MASTER THESIS

Educational Sciences And Technology

Faculty of Behavioral Management and Social Sciences

University of Twente

Orchestrating Innovation: Leaders' Strategies of Aligning Cross-Functional Teams within an Indonesian Startup

Keywords: Leadership, Cross-Functional Teams, New Product Development (NPD), Startups

Researcher : Chelsea Adelina (chelseaadelina@student.utwente.nl)

Student Number : 2762072

1st Supervisor : Ellen Nathues (e.nathues@utwente.nl)

2nd Supervisor : Akvilė Bouwens (a.bouwens@utwente.nl)

Acknowledgements

I have fought the good fight, I have finished the race, I have kept the faith.

2 Timothy 4:7 NIV

To God be the glory. I am deeply grateful to God, who has always been faithful and never ever left me throughout the process of completing my thesis. This thesis holds a special place in my heart, filled with many tears and "AHA" moments, enabling me to reflect on myself a lot. Qualitative research has never been my forte; in fact, I often tried to avoid it. Apparently, God wanted me to face my biggest fear, and I ended up enjoying the process, from collecting the data even until analysing it.

I am thankful for the support of many wonderful people in my life: my family, supervisors, friends, my Christian community (InDeChrist), and Talentlytica. Their encouragement and guidance have been invaluable.

Now, I proudly present my thesis. I hope you enjoy reading it as much as I enjoyed the process of creating it!

Table of Contents

Abstracts

This research explores the critical role of leadership in facilitating cross-functional collaboration within New Product Development (NPD) teams in a technology-based Indonesian startup. Given the importance of NPD in a startup's success, effective cross-functional collaboration within NPD teams becomes crucial for sustaining the startup's competitive advantages through innovation. This study examines how leaders within startup NPD teams navigate the complexities of aligning diverse functional expertise toward common goals and perspectives, orchestrating the team toward innovation.

The research adopts a qualitative approach, utilizing semi-structured interviews and participant observation to explore the strategies leaders employ to facilitate alignment and integration across functions. Three interconnected main strategies used by startup leaders are found: *visioning, bridging*, and *bonding*, each contributing uniquely to enhancing alignment in goals, perspectives, and communication between functions. While *visioning* and *bridging* are similarly important in both startups and large organizations, the *bonding* strategy is particularly crucial in the startup context. Leaders need to facilitate close relationships and create a comfortable work environment to ensure effective collaboration.

Though the study focuses on a single startup, it opens up opportunities for future research to explore the broader applicability of these leadership strategies across different industries, cultures, and innovation outcomes. The findings provide valuable insights into cross-functional team dynamics in startup environments while offering practical insights for startup leaders. The findings can be used to implement these strategies into development initiatives by the HR department to enhance cross-functional teamwork and drive successful product development.

Introduction

Startups, particularly in technology-based sectors, are driven by the need to innovate and develop a unique product or service to gain competitive advantages (Baldridge, 2022; Stock & Zacharias, 2011). For these technology-based startups with a high degree of novelty and disruption, launching products and services requires intense and continuous work in often uncertain conditions (Lopez Hernandez et al., 2018). Thus, New Product Development (NPD) is considered one of the most challenging yet critical aspects of a startup's success (Mendez et al., 2023). Nonetheless, most startups often struggle with NPD, with some studies suggesting a failure rate as high as 90% (Mendez et al., 2023). Therefore, cross-functional collaboration has become a trend to be adopted within NPD teams for fostering product innovation and problem-solving (Gemser & Leenders, 2011; Holland et al., 2000; Nakata & Im, 2010; Valle & Avella, 2003).

Functional diversity within the cross-functional NPD teams allows the team to expand perspectives, resulting in increased innovation (Edmondson & Harvey, 2017; Ungureanu et al., 2020). Cross-functional collaboration can also avoid situations where people accept new ideas without properly evaluating them, preventing the waste of resources if the ideas later turn out not to work (Gemser & Leenders, 2011). Hence, cross-functional collaboration is important for NPD teams because it has a positive impact on project performance by improving the speed to market, developing new products with higher quality, and doing a better job of satisfying customers (McDonough, 2000)—all things that are important for startups.

Despite the growth of relying on cross-functional NPD teams, the challenge of integrating the team (e.g. bringing together members from different functions to work on a project) emerges (Troy et al., 2008), making the startups might struggle to unlock the full potential of cross-functional collaboration for NPD success. The more diverse the team is, the more possible it is that

team members will perceive the team's goal and task differently, leading to misalignment where there is a gap between teammates' interpretations of what is needed for the team to be successful (Cronin & Weingart, 2007; Oliva & Watson, 2011). This misalignment can result in team members working towards different things.

However, successfully integrating CFTs remains a significant hurdle in NPD (Nakata & Im, 2010; Wiedemann et al., 2019). The effectiveness of such collaboration heavily depends on the leadership approach and the support mechanisms leaders provide (e.g. how integration should occur, which types of information should be shared, how many, and which functions should be integrated, etc.) (Troy et al., 2008). Without strong leadership, it is likely that team dynamics will suffer, and goals will not be achieved (Mazzetti & Schaufeli, 2022). Therefore, understanding how leaders facilitate this integration is crucial. Yet, studies exploring leadership in startups are limited and most of them use quantitative methods to examine the effect of leadership on startup performance (e.g. Zaech & Baldegger, 2017).

Furthermore, although CFTs are proven to be the key enablers in startups (e.g. Edison et al., 2018), most of the research today focuses on big high-technology companies which have been established (e.g. Darawong, 2015; Lee & Chen, 2007; Lin et al., 2015; Tang et al., 2015). While on the one hand, technology-based startups in this research refer to “small firms that develop and introduce new technology with a focus on intention, and technological advancement” (Lopez Hernandez et al., 2018, p. 14). The application of NPD teams in startup settings as suggested in existing literature poses challenges as most existing NPD teams were originally tailored for medium to large-scale organizations (Mendez et al., 2023). Additionally, a leader within a startup may behave differently due to personal relationships, short communication, informality, and hierarchy (Karanti & Yuksekbilgili, 2014). Furthermore, organizations operating in non-Western

countries report a stronger correlation between cross-functional integration and product development success than those in Western countries (Troy et al., 2008). Troy et al. (2008) further explain that this is because differences exist in the collective cultures and norms of societies in key countries, which in turn affect the culture and climate of the organization. Thereby, there is an indication that there must be something different in leaders' behaviors in facilitating the collaboration process within cross-functional NPD teams, particularly within startups in the Asian context. In addition, very few studies exist focusing on leadership strategy within CFTs regarding the examination of leadership action, interaction, or performance in their natural settings (Clifton et al., 2020).

For the reasons above, this research seeks to explore and get a more in-depth situated understanding of the leaders' behavior in ensuring collaboration integration, which in the future will be referred to as **alignment**, within cross-functional NPD teams, highlighting both the leaders' and followers' perspectives. It focuses specifically on the context of a startup company located in Indonesia. The primary research question focuses on exploring how leaders in an Asian startup support cross-functional collaboration, thus orchestrating diverse functions to work together toward innovation: *What strategies do leaders employ to ensure alignment across different functional areas in cross-functional NPD teams?* To better understand the leader's strategies, such as why and how those strategies are employed and what is expected from the collaboration process by those strategies, this research also explores the challenges and enablers that emerged in the process. To answer the question, the research will adopt a qualitative approach, utilizing semi-structured interviews and participant observation to delve into the subjective experiences and perspectives of both leaders and team members, focusing on how they perceive and interpret the leaders' strategies within the cross-functional teams (CFTs) (Denny & Weckesser, 2022). This

methodological choice allows for a comprehensive understanding of exploring leadership strategies in orchestrating team members across functions to ensure alignment toward innovation (Graça & Passos, 2015).

The research can contribute both scientific and practical insights. On the one hand, it provides a valuable theoretical understanding of how the leaders ensure the alignment of team members across functions within technology-based startups in the Asian context and what strategies are employed. By focusing on leaders' strategies in cross-functional NPD teams, especially in the unique environment of Indonesian startups, this study fills a critical gap in empirical research. Practically, this research can develop an idea both for the leaders within startups and the Human Resource Department (HRD) to develop the leaders in the future in orchestrating diverse functions for successful product innovation.

The paper takes the following structure: Section 2 introduces the conceptual framework: definitions and characteristics of CFTs, the importance of alignment within their cross-functional collaboration, and leadership roles within cross-functional collaboration. Section 3 explains the research design and procedure, showing how this research was carried out step by step from data collection to analysis methods. Section 4 provides the findings obtained from interviews and observations from both leaders and team members of CFTs. An integrative model is proposed, comprising three strategies used by the leaders in the startup company in Indonesia, i.e., *visioning*, *bridging*, and *bonding*, explaining how these leader strategies are interconnected in ensuring clarity to achieve alignment between team members within CFTs. Lastly, Section 5 discusses and explains how the findings of this study contribute to, and relate to, previous research, limitations, and future research directions, and finally the practical implications of the findings.

Theoretical Framework

Cross-functional Teams

Defining and Understanding Cross-functional Teams

Holland et al. (2000) define a cross-functional team (CFT) as "a group of people who apply different skills, with a high degree of interdependence, to ensure the effective delivery of a common organizational objective" (p. 233). This type of team as Edmondson and Harvey (2018) highlight, requires team members working across knowledge boundaries with diverse expertise to take on an unfamiliar project most of the time. The formation of a CFT aims to mitigate conflicts between objectives, and reduce knowledge fragmentation, streamline communications and procedures that require cross-functional coordination, thus enabling the team to develop solutions to complex problems (Comeau-Vallée & Langley, 2020; Maltz & Kohli, 2000). Unlike regular teams that are reasonably stable and functionally homogenous, CFTs can be established either as permanent or temporary teams and typically, members of a CFT are also members of other teams (Maltz & Kohli, 2000). With this dynamic nature, more time and resource investments are needed in CFTs to generate common commitment toward the achievement of both collective and individual goals (Lopes Pimenta et al., 2014).

The use of CFTs has increased within a variety of organizations, bringing benefits in many ways, such as in new product development (NPD) (Durmusoglu & Calantone, 2022; Gemser & Leenders, 2011; Simsarian, 2002; Tang et al., 2015). Individuals from a variety of functional specialties within the organization are brought together to be responsible for taking a product from conceptualization to commercialization by exchanging work-related information to accomplish the NPD project (Darawong, 2015; Sarin & O'Connor, 2009). Multiple studies have found that the

primary determinant of new product failure is an absence of innovativeness—the extent to which a new product provides meaningfully unique benefits (Sethi et al., 2001). Therefore, cross-functional collaboration is adopted within NPD teams as it fosters innovation by enhancing information processing capabilities (Gemser & Leenders, 2011). Laurent and Leicht (2019) also note in their research that the primary objective of using CFTs is to enhance involvement, interaction, and communication among members across business units within organizations. In return, CFTs may enhance NPD success, such as improving the speed to market, developing new products with higher quality, and doing a better job of satisfying customers (Lin et al., 2015; McDonough, 2000; Nakata & Im, 2010).

Functional Diversity within CFT: Opportunity and Challenge

The nature of CFTs is the diversity in the functions of the team members, including values, knowledge, expertise, personality, culture, language, or jargon, as well as reward systems (Homan et al., 2020; Simsarian, 2002). These differences are rooted in their direct experiential and situated knowledge from their function. Therefore, CFTs have a big advantage because they can draw on a wider pool of knowledge and experience, enabling them to develop complex solutions by enhancing their creativity, innovation, and renewal (Gelderman et al., 2017; Gemser & Leenders, 2011; Homan et al., 2020; Kotlarsky et al., 2015). One idea and feedback from one function can bring a new perspective to another function, fostering new ways of thinking and creating innovations. When creativity and innovation are priorities within CFTs, functional diversity actually helps teams achieve higher levels of performance (Tekleab et al., 2016). Therefore, once team members from different backgrounds are brought together, they must share knowledge and try to understand each other's functions and preferences (Lin et al., 2015).

Nevertheless, the fundamental differences between individuals from different functional areas also potentially create barriers to effective team processes. The more diversity, the longer it will take for the team to be integrative (Webber, 2002). It is also possible that each member may have other points of view on the goals and many team task issues, which makes integration, coordination, and communication difficult (Cronin & Weingart, 2007; Gelderman et al., 2017). According to Cheung et al. (2016), if members in functionally diverse teams do not feel a strong connection, loyalty, or trust with each other, they may be more concerned about their personal interests than the team's collective goals. A variety of goals, perspectives, and interests across different functions generate misalignment in planning and execution (Oliva & Watson, 2011). This variety, in the end, hinders the effectiveness of the collaboration. However, if the leaders and team members acknowledge and have shared understanding of the barriers through their contributing factors (e.g. goals, interests, perspectives, etc.), they can improve the effectiveness of cross-functional collaboration (Yin et al., 2023).

Alignment in Cross-Functional Collaboration

As mentioned above, functional diversity within CFTs has two-fold effects which both can foster and hinder the effectiveness of collaboration across functions. While diversity offers wider access to more information and perspectives for the members, CFTs might not process it effectively due to social cohesion issues resulting from members' differing backgrounds, priorities, and viewpoints (Nakata & Im, 2010; Srikanth et al., 2016). Srikanth et al. (2016) further highlight that the drawbacks of diversity might be caused by failures to coordinate due to the complexity of managing diverse information. If this diversity is not well managed, it can produce conflict and chaos rather than successful new products (Nakata & Im, 2010). Therefore, for CFTs to operate

effectively, one function should work in harmony with other functional departments (Maltz & Kohli, 2000), implying a need for collaboration alignment between functions.

Cross-functional alignment, also referred to as cross-functional integration in many literatures, (e.g. Ashenbaum et al., 2009), is defined as a shared understanding across functions (i.e. engineers, product designer, and R&D) where each team member has clarity on what needs to be achieved, how it will be accomplished, and the underlying purpose (Ashenbaum et al., 2009). Oliva and Watson (2011) emphasize that for CFTs, achieving alignment on expectations, preferences, and priorities during plan execution is more critical than the plan's informational and procedural detail. Such alignment helps to overcome the challenge where each function only focuses on its own portion. Conversely, misalignment can be costly, both to the involved functions and to the rest of the organization (Watson & Kraiselburd, 2007). This means team members of a CFT need a shared understanding of the overall goal the team is working toward by combining their diverse knowledge and skills, thereby reaching a shared vision (Dussart et al., 2021). Establishing clear goals that everyone understands can shift individual and self-centered views toward a collective focus that will also keep the team on the right track (Don Ton et al., 2022; McDonough, 2000). Nevertheless, misalignment does not necessarily talk about disagreement or conflict due to competing goals or objectives between functions or roles in project development. It can arise from varying interests or perspectives of focus (Yin et al., 2023). For instance, UI/UX designers prioritize a visually appealing and user-friendly interface, proposing an interactive page with dynamic elements to create a more engaging user experience. On the other hand, the engineers might be more concerned about the technical feasibility and performance of the design, thus their preference will be more towards to easy and practical user interface.

Therefore, based on the previous example, another key factor that determines whether two functions can align their planning is how much each party knows about the other's beliefs about demand (Watson & Kraiselburd, 2007). Different interpretations can be so automatic that the people involved may well be unaware of these differences and dependencies (Edmondson & Harvey, 2018). Team members who do not learn to understand each other cannot contribute super-effectively to the goals of their team (Weijermars, 2012). This indicates that besides goal clarity, there is a need to have clear internal communication between team members across functions, eliminating the room for knowledge hiding and creating common ground (Don Ton et al., 2022; Edmondson & Harvey, 2018). When team members can easily share their knowledge, experiences, and perspectives from other functions, the benefits of functional diversity for innovation are easily achieved (Cheung et al., 2016). Hence, clear internal communication has a very strong relationship with NPD outcomes, making them keys to the success of NPD teams (Sivasubramaniam et al., 2012).

In conclusion, it is crucial to have alignment in goals, perspectives, and communications among different functions to enhance cross-functional collaboration, transforming the challenge of functional diversity into an opportunity. Tekleab et al. (2016) also argue that through a high level of behavioral integration, functional diversity can positively influence team cohesion, which in turn facilitates team learning and, ultimately, team performance. Furthermore, alignment within cross-functional collaboration accelerates NPD's overall performance (e.g. an increasing number of new product releases, higher customer satisfaction, and technological advancement), contributing to the development of more future-oriented products (Lin et al., 2015; Nakata & Im, 2010).

Leadership

Assuring alignment across functions within NPD teams is difficult, especially when each function decides to isolate its knowledge, hindering collaboration across functions and strategy execution (Don Ton et al., 2022; Levenson, 2012; Wiedemann et al., 2019). In this context, leaders have a role in facilitating collaboration within CFTs. Leadership has traditionally been seen as a distinctly interpersonal phenomenon demonstrated in the interactions between leaders and subordinates (Mumford et al., 2000). However, this concept of leadership is evolving from the traditional focus on formal team leaders to emphasize a process focus that seeks to fulfill the diverse needs of team members, thus enhancing overall team effectiveness (Morgeson et al., 2010; Tannenbaum & Salas, 2020). This shift highlights that effectively fulfilling the varied needs of team members positively increases their willingness to be involved in decision-making processes (Don Ton et al., 2022), fostering a more collaborative and proactive team environment.

Leaders Role in Cross-Functional Teams

The CFT leader serves as the team's representative and main point of contact. They set the team goals and decide how team members across functions will work together and make sure everyone contributes to achieving those goals successfully (Malhotra et al., 2017). Nevertheless, the leadership dynamics within cross-functional collaboration, especially under the guidance of a project manager, present a unique set of challenges and conflicting demands, as identified by Ennabih et al. (2016), such as continuously changing conditions. In environments where team members possess diverse expertise and tasks are highly interdependent, the impact of team leaders on collaboration and communication processes becomes increasingly significant (Sarin & Connor,

2009). This complexity necessitates leaders who can effectively navigate team interactions and manage task interdependencies, ensuring alignment between team members across functions.

Some literature has tried to identify strategies and characteristics team leaders should have in facilitating cross-functional collaboration to achieve NPD success, depending on the main challenges each literature focuses on. For example, one main challenge CFTs typically have is the existence of diverse perspectives and interpretations due to the different knowledge each function owns. To illustrate, designers and IT developers may not share a common understanding due to their different technical knowledge (e.g. programming language, design methodology, etc) (Zhang & Guo, 2019). Sivasubramaniam et al. (2012) then suggest that "a team leader who possesses a strong empowering, communicative, trustworthy, and transformational leadership style" (p. 817) is needed for NPD success. In this context, transformational leaders encourage each team member to express and exchange different perspectives, ideas, and knowledge even without themselves being involved (e.g. allowing self-directed informal meetings between functions) (Guo et al., 2019; Hüttermann & Boerner, 2011; Stock & Zacharias, 2011). Thus, alignment in perspectives and interpretations is ensured.

Besides transformational leaders, other research propose a concept of knowledge leaders to overcome the challenge of knowledge diversity within CFT. Zhang and Guo (2019) explain that knowledge leadership is employed by the leaders who work as coaches or advisers to manage diverse knowledge within the team. Knowledge leaders help members connect different areas of knowledge, resolve disagreements, and see the value of learning. This way, leaders allow for shared understanding by teaching enough functional knowledge to those with different backgrounds so that people can translate others' knowledge bases (Cronin & Weingart, 2007). In doing this, leaders are responsible for "shaping the vocabularies and languages to favor the view

that all functional groups are insiders" during the interactions, mitigating dysfunctional conflicts among team members (Jassawalla & Sashittal, 2000, p. 37).

Other literatures then bring up another concept of leadership, which is called engaging leadership that positively impacts cross-functional alignment (Malhotra et al., 2017; Mazzetti & Schaufeli, 2022; Nair et al., 2011). Engaging leaders could enable cross-functional alignment, especially when the project is highly complex and highly uncertain (Malhotra et al., 2017). In achieving alignment, leaders deliver three main strategies: *inspire* (e.g. directing team members to the same vision and making them feel that they contribute), *connect* (e.g. encouraging collaboration and promoting a high team spirit), and *strengthen* team members by giving them autonomy and responsibility (Mazzetti & Schaufeli, 2022).

As mentioned above, inspire strategy indicates that leaders need to communicate clearly the goals and expectations of each member's work, ensuring those goals are well-aligned across functions, especially in the early project phases (Sarin & O'Connor, 2009; Yin et al., 2023; Zhang & Guo, 2019). Yin et al. (2023) emphasize that an unclear shared understanding of the goal and what is expected from each function leads to misalignment, creating confusion and causing delays in project development. Goal clarity also has a very strong relationship with NPD outcomes, suggesting that a shared understanding of project objectives is one of the keys to success (Sivasubramaniam et al., 2012). As leaders commit to ensuring a shared vision, they can eliminate the chance of knowledge hiding because they shift from a self-oriented approach to a collective approach (Don Ton et al., 2022). Leaders in NPD teams can promote project goal clarity by encouraging team members to have open discussions to clarify how their mission, purpose, and new product value contribute to the plan objectives (Sivasubramaniam et al., 2012).

In addition to perspective exchange and goal clarification, the way of communication and collaboration environment within CFTs have been the focus of several literature studies. Relevant to connect strategy above, Darawong (2015) research result suggests that NPD team leaders need to find better ways for team members to share information across different departments. This could involve encouraging frequent communication and easygoing communication through various channels. Rather than formal communication, informal methods should be facilitated instead (Hüttermann & Boerner, 2011), supporting a connection between functions. This way, team members can build good relationships and can freely communicate and discuss without any barriers, helping them to learn from each other more effectively and put that knowledge to good use (Don Ton et al., 2022). Tekleab et al. (2016) highlight that when team members from diverse backgrounds see themselves as part of an inclusive team, disagreements can be resolved more easily.

Overall, there has been a lot of recent research trying to investigate the role of leaders in facilitating cross-functional collaboration. Nevertheless, there is a notable gap in understanding how the leaders practically employ strategies to orchestrate diverse functions within startups, particularly in Asian context. Leaders in startups may behave differently due to personal relationships, short communication lines, informality, and hierarchy (Kararti & Yuksekbilgili, 2014). Most studies on CFTs nowadays focus on established big high-technology companies (e.g. Darawong, 2015; Lee & Chen, 2007; Lin et al., 2015; Tang et al., 2015), and most existing NPD teams are often designed for medium to large-scale organizations (Mendez et al., 2023). Furthermore, organizations in the non-Western countries also report a stronger correlation between cross-functional integration and product development success than those in Western countries, influenced by cultural and societal norms which in turn affect the culture and climate of the

organizations (Troy et al., 2008). All of the reasons that have been mentioned above underscore the need to explore the leaders' behaviors in facilitating the collaboration process within cross-functional NPD teams, particularly within startups in the Asian context.

As a result, this research addresses the strategies of the leaders as perceived by leaders and team members, in ensuring alignment within cross-functional NPD teams in the context of a startup company in Indonesia. A qualitative approach is employed to capture the nuanced strategies leaders use to ensure team alignment, which is often missed by quantitative methods typically used in startup leadership studies (e.g., Zaech & Baldegger, 2017). Thus, the main research question is: *What strategies do leaders employ to ensure alignment across different functional areas in cross-functional NPD teams?* This study also examines the challenges and enablers that emerge in the cross-functional collaboration process to understand more about why these strategies are employed and what outcomes are expected. In the following section, I explain in more detail how the qualitative method, utilizing semi-structured interviews and participant observations, is employed in this study to provide an in-depth situated understanding of how leaders orchestrate various functions to achieve alignment in working toward innovation.

Research Design

Empirical Context

This research was conducted in a startup company located in Indonesia which started in 2017, consisting of 63 employees in total. This startup company focused on building software as services (SaaS) products, providing a cloud-based online assessment platform for Talent Management needs related to recruitment, assessment center, online interviews, and strategic

consultation. There were 3 CFTs in total. Each of these teams had its own product development focus and was led by designated leaders, comprising a diverse mix of roles and expertise. The first team which was guided by the product head, consisted of product managers, product designers, an engineer manager, and a talent science manager. This team's composition illustrated a blend of product development, design, engineering, and research-oriented roles. Additionally, there were two other product-focused teams, each co-led by a product manager and two delivery managers. The functions involved in each team were product designers (UI/UX designers), engineers, quality assurance (QA), and talent scientists.

Researcher Positioning

I fulfilled a dual role in this study as both a researcher and a leader in one of the cross-functional NPD teams. This insider perspective allowed me to conduct a flexible conversational style during the semi-structured interviews and witness more intimately how leaders perceived, felt, and acted through participant observations (Lofland et al., 2022). Thus, my position provided me with rich data and contextual information to fully understand leaders' perceptions, feelings, and behavior. Additionally, this position also facilitated my comprehension of the terminology and the context explained by the interviewees (Komalasari et al., 2022).

To avoid potential bias from the participants, the informed consent included a clear statement about my position as a researcher rather than a work colleague or employee. Furthermore, there was a disclaimer provided, both in the informed consent and before the interview began, assuring participants that there would be no consequences to my team members regardless of the interview results. To further minimize bias, the participants were encouraged to share their real experiences with other leaders more, focusing on the most recent cases from the

past 1-3 months, rather than interactions involving me as their leader. This approach was sufficient to detach from my colleagues as I was not actively collaborating with them during that period of time.

To ensure that my dual role as both researcher and leader did not introduce bias into the study, several steps were taken to maintain objectivity and credibility in the research process. To begin with, I used triangulation by collecting data from multiple sources, which included interviews with team members from different teams as well as observations to provide further details regarding what actually happened based on what had been mentioned in the interviews. This approach helped cross-verify the information, thus avoiding or minimizing error or bias and optimizing accuracy in data collection and analysis processes (Johnson et al., 2020).

Throughout the research process, I also maintained a reflexive journal where I regularly documented my thoughts, feelings, and reflections. This practice of reflexivity allowed me to be continuously aware of and critically assess any biases that might emerge from my dual role. To further distance myself from the data, I involved external peers in the review process. These independent reviewers offered a critique of the study methods and validations of my coding, interpretations, and conclusions as a thorough check on researcher bias (Johnson et al., 2020). By implementing these measures, I aimed to maintain the rigor and credibility of the research, ensuring that the findings are robust and trustworthy.

Research Method

As mentioned above, studies about leadership in startups mostly employ quantitative methods to see the relationship and the effect on startup performance (e.g., Zaech & Baldegger, 2017). Therefore, this study adopted a qualitative approach to explore the complex dynamics of

leadership within cross-functional NPD teams, deeply exploring the subjective experiences, perspectives, and behaviors of the leaders which might be missed in quantitative methods. This research examined how both leaders and team members perceived and gave meaning to different social behaviors of the leaders in ensuring alignment within the cross-functional NPD teams (Akyıldız & Ahmed, 2021). To gather the necessary data, the study employed in-depth semi-structured interviews and participant observation as its primary research methods.

Semi-structured Interviews. The semi-structured interviews were used as core materials for the analysis and were conducted online. In doing semi-structured interviews, a set of open-ended questions was prepared in advance, known as an interview guide, to steer the conversation while allowing for spontaneous and in-depth responses from participants (Denny & Weckesser, 2022). The interview guideline is presented in Appendix A. Semi-structured interviews enabled this research to have a deeper understanding of the human experience through events-based questions and an intuitive conversational flow (Bearman, 2019). Hence, the participants were asked not only to explain their opinions or expectations but also to give real cases as examples (e.g. "What actions do you think are important for the leader to lead the cross-functional team? Have the leaders in this team applied all of those things? If yes, can you give some examples?).

Participant Observations. Participant observations were done as I was part of the scene being observed (Denny & Weckesser, 2022). The observations were used as complementary data in this study. They provided further details and evidence-based findings regarding the occurrences as narrated by the participants during the interviews (i.e. cross-verification). For example, when participants mentioned in the interview that the leaders provided direction, the observations allowed for a closer examination of the specifics, such as the exact nature of the direction given

by leaders in the collaboration process, whether the strategies employed were successful or not, and examined the reactions of team members to the directions provided by the leaders.

Procedure and Data Collection

First of all, to ensure ethical research practices, approval was sought from the University of Twente's ethics commission before collecting data. The human resource department (HRD) of the company was informed first about the research details and purpose by sending them a proposal through email. Within the email, informed consent was attached for them to sign before the data was collected. After the informed consent was signed, the information was then delivered to the target respondents. Employees from the company participated only after giving informed consent, and fully understanding the study's purpose.

Data collection then began and involved interviews and observations after all of the participants gave their consent. Data collection was conducted in the time span between January 2024 and March 2024. In total, this research engaged 15 participants (Table 1). Out of 15 participants across the 3 cross-functional NPD teams, 10 of them agreed to be interviewed, comprising 4 leaders (i.e. a product head, product managers, delivery managers) and 6 team members from various functions (i.e. engineers, quality assurance, product or UIUX designers, talent scientists) as respondents. The interviews were audio-recorded and transcribed verbatim, totaling 196 pages of single-spaced transcription (Table 1). The average duration of each interview was 60 minutes. On the other hand, the participative observations took place during 3 meetings with different focus topics within one of the cross-functional NPD teams (CFT_1), comprising 10 participants. Observing one team with multiple meetings provided a richer picture of how the

leaders handled different challenges in different contexts. Each observation was done around 1.5-2 hours.

Data Analysis

In qualitative research, there is no single approach to the development of themes (Morgan & Nica, 2020). Therefore, rather than using one standardized method, I used methodological bricolage, a method of combining analytic approaches which were tailored to analyze the data collected from the interviews and observations (Pratt et al., 2022). Generally, systematic thematic analysis was done for creating a conceptual model, following a six-step analysis process by Naeem et al. (2023), as shown in Figure 1 below. Overall, Figure 2 illustrates the workflow for data analysis from this research. Before doing the analysis, simultaneous coding was done by applying multiple codes to a single quote (Saldaña, 2013). Next, in the process of developing themes, co-occurrence analysis was performed by comparing codes and themes against one another and examining their relationships in a given context. Co-occurrence analysis allowed me to identify the patterns and interconnections among codes in exploring the nuances of the relationships between codes and themes (O'Kane et al., 2021; Scharp, 2021). Following this, the process of conceptualization was done using an iterative method by simultaneously reviewing relevant literature while generating themes and identifying the central concept (Neale, 2021). In addition, in the process of theme development and the conceptual model development, concept mapping was conducted to think out the relationships among concepts even more clearly by putting the concepts in a graphical format (Babbie, 2021). In the following, a detailed explanation is provided regarding the step-by-step data analysis to conceptualize the identified strategies and to ensure how the strategy was intended to integrate the team.

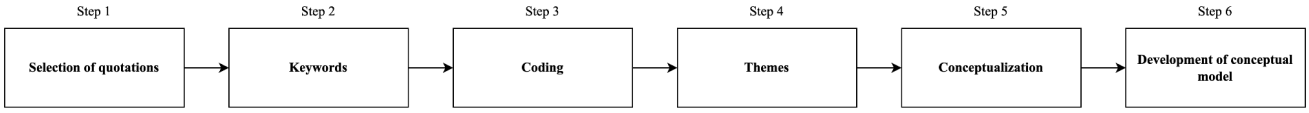
Table 1

Respondent and Data List

Team	Respondent	Reference	Function	Interview	Interview Duration	Transcription	Observation
CFT_1	Leader 1	L1	Delivery Manager	Yes	75 minutes	14 pages	Yes
	Leader 5	L5	Delivery Manager	No	-	-	Yes
	Team Member 2	TM2	Product Designer	Yes	100 minutes	26 pages	Yes
	Team Member 3	TM3	Engineer	Yes	75 minutes	26 pages	Yes
	Team Member 5	TM5	Talent Scientist	Yes	60 minutes	14 pages	Yes
	Team Member 6	TM6	Engineer	Yes	60 minutes	23 pages	Yes
	Team Member 7	TM7	Product Designer	No	-	-	Yes
	Team Member 8	TM8	Talent Scientist	No	-	-	Yes
	Team Member 9	TM9	Engineer	No	-	-	Yes
CFT_2	Leader 2	L2	Delivery Manager	Yes	60 minutes	18 pages	No
	Leader 3	L3	Product Manager	Yes	60 minutes	19 pages	No
	Team Member 1	TM1	Product Designer	Yes	60 minutes	18 pages	No
	Team Member 4	TM4	Talent Scientist	Yes	65 minutes	21 pages	No
CFT_3	Leader 4	L4	Product Head	Yes	60 minutes	17 pages	No
	Leader 6	L6	Engineer Ops Manager	No	-	-	Yes
				Total of 10 Interviewees		Total of 196 pages	Total of 10 Participants

Figure 1

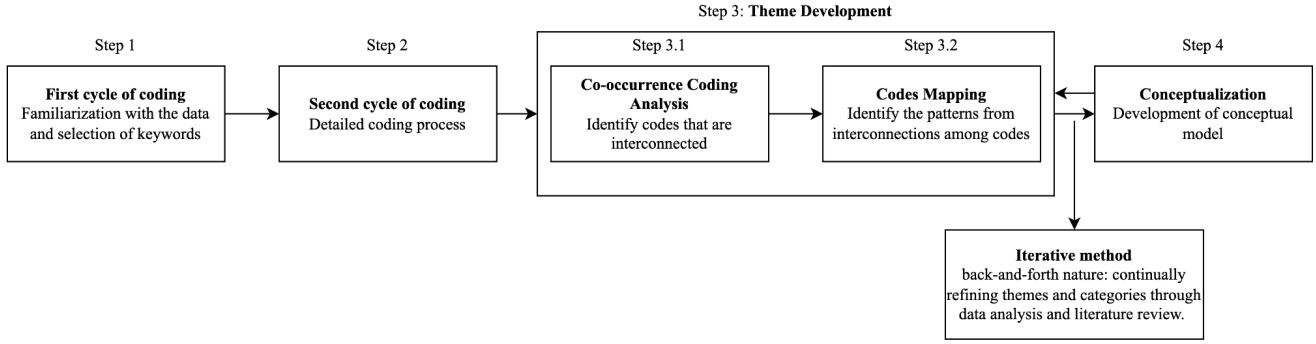
A Systematic Thematic Analysis Process



Note. A novel six-step process for conceptual model development in qualitative research (Naeem et al., 2023)

Figure 2

Data Analysis Workflow



Step 1: First Cycle Coding. This initial step was done to ensure that I familiarized myself with the content of all the transcripts (Morgan & Nica, 2020; Naeem et al., 2023). In doing this, quotes which contained the keywords of the research focus were selected and coded based on the question categories in the interview guidelines. While this approach yielded more familiarity with the contents, it also initiated a few basic analytic processes. The codes applied were: "cross-functional challenges", "cross-functional collaboration values/principles", "cross-functional practices", "leadership practices/approaches", "leaders' characteristics", and "other". These codes

were applied to broader phrases, giving contexts of what the interviewee was talking about or referring to.

Step 2: Second Cycle Coding. Following the application of the initial codes, more detailed coding began. A detailed coding process was carried out by applying more specific codes line by line (Saldaña, 2013). For example, one paragraph previously was applied with the code of "Leadership Practices", then each sentence of that paragraph was given a more detailed code such as "direction", "controlling", etc. In the next step, I merged similar or related codes by thematically clustering the codes (e.g., grouping "task clarity", "clarity of purpose", and "clarity"). Next, these codes were categorized, resulting in 5 categories: "cross-functional challenges", "cross-functional collaboration enablers", "ways of collaboration", "leadership practices", and "leaders' characteristics".

Codebook Development. The codebook was created from the emergent codes (see Appendix C). Additionally, intercoder reliability (ICR) testing was conducted to ensure the consistency of the coding decisions and the final analytical framework was accurately presented (O'Connor & Joffe, 2020). Two uncoded, segmented transcripts were provided to another researcher as the rater with a similar interest in the topic of cross-functional collaboration. ICR was carried out by comparing the codes I applied with the rater's coding. Discrepancies in coding interpretations were addressed through three reflective discussions, resulting in a revision of the codebook. This revision sought to strengthen the focus and boundaries of the conceptual codes, particularly on clarifying and improving ambiguous codes (O'Connor & Joffe, 2020).

However, given my dual role as both the researcher and an employee of the target startup, along with the culturally sensitive content of the transcripts, the use of ICR was not solely to achieve a satisfactory ICR index. Instead, it functioned as a tool for reflective improvement of the

analysis (O'Connor & Joffe, 2020). Throughout this process, a consensus approach was adopted in which any disagreements on the codes applied were openly discussed and resolved, ensuring a united approach to the coding.

Step 3: Theme Development. Before moving on to abstracting, co-occurrence analysis was conducted to examine which codes consistently paired together within the same sentence to identify patterns. Additionally, I reviewed the link analysis that identified connections between cross-functional collaboration contexts, looking more closely at relationships between challenges and enablers (see Appendix B). I came to know what was important to them, why certain challenges were perceived as obstacles to effective collaboration, and what was expected to be achieved from the collaboration process. For example, "diverse perspective" and "diverse languages" were frequently paired together because they were mentioned together a lot of times by the participants during the interview. Apparently, they were also connected to "limited knowledge and understanding of other functions", which also were associated with "agreeableness", "limited coordination", and "miscommunication".

The next phase involved examining the actual collaborative practices within the team. Attention was given to the process of how the collaboration was facilitated by the leaders in ensuring that alignment was achieved. For instance, the codes of "clarity", "using same language", "aligned vision", and "aligned task" were all connected to each other and ultimately came down to "ensure shared understanding". Therefore, these connections suggested that communication required clarity, a common language, aligned goals, and aligned tasks in order to achieve a shared understanding. Then I continued with a question in mind of which codes from leadership practices connected to this and found out that "clarity" and "direction" were also mentioned together a lot. Therefore, I came to know that the direction from the leader was to give clarity but in the end, this

practice was given to ensure everyone in the team had the same understanding of what should be achieved and for what purpose, leading to alignment within the team. The analysis repeatedly went back and forth, linking codes from the categories of leadership practices, characteristics, and cross-functional collaboration enablers, producing code mapping (see Appendix B). Thus, understanding the connections between these contexts enabled me to understand more about what was expected from the collaboration process, why the leaders employed such strategies in the cross-functional collaboration process, and how the leaders delivered the strategies into practice to ensure that everyone in the team had a shared understanding to achieve alignment.

Step 4: Conceptualization. I then zoomed out from the codes onto the more abstract level, conceptualizing the themes by interpreting them according to relevant theory (O'Connor & Joffe, 2020). Through an iterative method–subsequent reflection and comparisons between the empirical results and previous literature–I abstracted my overarching insights related to leadership strategies (Neale, 2021). Using concept mapping, I put the concepts in a graphical format, seeking out relationships among strategies more clearly (Babbie, 2020). To gain a deeper understanding of what took place in the collaboration and what exactly was discussed in the interviews, observation video data was also analyzed, focusing on the practices the leaders actually delivered. For instance, in the visioning strategy, I examined what kind of details the leaders used in giving direction (e.g. how they started, what they said, what expression they had, etc.) and how the team members responded. Consequently, this approach enriched the interview outcomes by providing evidence-based findings.

Findings

To understand how the leaders support the alignment of the team members in cross-functional collaboration, I started by identifying the main challenges and enablers that emerged in the CFTs within the startup company. This approach allowed for an examination of the rationale behind the importance of alignment across functions in the collaboration process. In addition, it also provided a deeper insight into the leader's role in fostering the alignment by giving an explanation of why specific strategies were implemented and what outcomes were expected from them. Further, I found an integrative model comprising three strategies used by the leaders in the startup company in Indonesia, i.e. *visioning*, *bridging*, and *bonding*, explaining how leader strategies were interconnected in ensuring clarity and shared understanding to achieve alignment between team members within a CFT. Furthermore, each strategy will be unpacked one by one in the following section to describe in more detail how leaders implement the strategy in real practice.

Lost in Translation: The Challenges of CFTs Collaboration

During both interviews and observations, participants, both leaders and team members, frequently mentioned the communication difficulties they had in the collaboration process, due to the diverse languages and diverse perspectives they had within the team. These factors arose due to the condition where everyone in the team came from various functions with different areas of expertise. Thus, each function had its own technical language that most of the time was understood by their own or someone from the same function in the team. For instance, TM2 as a product designer said that he/she often missed the discussion when engineers started to talk to each other because the language they used was very technical. This then became a barrier for team members with different functions to understand each other, including the leaders, when communicating with

each other for they were not familiar with the terms used by a specific function. TM4, a talent scientist, also admitted this by saying that there was a big language gap between his/her function with the engineers. For example, engineers who had a lot of technical terms related to software, such as API (Application Programming Languages), system integration, and implementation, were not familiar with talent scientists who focused more on data analysis with a lot of statistical terms (e.g. significant correlation, alpha, etc.). Different technical languages owned by each function made it hard for them to understand what each other meant while collaborating, because they did not know how to respond to the terms used there.

> *"In a cross-functional team, many things come up during discussions whether in Google Meet or in a room, that I don't understand because they are very technical. For example, when engineers talk to each other, I often miss the meaning." (TM2, Team Member)*

> *"That's true because there is a significant language gap between Talent Scientists (TS) and engineers. When I talk about concepts like significance index, high or low correlation, and negative or positive correlation, they often don't understand." (TM4, Team Member)*

Interviewees also talked about having different ways of thinking, opinions, and interests in doing their job. Due to different expertise, each of them could bring different interpretations and expectations of the tasks and objectives to the table. This could happen even when they were facing the exact same direction, problem, or plan. Product designer TM2 described his/her case while collaborating with engineers in which he/she had his/her own expectations in designing the product and failed to consider the perspective of the engineers, resulting in a product development problem.

A similar case was told by L3, a product manager, who described a case where a talent scientist member had different delivery expectations from L4, a product head. Talent scientists with a focus on developing various assessment tools had a different way of thinking from L4 who focused more on the efficiency of delivering the products (e.g. planning the pipeline of new assessments, instead of developing new assessment tools). While a diverse perspective was viewed as a valuable thing in the CFT, team members and leaders mentioned that this could also bring them potential issues which led them to ineffective collaboration, such as miscommunication. L4, a leader, acknowledged this by saying that differing agendas across functions could result in a lack of connectivity, leading to misalignments in the overall project goals. For example, despite wanting the same thing (new customers), the commercial and product teams clashed about acquisition strategies due to different interests. The commercial team was eager to acquire new customers to earn bonuses and other incentives, prioritizing the quantity, while the product team believed in only acquiring customers who fit with the product.

> *"Yesterday, there was an issue with the profile update on the MVP profile from the participant's side. It was between me and the engineer. In my opinion, there was a difference because our expectations were not aligned. Initially, I expected the update to be a certain way, so I designed it according to what I thought. It turned out that didn't match the engineer's expectation … Yes, not considering the engineer's perspective led to potential issues." (TM2, Team Member)*

> *"So, [a talent scientist] actually expected that in Q1, we would deliver various [assessment] tools. So, it turned out that this member's plan was somewhat different from what was*

expected from L4. L4's initiative was to stop creating new assessment tools and, instead, we could plan for not just a bank pipeline, but also a new assessment pipeline." (L3, Leader)

Both of these challenges, i.e. diverse languages and diverse perspectives, that came along with limited knowledge about other functions (e.g. scope of work, technical language, and responsibilities), were said to lead to agreeableness, a tendency to agree easily on all things, where they would listen and accept everything the way it is. For example, TM5, a talent scientist, expressed his/her difficulties in criticizing or giving responses to the engineers if there was any problem in the working process since he/she was not familiar with what engineers did. This remarked how potential issues, like delays in work, could occur in the future because there was a lack of knowledge to recognize where the problem existed and needed to be resolved.

"When [I] faced with such situations (i.e. feel like another function working so slowly, impacting the timeline), I usually just went with the flow, especially since I was not familiar with the engineering aspect. If there were issues or delays in my function team, I could say something about it, but I couldn't say the same for the engineers. I couldn't criticize it." (TM5, Team Member)

All of the challenges that have been mentioned by the interviewees (i.e. agreeableness, limited understanding of other functions, different perspectives, and technical languages), can result in misalignment in the cross-functional collaboration process, where they do not have the same understanding of what should be done and how the goal should be achieved together. Thus, leading the team to have miscoordination and go in the wrong direction.

Cross-functional Collaboration Enablers

In order to overcome the challenges above, leaders and team members further explained what they found important or expected in the cross-functional collaboration process which could be named as the enablers. Cross-functional collaboration enablers are key factors within CFTs which are important in facilitating the collaboration process to ensure the alignment between functions is achieved. In total, there were 9 enablers found based on the interviews and observations: 1) clarity of tasks, goals, roles, and expectations, 2) awareness of responsibilities (knowledge of other functions), 3) aligned task, 4) aligned vision, 5) close relationship, 6) openness, 7) common language (everyone in the team was using the same language), 8) work comfort, and 9) same level/position (no rigid superior-subordinate relationship between the leaders and team members). The analysis revealed a network of interconnected enablers that came down to "ensure shared understanding". This suggests that these factors worked together to develop a shared understanding among team members from different functions, ultimately leading to alignment across functions.

Therefore, alignment in collaboration was found to be an important component of CFTs in order to work effectively and go in the same direction, thus accelerating team performance in achieving the goals. **Alignment** means *everyone within the team, both leaders and team members, is clear and has a shared understanding of what and how to work and collaborate with different functions*. Interviewees explained that to align with other functions, first, they need to get clarity in both vision and task, as well as their roles and expectations within the team. In achieving a shared understanding, it was also crucial that each team member had basic knowledge about other functions (e.g. responsibility, the scope of work, technical terms, etc) so that they could connect

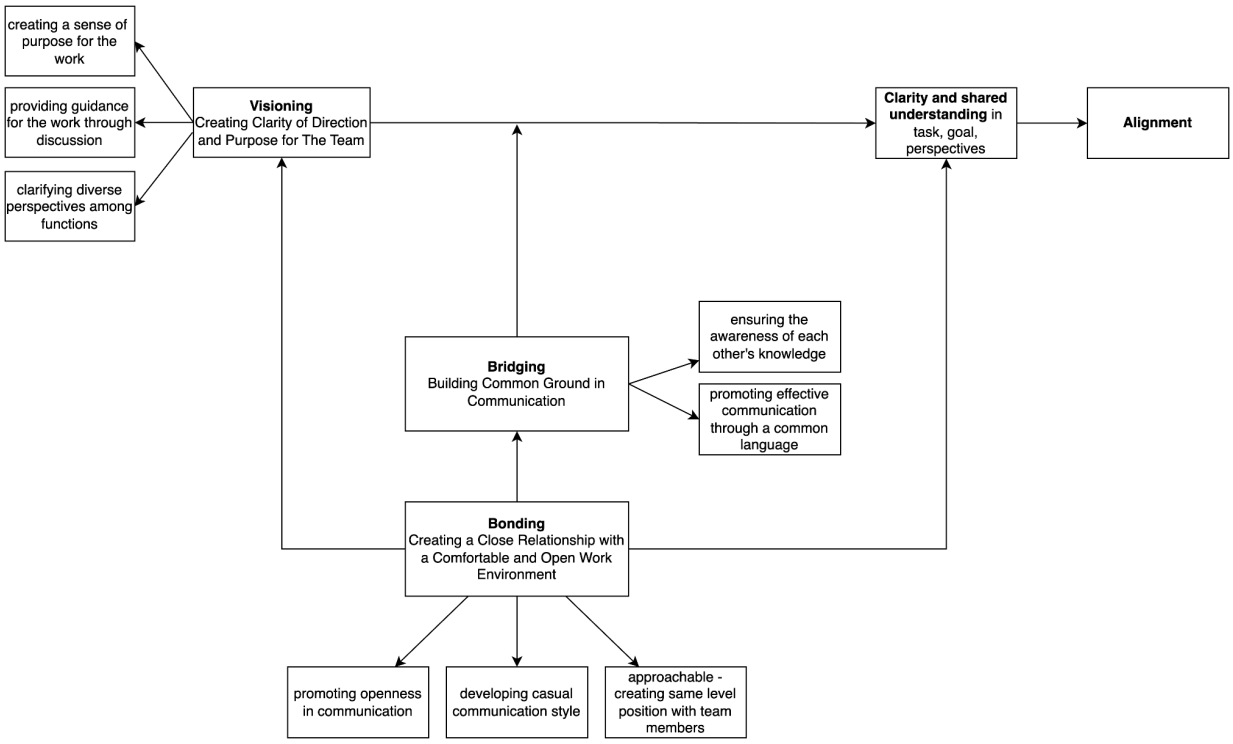
and communicate across functions easily. Moreover, it was also said that close relationships within the CFT supported them in the communication process. The close relationship did not necessarily focus on the relationship between the team members, but also between the team members and the leaders, allowing them to talk openly and communicate more comfortably, creating a more coherent communication process to achieve a shared understanding.

When exploring more about the value of alignment within CFTs, the role of the leaders became critical in facilitating it. How the leaders facilitated the enablers in ensuring alignment, and what strategies they used, are further described in the following sections.

Leaders Strategies in Ensuring Alignment

Figure 3

Integrative Model of Leader Strategies



The model above is proposed to understand how leader strategies are interconnected to get clarity and shared understanding to achieve alignment between functions within CFT. There were 3 strategies of the leaders found in the interviews and observations: *Visioning*, *Bridging*, and *Bonding*. First of all, to achieve clarity, leaders made sure that team members had a clear goal and direction, giving them a sense of purpose and a shared understanding of what they should achieve at the end (***visioning*** strategy). To support this process effectively, the team members should have a baseline understanding or common ground about other functions' scope of work or responsibilities to stay connected. Here, leaders had a role in facilitating internal communication

by ensuring team members had an awareness of each other's knowledge and promoting effective communication through a common language (***bridging*** strategy). I propose that having a baseline understanding can facilitate the process of team members getting a shared understanding so that alignment can be achieved sooner. Lastly, a close relationship among team members supported the overall progression toward achieving clarity. When team members worked comfortably with each other, the process of exchanging knowledge could occur more easily, due to their openness in the discussion process. Consequently, the leaders here had a ***bonding*** strategy that fostered close relationships and a sense of work comfort, promoting equality among all team members and leaders. This setting created an environment with frequent interactions, promoting a more casual and open communication channel. The following section will explain in more detail each strategy one by one.

Visioning: Creating Clarity of Direction and Purpose for The Team. In many cases, in order to collaborate with other functions smoothly, the team members said it had to be clear from the beginning what they were going to achieve and where they could contribute. Therefore, with a *visioning* strategy, leaders provided a clear direction for the team members by illustrating what the end goal looked like and explaining the expectations and tasks for each function clearly. The goals provided by the leaders became the collective focus and an anchor for team members in the collaboration in moving in the same direction. For instance, a product designer TM2 explained that the leader had a critical role in the beginning in determining priorities and giving a clear vision of what the goal would look like in the future. TM2 even highlighted that the team "depended a lot on it" (i.e. clear vision) as it could affect team morale where team members could become confused and demotivated, especially when a leader's poor decisions lead to wasted effort

“Being able to determine priorities and the direction for the future so we aren’t confused, having a clear vision. What it looks like. Because we depend a lot on it, especially as a member, we really depend on that [...] that’s a critical role for the leader at the beginning to work on that.” (TM2, Team Member)

Further, the leaders not only explained the goal and the purpose of the work but also made sure that the direction was understood and accepted by all team members. For instance, L4, a product head, gave an example by inviting the team members to join in imagining what the end goal would look like, thus ensuring them to understand the big picture of what should be done. As another simple practice, based on observation, exactly at the beginning of the meeting, a product manager who led the meeting, stated explicitly what they would do in that meeting, as well as where they needed alignment. Moreover, the product manager also explained the tasks, what their impact would be, and how they were connected to the long-term design (*"Because from what I imagine, this is what it will look like in the future..."*). Hence, the leaders went beyond simply providing a final vision; they also explained the interdependencies between tasks, their impact, and how they contribute to the long-term plan.

"So I invited them, ‘Okay guys, let's see what the end goal will look like’. People say it is a vision. So I always invite them, ‘Can you imagine what the end looks like?’ [This is] to make sure that they understand the big picture." (L4, Leader)

“If someone doesn't understand their responsibilities, they simply won't know what they're working on. So, it's the leader's task to inform them, ‘You're doing this for this reason,’ to provide clarity.” (TM1, Team Member)

"Clear communication avoids wasting time, especially since the work is ongoing. If something is wrong from the start, it has to be redone. That’s why communication needs to be clear from the beginning, what the expectations are, and maybe even [the leaders] have to give examples like this and that of what is expected." (TM5, Team Member)

As TM1 stated above, the direction not only gave team members a clear idea about what they would work on but also created a sense of purpose for why the tasks were there in the first place. By understanding what the tasks were for, team members from each function were able to visualize how future tasks would affect their work in the present and what potential challenges they might face. Thus, they could plan in advance and build their work in line with the goals directed by the leader, even asking for support needed from the leaders earlier. Moreover, team members were also able to recognize with which function they would need to collaborate, what they needed from each function, and in which area they should collaborate.

“So, when we know that a feature is going to be implemented according to the timeline, whether next week or in the upcoming sprint cycles, we try to clarify in the current sprint. This includes what the output will look like, which teams need to collaborate, who is available, and when the results are expected. Ideally, each function completes their part because they have been informed beforehand.” (L1, Leader)

As mentioned in the quote above, an interactive discussion was then needed, where leaders also made room for discussion. Interactive discussion, as L1 highlighted, included the talk of what the output looked like, which functions needed to collaborate, who was available to do the task, and the deadline for the work results. L1 said that this discussion was crucial to be done before the project (i.e. sprint cycle) began. Since team members might interpret the goals differently and see how they may contribute differently, the leader had a role in aligning perceived goals across functions and linking their unique interests together to avoid miscommunication. L3, a product manager, emphasized that aligning perspectives of the goal should be done regularly to remind the team members since each function might have a different focus or interest that made them sometimes forget what the real goal was. TM1 confirmed a similar issue where each function might interpret tasks or orders differently, depending on their interests. As a result, each function might do the task in a different way. Thereby, by doing interactive discussion, perspectives from each function could be clarified by the leaders, and also by other functions, giving the team members a clearer idea of how to collaborate across functions.

> *"In my opinion, it's about aligning perspectives, specifically what goal we are aiming for. This is my homework to always remind them. Today we might remember it [the goal], but tomorrow we might forget it. Consistently aligning our perspectives ensures that everyone knows what we are aiming for." (L3, Leader).*

> *"Sometimes, we also experience situations where the task or order is not clear. Often, we end up interpreting it ourselves. For example, as a designer, I might create it one way, while*

as a talent scientist, I might approach it differently. Then, when we discuss it, we realize our interpretations are different. This shows that we are not yet aligned, not on the same level, not on the same page. That's why I think it's important [to have discussion] to address miscommunication, to avoid that [issue]." (TM1, Team Member)

In giving direction, leaders also carried out prioritization in the decision-making process to ensure interests and tasks across functions aligned. It involved how leaders handled choices, weighed options, and determined what the team members should do or what actions should be taken in certain situations. It would lead to a better understanding of the boundaries that each function had in the given direction, ensuring the collaboration within the team aligned with the goals established before and also creating a win-win solution for every function. For instance, TM6, an engineer, explained how the leaders made decisions when conflicts arose between engineers and product designers. In this case, the leader instructed the team to focus on implementing the system in a certain way rather than on designs that took longer to complete. However, recognizing the product required a specific design, the leader still left room for future discussions and timeline adjustments. This approach demonstrated the leader's ability to prioritize tasks and manage expectations, creating a win-win solution both for engineers and product designers.

"For example, [leader] will say, 'Let's start with the design aspect first. If the design requires a certain approach and the engineer can't fulfill it immediately, but it will take a long time, then we should discuss or negotiate whether the timeline can be adjusted. For now, set up

the system in this way, and later it will be implemented as intended when possible.'" (TM6, Team Member)

Bridging: Building Common Ground in Communication. As mentioned above, direction from the leaders gave ideas to the team members to recognize with which function they would need to collaborate, what they needed from each function, and in which area they should collaborate. As part of this process, however, the team members had to have a baseline understanding of the differences in specialties within the team. Thereby, they could communicate with relevant functions and connect with each other, resulting in a more coherent communication process. Here, leaders had a role in facilitating internal communication by ensuring team members had an awareness of each other's knowledge and promoting effective communication through a common language.

Awareness of other's knowledge means that both leaders and team members had knowledge of other functions' scope of work. Leaders were expected to have a thorough understanding of each function's scope of work so they could manage the resources well and ensure the alignment of the roles and tasks between functions, Therefore, there was a need for the leaders to learn again and gain knowledge about the functions they were working with, even though initially they were coming from different function before. For example, L2, a delivery manager, who was initially coming from an engineering function needed to learn the technical terms of talent scientist which mainly talked about psychological assessment (e.g. calculation, norms, etc). This way, L2 was able to understand the perspectives and interests of each function better, such as why each function could come up with a such perspective, what concerns that function actually had, and what was the real interest of each function. Another example derived from the observational

data illustrates that during a discussion concerning a design matter in a meeting, a product manager would pause and ask the product designers directly why things happened in the first place to enhance the clarity of the situation ("This is actually not a big problem, but I want to ask first, why was the XX initially created by the design team in the first place? That's the question"). By doing this, it gave everyone the same level of knowledge, preventing assumpations. In results, everyone in the team later could give their opinion of how to solve the issue. Therefore, the leader could help the team members as a bridge in the communication process, helping the team members across functions to be able to communicate and understand each other better while collaborating, preventing miscommunication.

> *"The leader needs to have a deeper understanding of the project from the engineering team's perspective and what the objective is from the functional side of other relevant teams. This way, communication between engineers and, for example, product designers, can be aligned and in the same direction." (TM6, Team Member)*

> *"Now, as a delivery manager, when, for example, it comes to [assessment] reports, I need to understand how calculations are done and what the computations involve. I need to delve deeper into understanding the calculations from the TS's perspective. This includes grasping what they mean and becoming familiar with the norms, for example." (L2, Leader)*

Additionally, a thorough understanding of each function's scope of work enabled leaders to assign and manage tasks more effectively, ensuring that they aligned with each other. They would be aware of which function a task was related to, allowing them to assign it accordingly and

giving clear direction to the related function about what was expected for each function. For instance, based on observation results in a CFT_1 meeting, a product manager provided specific directions to TM5, a talent scientist, to not forget to discuss the details with the engineering team in CFT_2 to avoid missed opportunities and manage expectations regarding the integration of test tools in different systems. This shows that the product manager as the leader was able to take on a "helicopter view", gaining a broader perspective of the relevancy of tasks across functions. This communication helped clarify which functions were responsible for various aspects of the project and highlighted potential impacts on the overall timeline. Thus, if there was a problem in the project delivery process, the leaders were capable of analyzing it from diverse functional standpoints and taking into account the potential outcomes from various perspectives. Some possible relevant solutions could also be provided by the leaders, corresponding to the specific functions requiring intervention. For example, L1, a delivery manager, emphasized the importance of understanding each team member's function beyond his/her own expertise ("But if you don't understand the different functions of each team member and only excel in your own area, it [collaboration] won't work"). This was especially important when he interacted with talent scientists since he came from the engineering team. He explained that if he did not understand things related to talent scientists (e.g. calculations), he could not help if there were issues arose. Thus, a broader understanding of the way of working from each function could give the leaders an idea of how to solve a problem and avoid wasted effort.

> *"From there, they [the leaders] need to be able to divide or manage tasks, like assigning TS to this requirement, engineers to another, and product designers to another area. It's about communicating to each of us what we can do to support those needs. So, Talent Scientists*

work on Task A, engineers on Task B, and product designers on Task C." (TM4, Team Member)

"But if you don't understand the different functions of each team member and only excel in your own area, it [collaboration] won't work [,,,] especially in the case of a Talent Scientist, because there are a lot of calculations and computations involved. If you don't understand, it becomes problematic if issues arise later because you only know the calculations in a certain way." (L1, Leader)

Nevertheless, the knowledge about other functions' scope of work was not only needed by the leaders but also by team members as well. Hence, it was the leader's role to facilitate this process, so that each function had a baseline understanding about other functions, allowing the recognition of the challenges and boundaries each function had. L2, a delivery manager, emphasized that team members were not required to possess comprehensive knowledge of each other's functions; rather, they merely needed to attain a specific level of understanding to facilitate effective communication and identify areas of overlap for collaboration. For example, L2 who initially came from the engineering team expected talent scientists to be at least familiar with some terms engineers usually used (e.g. API). This could prevent them from getting into a confusing conversation, enabling them to follow discussions and contribute meaningfully to the team. Consequently, each function knew how to respond to other functions and to which function they should go if they encountered a problem.

“Now they [members from different functions] are in a cross-functional team, they can also explore or learn about things outside their own function. For example, for talent scientists, at least they should be familiar with what we often talk about, like APIs. At least their minimum knowledge should be the same." (L2, Leader)

“In the beginning, it's essential to understand the scope of each person's work. This way, we know who to turn to if there's a problem. And who exactly? And what to say? If, for instance, we don't know something, there will be a lot of repetition [of mistakes] and not knowing who to approach or who to follow up with … When we already know and understand each other's work, communication can be much smoother.” (TM5, Team Member)

Furthermore, it would also avoid agreeableness, a situation where they just went with the flow due to unfamiliarity and nodded along without truly comprehending technical discussions. Hence, in facilitating the communication process across functions, leaders introduced the language (i.e. technical terms) each function had, making team members more familiar with such words. Besides, leaders also adjusted the way of communication when coordinating with the relevant function, becoming a more effective bridge. For instance, according to observational data, L6 (Leader) employed terminology familiar to engineers in interactions with the engineering function, such as "implementation" and "configuration," while utilizing terminology aligned with talent scientists in discussions with the talent scientist function (e.g. prototype, formula, etc). Another way was the leaders also brought down to a low-context language or used a common language by coming up with similar or more simple general terms or definitions, so these terms were used together in the collaboration later on.

"So, it's necessary for people to start understanding each other's language. This way, when the big picture is explained, they can connect and say, 'Oh, I didn't understand that, but I get it now.' It must be connected like that. So, besides explaining the big picture, it's also necessary to introduce their specific terminology so that everyone understands how the whole story fits together." (L4, Leader)

Nonetheless, leaders also encouraged team members to do the same thing as well. For example, leaders required TM4, a talent scientitst, to explain what they actually meant when they started using technical terms that could only be understood by their own function (e.g. alpha correlation), asking them to simplify it and use "human language" instead. Leaders could assist the team members who came from the same expertise as them in explaining the technical terms. For instance, L2 with an engineering background could help explain what an API was to talent scientists in more general terms. Similarly, TM5, who had a psychology background, was assisted by a leader with the same background to explain complex concepts. However, if the leaders did not come from the same function, leaders also inquired to find out when unfamiliar with the content of a specific function. In this case, leaders were expected to have a willingness to learn more about functions they were not familiar with, demonstrating to team members the importance of seeking clarification from other departments and that requesting explanations in simpler terms was a valid practice. As an illustration, when engineers explained in a technical way, the product manager of CFT_1 promptly inquired about the implications, consequences, and impact on the plan, demonstrating a critical approach towards understanding the context of the engineers' discourse.

"For example, if we're talking about APIs, our colleagues in design or talent scientist team might not know about them. So, how can they understand what APIs are? We could explain them first before going into further discussion. Everyone needs to have the same level of knowledge first." (L2, Leader)

"With L5, we connect instantly because we both come from a psychology background. With others, it's like, "What does that mean?" and so on. L5 often says, "Try to explain so that everyone understands." After that, L5 always makes sure to clarify further, ensuring that the entire team understands the results I've presented." (TM4, Team Member)

L1 (Leader): "Working on that is definitely possible, the issue is not with the system but with the ***calculations.****"*
TM2 (Team Member, design function): "Oh, I see. So, we actually need to talk to the talent scientist about this as well."

In this manner, everyone in the team exchanged knowledge regarding one another's languages and engaged in using a common language that was understood by every function equally, eliminating communication barriers. Once each other knew and recognized technical terms from other functions, the communication across functions became smoother because they knew right away to which function they could collaborate. As seen in the conversation between L1 and TM2, TM2 from the product design function immediately understood the need to collaborate with the talent scientist function upon hearing the term "calculation", a technical term

used by talent scientists. This shows that knowledge about other functions will help the team members stay connected and understand the direction better.

Interestingly, based on the interview and observation data, in doing *visioning* and *bridging*, collaboration tools (e.g. Miro, Whimsical) could be a great facilitator for leaders in doing explanations, such as in the process of decision-making, clarifying complex concepts, guiding the direction of projects, and presenting information to the team members. This enabled the team members across different functions to get clear illustrations & visualizations of what the leaders were trying to say. In this context, leaders developed a "show not tell" culture, meaning that everyone was encouraged not only to explain verbally but also visually so everyone could have the same understanding.

> *"Not everything can be explained with words; sometimes certain points are easier to understand when presented visually." (TM6, Team Member)*

> *"The leader has not only been able to visually illustrate concepts but also to show concrete details, which really helps. It means we just need to handle the finer details." (TM2, Team Member)*

> *"We've been discussing this, but there are still some aspects my team members don't understand and need help with. I usually use visuals, flows, diagrams, etc. So far, these methods have been quite relevant and helpful in my case." (L2, Leader)*

Bonding: Creating a Close Relationship with a Comfortable and Open Work Environment. The overall progress toward clarity and ensuring shared understanding to achieve alignment was supported by a close relationship among team members. As soon as all team members understood the direction and had a baseline understanding of how to stay connected within the team, this was supported by a working environment in which team members were comfortable with each other. The process of exchanging knowledge could occur more easily, due to their openness in the discussion process. Consequently, the leaders here had a "*Bonding*" strategy that fostered closeness between team members, thus making everyone comfortably collaborate with one another. Team members who were close to each other tended to engage in the team and were more likely to take the initiative and contribute actively by not being afraid of expressing any thoughts or ideas to other functions. If there was no comfort in the collaboration process, it would prevent team members from expressing their struggles for their reluctance in the communication process.

> *"Yes, close relationships can affect work comfort and motivational aspects, so a leader can foster stronger bonding within their team. That makes us comfortable working and eventually becoming more open with each other because the atmosphere has been set up like that." (TM2, Team Member)*

> *"The main point [for the leader] is to facilitate closeness so we can communicate more openly. When discussing work, this closeness makes us feel more comfortable sharing our thoughts. If you're closer to someone, you're more at ease to speak up. This closeness might also extend beyond work, allowing us to become friends. If we really can't do something,*

we'll feel more comfortable saying so if we're close. With someone we're not close to, we might hold back. But with someone we trust, the conversation becomes more open, like, 'I can't do this; it should be done this way.'" (TM3, Team Member)

"The first thing is openness. I mean, there might be some new colleagues who are new and are still waiting to be asked questions. In that case, we hope that they will be open in their communication. They might have already communicated with me or with other team members, but they may still feel hesitant to speak up in team meetings. That's where openness within the team comes in." (L2, Leader)

As mentioned above, close relationships between functions not only led to work comfort but also to openness, where everyone freely shared their ideas and perspectives in the team, without feeling burdened or afraid of being judged. As is the case in the previous strategy where they needed to ask other functions regarding a term they did not understand. If they have a close relationship with each other, they would not hesitate to show their knowledge gaps. Instead of remaining passive, they proactively sought clarification in the areas they did not understand and communicated right away with the relevant function. In this context, the leaders had a role in convincing and encouraging the team members to adopt such behavior as described below:

"So, like, I sometimes tell them, 'It's okay to ask, it's okay to always, like, if you don't know, ask your colleagues.' Sometimes this job isn't just yours alone; there's always another team function." (L3, Leader)

Leaders not only communicated through verbal means but also demonstrated this through leading by example, showing to the team members that mistakes were not something to be embarrassed about. Hence, it was safe for the team members to be open with whatever they had done and had in mind. For instance, in a CFT_1 sprint retrospective meeting, L5 (Leader) acknowledged his/her mistakes while doing the sprint and explained in which area he/she missed it, which was then followed by L1 (Leader) who admitted that it also happened a lot to him/her. But they did not focus only on the mistakes, but also on the learning points and what could be done better in the future, giving learning to other team members as well.

> *L7 (Leader): "The only thing that wasn't effective was my prediction of the task. I said yes at the beginning, but it turned out that I only found the issue at the last step, I only found out the issue later. I didn't expect that it would affect the reporting. That delayed the work."*
>
> *L1 (Leader): *nodding head* "It happens often, I often do that too."*
>
> *L7 (Leader): "The problem is that I didn't spare any time for those problems.* ***That's probably the learning point****. If there are some tasks, especially big tasks which are end-to-end like this, there is a risk of errors or unexpected things later. It's better to just give some spare time, in case there are errors like this."*

The results of data observations showed TM6 (Team Member) also openly shared his/her thoughts about his/her struggles in doing the previous sprint cycle and did not hesitate to acknowledge his/her mistake, even recognizing the learning points.

TM6 (Team Member): "The ineffective thing was that I had to work overtime until it finished."

*L1(Leader): *Smiling* "You reap what you sow."*

*TM6 (Team Member): *laughing and nodding* "Yes, I didn't think that far, I mean [at first] I thought it was a win-win solution. But, it didn't win in terms of my work time only.. (continued explaining about the condition) ... Well, the learning point is, I didn't dare to ask for more spare time."*

Open communication was important for the leaders to be able to make the problem-solving process more efficient because the identification of the problems was done faster and easier. The leaders also developed a mindset within the team that each function was not working alone in the collaboration process and by being open about their own struggles, there was a possibility that other functions could offer suggestions on how to solve the problems.

"When there's an obstacle or issue, it should be addressed immediately. We shouldn't wait until the very end to discover it. If we only find out about problems at the last minute, we won't have time to maneuver or make adjustments." (L3, Leader)

"Openness is especially crucial because we're collaborating with people from different backgrounds and roles. If we're not open, we might hold back when there's a problem, fearing criticism or that our work isn't good enough. It's better to be open about any issues or blockers, saying, 'I think I'm struggling with this part.' By doing so, we might find a solution from other colleagues." (TM2, Team Member)

In promoting close relationships, leaders developed an environment with a more casual communication style where team members could interact in a more relaxed and informal way. For instance, leaders talked humorously and allowed team members to joke with each other as well, even in the middle of a meeting situation as an intermezzo. The team members were also welcomed conversations about everyday life outside of work. This approach was part of the leaders' efforts to build stronger personal connections with each team member.

> *"So, what I carried over when I became a manager was this: I need to first get to know the person, at least be able to have a conversation, maybe joke around a bit with me." (L1, Leader)*

> *"[Leaders] maintain [a relaxed atmosphere], like talking or maybe sharing things outside of work. That's interesting because, even though we're struggling or whatever, it helps ensure we don't become too tense." (TM6, Team Member)*

Furthermore, there was no rigid superior-subordinate relationship between the leaders and team members. Instead, the leaders created a culture where all of them were actually on the same level/position in the collaboration process. Leaders positioned themselves not as a boss, instead, they ensured that they were reachable. Reachable means that the leaders are approachable, easily accessible, and consistently present to assist team members whenever help is required, even engaging in the discussion without being asked. TM2 mentioned the leaders are "always on standby" and "usually jump in immediately". Not only did they show themselves as approachable

figures, but they also proved that they were attentive to their team's conditions which included personal and professional challenges. For instance, L3, a product manager, immediately escalated a problem to HR when he/she knew there was a problem with his/her team member ("There was a problem with my team member, so I escalated it to HR then asked them, 'how can we handle this, my team member is scared of this.'"). Team members then did not have to worry about approaching the leaders because the leaders were believed to be always available for them to discuss ideas, resolve issues, and provide support. This way, it was easier for the leaders to encourage and inspire the team members to go in the same right direction.

> *"PM as well as DM, L6 along with L1, and L5, even if it's TS or Engineer, are always ready to listen if they are not busy with something else. So [they are] always ready to mediate or when something needs to be decided. [They are] always on standby. And even when not [directly] asked, they usually will pay [close] attention and jump in immediately [with suggestions like], 'how about we do it this way?' So they join in. I see that's how the leaders are. And I think it's good." (TM2, Team Member)*

> *"I think the difference between being a leader and not is that, if there's a problem, I have to be at the forefront. The rest involves overseeing the responsibilities of my team or any team member, whether there are issues or not." (L1, Leader)*

> *"So far, interactions with the leader have been more collaborative, like, 'L2, I want to update the norm,' or 'L2, I want to implement SJT into Typeform,' and so on. The communication*

feels more like equal collaboration rather than a superior-subordinate dynamic. It feels more like equal collaboration" (TM4, Team Member)

When team members established close relationships and felt comfortable collaborating across different functions, that would lead to the disappearance of leadership. This shift enabled team members to engage directly with relevant functions without constant mediation by leaders. They were empowered to communicate by themselves, such as asking questions, seeking clarification, and requesting support from other functions, leading to a more efficient collaboration because the process of exchanging knowledge became faster. This was often reflected in the ways team members took initiative, made decisions, or communicated their needs directly to other functions. For example, TM5, a talent scientist, often arranged a room by himself with the product designers or engineers he needed to collaborate and discuss with to solve a problem together. Ultimately, the alignment of the goals, tasks, and perspectives across different functions also could be achieved faster, ensuring they have a shared understanding to collaborate effectively.

"I think my design will be worked on [directly] by engineer A without going through the Delivery Manager. This is not a bad thing because it actually cuts the process." (TM2, Team Member)

"For instance, when I make a prototype, I work closely with the product designer. I often go to the prototype room with someone from the design team to discuss various aspects. Similarly, with the engineering team, I set up our own room to solve problems. So everything

is initially managed by the engineer and me together so that if there are questions, I can respond directly." (TM5, Team Member)

"Now, if the a has already started or is about to start, I usually go directly to the other functional teams, like product designers. I go directly, not [go] through the leader first." (TM6, Team Member)

Discussion

In this research, I tried to answer the question about the leader's role in ensuring alignment across different functional areas in cross-functional NPD teams. In the Asian context, established big high-technology companies have mostly been the focus of studies (e.g. Darawong, 2015; Lin et al., 2015, Tang et al., 2015). By contrast, this study focused on leaders' strategies in a technology-based startup company presenting a case study of an Indonesian startup, a small company that developed SaaS products. The findings of my studies have theoretical implications by giving empirical evidence to illustrate what strategies the leaders employ in ensuring alignment within the cross-functional collaboration, including how those strategies are implemented in practice and affect the collaboration process across functions. In the following, I explain in more detail how the findings of this research contribute to previous research. I end by outlining limitations, avenues for future research, and practical implications.

Theoretical Contributions

Overall, my findings suggest that the strategies related to the startup leader's attempts to ensure alignment across functions as the primary outcome can be better understood when interconnected, as shown in Figure 3. Previous studies have explored various leadership models,

such as engaging leadership (Mazzetti & Schaufeli, 2022), transformational leadership (Hüttermann & Boerner, 2011), and knowledge leadership (Zhang & Guo, 2019). Each of them emphasizes distinct aspects of leadership in facilitating cross-functional collaboration. Yet, the explanation of how the strategies are interconnected is not fully explained. The proposed integrative model of leadership from my findings, encompassing *visioning*, *bridging*, and *bonding*, provides a nuanced framework that captures the key elements of leadership necessary to promote a shared understanding of the goals, tasks, and perspectives within CFTs in startups (i.e. Alignment). Studying leadership in a more integrative approach enables a holistic understanding of how various leadership strategies interact and affect the dynamics within CFTs. Leaders cannot display one single type of leadership behavior in all situations. They need to adapt their behavior to the respective situation and context to be most successful (Zaech & Baldegger, 2017), transforming the challenge of functional diversity into an opportunity.

The integrative model also enriches the previous literature review of Steele and Watts (2022) who suggested 11 leader functions, identifying actions that leaders take when leading technical innovation, such as NPD. My research delves deeper into the practical strategies leaders use to achieve alignment in real-world startup cross-functional NPD teams in Indonesia. For instance, my study expands upon the integration between *planning, coordinating, and monitoring work* function and *providing autonomy* function, two functions which are found by Steel and Watts (2022). Based on my findings, leaders can integrate those two functions to foster a shared understanding of tasks and progress while granting autonomy – giving team members the freedom to decide how their expertise contributes while making sure they align with the overall objectives (Mazzetti & Schaufeli, 2022). This delicate balance is achieved through a strong *visioning* strategy,

which not only facilitates alignment but also nurtures innovation by encouraging the integration of diverse viewpoints and alternatives that emerge from cognitive conflict (Guo et al., 2019).

Similarly, my model aligns with the findings on essential elements of leadership identified by Drath et al. (2008), particularly on their proposition about (shared) direction, which posits that effective leadership fosters a reasonable level of agreement within a team regarding the goals of the collective effort. This facilitates a shared understanding among team members about what is being aimed for and, importantly the value of these aims. My findings extend these insights by highlighting the relevance of such shared understanding in the context of cross-functional collaboration within an Indonesian startup. Having a shared understanding of the goal and the purpose behind it will enable diverse team members to anticipate future tasks and potential obstacles that may arise. Consequently, this foresight allows team members to proactively plan and make better decisions that align their efforts across functions with the strategic goals set by leaders (Dussart et al., 2021). Thus, my findings also reveal how and when the leaders are not required to be involved themselves all the time in the collaboration process by enabling the team members to independently express and exchange different perspectives, ideas, and knowledge by themselves (Guo et al., 2019; Hüttermann & Boerner, 2011; Stock & Zacharias, 2011). Additionally, in providing goal clarity, leaders can create space for open and frequent discussions across functions, clarifying how their tasks contribute to the bigger picture (Sivasubramaniam et al., 2012). This, in turn, allows the leaders to connect team members' unique interests or perspectives, creating a collective focus for them to go in the same direction (Don Ton et al., 2022; McDonough, 2000; Simsarian, 2002; Yin et al., 2023).

Furthermore, based on my research, leaders play a crucial role in facilitating internal communication, encouraging the team members to grasp a baseline understanding of other

functions' expertise, namely *bridging* strategy. This finding is consistent with numerous prior studies emphasizing the importance of knowledge exchange in cross-functional collaboration, where team members are expected to clearly understand what other functions have, do, and are interested in (Don Ton et al., 2022; Edmondson & Harvey, 2018; Lin et al., 2015; Weijermars, 2012; Zhang & Guo, 2019). A finding from Dussart et al. (2021) suggests that making CFT members aware of their peers' perspectives, ways of working, and priorities could help strengthen knowledge integration. Thus, they can communicate and engage with the relevant function. My findings underscore the necessity for the leaders to facilitate this by translating the language of one function for others (Cronin & Weingart, 2007), bringing down the discussion to a low-context language, and motivating the team to adopt a common language through the use of similar or simpler general terms or definitions (Jassawalla & Sashittal, 2000). Essentially, leaders in a startup also act as mentors, encouraging learning between functions to manage diverse knowledge (Zhang & Guo, 2019), and shifting from a self-centric focus to a more collective approach (Don Ton et al., 2022; Oliva & Watson, 2011). As a result, alignment towards a shared vision becomes achievable.

In addition, my findings highlight the close relationship and work comfort, indicated by openness and trust, in facilitating the process of knowledge exchange between diverse functions within an Asian startup (Don Ton et al., 2022). My research provides empirical evidence that aligns with studies conducted in the Asian context within large high-technology industries (e.g., Darawong, 2015; Tang et al., 2015). Similar to findings in big high-tech companies, informal communication is also crucial in the cross-functional collaboration process at startups. However, my research reveals further that leaders in startups can facilitate this by building a more casual relationship between themselves and team members by eliminating rigid superior-subordinate

relationships, thus encouraging team members to engage in collaboration. This is in line with the results of previous research that leaders in small & medium organizations “should not behave like management” or are very controlling as this behavior reduces the level of employee trust in their leaders (Kararti & Yuksekbilgili, 2014, p. 151).

As Lopes Pimenta et al. (2014) also suggest, besides team meetings, other activities should be provided to stimulate contact between team members in order to foster mutual understanding over time. For example, in my findings, leaders can welcome casual conversation, even outside the formal team meetings, in a more relaxed and informal way (e.g. joking, chatting about non-work topics). This kind of interaction helps team members trust each other and feel more at ease to openly express any thoughts or ideas, even struggles, enabling them to learn from each other, and accelerating the problem-solving process (Don Ton et al., 2022; Lopes Pimenta et al., 2014; Tekleab et al., 2016). If the leaders can facilitate the establishment of close relationships between functions, the risk of dependency on the leaders can be avoided, thereby empowering team members to exchange knowledge and perspectives even without the leaders being involved all the time (Hüttermann & Boerner, 2011). This can speed up the process of aligning goals, tasks, and perspectives across different functions.

My findings expand beyond "facilitating informal collaboration" by positioning leaders as role models who are approachable and ready to resolve conflicts or provide guidance to team members. This contradicts the previous study by Sarin and O’Connor (2009) who found that in big high-tech industries, the most influential characteristics of team leaders were not interpersonal traits like friendliness, but rather those related to task management in NPD teams. This suggests that while task-oriented characteristics are essential, my findings indicate that in startup environments, being approachable and caring is equally important for effective leadership to

achieve alignment. By balancing task management with interpersonal skills, the leaders invite the team members to more open and frequent communication, creating a strong common interest and commitment to achieve shared goals (Gelderman et al., 2017).

Limitations and Avenues for Future Research

As with any study, there are limitations to this research. Yet, some possible research opportunities in the future can be derived from this research.

Context-Specific Insights. The findings from this study are derived from a single startup in Indonesia, making them highly contextual and specific to the cultural and operational environment of that particular organization. Therefore, the findings cannot be generalized to other contexts. The implementation of the identified leadership strategies might not directly apply to startups operating under different circumstances or in various industries, where team structures, business goals, and cultural norms could influence the dynamics of cross-functional collaboration. Therefore, future research should include quantitative studies that measure the impact of specific leadership strategies on CFTs collaboration and performance across a wider range of startup industries. This approach would allow for more generalizability of the effectiveness of these strategies in different settings and uncover whether certain approaches are universally effective or depend on industrial contexts.

Focus on Collaboration Over Innovation Outcomes. Steele & Watts (2022) argued that "the unique risks, complexities, and demands of technical innovation create an environment in which managers must fulfill a range of important functions to meet the needs of innovation workers" (p. 6). Thus, the important role of the leaders in facilitating technical innovation in the creation of new technical products and services in NPD teams is reinforced. Nevertheless, while

my research focuses on the role of leadership strategies in enhancing the collaboration process within CFTs, it does not directly examine their direct impact on the technical innovation outcomes of the team (e.g. product effectiveness, profitability, speed to market). This focus leaves an open question regarding which specific leadership behaviors most effectively drive the innovation outcomes themselves. Understanding the connection between collaborative practices facilitated by leadership and their eventual impact on innovation outcomes could provide more actionable insights for enhancing product development and creativity within startups.

Single Leadership Perspective. This study does not focus on the fact that there is more than one leader in the cross-functional NPD teams. When leader responsibilities are distributed among multiple leaders, each with a possibly different functional background, the collaboration process may be affected. Yet this area still remains undiscovered. The presence of multiple leaders within CFTs has emerged as a prevailing pattern (Godfrey, 2021). Consequently, there is a growing likelihood that the investigation into the roles of multiple leaders in fostering cross-functional collaboration will become increasingly prevalent in the forthcoming years. Therefore, future research is suggested to investigate the notion of shared leadership within CFTs (e.g. Sangeetha & Kumaran, 2018), particularly how these various leaders affect team processes and outcomes. Research could focus on how multiple leaders from diverse functional areas interact and lead together, and how their collective efforts affect team alignment, decision-making, and the balance of cohesiveness and constructive conflict within teams. This might provide useful insights into how shared leadership can improve team performance and flexibility in complex project situations.

By addressing these limitations and exploring these suggested future research directions, scholars can build on the findings of this study to develop a more comprehensive understanding

of how leadership influences cross-functional teams across different contexts and with varying leadership structures.

Practical Implications

The findings from this study provide valuable practical implications for startup leaders and managers by presenting an integrative model to conceptualize leadership strategies in ensuring alignment within CFTs. Based on the findings, there are some practical suggestions leaders can implement in leading CFTs. First, leaders need to frequently make sure that everyone in the team has the same perspective by giving critical follow-up questions (e.g. "How do you think you can contribute to the project goals? What challenges do you think will appear in the future? To which function do you think you should collaborate this with?") or giving space to straighten the information in a discussion (e.g. stop and recap, then clarify if the team members have the same understanding). These efforts encourage the team members to speak up and identify early if something is unclear. Second, leaders are encouraged to always bring down the discussion to a low-context language and motivate the team to explain in a more human language rather than using technical terms that are exclusive for only some functions. Lastly, leaders can bring team members closer and more open by not strictly focusing on superior-subordinate relationships, instead positioning themselves as equal partners with each team member. Work comfort can be enhanced if the team members are allowed to consider each other as friends, where they can joke and comfortably chat non-work related, rather than just being limited as colleagues. Furthermore, these insights may also serve as a guide for HR departments in startups to design training and learning development programs by focusing on key areas where the leaders should be improved and in which areas it would impact the team dynamics. For instance, despite having a close relationship

and good communication, the team is mostly not aligned in tasks for there is a lack of clarity in defining the goals between functions. As a result, leaders can focus on improving the *visioning* strategy. Such learning and development programs can significantly enhance cross-functional collaboration and drive successful innovation outcomes, fostering more cohesive and innovative teams within the startup ecosystem.

Conclusions

To conclude, this research has enriched our understanding of leadership roles in ensuring alignment within CFTs in tech-based startup environments, specifically in Indonesia. By defining a nuanced integrative model of leadership—comprising *visioning*, *bridging*, and *bonding*—the study not only extends the existing literature on leadership frameworks by revealing how these strategies are interconnected in influencing collaboration but also provides practical recommendations for startup leaders to foster effective cross-functional collaboration within their organizations to ensure the team alignment. The study is context-specific and focuses primarily on collaboration processes within a single startup. The findings indicate that with *visioning* and *bridging* strategies, leaders in startups are no different than those in large organizations. However, in a startup, particularly within the Asian context, the *bonding* strategy is crucial. Leaders need to facilitate close relationships and create a comfortable work environment to ensure effective collaboration. This research opens up opportunities for future research to explore the broader applicability of these leadership strategies across different industries, cultures, and innovation outcomes. The findings have practical implications in providing leaders and HR departments with insights on implementing the strategies in practice and tailoring leadership and development

initiatives, thus enhancing cross-functional teamwork and driving successful product development.

References

Akyıldız, S. T., & Ahmed, K. H. (2021). An overview of qualitative research and focus group discussion. *International Journal of Academic Research in Education*, *7*(1), 1-15. https://doi.org/10.17985/ijare.866762

Ashenbaum, B., Maltz, A., Ellram, L., & Barratt, M. A. (2009). Organizational alignment and supply chain governance structure: introduction and construct validation. *The International Journal of Logistics Management, 20*(2), 169–186. https://doi.org/10.1108/09574090910981279

Babbie, E. (2021). *The Practice of Social Research, Fifteenth Edition* (15th ed.). Cengage.

Baldridge, R. (2024, May 8). *What Is a Startup? The Ultimate Guide*. Forbes. https://www.forbes.com/advisor/business/what-is-a-startup/

Bearman, M. (2019). Focus on methodology: Eliciting rich data: a practical approach to writing semi-structured interview schedules. *Focus on Health Professional Education: A Multi-Professional Journal, 20*(3), 1. https://doi.org/10.11157/fohpe.v20i3.387

Cheung, S. Y., Gong, Y., Wang, M., Zhou, L. (Betty), & Shi, J. (2016). When and how does functional diversity influence team innovation? The mediating role of knowledge sharing and the moderation role of affect-based trust in a team. *Human Relations, 69*(7), 1507–1531. https://doi.org/10.1177/0018726715615684

Comeau-Vallée, M., & Langley, A. (2020). The interplay of inter- and intraprofessional boundary work in multidisciplinary teams. *Organization Studies, 41*(12), 1649–1672. https://doi.org/10.1177/0170840619848020

Cronin, M. A., & Weingart, L. R. (2007). Representational gaps, information processing, and conflict in functionally diverse teams. *Academy of Management Review, 32*(3), 761–773. https://doi.org/10.5465/amr.2007.25275511

Darawong, C. (2015). The impact of cross-functional communication on absorptive capacity of NPD teams at high technology firms in Thailand. *The Journal of High Technology Management Research, 26*(1), 38–44. https://doi.org/10.1016/j.hitech.2015.04.004

Daspit, J., Justice Tillman, C., Boyd, N. G., & Mckee, V. (2013a). Cross-Functional team effectiveness. *Team Performance Management: An International Journal, 19*(1/2), 34–56. https://doi.org/10.1108/13527591311312088

Denny, E., & Weckesser, A. (2022). How to do qualitative research? *BJOG: An International Journal of Obstetrics & Gynaecology, 129*(7), 1166–1167. https://doi.org/10.1111/1471-0528.17150

Don Ton, A., Hammerl, L., Weber, D., Kremer, O., & Szabo-Szentgroti, G. (2022). Why leaders are important for cross-functional teams: Moderating role of supportive leadership on knowledge hiding. *Problems and Perspectives in Management, 20*(3), 178–191. https://doi.org/10.21511/ppm.20(3).2022.15

Drath, W. H., McCauley, C. D., Palus, C. J., Van Velsor, E., O'Connor, P. M. G., & McGuire, J. B. (2008). Direction, alignment, commitment: Toward a more integrative ontology of leadership. *The Leadership Quarterly, 19*(6), 635–653. https://doi.org/10.1016/j.leaqua.2008.09.003

Durmusoglu, S. S., & Calantone, R. J. (2022). New product development team performance: A historical meta-analytic review of its nomological network. *Journal of Business & Industrial Marketing, 38*(1), 12–35. https://doi.org/10.1108/JBIM-03-2020-0139

Dussart, P., van, O. L. A., & Albronda, B. (2021). Perspectives on knowledge integration in cross-functional teams in information systems development. *Team Performance Management: An International Journal, 27*(3/4), 316–331. https://doi.org/10.1108/TPM-11-2020-0096

Edmondson, A. C., & Harvey, J.-F. (2018). Cross-boundary teaming for innovation: Integrating research on teams and knowledge in organizations. *Human Resource Management Review, 28*(4), 347–360. https://doi.org/10.1016/j.hrmr.2017.03.002

Ennabih, A., Van Riel, A. C. R., & Sasovova, Z. (2016). Leadership And New Product Development Project Performance: A Team Cognition Perspective. *Academy of Management Proceedings, 2016*(1), 16920. https://doi.org/10.5465/ambpp.2016.16920abstract

Gelderman, C. J., Semeijn, J., & Verweij, E. (2017). The effectiveness of cross-functional sourcing teams—An embedded case study in a large public organization. *The Central European Review of Economics and Management, 1*(3). https://doi.org/10.29015/cerem.536

Gemser, G., & Leenders, M. A. A. M. (2011). Managing Cross-Functional Cooperation for New Product Development Success. *Long Range Planning, 44*(1), 26–41. https://doi.org/10.1016/j.lrp.2010.11.001

Graça, A. M., & Passos, A. M. (2015). Team leadership across contexts: A qualitative study. *Leadership & Organization Development Journal, 36*(5), 489–511. https://doi.org/10.1108/LODJ-08-2013-0114

Godfrey, M. (2021, May 6). *Reflections on establishing cross-functional product leadership.* Medium. https://medium.com/ingeniouslysimple/reflections-on-establishing-cross-functional-product-leadership-1c8ea61b333a

Guo, H., Zhang, L., Huo, X., & Xi, G. (2019). when and how cognitive conflict benefits cross-functional project team innovation. *International Journal of Conflict Management, ahead-of-print*(ahead-of-print). https://doi.org/10.1108/ijcma-02-2019-0031

Holland, S., Gaston, K. J., & Gomes, J. (2000). Critical success factors for cross-functional teamwork in new product development. *International Journal of Management Reviews, 2*(3), 231-259. https://doi.org/10.1111/1468-2370.00040

Homan, A. C., Gündemir, S., Buengeler, C., & Van Kleef, G. A. (2020). Leading diversity: Towards a theory of functional leadership in diverse teams. *Journal of Applied Psychology, 105*(10), 1101–1128. https://doi.org/10.1037/apl0000482

Hüttermann, H., & Boerner, S. (2011). Fostering innovation in functionally diverse teams: The two faces of transformational leadership. *European Journal of Work and Organizational Psychology, 20*(6), 833–854. https://doi.org/10.1080/1359432X.2010.524412

Jassawalla, A. R., & Sashittal, H. C. (2000). Strategies of effective new product team leaders. *California Management Review, 42*(2), 34–51. https://doi.org/10.2307/41166031

Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A review of the quality indicators of rigor in qualitative research. *American Journal of Pharmaceutical Education, 84*(1), 7120. https://doi.org/10.5688/ajpe7120

Kararti, T., & Yuksekbilgili, Z. (2014). Organizational citizenship behaviors in small and medium enterprises in the context of leadership behavior. *International Journal of Advanced Multidisciplinary Research and Review, 2*(3), 138-158.

Komalasari, R., Nurhayati, N., & Mustafa, C. (2022a). Insider/outsider issues: Reflections on qualitative research. *The Qualitative Report, 27*(3), https://doi.org/10.46743/2160-3715/2022.5259

Kotlarsky, J., Van Den Hooff, B., & Houtman, L. (2015). Are we on the same page? Knowledge boundaries and transactive memory system development in cross-functional teams. *Communication Research, 42*(3), 319–344. https://doi.org/10.1177/0093650212469402

Laurent, J., & Leicht, R. M. (2019). Practices for designing cross-functional teams for integrated project delivery. *Journal of Construction Engineering and Management, 145*(3). https://doi.org/10.1061/(asce)co.1943-7862.0001605

Lee, C., & Chen, W.-J. (2007). Cross-functionality and charged behavior of the new product development teams in Taiwan's information technology industries. *Technovation, 27*(10), 605–615. https://doi.org/10.1016/j.technovation.2007.02.012

Levenson, A. (2012). Talent management: Challenges of building cross-functional capability in high-performance work systems environments. *Asia Pacific Journal of Human Resources, 50*(2), 187–204. https://doi.org/10.1111/j.1744-7941.2011.00022.x

Lin, Y., Wang, Y., & Kung, L. (2015). Influences of cross-functional collaboration and knowledge creation on technology commercialization: Evidence from high-tech industries. *Industrial Marketing Management, 49*, 128–138. https://doi.org/10.1016/j.indmarman.2015.04.002

Lofland, J., Snow, D., Anderson, L., & Lofland, L. H. (2022). *Analyzing Social Settings: A Guide to Qualitative Observation and Analysis, Fourth Edition* (4th ed). Waveland Press.

Lopes Pimenta, M., Lago Da Silva, A., & Tate, W. L. (2014). Developing and managing cross-functional teams: a multi-case study of Brazilian manufacturing companies. *Journal of Technology Management & Innovation, 9*(2), 1–16. https://doi.org/10.4067/S0718-27242014000200001

Lopez Hernandez, A. K., Fernandez-Mesa, A., & Edwards-Schachter, M. (2018). Team collaboration capabilities as a factor in startup success. *Journal of Technology Management & Innovation, 13*(4), 13–23. https://doi.org/10.4067/S0718-27242018000400013

Malhotra, M. K., Ahire, S., & Shang, G. (2017). Mitigating the Impact of Functional Dominance in Cross-Functional Process Improvement Teams. *Decision Sciences, 48*(1), 39–70. https://doi.org/10.1111/deci.12217

Maltz, E., & Kohli, A. K. (2000). Reducing Marketing's Conflict with Other Functions: The Differential Effects of Integrating Mechanisms. *Journal of the Academy of Marketing Science, 28*(4), 479–492. https://doi.org/10.1177/0092070300284002

Mazzetti, G., & Schaufeli, W. B. (2022). The impact of engaging leadership on employee engagement and team effectiveness: A longitudinal, multi-level study on the mediating role of personal- and team resources. *Plos One, 17*(6), e0269433. https://doi.org/10.1371/journal.pone.0269433

McDonough, E. F. (2000). Investigation of Factors Contributing to the Success of Cross-Functional Teams. *Journal of Product Innovation Management, 17*(3), 221–235. https://doi.org/10.1111/1540-5885.1730221

Mendez, A., Johnston, K., & Mcardle, M. (2023). Navigating the new product development process: a case study of a startup's journey from ideation to commercialization. *European Conference on Innovation and Entrepreneurship, 18*(2), 931-941. 10.34190/ecie.18.2.1658

Morgan, D. L., & Nica, A. (2020). Iterative thematic inquiry: A new method for analyzing qualitative data. *International Journal of Qualitative Methods, 19*, 1609406920955118. https://doi.org/10.1177/1609406920955118

Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management, 36*(1), 5–39. https://doi.org/10.1177/0149206309347376

Mumford, M., Zaccaro, S., Harding, F., Jacobs, T., & Fleishman, E. (2000). Leadership skills for a changing world: Solving complex social problems. *Leadership Quarterly, 11*(1), 11-35. https://doi.org/10.1016/S1048-9843(99)00041-7.

Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. *International Journal of Qualitative Methods, 22*, 16094069231205789. https://doi.org/10.1177/16094069231205789

Nair, A., Malhotra, M. K., & Ahire, S. L. (2011). Toward a theory of managing context in six sigma process-improvement projects: An action research investigation. *Journal of Operations Management, 29*(5), 529–548. https://doi.org/10.1016/j.jom.2010.11.014

Nakata, C., & Im, S. (2010). Spurring cross-functional integration for higher new product performance: a group effectiveness perspective. *Journal of Product Innovation Management, 27*(4), 554–571. https://doi.org/10.1111/j.1540-5885.2010.00735.x

Neale, J. (2021). Iterative categorisation (IC) (part 2): Interpreting qualitative data. *Addiction, 116*(3), 668–676. https://doi.org/10.1111/add.15259

O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: debates and practical guidelines. *International Journal of Qualitative Methods, 19.* https://doi.org/10.1177/1609406919899220

O'Kane, P., Smith, A., & Lerman, M. P. (2021). Building transparency and trustworthiness in inductive research through computer-aided qualitative data analysis software.

Organizational Research Methods, 24(1), 104–139. https://doi.org/10.1177/1094428119865016

Oliva, R., & Watson, N. (2011). Cross-functional alignment in supply chain planning: A case study of sales and operations planning. *Journal of Operations Management, 29*(5), 434–448. https://doi.org/10.1016/j.jom.2010.11.012

Pratt, M. G., Sonenshein, S., & Feldman, M. S. (2022). Moving beyond templates: A bricolage approach to conducting trustworthy qualitative research. *Organizational Research Methods, 25*(2), 211–238. https://doi.org/10.1177/1094428120927466

Saldaña, J. (2013). *The Coding Manual for Qualitative Researchers* (2nd ed). SAGE Publ.

Sangeetha, P., & Kumaran, S. (2018). Impact of shared leadership on cross functional team effectiveness and performance with respect to manufacturing companies. *Journal of Management Research, 18*(1).

Sarin, S., & O'Connor, G. C. (2009). First among equals: The effect of team leader characteristics on the internal dynamics of cross-functional product development teams. *Journal of Product Innovation Management, 26*(2), 188–205. https://doi.org/10.1111/j.1540-5885.2009.00345.x

Scharp, K. M. (2021). Thematic co-occurrence analysis: advancing a theory and qualitative method to illuminate ambivalent experiences. *Journal of Communication, 71*(4), 545–571. https://doi.org/10.1093/joc/jqab015

Sethi, R., Smith, D. C., & Park, C. W. (2001). Cross-functional product development teams, creativity, and the innovativeness of new consumer products. *Journal of Marketing Research, 38*(1), 73–85. https://doi.org/10.1509/jmkr.38.1.73.18833

Simsarian, W. S. (2002). Leadership and trust facilitating cross-functional team success. *Journal of Management Development, 21*(3), 201–214. https://doi.org/10.1108/02621710210420273

Simsarian Webber, S. (2002). Leadership and trust facilitating cross-functional team success. *Journal of Management Development, 21*(3), 201–214. https://doi.org/10.1108/02621710210420273

Sivasubramaniam, N., Liebowitz, S. J., & Lackman, C. L. (2012). Determinants of new product development team performance: a meta-analytic review. *Journal of Product Innovation Management, 29*(5), 803–820. https://doi.org/10.1111/j.1540-5885.2012.00940.x

Srikanth, K., Harvey, S., & Peterson, R. (2016). A dynamic perspective on diverse teams: moving from the dual-process model to a dynamic coordination-based model of diverse team performance. *Academy of Management Annals, 10*(1), 453–493. https://doi.org/10.5465/19416520.2016.1120973

Steele, L. M., & Watts, L. L. (2022). Managing technical innovation: A systematic review of 11 leader functions. *Technovation, 115*, 102539. https://doi.org/10.1016/j.technovation.2022.102539

Stock, R. M., & Zacharias, N. A. (2011). Patterns and performance outcomes of innovation orientation. *Journal of the Academy of Marketing Science, 39*(6), 870–888. https://doi.org/10.1007/s11747-010-0225-2

Tang, F., Mu, J., & Thomas, E. (2015). Who knows what in NPD teams: Communication context, mode, and task contingencies. *Journal of Product Innovation Management, 32*(3), 404–423. https://doi.org/10.1111/jpim.12226

Tekleab, A. G., Karaca, A., Quigley, N. R., & Tsang, E. W. K. (2016). Re-examining the functional diversity–performance relationship: The roles of behavioral integration, team cohesion, and

team learning. *Journal of Business Research, 69*(9), 3500–3507. https://doi.org/10.1016/j.jbusres.2016.01.036

Troy, L. C., Hirunyawipada, T., & Paswan, A. K. (2008). Cross-functional integration and new product success: an empirical investigation of the findings. *Journal of Marketing, 72*(6), 132–146. https://doi.org/10.1509/jmkg.72.6.132

Watson, N., & Kraiselburd, S. (2007). Alignment in Cross-Functional and Cross-Firm Supply Chain Planning. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.990430

Weijermars, R. (2012). Framework for optimizing team performance and project NPV: enhancing the probability of success by team alignment. *Engineering Management Research, 1*(2). https://doi.org/10.5539/emr.v1n2p107

Wiedemann, A., Wiesche, M., & Krcmar, H. (2019). Integrating development and operations in cross-functional teams—toward a devops competency model. *Proceedings of the 2019 on Computers and People Research Conference*. https://doi.org/10.1145/3322385.3322400

Yin, Z., Caldas, C., De Oliveira, D., Kermanshachi, S., & Pamidimukkala, A. (2023). Cross-functional collaboration in the early phases of capital projects: Barriers and contributing factors. *Project Leadership and Society, 4*, 100092. https://doi.org/10.1016/j.plas.2023.100092

Zaech, S., & Baldegger, U. (2017). Leadership in start-ups. *International Small Business Journal: Researching Entrepreneurship, 35*(2), 157–177. https://doi.org/10.1177/0266242616676883

Zhang, L., & Guo, H. (2019). Enabling knowledge diversity to benefit cross-functional project teams: Joint roles of knowledge leadership and transactive memory system. *Information & Management, 56*(8), 103156. https://doi.org/10.1016/j.im.2019.03.001

Appendix

Appendix A: Interview Guideline

Research Questions

Primary research question: how do leaders support cross-functional collaboration?

- What strategies, values, and practices do leaders in Talentlytica employ to foster effective collaboration across different functional areas?
- Is there any discrepancy between what team members expect from their leaders and what they actually experience in the collaboration?
- how does the discrepancy impact their perception of support and effectiveness in the collaboration?

INTERVIEW GUIDELINE FOR THE LEADERS

Setting the stage: Welcome & explanation of how to conceive of differences

- Welcoming interviewees and thanking them for their participation
- Informing them about their rights and the audio recording:
    - Right to withdraw from the interview at any time without giving a reason
    - Audio recording via a small device, audio recorded will later be transcribed
    - In transcription, the data will be completely anonymized
    - You can also talk about your team members today, so probably you will use or mention their names but don't worry because it will be anonymized later
    - Confidentiality: nothing that is said here will be shared with anyone except the research team
- Introducing the topic of the interview to the interviewee, i.e., leadership role in the cross-functional team

"In this interview today, we will look at how you as a leader support collaboration in your cross-functional team X.X. We will mainly look at what things you employ to foster effective collaboration across different functional areas. Those can be strategies, values, practices, ways of looking at things, ways of doing things, and so forth. What is important to keep in mind is that any strategies, practices, or values are neither right/positive nor wrong/negative per se. So, it's important to not treat them as something

negative or positive per se but really based on what first comes to your mind and your own judgment, opinion, or feeling. Okay?"

***GENERAL* Crossfunctional collaboration:**

1. Can you please describe your team to me? (e.g what is the team working on, goals, roles in the team, who are the team members)
    a. How long have you been working together?
    b. What is the background of each team member?
2. Can you describe your role and explain how is the collaboration generally going within the team?
    a. How long have you been a leader in this product team?
    b. With who do you coordinate the most? And what do you coordinate about?
    c. Can you explain why you need to collaborate with those people the most?
3. What things do you find different between cross-functional collaboration within this team with the collaboration you do in your functional team?
4. What do you think are important values in the collaboration process within this product team?

***Leadership Approach**:*

1. How can you describe your leadership style within the team?
    a. What do you usually do in order to make team members buy-in with your ideas?
    b. What are the challenges you face as a leader in this product team? Can you give me some real examples?
2. Can you describe a situation where your leadership style directly influenced the collaboration?
3. How do you modify your leadership approach when dealing with your team members who are from diverse functional backgrounds?
    a. How do you make sure that everyone on the team is on the same page?

b. Can you explain to me what you need to do or prepare in advance to facilitate communication between the team members?

Strategies, Values, and Principles for Collaboration:

1. What leader characteristics do you think are important to lead a cross-functional team?
    a. Do you think you have already had all of those characteristics? If yes, can you give some examples?
    b. If there are some characteristics that you feel like you haven't had yet, what have you done in order to develop those characteristics?
2. What actions do you think are important for a leader to lead the cross-functional team? Have you applied all of those things? If yes, can you give some examples?
3. What are the key steps you take when leading the team?
4. As the leader, what expectations do you have for your team members to be able to perform in this kind of collaboration?
5. Can you describe a specific strategy you've used to overcome a major hurdle in cross-functional collaboration?
6. Do you have some values that you hope can be adopted in this kind of collaboration?
    a. How do you ensure your values are understood and embraced by team members?
7. How do you as the leader recognize and address the varying needs of team members from different functional areas?

Challenges and Solutions:

1. Can you share an example of a significant conflict within your team and how you resolved it?
2. What strategies do you use to keep team members motivated during challenging phases of a project?

Feedback and Improvement:

1. How do you structure feedback sessions with your team, and what kind of feedback do you find most valuable?
2. Can you give an example of a change you implemented based on team feedback?

Debriefing

"Great, we are now at the end of this interview and I very much want to thank you for doing this interview with me. I would very much like to conduct a second, follow-up interview in about 2 weeks from now where we might cover parts of this interview again but also some additional aspects. Can I contact you again for that interview?

Please, do not talk about this interview with your team members, or other leaders that participate in this project. Prior knowledge of the questions might invalidate the results, so we need to be a bit careful here.

As my next step, I will transcribe the interviews for my subsequent analysis. Please know that during transcription I will completely anonymize the interviews. You've used a lot of your team member's names today but be sure that what you've said cannot be traced back to individual persons, including you, and will not be shared with anyone outside our research time.

That was it from my side, do you still have any questions or something you still would like to cover/discuss in this interview?"

Extras: probes, reflective questions, etc.

- Can you say more about that?
- What do you mean by …?
- Do you mean that …?
- Have you ever experienced other …?
- Do you have specific experiences in mind, or is this a general opinion?
- Can you tell me about …?
- Could you give me an example?
- What would that look like?
- If I were watching such a situation, what would I see?
- Why is that important to you?
- Why does that stand out in your memory?

- Why do you think you noticed that?
- Why does that matter?
- I'm beginning to get the picture but some more examples might help.
- You have spoken a lot about xx strategies/values/practices. This is great, but can you also think of other strategies/values/practices?

INTERVIEW GUIDELINE FOR TEAM MEMBERS

Setting the stage: Welcome & explanation of how to conceive of differences

- Welcoming interviewees and thanking them for their participation
- Informing them about their rights and the audio recording:
    - Right to withdraw from the interview at any time without giving a reason
    - Audio recording via a small device, audio recorded will later be transcribed
    - In transcription, the data will be completely anonymized
    - You can also talk about your team members today, so probably you will use or mention their names but don't worry because it will be anonymized later
    - Confidentiality: nothing that is said here will be shared with anyone except the research team
- Introducing the topic of the interview to the interviewee, i.e., leadership role in the cross-functional team

    "In this interview today, we will look at how you perceive your leader(s) in supporting collaboration in your cross-functional team X.X. We will mainly look at what things your leaders employ to foster effective collaboration across different functional areas. Those can be strategies, values, practices, ways of looking at things, ways of doing things, and so forth that you see in your leader(s). What is important to keep in mind is that any strategies, practices, or values are neither right/positive nor wrong/negative per se. So, it's important to not treat them as something negative or positive per se but really based on what first comes to your mind and your own judgment, opinion, or feeling. Okay?"

***GENERAL* Crossfunctional collaboration:**

1. Can you please describe your team to me? (e.g what is the team working on, goals, roles in the team, who are the team members)

    a. How long have you been working together?

    b. What is the background of each team member?

    c. How many leaders do you have in this product team?

    d. Can you explain the role of each leader?

2. Can you describe your role and explain how is the collaboration generally going within the team?

    a. How long have you been a member of this product team?

    b. How do you collaborate with your leaders? And what do you usually coordinate about?

3. What things do you find different between cross-functional collaboration within this team with the collaboration you do in your functional team?

4. What do you think are important values in the collaboration process within this product team?

Expectations for the Leaders

1. What were your initial thoughts on the leaders' responsibilities within the team?

2. What do you expect them to do as leaders in this kind of collaboration?

3. What do you think are important characteristics of (a) leader(s) should have in a cross-functional team?

    a. Do you think your leader(s) has already had all of those characters?

    b. What characteristics do they already have? Can you give an example of which situation they show that characteristic?

    c. What characteristics they haven’t had? Do you expect them to have those characteristics?

        i. Have you ever communicated your expectations to them?

4. What actions do you think are important for a leader to lead the cross-functional team?

    a. Have the leaders in this team applied all of those things? If yes, can you give some examples?

5. What do you think your leaders expect from you to do in this collaboration?

Experience with the Leadership Approach:

1. How would you describe the leadership style of your leaders within the team in reality?
    a. Does that style match your expectations?
2. How would the leaders facilitate communication and collaboration within the team?
3. Can you provide an example of a time when you felt particularly supported or unsupported by your leaders? How was the situation handled?
4. Can you share a personal experience where the leader's decision significantly affected your role or contribution to the team?
5. From your perspective, how do the leaders recognize and address the varying needs of team members from different functional areas within your team?
6. Based on your experience, what specific actions did your leaders take to enhance collaboration and communication within the team?
    a. Do you think they can do better than that? If yes, in what way and can you give an example for that?
7. What do you think are important values your leaders have already shared with you for doing the collaboration effectively within this product team?
    a. In which situation do you apply those values? Can you give me some examples?
    b. Have you applied those values in the real collaboration within this product team?
    c. What challenges do you face while applying those values?
    d. How do your leaders help you in applying those values?

Challenges and Solutions:

1. Can you share an example of a significant conflict within your team and how your team resolved it?
    a. What did your leaders do in that situation?
2. What strategies do your leaders use to keep team members motivated during challenging phases of a project?

Feedback and Improvement:

1. What actions do your leaders take to improve their leadership to facilitate collaboration within this team?
2. Are there any improvements in the collaboration within this team since the first time the leader led this team?
3. Have you got any chance to give feedback to your leaders to make collaboration better?
    a. Can you give an example of feedback that your leader has applied to make the collaboration better?
4. What do you think your leaders could do better in facilitating collaboration within the team?

Debriefing

"Great, we are now at the end of this interview and I very much want to thank you for doing this interview with me. I would very much like to conduct a second, follow-up interview in about 2 weeks from now where we might cover parts of this interview again but also some additional aspects. Can I contact you again for that interview?

Please, do not talk about this interview with your leaders, or other team members that participate in this project. Prior knowledge of the questions might invalidate the results, so we need to be a bit careful here.

As my next step, I will transcribe the interviews for my subsequent analysis. Please know that during transcription I will completely anonymize the interviews. You've used a lot of your team member's names today but be sure that what you've said cannot be traced back to individual persons, including you, and will not be shared with anyone outside our research time.

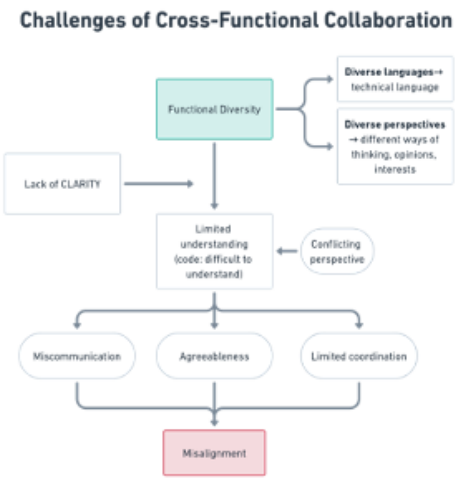
That was it from my side, do you still have any questions or something you still would like to cover/discuss in this interview?"

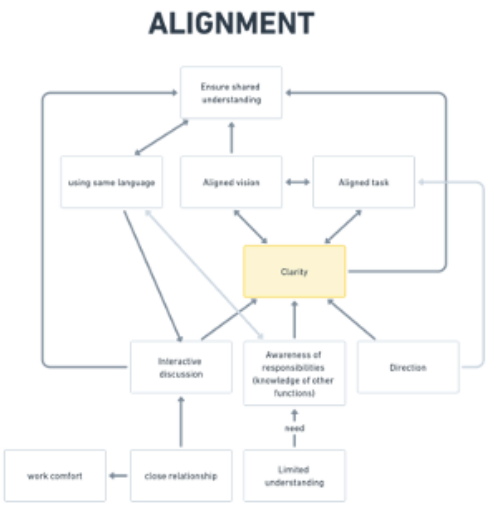
Extras: probes, reflective questions, etc.

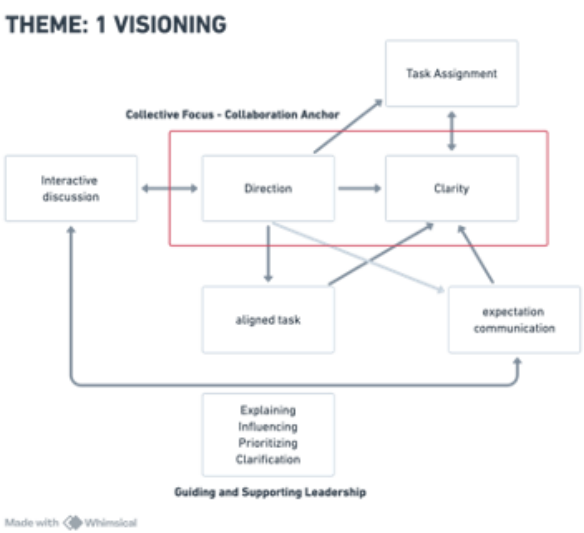
- Can you say more about that?
- What do you mean by …?
- Do you mean that …?
- Have you ever experienced other …?
- Do you have specific experiences in mind, or is this a general opinion?

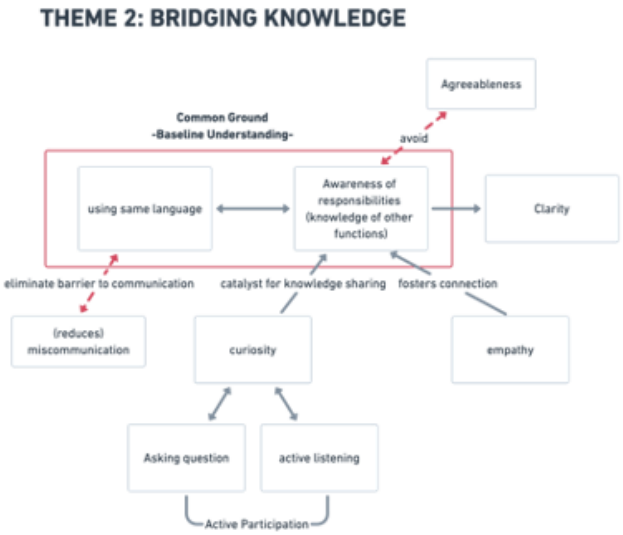
- Can you tell me about …?
- Could you give me an example?
- What would that look like?
- If I were watching such a situation, what would I see?
- Why is that important to you?
- Why does that stand out in your memory?
- Why do you think you noticed that?
- Why does that matter?
- I'm beginning to get the picture but some more examples might help.
- You have spoken a lot about xx strategies/values/practices your leaders applied. This is great, but can you also think of other strategies/values/practices?

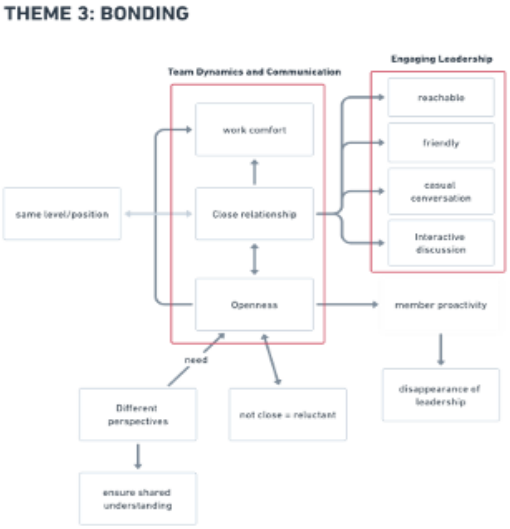
Appendix B: Code Mapping


Challenges of Cross-Functional Collaboration
Functional Diversity
Diverse Languages→ technical language
Diverse perspectives → different ways of thinking, opinions, interests
Lack of CLARITY
Limited understanding (code: difficult to understand)
Conflicting perspective
Miscommunication
Agreeableness
Limited coordination
Misalignment


ALIGNMENT
Ensure shared understanding
using same language
Aligned vision
Aligned task
Clarity
Interactive discussion
Awareness of responsibilities (knowledge of other functions)
Direction
need
work comfort
close relationship
Limited understanding


THEME: 1 VISIONING
Task Assignment
Collective Focus - Collaboration Anchor
Interactive discussion
Direction
Clarity
aligned task
expectation communication
Explaining
Influencing
Prioritizing
Clarification
Guiding and Supporting Leadership
Made with Whimsical


THEME 2: BRIDGING KNOWLEDGE
Agreeableness
Common Ground
-Baseline Understanding-
avoid
using same language
Awareness of responsibilities (knowledge of other functions)
Clarity
eliminate barrier to communication
catalyst for knowledge sharing
fosters connection
(reduces) miscommunication
curiosity
empathy
Asking question
active listening
Active Participation


THEME 3: BONDING
Team Dynamics and Communication
Engaging Leadership
work comfort
same level/position
Close relationship
Openness
reachable
friendly
casual conversation
Interactive discussion
member proactivity
need
Different perspectives
not close = reluctant
disappearance of leadership
ensure shared understanding

Appendix C: Codebook

Codebook: Cross-functional Teams Characteristics

Category	Code	Description and Indicators	Example
Cross-functional Challenges: The interviewee talks about, describes, or mentions about **challenges or problems** he/she faces within the cross-functional team.	Agreeableness	This code identifies the situations where the interviewee expresses a tendency to go along with the team, especially when they don't know much about the subject. They tend to say yes, **listen passively or to conform with the group's decisions without objection**. **Indicators:** - Passive acceptance of group decisions or methods due to a lack of knowledge. - Verbal expressions of compliance ("just go with it") in unfamiliar situations, indicating a tendency towards agreeableness.	TM: "But, mostly if it doesn't involve me, and I don't understand the topic, then I just listen as usual." TM: "But since we don't know, i just go along with it. So I don't know, I can't criticize it, I just tend to agree if it's about things I don't know."
	Limited Knowledge and Understanding of other functions	This code identifies the situations where the interviewee explains the situation where he/she **doesn't have much knowledge about other functions**, leading to limited understanding of the work context. This also includes when there is a need **to have some level of knowledge mentioned** (e.g. ask for more explanation about what something means) to follow discussions and contribute meaningfully to the team. **Indicators:** - Describing a situation where they face **confusion** due to unfamiliar terms or	L: "Because being a leader is one thing, regardless of background. But if you don't understand the functions of each member, which are different, and you're only skilled in where I come from, then it won't work." TM: "If I want to have a conversation but I don't understand at all, then it's confusing. How should I talk? So at least I should know a little bit." L: "So, for example, an engineer is

		concepts - Expressing a lot of "I don't know" or "I don't understand" phrase - Acknowledging the necessity to understand cross-functional perspectives at a basic level, without requiring in-depth expertise.	confused, like, who do I need to talk to if there's this issue? Or a problem I need to face. Oh, it turns out I need to talk to RY, as an engineering function. Or say, oh, this is from SH's side. SH is confused, the requirements don't match what was expected in the initial PRD. Oh, who do I need to talk to? Eventually, they need to talk to me."
	Different Perspective	This code applies when individuals express the **difficulties and considerations in merging varying viewpoints, interests, or expectations from multiple departments or specialties within a team.** It is particularly relevant when discussing how diverse functional perspectives influence reactions, decisions, or project goals. This also includes expressing the need to understand the way of thinking of other functions.	TM: "Because the TS team has an opinion like this, we need to react in what way, as a function, you know? I have a viewpoint that from a design perspective, it should be like this, maybe engineers have their own views, how should our reaction be? For example, I have a viewpoint from a design perspective that it should be like this, maybe engineers have their own views, that's an important value." TM: "Yesterday, there might have been an issue with profile updates on the MVP profile on the participant page. I happened to be there with an engineer, and we had some differences in opinion. I think it was because we had different expectations. Usually, when I expect an update, I design it based on my

			understanding. But it turned out that it didn't match the engineer's expectations."
	Miscommunication about tasks or directions	This code highlights instances of **confusion or misunderstanding arising from unclear tasks or directions** among team members from different functions. It surfaces when individuals describe situations of **interpreting instructions differently, leading to varied and unexpected outcomes during collaboration.**	TM: "Sometimes, we also experience this when the task or order is not clear. Often, we end up interpreting it ourselves. For example, through the eyes of a designer function, I would create it this way, or as a TS, I would make it this way. Then, when a discussion is held, it turns out different, like that. It seems we are not yet aligned, not on the same level, not on the same page, like that. That's why I think it's important because the first issue is miscommunication, to avoid that." L: "Because if not, there is a possibility, for example, needing from the team of talent scientists and from the team of UIUX and engineers, but if the goal is not clear, it can happen that when the task is given to each team just to create a feature, the UIUX team might come up with a result towards Direction A, but the UIUX has already designed towards Direction B, while the engineer might implement it differently again in terms of output."

	Technical Language	This code is applied when team members encounter **communication barriers due to the use of specialized technical language** within crossfunctional interactions. It addresses the difficulty individuals from one functional area have in conveying technical concepts to colleagues from different areas, such as engineers explaining to UI/UX designers or talent developers.	L: "The main difference is clearly in communication because among the same function, in the sense that I was previously an engineer, among engineers we use very technical language and there are no problems. But when it comes to non-engineers, like in this case UIUX or TS, we can't use overly technical language which needs to be simplified because if we can't explain things in a general way, people might just nod along even though they don't understand anything and might also not get it, which is the most noticeable issue." TM: "Exactly, exactly, because from TS to engineer the gap is wide, what we discuss, like if I talk about significance, high or low correlation, negative or positive, what is that?"
Cross-functional Collaboration Enablres: The interviewee talks about, describes, or mentions about key elements he/she **finds important, needs, or expects** in the cross-functional collaboration process.	Clarity of tasks, goals, roles, and expectations	This code is tagged when the interviewee talks about, describes, or mentions the **need for or importance of clear tasks, goals, roles, and expectations within the team.** It's also applicable when the interviewee explains the effort of ensuring all team members understand their **responsibilities** and the **purpose** behind their work, often achieved through questioning, explaining, and aligning on a vision.	TM: "So, from there, they *(the leaders)* need to be able to divide or manage, oh this from this need, the task of TS here, the role of engineer here, the role of product design here. So, like communicated each of us, what we can do to support that need. So, TS does A, engineer B, product design C." TM: "Because it avoids wasting time

			since the work is usually ongoing. So if it's wrong from the start, it has to be redone, that's why communication needs to be clear from the beginning, what the expectations are, maybe even have to give examples like this, isn't that what is expected." L: "So, there's this need, so I communicate it that from the design team, yes, this needs design. From the TS team, it needs calculations and narratives like that. The engineering team also needs it. Later, it will be implemented into the system."
	Awareness of Responsibilities (Knowledge of other functions)	This code is used when there is a **need or effort of recognition and understanding of one's own and others' roles/responsibilities/scope of work** within a crossfunctional team, both from the leader and team member. It involves the clarification of tasks to ensure all members are equipped with the necessary knowledge to perform their duties. It also includes when interviewee shows the (need of) understanding of how he/she or other functions can contribute.	TM: "Because they know, knowing each other's work, communication can be much smoother." TM: "The DM (*delivery manager*) should know more about what the report builder from the engineering team side is like and what the purpose is from the functional team of the others involved. So communication between engineers and UIUX can be aligned, in the same direction." L: "(if) now it's about reports, how

			the calculations are done, what the counts are about, so I delve deeper into what the calculations from TS mean, what norms they imply, something like that."
	Close Relationship	This code applies when the interviewee discusses ideas, expectations, or actions related to fostering close relationships within the team. This reflects a focus on building strong interpersonal connections. It also encompasses situations where the interviewee mentions a desire for a work environment where team members **feel easily reaching out to each other** and **view one another as colleagues they can trust and potentially even become friends with.**	TM: "So when you have a close relationship, you can definitely speak more freely, and maybe eventually dig deeper." L: "So, like, I sometimes tell them, 'It's okay to ask, it's okay to always, like, if you don't know, ask your colleagues.' Sometimes this job isn't just yours alone; there's always another team function." L: "When becoming a manager, first: I need to know the person, at least be able to chat and joke a little with me. So when promoted, because I was previously like ABC, as a leader I will still be ABC. The only difference is having more responsibilities."
	Openness	This code is used to identify instances where interviewee mentions/describes the importance of **being open and straightforward in his/her communication across functions or with the leaders.** It is also possible if in the statement, there is a nuance of expectation that other team	TM: "So it's better if there's a problem or a blocker to just be open about it, saying 'I think I'm struggling with this part.' Who knows, there might be a solution from other colleagues."

		members **can directly say about their struggles** and **what has been going on.**	L: "Creating an environment for them to be able and capable of expressing their opinions. That's the first level. Because with that, they even practice for, okay if I talk about this, will people want to change with me because there has to be a space for practice first." L: "So, if they really can't, they just say they can't, if they're close, right. Like, if it's someone they're not close with, they might hold back what they say. But if they're close, the conversation becomes more open, like, 'I can't do this, it should be like this, it has to be like this.'"
	Using the same language	This code is applied when interviewee mentions/describes/shows the efforts for, the need for, and importance of **adopting a common language or simplifying jargon across different functions.** It also includes when the interviewee gives cases or experiences where it's difficult to understand what other functions mean or say because of the technical terms, giving impression the need of having the same "human" or "general" language.	TM: "But essentially, TS also needs to be able to simplify TS language to a level that everyone can understand, so engineers get it, PMs get it, that's how it should be." L: "Like TS says something very technical, and then immediately, are others understanding this or not? And then, no, can you explain in human language?" L: "Aligning language, one. Aligning language or conducting orientations so people start to get to

			know, like in my cases in TS, they need to start using human language. Engineers need to use human language. Language that is understood by other functions."
	Work Comfort	This code overlaps somewhat with the "close relationship" code. However, it's specifically applied when the interviewee discusses the team dynamics that contribute to their sense of comfort and collaboration within the team. Additionally, it can be applied when the interviewee expresses **a desire or need for a supportive and comfortable work environment**, fostered by close relationships, for both team members and leaders.	TM: "In my opinion, sometimes we can't control people, how they want to express their opinions. Sometimes when we talk, (it feels like) it's a normal thing, but it feels like it's not being accepted, so maybe they withdraw from the conversation and choose to be silent." TM: "Yes, it (close relationship) can affect the comfort of work, and things that are motivational, like when the leader can create more bonding among the team, then we feel comfortable working, continue to be comfortable and open with each other because the atmosphere has been set like that." L: "Because if it's very stiff, I'm confused, where is this going, is what I'm saying wrong, or is the way I'm delivering it wrong and others, so it's just not readable."
	Aligned vision	This code applies when the interviewee discusses **the need for, the importance of, or expectations regarding a shared**	L: "Where I have the big picture, not just big but I know a bit more in-depth and they not just know the

		understanding of goals. This shared understanding encompasses what the team as a whole aims to achieve, as well as the individual tasks and contributions of each team member.	details, they also need to know the big picture there will be a point where it will intersect, right? The effective thing is we can meet in that intersection so that the conversation connects." TM: "I'm really happy because it certainly feels supported. There's a shared understanding, even though there's still some thinking, it turns out we're on the same page." TM: "Previously, the fun assessment was, okay, tests, product designers, and engineers really worked on it together. And we knew what our target was."
	Same level/position	This code applies when the interviewee discusses the **need for, or the importance of, a work environment that minimizes hierarchical distinctions.** In such an environment, interactions between leaders and team members are based on **mutual respect and collaboration, regardless of titles.** Communication and responsibilities reflect a sense of equality, and leaders adopt a less authoritative style. It also applies when the interviewee implicitly describes a team-oriented culture where contributions are valued equally, and leadership is viewed as a	L: "I think the difference between being a leader and not is that if there's a problem, I have to be at the forefront, that's it. The rest is the responsibility of what my team or any team member works on, whether there's a problem or not." TM: "And a leader who isn't bossy because I believe that we are all working together; it's just that there are positions and different responsibilities."

		coordination role rather than a command structure.	TM: "With the leader, so far with the leader it's like, 'Y I want to update the norm', 'Y, want to implement SJT into typeform', and so on. But maybe because the communication feels like not superior-subordinate, feels like equal collaboration. Like from Y then like this, that. I don't feel it's leading, or maybe because of my expectations."
	Aligned task	This code applies when the interviewee discusses **a need for, expectation of, or the importance of shared understanding regarding cross-functional tasks necessary to achieve a common goal.** It often involves clear communication to **coordinate activities** and **regular updates** to ensure all team members are **aligned in their task execution.** This code frequently relates to themes of clarity, direction, and a unified vision.	L: "From W, 'okay I'm ready, this week this item will be done and this week it will shape up like this, what the item looks like and what the dummy report looks like', I can make this. Same also to engineer, product design." TM: "So like if our engineer's goal is to finish Pauline by, let's say, February 29th. There must be info there too, asking QA."
Way of Collaboration: The interviewee talks about, describes, or mentions **how the collaboration between functions within the team occurs in practice**	Interactive discussion	This code is applied when the interviewee talks about, mentions, or describes the situation where the team **engage in the meaningful discussion where team members from different functions (can include the leaders) exchange information, brainstorm ideas, coordinate efforts, or solve problems.** It is also possible that interviewee mentions how leaders intentionally ask her/him or other team	TM: "There's a moment when I had an idea for PM C and wanted to be heard, which I appreciate, being listened to first, even though I feel like my speaking is usually convoluted, but it's taken into consideration and then it turns into a discussion." TM: "It happened once but I forget

		members for doing discussion together and build conversation with a clear output what the discussion is for.	the moment, but there was once an issue that the team couldn't answer until finally, I think it was discussed with AA too. So finally because I reported that the engineer's team couldn't answer, finally we called PM and DM to discuss about what we have to do about this data." L: "Sometimes I'm the one who initiates, (like) let's discuss this, talk about this, there's an inquiry or need for something like that. For example, client XX, which I mentioned before, needs an assessment to measure work stress. Alright, I gather the kids, from the commercial team, TS and designer to discuss this."
	Casual conversation	This code is applied when the interviewee talks about, mentions, or describes the situation of casual conversation where team members (can include the leaders) **talk not strictly related to work tasks**, such as **sharing personal life, joking, and having motivational conversations.** This code also refers to informal and spontaneous communication within the team. It can be initiated by the leaders or naturally done by the team members.	TM: "Maintain, like talking or maybe sharing things outside of work, that's interesting. It's often created, even though we're struggling or whatever, we shouldn't be too tense." TM: "If it's to team members maybe because sometimes team members are more casual, like usual outside of meeting hours, just spontaneously like that."

			L: "Just that if I know someone, at least I know how they joke, or that's the very basic for me. But beyond that, if there's a chance to talk, we talk, not necessarily one-on-one, it can be in a forum or elsewhere."
	Disappearance of Leadership	This code captures instances where the interviewee talks about, mentions, or describes the **direct collaboration between her/him and other functions without needing leader's existence or facilitation in the process.** This is often reflected in the ways team members take initiative, make decisions, or communicate directly what he/she needs to other functions.	TM: "I think my design will be worked on by engineer A without going through DM. So it's not a bad thing because it actually cuts the process." TM: "For instance, when we're making a prototype, we work together with the UI designer, even I and DO often go to the prototype room, to discuss this and that. Similarly, I and BE set up our own room to solve problems. So, it was initially managed by me and BE together so that if there are questions, I can respond directly." TM: "Now, if the task has already started or is about to start, I usually go directly to the other cross-functional team, like UIUX, I go directly, not through the leader first."

Table C1. Codebook which contains of cross-functional characteristics, such as challenges, enablers, and its way of collaboration.

Codebook: Leadership

Category	Code	Description and indicators	Example
Leadership Practices: The interviewee talks about, mentions, or describes the **efforts**, **intentions**, **actions or behaviors of the leaders while leading the collaboration** in the team.	Ensuring shared understanding	This code identifies the **intentions, efforts, actions, or behaviors of the leaders to build and ensure shared understanding, where everyone in the team has a clear, mutual understanding of tasks, goals, and expectations.** This is not only applied between team members, but between the leaders and each function as well.	TM: "The leader's aware, if others seem not to understand. Then there's an effort, an action, that's the action. How to make others understand. Everyone can, so it's brought in low context language that everyone understands." L: "So, if you guys realize, at times, everytime I have already talked a lot, then I'll be like, okay, let's stop and recap, like this and that, do you all understand? Okay, let's continue. This ensures that if something is unclear, it's okay to speak up now. We'll straighten it out first. It's like giving space for that."
	Direction	This code captures the intentions, efforts, and behaviors of leaders in **providing guidance, setting goals, and establishing clear objectives for their teams.** It includes the **communication of the purposes and expectations** behind the tasks and responsibilities in a way that aligns team members' efforts with the organizational objectives.	TM: "If someone doesn't understand their responsibilities, it simply means they don't understand what they are supposed to do. So, it's the leader's job to tell them, 'You are doing this for this reason.'" L: "I explain what the task is, what the objective is, they might also ask if there are challenges, communicate difficulties, or updates, this task is done, all that sort of thing." L: "So when I invite them, okay guys,

			let's see what it ends up like. People talk about vision, about whatever. But always inviting them, can you imagine what the end looks like? To make sure they understand the big picture."
	Task Assignment	This code is applied when interviewee talks about, mentions, or describes **how leaders delegate tasks, distribute responsibilities, and manage the task for team members across the functions.**	TM: "When it comes to the PM, it's more about receiving tasks, or, well, tasks usually come from the PM. So what I usually consider a leader is someone who provides guidance and direction." L: "There's this need, so I communicate from the design team needs, yes, it needs a design. From the TS team, it needs calculations and narratives. The engineering team needs it. Then implementation into the system." L: "For example, MD, you work on this, DA, you work on this... When is it due, has it been done, if there are problems how do we solve them?"
	Controlling	This code is used when interviewee talks about, mentions, or describes the intentions, efforts, actions, or behaviors of the leaders to **supervise, regulate, and guide the work progress** within the team. It reflects how leaders **ensure the quality of the works meet the standards or expectation** and keep the	TM: "Moderating has several meanings, like controlling, for example, each function bringing its own ego, knowing how to limit, 'Don't bring this up yet, we're still talking at this level, let all functions understand first, then we move up,' like that." TM: So, it's like we are followed-up by

		works within its planned scope and specifications.	the leaders. For example, we create something and then we give it to them *(the leaders)* along with the requirement notes and a deadline. Then, we discuss it again during the follow-up meeting to see how far we've progressed. L: "Ensuring there are no obstacles each day. Because indeed in the sprint cycle there is this daily report ensuring there are no bottlenecks, ensuring there are no obstacles." L: "We collaborate more on various things. For instance, we can discuss what updates my team members would like to make based on yesterday's work and identify any potential obstacles."
	Facilitating Communication	This code is used when interviewee talks about, mentions, or describes the intentions, efforts, actions, or behaviors of the leaders to **act as moderators, connectors or bridges** in the collaboration process, such as in discussions. It also includes situations when interviewee explains how leaders step in to **mediate discussions and resolve conflicts, facilitate the decision making process, and clarify the information from each team member to establish the baseline understanding.**	TM: "If there is a small conflict or a difference of opinion, there is definitely a mediator from the team leader, giving a view from this angle, that angle. So the conflict can't be said to be a big conflict just a difference of opinion only." L: "So actually, if it's from me, maybe I facilitate it by bridging, for example, implementation at Engineer ZA, design from F, then TS from N, then I bridge, we set up a meeting together, we discuss related to the needs, related to

			the implementation, L: "So, I can help, okay if this vision how to combine each other ideally can connect or not, which part is the gap or actually contrary, then I act as a facilitator for them to express their views about their visions."
	Decision Making	This code identifies instances where interviewee talks about, mentions, or describes how leaders **make decisions** that (can) influence the direction or outcome of projects and initiatives. It involves how leaders **handle choices, weigh options, set priorities, and determine what the team members should do or what actions should be taken in certain situations.**	TM: "The end will likely be about making a decision, like we'll go with it, perhaps that wise characteristic of the leaders comes into the decision maker." TM: "we were stuck on where to take the data from, which tool to use, the last one or the newest, and then the decision from the leader was there as a tiebreaker. 'Alright, let's leave the uncertain for later,' L6 said." TM: "The first thing, he can communicate what is needed now, or what is prioritized now." TM: "For example, (*leader*) will say, 'Let's start with the design aspect'. If the design really requires it to be that way and the engineer can't fulfill it, but it's going to take a long time, then we should discuss or negotiate again whether the timeline can be adjusted. For now, just set up the system like this,

			and later on, it will be implemented in a way that currently can't be done yet’"
	Visualizing	This code captures the instances where the interviewee talks about, mentions, and describes how leaders **employ visual tools and other illustrative tools** to facilitate decision making, clarify complex concepts, guide the direction of projects, and present information.	TM: "Not everything can be explained with words because sometimes there are points that are easier to understand if asked visually." TM: "If we talk about the PM, yes. He/she usually sketches. Maybe because sketching is also his/her hobby ... The leader has not only been able to visually illustrate it, but also how the concrete things are, (so) that really helps. It means we just need to handle the detailing." L: "We've been talking, but there are still some limitations that my colleagues don't understand about this issue and need help. Usually, I use visuals, flows, diagrams, etc. So far, it has been quite relevant and helpful in my case."
	Bringing Specialty	This code is applied when interviewee talks about, mentions, or describes how **leaders apply and bring their specialized knowledge to provide detailed guidance and troubleshoot issue.**	TM: "If it's (*leader's name*), he/she knows right away, just understands right away. We connect right away because we're from psychology too. Others are like, 'what is it,' etc. (*Leader's name*) always says, 'try to explain so everyone understands,' then *(Leader's name)* always explains it again to make sure that all the team understands the results I just presented."

			TM: "For (*Leader's name*), it might be the same, leaning more towards this, like, actually for handling issues like that, there's already a routine that needs to be done at the engineer level. So, when there's an issue, he/she already knows how to mitigate it."
	Confirming	This code is applied when interviewee talks about, mentions, or describes how leaders engage in **confirmation activities, such as asking questions, clarify, revisit topics or express their perspectives and crosscheck it with him/her or other team members.**	TM: "When I have explained it, it is always re-explained by R (the leader), clarifying what I meant, to make the team understand better." L: "If there are issues related to the test equipment, at least from me, I ask first what the issues are." L: "Later, when there are enough, like 5 or 7, I can confirm this to the commercial team, like 'Here are the numbers, and previously. Do we still need this? Is it still relevant? If yes, then we'll focus on this.'"
Leaders' Characteristics: The interviewee talks about, mentions, or describes the attributes and/or attitudes of the leaders towards team members, collaboration, and task execution, including his/her expectation.	Caring	This code is applied in situations where interviewees describes **leaders who cares for and are considerate of their team members' well-being and professional development.** These leaders are **attentive to their team's conditions**, which includes personal and professional challenges. They **show concern and empathy** by asking	TM: "And... he also guides like, 'Oh, this is how you should do it. You need to do it this way.'" L: "There was a problem with my team member, so I'll escalate it to HR then ask them, 'how can we handle this, my team member is scared of this.'"

		questions and recognizing individual needs. This includes ensuring the team has the necessary resources to succeed.	L: "You can't just expect people to follow you all the time; it's not that simple. You need to understand them. And understanding, in a sense, is empathy. You need to understand the person you're talking to so that they are willing to do what you ask. It's not just about relying on authority." L: "But it ends up happening from the engineer's side that they cannot accommodate. Empathy is more about realizing that from the engineer's side, they've also made a significant effort, but it just hasn't happened yet and doesn't align with the timeline."
	Reachable	This code captures in situations where interviewee describes or mentions about how **leaders are approachable and accessible to their team members.** It emphasizes the importance of a **leader's availability for the team** to discuss ideas, resolve issues, and provide support, including the situation when the leaders want to involve themselves, engaged in the discussion even without being asked.	TM: "PM as well as DM, C along with CR, and AA, even if it's TS and Engineer, they will listen if they are not busy with something else. So always ready to mediate or when something needs to be decided. Like always on standby. And even if not asked, they usually will pay attention when really listening. So they usually jump in immediately, 'how about we do it this way?' So they join in. I see that's how the leaders are. And I think it's good." L: "I assume that because I feel I am reachable, this assumption, so it seems

			like if there is feedback or something, people can talk to me."
	Helpful	This code is applied when the interviewee describes the qualities of leaders who **offer assistance, guidance, and support to his/her or other team members.** This code may overlap with the "Reachable" code, but it also emphasizes how the leaders **have willingness to help** the team in resolving problems and give support to the tasks.	L: "If it's still not clear, I'll try to simplify it—if I can at that moment—and then check back with the person explaining to make sure what I've conveyed is correct." L: "Well, from my perspective, it's about whether I can help or not. For instance, if there's an issue with the system, and TS needs to extract data, then definitely, if someone asks for help, I can assist with that data extraction." TM: "Maybe one more thing, if there are difficulties, the leader is willing to provide support. Whether it's direct help or explanations, he/she is ready to explain in detail when team members don't understand or are having trouble with their tasks."
	Critical	This code is used when interviewee refers to leaders who show the **willingness to understand (complex) situations by asking further questions and having inquiry mindset, not agreeing easily but try to assess the situations or problems thoroughly.** It also includes situations where leaders show a way of thinking about several	TM: "From there, usually PM tries not to be normative, like asking 'so what will you do next' 'what different action will you take.' I think those triggers lead us to want to improve." TM: "If he/she (*the leader*), for instance, receives a request or encounters an issue, he/she will first ask

		possibilities or potential impacts of their decisions and actions.	about the beginning, 'what happened?' He/she asks about the cause, 'what caused this issue?'" TM: "They (*the leaders*) think about what they have to do, like what the impact will be, how they should handle it to keep the impact from being too big and to keep things moving."
	Encouraging	This code is used when interviewee talks about, mentions, or describes the situations where the leaders show their willingness or attributes to **motivate, influence, and inspire** the team in the collaboration process. It is also possible when interviewee describes how leaders can **demonstrate enthusiasm and give positive reinforcement** within the team, such as giving positive feedback or praise team members' efforts.	TM: "He/she can provide a clear vision and is good at inviting others to join." L: "So I like to occasionally say like it's okay to ask, it's okay to always be like if you don't know then ask your teammates, sometimes this work isn't just you alone, there's still a team function involved." TM: "He/she (*the leader*) doesn't look for mistakes in TS or engineer, he/she never does that, but okay, this is wrong, let's fix it together." TM: "If there's a leadership side like they encourage the members to be like, later we must be like this, and finally, we can achieve the goal together."

Table C2. Codebook which contains of leadership elements, such as practices and characteristics.