, and increase their odds of solving complex internal workflows. As such, startups pose a viable option for Company X to find complex solutions to technical needs in external environments.

I8 expressed a wish to increase Company X’s simulative and quality prediction capabilities. Such capabilities offer substantial value across the company, both in manufacturing and

development. Both aforementioned capabilities most likely require significant innovative advancements, or even disruptive ones. The literature highlights that startups are less constrained by existing business models and thus better positioned to develop novel, disruptive solutions (World Economic Forum, 2018). Furthermore, Teece (2007) advocates for a distributed model of innovation with the focus of reaching outside enterprise boundaries to access and integrate technology developed by others. Many interviewees stated that the most immediate value proposition startups could bring to Company X is the opportunity to tap into highly specialized knowledge that does not exist within the company today. I14 acknowledges that collaborations with startups allow access to cross-industry insights, which could be used to adapt technologies from other sectors. This aligns well with Banka et al. (2025) who argue that one of the key strategic advantages with such collaborations is the access to innovation and emerging technologies which are often unavailable internally. The success story of the quality assurance initiative raised by I11 illustrates that such collaborations are possible within Company X. In the case of Company X, the engagement with startups allows the firm to establish a stronger foundational model for distributed innovation to reach outside the enterprise boundaries and access specialized technology developed by others rather than trying to build it from scratch.

Beyond advanced and potentially radical technological leaps, the empirical data also highlights the potential of simple solutions within peripheral domains. I12's example of a lifting device visualizes the improvement of operational efficiency such solutions could offer without requiring deep integration into sensitive internal systems. This aligns well with the value proposition of startups, as key objectives of startup-corporation collaboration is to fix internal operational inefficiencies using startup ingenuity (Banka et al., 2025). Furthermore, this approach builds upon I5's idea to solve simpler problems with generic solutions. Dizdarevic et al. (2024) discuss that standardized approaches of engagement with startups, minimizing complex terms and conditions, and accelerating key processes related to such collaborations, helps increase the speed required for startup collaboration. Applying the same logic, Company X's integration of products or services from startups would be made easier by finding solutions fit to implement within areas less governed by rigid structure and proprietary boundaries. Thus, peripheral areas seem to pose low-risk entry points for startup collaboration for Company X.

The empirical data showed that Company X would benefit from both simple and complex solutions. The distinction between them highlights the dual nature of ambidexterity (Andriopoulos & Lewis, 2009), which argues for Company X to strive to increase dynamic

capabilities to achieve it. Furthermore, the literature shows that both simple and more complex advancements could be achieved by increasing collaborative efforts with startups. Not only would increased collaborations with startups offer potential solution to the specific needs of Company X, such as advancements in simulation, but it would also help increase their dynamic capabilities. The quality assurance case described in the empirical findings demonstrates how engagement with startups increases the companies ability to incorporate new solutions into their current workflow. This is a distinct example of improved absorptive capacity (Andriopoulos & Lewis, 2009), which is essential for the dynamic capability of enhancing and combining intangible and tangible assets (Teece, 2007).

Table 5.1.1: Synthesized analysis of technological needs

Technological Need	Strategic fit of collaboration with startup as solution	Supporting Interviewee	Supporting Literature
Advanced Manufacturing Technologies	External searches for advanced technical solutions within startups could bypass internal bottlenecks, fill innovation gaps, and solve complex internal workflows.	I10, I11, I12	Banka et al. (2025); Weiblen & Chesbrough (2015); Sbampato et al. (2025); Teece (2007); Kurpjuweit &Wagner (2020)
Simulation and Predictive Capabilities	Startups can provide unconstrained, disruptive innovation and highly specialized, cross-industry knowledge that allows the firm to access advanced external technologies rather than building them from scratch.	I8, I11, I14	World Economic Forum (2018); Teece (2007); Banka et al. (2025)
Peripheral and Operational Improvements	Startups can improve Company X's operational efficiency by providing ingenious, generic solutions for peripheral areas, offering low-risk and easily integrated entry points that bypass rigid internal structures and complex integration processes.	I7, I12	Banka et al. (2025); Dizdarevic et al. (2024)

5.1.2 General Challenges

The domain of digitalization and increased importance of data management was shown in the empirical findings to be one of the most important challenges Company X face today. The data indicates gaps within both competence and internal structure required to effectively and deliberately address and solve both issues. The literature poses several solutions to help fill the competence gap. According to Eisenhardt and Martin (2000), one of the most common features

of highly effective knowledge creation firms are their explicit linkages between the focal firm and other, external sources of knowledge. The establishment of formal functions creates routines and knowledge, which can be articulated, codified, shared, and internalized within the rest of the firm. In addition, the literature showed that external linkages in the form of alliance relationships led to improved R&D performance. If Company X were to establish formal alliances with a startup(s) focused on data management and digitalization, the startup could act as the external linkage of knowledge needed for Company X to advance. In addition, repeated engagement with startups yields knowledge accumulation within both parties (Gaim et al., 2026). Over time, Company X would increase their knowledge bank and extend their understanding. According to Andriopoulos and Lewis (2009), such activities would further increase Company X's absorptive capacity.

Company X shows an internal push for innovation. Several interviewees argued for the abundance of ideas within the company, primarily stemming from the engineering functions. The ideas and projects are managed and structured through TDPs and TRLs systems. Andriopoulos and Lewis (2009) describes the notion of discipline as the structure and control of projects. Structures such as TDPs and TRL-level approaches are examples of high discipline. While these structures enable systematic approaches, interviewees note that many projects never leave the research stage. This aligns with Andriopoulos and Lewis' (2009) theory that excessive discipline can decrease passion and generative actions needed for pushing projects to create tangible value. At the same time, structures such as TDPs allows Company X to dive into explorative research, but the lack of explicit goals creates a disconnect. Tushman and O'Reilly (1996) argue that in order for exploration to generate value, it must eventually lead to retention, indicating that ideas and initiatives must leave the research stage and become integrated into the business. Furthermore, Teece (2007) highlights the action of seizing as one of the three dynamic capabilities needed for ambidexterity. The literature highlights two specific benefits of startups in relation to the seizing ability. Firstly, startups increase speed and execution of projects. Large corporations commend immense resources, scale and efficient routines, while startups operate with promising ideas, agility and risk tolerance (Weiblen & Chesbrough, 2015). Additionally, hands-on collaborations allows for rapid business prototyping and iterative learning, enabling faster customization of the startups technology to meet the corporations specific needs (Demir & Lukes, 2025).

Secondly, startups can act as bridges between exploration and exploitation. Successful project execution requires explicit targets (Andriopoulos & Lewis, 2009) and stage-gate processes

enable successful collaboration as they allow for breaking the collaboration procedure into structured phases with evaluation gates (Dizdarevic et al., 2024). In the case of Company X, collaboration with startups offer the benefit of acting as both explicit target mechanisms while requiring structured phases to align both parties. As a result, repeated engagement with startups would create pathways for Company X where they improve their ability to rapidly develop new products and then systematically evaluate the solutions for implementation within the organization. Both of the proposed benefits would help Company X improve their overall ability to effectively seize new opportunities, both internally generated ideas and external solutions.

Beyond ideas, I8 describes that, because of an abundance of tasks, the company has a strong focus on internal initiatives and difficulties of formulating specific problem descriptions. Bannerjee et al. (2016) highlight that, over time, progressing towards exploiting existing opportunities, rather than exploring new opportunities, results in core competencies turning into core rigidities. The case of internal focus present at Company X indicates an excessive faith in exploiting existing opportunities, and as a result the company's exposure to the potential of external solutions is decreased. Teece (2007) states that one of the dynamic capabilities needed for innovativeness is the ability to sense and shape opportunities. The empirical findings indicate that this ability is currently lacking at Company X. The internal overload hinders Company X from looking outward and searching for alternative external solution providers. Furthermore, Andriopoulos and Lewis (2009) highlight the need for exploratory projects to have proactive searches. The workshop discussed the lack of proactive searches and the failures of the sensing phase. I5 pointed out that Company X often is unaware of startups as an option for external solution providers, since they do not proactively search for them. Employees lack opinions about startups because they have low awareness of them. This is reinforced by a culture, as I7 points out, where it's easier to say no new ideas rather than taking the risk of doing something wrong. Ironically, increased interactions with startups could decrease the aforementioned struggles of Company X. Repeated interactions with startup ecosystems forces a corporation to adopt an entrepreneurial mindset that is less risk-averse (Brigl et al., 2019), and thus decrease fear within Company X of failure. Increased risk tolerance helps organizations reach outside their current way of working. Leonard-Barton (1992) argues that project managers who constructively discredit current systems, skills and values, could be a catalyst of redefinition of core capabilities and even initiate new ones. An increased risk tolerance within Company X enables such project managers to rise up and help

change the organization, rather than backing down as a response to fear of failure. I15, although conversely to the general view from Company X, also agreed that an important value of startup collaborations is their ability to act as a catalyst for knowledge creation and learning. As such, increased startup collaboration offers the benefit of increasing Company X's outlook for external solutions and thus increasing their searching and sensing ability.

While the empirical findings of the technical needs could be mapped against the value proposition of startups from the literature, the general challenges are all closely tied to the specific outcomes of the three dynamic capabilities presented by Teece (2007). The literature indicates that increased and repeated engagement with startups would help Company X to adopt specific behaviors and procedures for successful collaboration, which in turn would develop their internal dynamic capabilities, resulting in increased ambidexterity.

Table 5.1.2: Synthesized analysis of general challenges

General challenge	Strategic fit of collaboration with startup as solution	Supporting Interviewee	Supporting Literature
Digitalization and Data Management	Startups can act as vital external knowledge linkages that boost the firm's internal expertise, cumulative knowledge bank, and dynamic capabilities.	I8, I10, I13, I14	Eisenhardt & Martin (2000); Gaim et al. (2026); Andriopoulos & Lewis (2009); Teece (2007)
Realizing Internally Generated Ideas	Startups can inject agility, speed, and risk tolerance needed to rapidly prototype internal engineering ideas, while providing the structured, target-driven pathways required to effectively seize and integrate those projects into the business.	I1, I2, I5, I6, I12, I13	Andriopoulos & Lewis (2009); Tushman & O'Reilly (1996); Teece (2007); Weiblen & Chesbrough (2015); Demir & Lukes (2025); Dizdarevic et al. (2024)
Problem Identification and Internal Focus	Startups act as catalysts for external searching and sensing, which fosters a less risk-averse, entrepreneurial mindset that enables project managers to constructively challenge existing core rigidities and drive knowledge creation.	I5, I7, I8, I15	Bannerjee et al. (2016); Teece (2007); Andriopoulos & Lewis (2009); Leonard-Barton (1992); Brigl et al. (2019)

5.2 Practice Gaps

The practice gap analysis examines the distance between Company X's current organizational practices and the conditions that the literature identifies as necessary for successful startup collaboration. The empirical findings reveal both enabling factors that provide a foundation for collaboration and a set of substantive barriers—strategic, cultural, structural and procedural—that currently constrain the organization's capacity to collaborate with startups systematically and effectively.

5.2.1 Enabling Factors

Before examining the gaps, it is of importance to acknowledge the enabling structures already present at Company X that favor startup collaboration. Several interviewees identified existing structures that provide a useful foundation for collaboration initiatives with startups. The established pathway for initiating new technology development projects, as described by I13, in which engineers pitch ideas to portfolio managers who allocate resources, provides a relatively accessible mechanism through which startup collaboration initiatives could be seeded. Although such pathways have their flaws, the infrastructure for capturing ideas constitutes an enabling condition which both Teece (2007) and Andriopoulos & Lewis (2009) discuss regarding exploratory projects needing proactive searches. Further, I13 describes the approval process for new initiatives with new suppliers as relatively streamlined. This is also significant within the context, as it shows that the formal barrier for initiating exploratory collaborations is lower than might be expected in a heavily regulated industrial environment.

More fundamentally, the empirical findings show that Company X's most productive enabling environmental conditions are those identified by I12 and I9, specifically regarding the reduced certification and procurement burden in early-stage research projects and demonstrators. Such conditions where the startup is structurally separated from core operations represent a structural opportunity that can be leveraged strategically. The literature on organizational ambidexterity describes the importance of creating distinct spatial or temporal contexts in which exploratory activities can unfold without being constrained by the standards and processes of the core business (Andriopoulos & Lewis, 2009; Tushman & O'Reilly, 1996). This can also be likened to what Dizdarevic et al. (2024), and Kurpjuweit and Wagner (2020) discuss when referring to dedicated interface units which prove as shields for startups from the bureaucracy present in corporations. Thus, such early-stage projects provide natural entry points for startup engagement, proving to be a direct enabler of startup collaborations. I12's argument that

startups are easier to incorporate in projects without active client engagement, and that environments isolated from the core entail fewer compliance and certification restrictions, further reflects recurring perspectives on isolation and decentralization found in the literature (Chandy & Tellis, 2000; Leonard-Barton, 1992; Tushman & O'Reilly, 1996). I9's observation that pilot phases and demonstrators allow more freedom in supplier selection follows the same logic. The existing project involving a startup, a university and governmental entities described by I12, within which Company X could bypass its standard purchasing procedure by routing the order through the less procedurally constrained partner, exemplifies principles of what Tushman and O'Reilly (1996) refer to in relation to structural ambidexterity. More specifically, it exemplifies the enabling of exploratory work to proceed without being smothered by the operational discipline of the foundation. Similarly, the workshop participants agree that areas outside the core functions and business areas are the most suitable arenas for collaboration. This somewhat reflects what Andriopoulos and Lewis (2009) point out on spatial separation, where exploration and exploitation are divided into distinct units. Thus, the participants' view of containing startup collaboration to non-core areas highlights the core functions being exploited, as they are shielded from startup collaboration, whereas exploration, represented by startup collaboration, takes place in peripheral areas.

The capability raised by I7, and exemplified by I9, of assisting local producers in obtaining certification to become viable collaboration partners points to an additional enabling mechanism—the possibility of actively building the supply of certification-capable startup partners rather than passively accepting the current shortage as a fixed constraint. Assisting startups in achieving the required certifications transforms it from an ineligible external actor into a viable long-term supplier, creating durable collaborations. This proactive approach to ecosystem development can be linked to what Demir and Lukes (2025) describe as co-creation mechanisms, serving as a form of joint capability building, allowing customization of the startup's solution to meet the corporation's requirements.

Additionally, I11 highlighted that the collaboration with a startup to develop a quality assurance solution was initiated without requiring approval from higher organizational levels, primarily due to the limited scale of the initiative. This indicates that a degree of autonomous decision-making exists within Company X under certain conditions. Such autonomy aligns with Teece's (2007) emphasis on decentralized decision-making as a key enabler of organizational innovativeness, as it allows actors within the organization to respond more flexibly to emerging opportunities. Followingly, although I11's initiative did not explicitly

follow a streamlined approval process, but rather falling under the radar due to its insignificant scale, the happening can be somewhat approximated to what Weiblen and Chesbrough (2015) describe as a simplified governance model, tailored to enable bypassing of traditionally strict corporate processes and thus optimized for startups' involvement.

Lastly, a further enabling mechanism identified across the empirical findings and the literature is the role of dedicated representatives in supporting startup collaboration. Although this theme appeared in the empirical findings primarily through the absence of such individuals, and was therefore presented in Section 4.2.2 as a barrier, the underlying mechanism is more accurately understood as an enabler, since it is the presence of representatives, rather than their absence, that constitutes the relevant condition for successful collaboration. I15 argued that specific individuals within Company X should hold a tangible stake in collaboration initiatives to facilitate effective guidance and communication. Freeman and Engel (2007) refer to such individuals as champions and emphasize that their value lies not primarily in technical expertise but in the political skills, contacts and reputation required to secure resources and shield projects from corporate interference. The workshop participants reinforced this view, noting that appointed champions could help shift the prevailing organizational view of collaboration from a cost-centric to a value-creation oriented perspective. Kurpjuweit and Wagner (2020) similarly argue that such representatives serve as interfaces that organize the firm's scattered competence and help startups navigate complex bureaucratic structures.

Table 5.2.1: Synthesized analysis of enabling factors

Enabler	Manifestation at Company X	Supporting Interviewee	Supporting Literature
Existing collaboration pathways	Established mechanism for capturing ideas in which engineers pitch new technology development projects to portfolio managers who allocate resources; relatively streamlined approval process for initiatives with new suppliers.	I13	Teece (2007); Andriopoulos & Lewis (2009)
Structural isolation of early-stage activity and workarounds in non-core projects	Reduced certification and procurement burden in early-stage research projects and demonstrators; environments isolated from core operations entail fewer compliance and certification restrictions; non-core areas accepted as suitable arenas for collaboration; allowing exploratory work to proceed without being constrained by core operational discipline.	I5, I7, I8, I9, I12	Andriopoulos & Lewis (2009); Tushman & O'Reilly (1996); Chandy & Tellis (2000); Leonard-Barton (1992); Dizdarevic et al. (2024); Kurpjuweit & Wagner (2020)

Capability to actively shape the partner ecosystem	Demonstrated capability of assisting local producers in obtaining certifications, transforming ineligible external actors into viable long-term partners; providing additional incentive for partners to engage.	I7, I9	Demir & Lukes (2025)
Autonomous decision-making at limited scale	Decision-making to certain extent without requiring approval from higher organizational levels, indicating that a degree of autonomous decision-making exists under certain conditions.	I11	Teece (2007); Weiblen & Chesbrough (2015)
Recognition of the need for dedicated representatives	Internal recognition that specific individuals should hold a tangible stake in collaboration initiatives to facilitate effective guidance and communication, and the organizational value of appointed champions.	I5, I7, I8, I15	Freeman & Engel (2007); Kurpjuweit & Wagner (2020); Eisenhardt & Martin (2000)

5.2.2 Barriers to Collaboration

Bannerjee et al.'s (2016) four-fold classification of corporate barriers—strategic, cultural, structural and procedural—provides a useful organizing framework for analyzing the empirical findings. All four categories proved present at Company X, although their significance and the specific mechanisms by which they manifest differ.

Strategic barriers are most clearly visible in I14's account of insufficient internal alignment. As described by I14, shared objectives and a common understanding of the value that collaborations are intended to generate, are not consistently present. I14 further points out that initiatives are pursued in isolated departments such that their outcomes are not leveraged across the broader organization. Another dimension of this misalignment emerges as I15 observed, the criteria against which a project's success is judged tend to shift as the project progresses and shows potential, with outcomes ultimately measured against revised benchmarks rather than those agreed at the outset. The absence of documented expectations of the kind I15 advocates can be understood as a specific instance of the communicative failure Bannerjee et al. (2016) identify as central to strategic misalignment. The conflict between I10's view, which favors leveraging external expertise, and what I10 describes as the dominant R&D outlook of developing all solutions internally is the same misalignment expressed at the level of organizational philosophy. Banka et al. (2024) extend this analysis by noting that misalignment also includes mismatches between corporate goals and what startups realistically provide. The workshop finding that solutions are expected to be perfect from the outset, combined with I8's

observation that small benefits are routinely dismissed as not worthwhile, illustrates this mismatch directly. Communication, which Bannerjee et al. (2016) emphasize as the principal mechanism by which strategic misalignment is reinforced through both under-sharing and over-sharing, also features in the empirical findings, with I14 explicitly attributing misalignment to insufficient communication between stakeholders. A further strategic barrier concerns the mobility of resources across initiatives. Freeman and Engel (2007) identify the absence of mobile resources as a major impediment to innovation, since projects forced to continually extract resources from existing allocations face declining efficiency as key personnel seek to retain resources within their own areas. This pattern is evident at Company X. As I5 and I6 note, most emerging ideas originate within the engineering functions, which are simultaneously responsible for executing core operations. The result is a structural allocation issue in which manpower is largely locked into ongoing activities, leaving limited capacity to dedicate the engaged personnel that I15 identifies as essential for successful startup collaboration. The workshop findings extend the sentiment, with participants noting that the absence of established processes causes each initiative to require renewed negotiations for resources, reinforcing the sense that collaborations remain isolated one-offs rather than part of a coherent strategic effort.

Cultural barriers were the most extensively discussed category in the empirical findings, raised by I5, I8, I9, I10, I11 and I12. I10's account of a collective belief that Company X's context is so unique that only its own staff possess the competence to solve its problems is a textbook articulation of the not-invented-here syndrome described by the World Economic Forum (2018) and Bannerjee et al. (2016). I8's observation that stakeholders demand perfect solutions immediately, despite acknowledging that early-phase startup collaborations typically yield subpar initial results, reflects the cultural mismatch between corporate risk aversion and the entrepreneurial tolerance for iteration described by Kelly et al. (2002). The workshop further refined this picture with I7 observing that employees find it easier to say no because saying no minimizes personal risk. This reflects the corporate-incentive analysis of Bannerjee et al. (2016) and Banka et al. (2024), who argue that without explicit incentives to engage with novel external initiatives, employees have no rational reason to do so. I13's expressed wish to move towards a culture that cultivates quick failures and entrusts staff with action and responsibility is a direct application of the entrepreneurial culture that Brigl et al. (2019) and Banka et al. (2024) position as a precondition for productive startup engagement. As this remains a wish rather than an established practice, it is diagnostic of itself and enlightens a gap between current

practices and optimal practices highlighted by literature. I10's additional observation that supporting functions are not regarded as direct value creators, exemplified by the under-investment in IT infrastructure despite an explicit digitalization strategy, fits the broader pattern of cultural barriers identified in the literature. More specifically, the firm's collective sense of what counts as real work systematically excludes the very capabilities that would enable more effective collaboration. I10's framing of Company X's culture as rooted in old-school manufacturing, with low staff turnover and consistent perspectives across long tenures, is consistent with what Tushman and O'Reilly (1996) describe as the cultural inertia of mature firms.

Structural barriers are particularly pronounced at Company X because of the regulatory and certification environment they operate in. The combined effect of compliance and certification requirements across the supply chain, together with the protected-site status of the production facilities creates the regulatory weight that Bannerjee et al. (2016) describe as structurally hostile to collaboration with new actors. I10's argument that virtual-environment testing is insufficient, and that real-world validation is essential, but difficult for unproven actors to obtain, reflects a structural barrier in this context. Although the protected status of Company X's physical site proves to be a structural barrier, I10's arguments align with Kurpjuweit and Wagner's (2020) emphasis on co-location as an enabler of successful collaboration and thus the absence of such co-location opportunities at Company X represent a gap as it constrains the development of tailor-made solutions. I12's projection that bringing a startup into a collaboration that subsequently progressed to client deliverables would be close to impossible because the client would not accept reliance on an unproven actor expresses a similar barrier, but from the client-facing angle. Further, the temporal mismatch raised by I8 and I12, namely startups' needing to secure capital quickly versus the up-to-ten-year horizon from project initiation to implementation at Company X, aligns precisely with the World Economic Forum (2018) observation that delays impose exponentially larger financial burdens on startups than on corporations. I12's further argument that successful collaborations would, for these reasons, need to culminate either in acquisition or in licensing to secure the resource for the long term, is itself a response to a structural barrier. More specifically, I12 argues that the regulatory environment makes long-term, ongoing engagement with an unproven actor structurally infeasible.

Procedural barriers are visible in I9's account of the formal purchasing process and in I13's complaint that the same process is unnecessarily time-consuming for clear-cut purchasing

decisions. The fact that engineers periodically bypass the formal process, as raised by I9, is the empirical signature of a procedural design that, in Bannerjee et al.'s (2016) terms, has been optimized for routine high-throughput activities and lacks the flexibility to handle the uncertainty inherent in startup collaboration. The workshop adds an important procedural dimension, namely the observation that current funding processes define the criteria needed for approval and do not leave much room for purely explorative initiatives which describes procedural rigidity that affects the front end of collaboration. More specifically, it affects the ability to initiate exploratory work, rather than executing such work. The collective workshop finding that all new initiatives are one-offs because no structured approach to startup engagement exists is, in this sense, the upstream procedural cause of much of the friction described in the interviews, and reinforces the diagnosis of a missing dedicated alliance function, highlighted by Eisenhardt and Martin (2000).

Table 5.2.2: Synthesized analysis of barriers to collaboration.

Category	Manifestation at Company X	Supporting Interviewee	Supporting Literature
Strategic	Misalignment on objectives and the intended value of collaboration; initiatives pursued in isolated departments and outcomes not fully leveraged; drift of success criteria as projects progress; conflict between views of developing in-house vs outsourcing/leveraging external; expectation of perfect and rapid solutions mismatched with startup reality; small benefits dismissed as not worthwhile; initiatives treated as isolated one-offs	I5, I6, I7, I8, I10, I14, I15	Bannerjee et al. (2016); Banka et al. (2024); Freeman & Engel (2007)
Cultural	Not-invented-here syndrome rooted in a belief of unique complexity; demand for perfect solutions immediately; risk aversion: declining feels safer; support functions deemed non-value creating and thus deprioritized; old-school manufacturing culture with low staff turnover; quick-failures culture remains a wish rather than practice	I5, I7, I8, I9, I10, I11, I12, I13	Kelly et al. (2002); Bannerjee et al. (2016); Banka et al. (2024); Brigl et al. (2019); World Economic Forum (2018); Tushman & O'Reilly (1996);
Structural	Strict certification requirements across the supply chain Protected-site status limiting access for unproven actors Virtual testing insufficient; real-world validation hard for startups Absence of co-location opportunities Clients unwilling to depend on uncertified actors Timeline mismatch: startups need fast capital, projects span up to ten years Long-term engagement infeasible; acquisition or licensing as only continuation paths	I8, I10, I12	Bannerjee et al. (2016); Kurpjuweit & Wagner (2020); World Economic Forum (2018)
Procedural	Purchasing process optimised for routine, high-throughput activities; engineers periodically bypassing procurement; process viewed as unnecessarily slow even for clear-cut decisions; funding requires specified deliverables, leaving little room for exploration	I5; I7; I8; I9, I13	Bannerjee et al. (2016); Eisenhardt & Martin (2000)

6. Discussion

This chapter discusses the implications of the analysis. It is organized around two interrelated themes. The first concerns the rationale for collaboration, examining why startups constitute a strategic response to Company X's need for organizational ambidexterity. The second concerns the bridging of the practice gaps, considering how the identified barriers may be addressed. Throughout, the discussion reads the case for what it reveals about the broader category of corporations novice to startup collaborations. The chapter closes by addressing the limitations of the thesis and avenues for future research.

6.1 Startups as Agents of Dynamic Capabilities

The findings indicate that Company X operates in an environment where the demands of mature-market efficiency and the demands of exploratory innovation pull in opposing directions, and that the resulting tension cannot be resolved through internal reconfiguration alone. The empirical findings suggest that Company X currently relies heavily on the exploitation part of the equation. Risk averse mentalities lay the groundwork for long-term issues such as structural inertia. When organizational disciplines designed for discipline grow too strong, they effectively prohibit the creativity needed for discontinuous environmental changes (Hannan & Freeman, 1984). Structures and procedures favoring exploitation, such as doubling down on hardware proficiency, without the establishment of elements needed for exploration, such as experimental digitalization initiatives, threatens to put Company X in a situation where its core capabilities become a thing of the past. Thus, ambidexterity is a defensive strategy meant to protect its user from rapid changes within the system of operation. However, the establishment of such a dual approach requires hosting contradictory cultures within the same organization (Tushman & O'Reilly, 1996). One with the purpose of deriving value from current operations, and one with the purpose of creating new ways to derive value.

Ambidexterity is not a static tool possessed once achieved; it's the result of the configuration of any given firm's dynamic capabilities. According to Teece (2007), these capabilities consist of three critical capacities: sensing and shaping opportunities, seizing those opportunities, and maintaining competitiveness through the reconfiguration of assets. The combination of these capacities enables firms to address changes in their environment. Both the empirical findings, but most prominently the literature, suggest that startup collaborations can act as catalysts for dynamic capabilities. While large firms operate under requirements commanding scale, such as structure and rigidity, startups operate under more agile terms and according to an

entrepreneurial mindset. By collaborating with startups, Company X can effectively outsource the development of its dynamic capabilities, bypassing internal bottlenecks and other bureaucratic procedures often smothering new initiatives in older firms.

Firstly, the literature suggests that startups can act as early warning systems for technological and market shifts, providing a form of sensitivity. Dynamic capabilities require a firm to sense and shape opportunities before they become obvious to competition (Teece, 2007). However, most emerging trajectories are difficult for a mature firm to discern internally because they require constant efforts of scanning, active interpretation, and a willingness to take risks. Startups provide a window into these adjacent business areas and emerging technological fields through their nature as experimental units. For a firm like Company X, the aerospace industry's slow pace and strict certification requirements can create a form of internal focus. As indicated by the empirical findings, such issues have manifested at the firm in the form of highly structured processes and lack of flexibility. By engaging with startups, the corporation can help safeguard itself against obsolescence (Gutmann & Lang, 2022). Startups work as sensing agents that identify market shifts driven by technological change, allowing the partnering company to stay connected to activities that eventually have to be coordinated or integrated.

The sensing capability relates to the startup's role as a searching agent. The empirical findings indicate that Company X has a strong internal focus, where an internal overload of tasks and a focus on core operations prevent them from looking outward for alternative solution providers. In addition, the empirical data suggests that Company X struggles to look beyond its internal initiatives, which creates a barrier to finding external innovations that could solve existing problems. Here, startups can serve as bridges to external sources of knowledge, acting as proactive search mechanisms for exploratory projects. This is vital as it enables the firm to tap into niche expertise and advanced technical knowledge that is often unavailable within its own internal structures (Banka et al., 2025). By utilizing startups as searching agents, a corporation can bypass its own internal bottlenecks and manage the uncertainty of unpredictable market changes. Rather than waiting for an opportunity, the company can use the startup's proactive search to create opportunities or discover solutions that were previously out of scope due to the firm's local search.

Startups can serve as agents of idea generation as well as agents of idea actualization. While Company X has an abundance of ideas, many of these projects never leave the research stage. The empirical findings suggest this is due to excessive bureaucracy, a lack of explicit goals, or

a focus on technical features over actual benefits. This research loop creates a situation where innovation is generated but not always retained or integrated into the business. Startups provide the entrepreneurial creativity needed to push these ideas into tangible value. By leveraging cross-industry insights startups add a variety of perspectives into the firm's field of view. This dynamic exchange increases radical innovation and helps the mature firm build its absorptive capacity. The process of idea generation is often better explored by learning-by-doing rather than learning-before-doing (Eisenhardt & Martin, 2000). By engaging in experimental action and rapid prototyping with startups, the corporation can learn more quickly and compensate for a lack of internal knowledge in rapidly changing fields. This is particularly relevant for integrating complex new technology, where Company X has identified a gap in competence and infrastructure. The startup's role is to act as the engine that takes a new technology and demonstrates its value in a way that the rigid core of the corporation is unable to.

Furthermore, startups serve as agents for problem identification. A recurring challenge in established environments is the not-invented-here syndrome, where employees believe only internal staff possess the competence to solve proprietary problems (Bannerjee et al., 2016). This cultural barrier often leads to a refusal to adopt external solutions, even when internal efforts have failed. Startups challenge this internal bias by providing cross-industry insights and demonstrating that even generic solutions can solve internal inefficiencies. Additionally, the act of collaborating with a startup forces a firm to specify its needs. The empirical findings indicate that Company X often struggles to formulate specific problem descriptions. Due to the fact that startup collaborations require very specific agreements on deliverables to be successful, the corporation is compelled to formulate accurate and actionable problem descriptions. This forced specification moves the organization away from vague internal complaints and toward a structured approach to problem-solving. In essence, the startup acts as a catalyst that requires the firm to articulate its problems in a way that is solvable by an external party.

Additionally, Teece (2007) states that one of the central capabilities needed for ambidexterity is reconfiguration of organizational assets. Relating back to the challenge of data management and/or digitalization, a lack of structures and knowledge was found to limit the ability to effectively leverage digital solutions. However, by increasing collaborations with startups specifically focused on the field, Company X would need to reconfigure their internal structures to accommodate the new knowledge captured through the collaboration. The push towards better suited configurations of structures for digital solutions would increase Company

X's ability to do similar actions in the future. Thus, the firm would increase their dynamic capabilities of reconfiguration and advance their ambidexterity.

The integration of startups as agents for sensing, searching, problem identification, idea generation, and reconfiguration of assets helps corporations to build their dynamic capabilities. These capabilities are required for a firm to maintain its competitive edge in a shifting landscape. The empirical evidence shows that when Company X effectively utilized a startup for a specific technological need, such as quality assurance in additive manufacturing, it was able to bypass previous internal failures and improve its overall workflow. The findings from Company X suggest more generalizable additions to the current literature. Organizations operating without strict procedural requirements and rigid structures within their core areas have greater ability to incorporate startups as agents of dynamic capabilities. Decreased structural barriers enable smoother incorporation of external solutions and subsequently faster implementation of solutions. While the peripheral, or non-core areas, seems to be the easiest point of entry for Company X, the value of moving these solutions towards the core was shown to be both possible and offer substantial value. In a broader sense, this suggests that novice startup collaborating organizations may find it the easiest to start in the peripheral, but actively seek to move collaborative efforts to core areas of the business. Overall, the utilization of startups as agents of change can aid large firms in their endeavor of transforming their core rigidities back into core competencies, ensuring they remain profitable now while becoming creative enough to survive in the future.

6.2 Bridging the Practice Gaps

The findings suggest that Company X possesses fundamental enabling structures and exhibits genuine intent to engage with external innovation, yet a series of strategic, cultural, structural and procedural barriers constrain the systematic realization of such collaborations. While the analysis proceeds through the specifics of the case, each gap is also read for what it reveals about the broader category of novice collaborators within which Company X sits, and the chapter accordingly closes each thematic discussion by returning to this category-level perspective. The discussion is organized around the thematic clusters that emerged most prominently from the analysis, with each section connecting enablers, barriers and the literature on how the corresponding gap may be bridged.

6.2.1 Managing the Cultural Mismatch

The cultural barriers identified are both widespread and reinforcing of each other. The combination of not-invented-here attitudes, demand for immediate and perfect solutions and risk aversion expressed through the institutional preference for declining new ideas collectively produces an organizational culture that is structurally unreceptive to the iterative, ambiguous and uncertain character of startup collaboration. As Kelly et al. (2002) argue, however, the goal in such situations is not to eliminate cultural differences between the collaborating parties altogether, but to manage them effectively. Cultural differences, when navigated with intent, can be productive sources of variety and dynamism rather than obstacles.

Realizing this productive potential requires Company X to embrace, rather than simply tolerate, the entrepreneurial culture that startups bring. This is a significant challenge in a context shaped by the regulatory weight of aerospace manufacturing and by the long cycle times that I12 describes, which can extend up to ten years between project initiation and implementation. The fact that Company X was able to bypass its formal purchasing process for an early-stage project involving a startup, enabled, as I12 describes, by the contextual freedom of the project, indicates that the organization can match a startup's pace when confined environments allow it. The question this raises is whether such environments can be deliberately constructed rather than encountered by chance.

A further cultural dimension concerns the framing of value itself. I10's account of supporting functions being deprioritized as non-value-creating is consistent with what Andriopoulos and Lewis (2009) describe regarding firms that struggle to recognize the intangible benefits of exploratory work. The empirical finding that Company X has an explicit digitalization strategy yet lacks the willingness to invest in the IT function illustrates a misalignment between stated strategic intent and resource allocation. This pattern interacts directly with startup collaboration, because the very functions that would enable systematic collaboration, including IT infrastructure, data management capabilities and dedicated interface units, fall within the category that the organization currently deprioritizes. This same logic transpires more broadly in how organizational attention is allocated. The perceived priority of core activities tends to crowd out the non-core initiatives in which the empirical findings suggest the strongest collaboration potential lies. This proves to be a central tension, as the areas with the greatest perceived collaboration potential coincide with those the predominant culture deems least deserving of investment.

I15's emphasis on viewing startup collaboration as a means of knowledge creation and learning, rather than solely as a route to immediate deliverables, offers an amendment to the dominant cultural pattern that was seen at Company X. This view aligns with Leonard-Barton's (1992) argument that learning organizations must value organizational learning over immediate output, and with Andriopoulos and Lewis's (2009) framing of absorptive capacity as the capability to extend and leverage the firm's knowledge base. I8's observation that initial phases of collaboration tend to produce subpar solutions but yield tangible benefits when continually nurtured reinforces the same principle, namely that the value of collaboration is often realized over time and in forms that are not immediately measurable. Gaim et al. (2026) extend this argument by emphasizing the value of intangible spillovers, including improved collaboration experience, enhanced negotiation skills and stronger trust between parties. The contrast between I15's position and the prevailing view among other interviewees indicates that the relevant alternative framing is present within the organization, but is not yet dominant. The workshop participants' acknowledgement that the company operates under an act-fast mentality while discouraging failure illustrates the same pattern from a different angle, where action is valued, but the form of action that produces learning through failure is not. Bridging the cultural gap is therefore not solely dependent on the introduction of an entirely new set of values but would rather be facilitated through the elevation of perspectives that already exist within the organization to the level of accepted practice.

For the broader category of novice collaborators, the cultural pattern at Company X carries an implication that the existing literature has not fully addressed. Much of the literature on managing cultural mismatch is drawn from corporations that, through prior collaborations, have developed at least some institutional familiarity with the entrepreneurial mode of working. Where such familiarity is absent, the cultural gap is not only wider but less visible, as the perspectives that would challenge the dominant culture have no established platform from which to be voiced.

6.2.2 The Tension Between Core and Non-Core Domains

A central pattern emerging from the empirical findings is the workshop consensus that startup collaboration is most appropriately confined to peripheral areas, outside Company X's core business and technological domains. At first glance, this view is consistent with what Andriopoulos and Lewis (2009) describe regarding spatial separation, where exploration and exploitation are pursued in distinct organizational units. Similarly, Tushman and O'Reilly (1996) frame this kind of structural isolation as a precondition for ambidextrous functioning,

in which exploratory activity is shielded from the operational discipline of mature units. From this perspective, the workshop participants' preference appears not as a constraint but as a deliberate application of ambidextrous logic.

However, a closer reading suggests that the preference for peripheral confinement is at least partly a symptom of the structural and cultural barriers described by Bannerjee et al. (2016) rather than a principled strategic choice. Peripheral areas represent the path of least resistance given Company X's current practices, as such areas carry lower certification and procurement burdens, fewer client-facing constraints and reduced internal opposition.

Beyond these external constraints, the findings indicate that collaboration is further constrained by a self-reinforcing cycle of internal incrementalism that Company X has imposed upon itself. The current structures and innovation practices privilege core areas to such an extent that efforts directed outside them are systematically suppressed. This lock-in operates through two reinforcing mechanisms, both rooted in the engineering function. The first concerns the origin of ideas. As most ideas emerge from engineers working within core functions, the ideas themselves tend to concern those same functions and are incremental in nature. The requirement that new initiatives obtain approval from technology portfolio managers compounds this pattern, since proposals that fall outside established portfolios face a markedly higher likelihood of being deprioritized or never initiated. The cumulative effect is a form of organizational internal focus that channels the innovative trajectory toward already established pathways. The second mechanism concerns the staffing of new initiatives. As noted by both I5 and I6, the manpower for new projects is drawn from the same engineering functions responsible for the core areas. Engineers tasked with developing new initiatives consequently carry their core-area orientation into the execution of those initiatives, with the result that even ideas that successfully reach the project stage tend to be shaped by perspectives anchored in the existing core. Taken together, the two mechanisms ensure that both the origin and the execution of innovation are channeled through the same orientation, reinforcing the incrementalist trajectory at two distinct points rather than one.

The argument that startup collaborations should remain peripheral is therefore difficult to disentangle from the practical observation that they currently can only succeed there. Limiting collaboration to peripheral areas leaves considerable value on the table, in particular the internal-process improvements that Banka et al. (2025) and Weiblen and Chesbrough (2015) identify as a primary value proposition of corporate-startup collaboration.

The additive manufacturing quality assurance initiative described by I10 and I11 provides a useful counterexample to the workshop's general position. This collaboration concerns a core process area, manufacturing quality assurance, and yet it succeeds. Its success indicates that the obstacle to core-area collaboration is not a fundamental incompatibility, but rather the combined weight of structural and cultural mechanisms that have not yet been systematically dismantled. The case further illustrates the point made by Banka et al. (2025) that startups can serve as providers of complementary resources that resolve internal inefficiencies the core has been unable to address. Recognizing this case as a counterexample to the prevailing peripheral-only consensus opens the possibility that the workshop's strategic preference reflects current limitations more than it reflects an optimal long-term boundary.

A related tension emerges in the trajectory of collaborations. As I12 observed, the existing project environments that enable early-stage startup engagement do so precisely because they remain isolated from client deliverables and certification regimes. Yet the same conditions that facilitate entry into the collaboration also obstruct its progression toward implementation and its possibility to develop further. The enabling environment is thus simultaneously a barrier to scaling, illustrating how the structural conditions of the aerospace industry produce a discontinuation between exploratory and exploitative phases. I12's view that successful collaborations would eventually need to culminate in acquisition or licensing is essentially a recognition of this discontinuation. From an ambidextrous perspective, this is consistent with Tushman and O'Reilly's (1996) variation-selection-retention model, but it raises a question that the literature does not fully resolve: at what point, and through which mechanisms, can an exploratory collaboration become integrated without losing the very characteristics that made it valuable in the first place? Consequently, the structures currently in place at Company X are primarily oriented toward partnerships in early-stage research rather than toward the unique trajectory that startup collaborations typically follow, which narrows the scope within which such collaborations can take place.

The implication is that peripheral confinement, while sensible as a starting condition, might not be suited to be treated as the long-term operating model if Company X, or corporations sharing its profile as novice collaborators in regulated environments, intend to realize the full value of startup collaboration. The structural conditions that currently make non-core areas the only viable terrain need to be relaxed deliberately rather than accepted as fixed, and the discontinuation between early-stage exploration and client-facing implementation requires its own bridging mechanism. Beyond these external dimensions, the self-reinforcing cycle

through which the engineering function channels both the origin and execution of innovation toward core areas needs to be addressed, since relaxing structural conditions alone would leave the internal patterns that direct innovative trajectory inward largely intact. Taken together, these conditions describe a configuration that the existing literature on ambidextrous design, drawn largely from contexts where structural lock-in is not as critical, does not directly address.

6.2.3 Certification and Ecosystem Development

The enabling factor identified by I7 and exemplified by I9, namely the possibility of actively assisting local producers in obtaining the certifications required for collaboration, points to a structural dimension of the practice gap that warrants particular attention. The strict certification environment of aerospace manufacturing is one of the principal structural barriers to startup engagement, as documented by Bannerjee et al. (2016) and reinforced by I10's account of the protected-site status of Company X's facilities. While the certification environment itself cannot be modified by Company X, the supply of certification-capable partners is not similarly fixed, and the empirical findings indicate that Company X has previously demonstrated the capability to actively shape this supply.

The implications of this distinction are significant. A deliberate program of certification assistance would expand the pool of viable startup partners, addressing the empirical finding that the supply of certifiable partners is currently constrained. It would also lower the structural barriers to long-term collaboration that I12 identified as making sustained startup engagement essentially impossible under current conditions, since the obstacle to scaling from early-stage exploration to client deliverables is in significant part a certification obstacle. The structural barrier becomes a structural opportunity once it is approached as something that Company X can actively shape, rather than as a fixed constraint of the regulatory environment.

However, the applicability of this precedent to the startup context is not as direct as it might initially appear. The assistance described by I7 and I9 has taken place exclusively in the context of traditional suppliers, where the relationship has a clearly defined and relatively stable scope. A traditional supplier typically occupies a well-defined role, namely the provision of a specific part, component or service whose specifications are known in advance and against which the relevant certification requirements can be identified with corresponding clarity. The certification process, while demanding, is anchored in a known deliverable. A collaborating startup, by contrast, does not necessarily arrive with a clear-cut solution that can be specified up front. The value that startups bring is often emergent, taking shape through the collaboration

itself rather than being defined prior to it, as the discussion of learning and absorptive capacity in Section 6.2.1 already noted. Consequently, the certification that would be relevant for a given startup is not always obvious at the outset, and may itself need to evolve as the collaboration progresses. This complication does not negate the relevance of the certification-assistance precedent, but rather changes its character and suggests that ecosystem development for startups would need to be approached as a distinct endeavor rather than as an extension of existing supplier-development practice.

Nonetheless, the underlying logic of the approach remains relevant even where the equivalence does not fully apply. The strategic insight, namely that Company X can actively shape the conditions under which external actors become viable long-term partners rather than treating these conditions as fixed, applies regardless of whether the external actor is a traditional supplier or a startup. What changes is the form that this shaping would take. For traditional suppliers, the relevant mechanism is certification assistance against a known deliverable. For startups, the equivalent mechanism would need to address the more diffuse challenge of preparing an actor whose specific contribution is not yet known to operate within an environment that ordinarily requires specific contributions to be defined in advance. The certification assistance process itself nonetheless constitutes a form of what Demir and Lukes (2025) describe as co-creation, since it requires joint capability building between Company X and the prospective partner, and this co-creative quality is arguably more pronounced rather than less when the partner is a startup whose solution is still taking shape. Further, I7's observation that aerospace-certified suppliers operate under significantly different margins than non-certified counterparts adds a further dimension, namely that the certification process changes the economics of the relationship in ways that benefit both parties. The strategic logic resembles what Teece (2007) describes as the benefits of relying on a distributed model of innovation, in which the focal firm establishes the conditions for external innovation to flourish in its proximity rather than attempting to internalize it directly.

This perspective reframes a key element of the discussion in Section 6.2.2. The discontinuity between early-stage exploration and client-facing implementation, which currently functions as a structural ceiling on collaboration, would in principle be reduced by mechanisms that prepare startups for the certification environment, but the design of such mechanisms is itself an issue that the existing supplier-oriented practice does not directly solve. The peripheral confinement that the workshop participants accept as the operating boundary is therefore not as fixed as it appears, but the conditions for moving beyond it are also not as readily available

as the existing precedent might suggest. The certification dimension of the practice gap is, in this sense, a place where the analogy with existing practice is useful for identifying the type of intervention that is needed, while still leaving the specifics of such intervention undefined, and it points to an extension of the co-creation literature. As co-creation is generally treated as joint capability-building between parties already in a position to work together, the case of Company X suggests that where regulatory conditions exclude most prospective partners by default, an earlier phase of co-creation is required in which the corporation participates in making the partner operable before substantive joint work can begin.

6.2.4 The Role of Champions and a Dedicated Alliance Function

A recurring theme across both the literature and the empirical findings is the importance of designated individuals and functions whose role is specifically to enable and protect startup collaboration. Freeman and Engel (2007) describe champions as individuals who hold the political skills, contacts and reputation needed to secure resources and shield collaborative projects from corporate interference. Eisenhardt and Martin (2000), in turn, argue that dedicated alliance functions are a stronger predictor of collaboration success than experience alone, because such functions establish the formalization mechanisms through which routines, knowledge and learnings can be codified, shared and internalized. Within the empirical findings, I15 advocated for representatives with tangible stake in collaboration projects, and the workshop participants raised the idea of a system that categorizes startup solutions and allocates a specified champion to each initiative. Banka et al. (2025) and the World Economic Forum (2018) similarly position top-down executive sponsorship and a clear collaboration governance, defining who holds accountability and decision-making authority, as preconditions for successful collaboration.

The relevance of these mechanisms at Company X is reinforced by the specific barriers identified from the empirical findings. Several of these barriers, including the insufficient internal alignment described by I14, the siloed pursuit of initiatives in isolated departments, the lack of shared best practices and the treatment of each collaboration as a one-off, are precisely the conditions that dedicated alliance functions are designed to address. Previous startup collaborations at Company X have been distributed across functions, with each function pursuing collaboration in the manner it deemed appropriate. The consequence is that no common way of working has emerged, learnings are not systematically shared, and

responsibility for institutional knowledge about startup collaboration has no clear home. The champion ensures alignment within specific initiatives whereas the alliance function ensures continuity and alignment across them. The two roles are complementary, operating at the project level and the organizational level respectively.

This pattern can be understood more broadly as a procedural tension that runs through the empirical findings, between the need for systematic ways of working with startups and the requirement that any such system retain enough flexibility to accommodate the diverse needs of different startups. The workshop participants' observation that collaborations must be evaluated case-by-case is consistent with literature emphasizing that startups are heterogeneous and that the appropriate collaboration model varies (Weiblen & Chesbrough, 2015). At the same time, the absence of any structured approach has itself become a significant source of friction, since each new initiative effectively starts from scratch. These two requirements, namely case-specific evaluation and systematic structure, are not necessarily in conflict, but rather they are easily confused. A systematic approach does not necessarily require a uniform approach, and holding this distinction is precisely the role that an alliance function is positioned to play.

A particular consideration concerns where in the organization such a function would need to be located, and what authority it would need to carry. The relevant decision-makers for many collaboration matters are often distant from the operational realities of the initiatives they evaluate, with the consequence that decisions are taken by individuals who do not necessarily hold the deepest insight into the matter at hand. An alliance function with appropriate decision-making authority, populated by individuals who combine entrepreneurial experience with deep familiarity with Company X, would address this gap directly. Dizdarevic et al. (2024) and Kurpjuweit and Wagner (2020) describe the value of such interface units as deriving from their capability to act as matchmakers, unifying scattered internal competence and helping startups navigate organizational complexity.

The concept of near-decomposability articulated by Teece (2007) is particularly relevant here. An alliance function must possess sufficient autonomy to make rapid decisions in environments where timing matters, yet must remain connected to the wider organization to ensure that knowledge, learning and outcomes flow back into the operational functions that ultimately need to integrate any resulting solutions. The two properties, autonomy and connectivity, are

therefore not opposing but interdependent, and the design of such a unit requires that both be addressed deliberately.

The case-by-case evaluation approach favored by the workshop is not undermined by an alliance function but is in fact strengthened by it. Procedural forms such as the stage-gate processes described by Dizdarevic et al. (2024) illustrate how consistent evaluation can be combined with flexibility in timeline and resource allocation, equipping the organization with documented criteria, accumulated learnings and a set of evaluation checkpoints that can be applied across initiatives that nonetheless differ substantively in scope and content. With systematic handling and documentation of previous initiatives, each new evaluation operates against a richer empirical base. A related function of documented evaluation criteria concerns the stability of expectations within individual collaborations rather than across them. As I15 observed, the criteria against which a project's success is judged tend to shift as the project progresses and begins to show potential, with the consequence that outcomes are ultimately measured against revised benchmarks rather than those agreed at the outset. The documentation of expectations and success criteria at the beginning of a collaboration, which I15 advocates, provides precisely the kind of stable reference point that the stage-gate logic described by Dizdarevic et al. (2024) is designed to institutionalize. In the absence of such documentation, the drift of expectations becomes a recurring source of perceived underperformance, with collaborations evaluated unfavorably not because they failed against their original criteria but because the criteria themselves moved. An alliance function with responsibility for maintaining the documented basis of each collaboration is therefore relevant not only to the systematization of practice across initiatives, but also to the integrity of evaluation within them. The alliance function thus does not need to eliminate case-specific judgment, but rather ensure that such judgment is informed by accumulated organizational experience rather than rebuilt from scratch each time. Thus, systematization, properly understood, supports case-by-case judgment rather than displacing it, and the apparent tension between the two dissolves accordingly.

The relationship between champions and alliance functions also takes on a particular shape in the novice-collaborator context. The literature tends to treat these as parallel mechanisms, each independently associated with collaboration success. The case of Company X suggests that, where collaboration infrastructure is being established for the first time, the two are not interchangeable but operate at different levels and depend on each other. Champions, in the absence of an alliance function, are left without the institutional memory and shared routines that would let their efforts accumulate into organizational capability. An alliance function, in

the absence of champions, lacks the project-level advocates through which its frameworks become operational. For firms with established collaboration infrastructure, either mechanism in isolation may carry significant load. For novice collaborators building the infrastructure for the first time, both appear to be required, and the sequence in which they are introduced may itself be a question worth further investigation.

6.3 Limitations & Future Research

Although Company X represents a case of a corporation without established structures for startup collaboration, the findings are affected by the conditions under which Company X operates and thus are not necessarily transferable directly to other cases without modification. The extent to which they apply to other industries therefore likely depends on contextual factors that differ from the ones present in this case study. Thus, future research could explore the conditions under which the patterns identified at Company X are applicable to other industries and what modifications would be needed to fit other contexts different from Company X's.

A related limitation concerns the specific forms and configurations of startup collaborations, which fell outside the scope of the thesis. The discussion identifies the need for certain mechanisms, including alliance functions and certification-assistance pathways, but the particular shapes such mechanisms could take are not examined in detail. These open questions are consequences of the scope but they identify fundamental areas where further research is needed. Future research could build directly on this thesis by examining the different forms of corporate-startup collaboration and what each entails, including the conditions under which different collaboration models are appropriate for corporations inexperienced with startup collaborations and the arrangements and preconditions that each form requires.

A further limitation concerns the absence of the startup perspective. The thesis examines collaboration from the corporation's side, and the startup side is largely inferred from the literature rather than captured empirically. Future research that captures both sides of corporate-startup collaborations would be substantively enriched by data from the startup side of actual or prospective collaborations and would be particularly valuable given the discussion's emphasis on various mismatches between the two parties.

Finally, a related limitation concerns the empirical access available to the thesis. The interview pool is concentrated in the R&D function with extension into adjacent functions during the iterative phase. This was a deliberate choice given the research questions, but it means that perspectives such as legal, manufacturing operations and senior strategic leadership are less

represented than R&D perspectives. In addition, interviewees were at times unable to discuss specific details due to the confidential nature of Company X's operations, which constrained the depth at which certain topics could be examined. While the resulting analysis and discussion captures the patterns and dynamics that the empirical material allowed, a fuller understanding of some of the more granular mechanisms was not always possible to develop. Future research conducted with deliberate sampling across the underrepresented functions, and with access arrangements that permit engagement with the more confidential dimensions of the subject matter, would refine and possibly revise the conclusions developed here.

7. Conclusion

This thesis set out to explore how a Tier-1 aerospace supplier, treated as a representative case of a corporation without established infrastructure for startup collaboration, can systematically internalize startup innovation. Two research questions were formulated to address, in turn, the key challenges and needs within Company X, the value proposition that startups can offer in addressing them, and the practice gaps standing between current and optimal collaboration practice.

The findings indicate that corporations such as Company X, which lack established infrastructure for startup collaboration, have substantial reasons to engage with startups. The challenges and needs identified cluster into specific technological needs and broader general challenges. Together these reflect a deeper tension between a well-developed capacity for exploitation and a weaker capacity for exploration, the core problem of organizational ambidexterity. Within this context, startups offer value through their capacity to function as external agents of dynamic capability development. Thus, contributing cross-industry insights and the entrepreneurial creativity needed to move ideas beyond the research stage. Startup engagement also builds absorptive capacity within the corporation itself.

Realizing this value requires bridging different interrelated practice gaps. Cultural misalignment proved to produce a culture structurally unreceptive to the iterative character of collaboration. The prevailing preference for confining collaboration to peripheral areas was also identified as at least partly a symptom of structural and cultural barriers rather than a principled choice, leaving considerable value unrealized. Further, certification requirements proved to constrain the supply of viable partners, though the firm's existing capability to assist traditional suppliers suggests that this supply can be actively shaped. Finally, the absence of dedicated mechanisms, champions at the project level and an alliance function at the organizational level, fragments rather than consolidates the response to the existing practice gaps.

While the findings emerge from a single case and have their limitations in terms of their direct generalizability, they speak to a broader category of corporations that are novice to startup collaboration and that operate in industries where contextual conditions complicate it. The existing literature has primarily examined corporations with established collaboration infrastructure, leaving novice collaborators less thoroughly explored. By concentrating on a setting where the preconditions for collaboration are not yet in place, the thesis contributes

insight into the specific challenges such firms face and into the early considerations involved in building the relevant infrastructure.

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