

The Role of Gender Diversity on Innovation Performance in Tech-Based Start-Up

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Acknowledgement

I used to wonder why they named it Philosophy of Doctor regardless of the subject of the study. Only during my PhD journey did I understand what being a PhD candidate means. I was required to understand not only the philosophical underpinning of my own research but also the philosophy of life. Countless times, I need to look back at my aims, reflect, and think about many things simultaneously. It is not only about how to conduct research and present robust findings but also how to appreciate all the processes. Being a PhD is not only about being a good researcher but also about being a good human being, being kind to others, being critical, self-disciplined, and resilient, and ultimately understanding that it is not just about you and your thesis. It is not about how great your contribution is, but what kind of human being you wanna be.

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-If you cannot stand the pain of study, then you will endure the pain of stupidity-

Imam Syafi'i

Abstract

In recent years, there has been an increasing interest in the relationship between gender diversity and innovation performance. However, how gender diversity brings values to foster innovation was not fully understood, particularly in tech-based start-ups as previous studies mostly focused on established firms. This research aims to understand how tech-based start-ups leverage gender diversity in their teams to improve innovation performance. To gain deeper insight into the institutional context, we adopt a multiple-case study approach. Twenty people from five different tech-based start-ups supported by five different stakeholders from entrepreneurial ecosystems were interviewed using semi-structured interviews between March 2022- September 2023.

Through the frameworks emerging from the study, a novel construct, “team innovation capability”, is introduced as the missing linkage between gender diversity and digital innovation performance. The findings indicate that having gender diversity within the team does not necessarily result in improved innovation performance. Only by establishing this capability, tech-based start-up teams could leverage gender diversity to achieve innovation performance. To develop team innovation capability, tech-based start-up teams should respond to institutional pressures and navigate their internal dynamics, including building inclusive organisational cultures, developing effective leadership, and establishing gender-responsive HR policies and practices.

Our research contributes to the existing debates by providing a rationale for the inconclusive findings on the impact of gender diversity on innovation performance in tech-based start-ups. We contributed to the literature by linking gender and innovation studies and advancing institutional theory and social role theory, highlighting the complex interplay between external pressures and internal dynamics in tech-based start-ups.

The results highlight the practical implications of enhancing the ability of start-ups to promote innovation by leveraging gender diversity in start-up teams. By advocating for gender diversity, our efforts align with broader sustainable development goals, amplifying the importance of inclusive practices within entrepreneurial ecosystems such as start-ups.

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Chapter 1

INTRODUCTION

1.1 Introduction

This study aims to investigate the phenomenon of gender diversity in tech-based start-up teams and its role in enhancing innovation performance. Even though innovation literature has extensively studied the relationship between gender diversity and innovation performance (Tm and Joseph, 2021), there is a lack of attention on emerging ventures, particularly in tech-based start-ups. Moreover, previous research focused more on proving the relationship between gender diversity on innovation performance using a positivist approach, resulting in a lack of attention on deeper insight into how and why gender diversity contributes to innovation performance. As a result, the findings were inconclusive, with several studies reporting a positive relationship between gender diversity and its innovation performance (Dai, Y et al., 2019; Wikhamn and Wikhamn, 2020; del-Mar-Fuentes-Fuentes et al., 2023), while other research indicated otherwise (Cropley and Cropley, 2017; Schneid et al., 2015; Roh and Koo, 2019) or even suggest that there is no significant relationship between gender diversity and innovation performance (Biga-Diambeidou et al., 2021; Fila and Purzer, 2014).

Given the inconclusive findings, the question of how gender diversity brings value to improve innovation performance remains unclear, especially in tech-based start-ups. Tech-based start-ups are part of the entrepreneurial ecosystem, which is believed to be an important hub for innovation (Jiménez and Zheng, 2018). Entrepreneurial ecosystems are catalysts for economic growth, particularly for start-ups, which contribute to job creation, innovation, and the development of new industries (Kansheba and Wald, 2020). Hence, by understanding how gender diversity within this ecosystem functions, policymakers and stakeholders could develop and design strategies to stimulate economic development.

Surprisingly, a literature search on gender and innovation studies revealed only a few studies considering emerging ventures when studying gender diversity and performance (Zhou, W. and Rosini, 2015). It is crucial since the previous research suggests that the impact of gender diversity on innovation might vary based on the firm's size. Small firms have more significant difficulties in capturing the advantages of gender diversity during the innovation process than large firms (Teruel and Segarra, 2017). It might explain why prior studies provide inconsistent

findings. However, new ventures, such as start-ups, have not significantly been studied (Klotz et al., 2014). It is important to note that start-ups have different characteristics from established firms due to differences in product development approach (Katila et al., 2022) or the internal behaviour of the employees (Sauermann, 2018) that potentially influence how gender diversity influences innovation performance. Therefore, there is a need to investigate how gender diversity in start-up teams could influence innovation performance.

Based on the previous discussion, we strongly argue that the influence of gender diversity on a team's innovation performance cannot be examined in isolation (Xie, L. et al., 2020) and requires a thorough analysis of other aspects that may affect this relationship. It is important to consider contextual factors such as external pressures and internal dynamics of the organization. Institutional conditions can play a significant role in shaping gender diversity in organizations, including regulation (Labelle et al., 2015), national culture (Attah-Boakye, R. et al., 2020), gender role norms (Arun et al., 2020), and the industry trend (Zhang, L., 2020). Moreover, apart from the external environments, how organizations respond to the institution and manage their internal dynamic also determines the impact. It depends on whether the team and organization have supportive organisational cultures (Cropley and Cropley, 2017). Gender diversity might not automatically lead to better innovation. However, how well gender-diverse team members interact and leverage their differences is crucial. Therefore, gender diversity should be studied alongside these interacting factors between external environments and internal dynamics to better understand its role in enhancing innovation performance.

In other words, research often frames gender diversity through a purely economic lens (Cunningham, 2020), treating diversity as a simple scorecard that needs to be achieved (Collins et al., 2000) while ignoring the structural complexities and a relational system of power in which identity is constructed (Gheaus, 2015). Research should acknowledge any contextual factors, both internal and external to the organization such as institutional pressures and internal dynamics. Without integrating these factors, research might continue to produce inconclusive results. This risks undermining the gender diversity agenda whenever a direct correlation with innovation performance cannot be easily proven.

Hence, our research aims to fill in the gap and contribute to the literature on gender, entrepreneurship, and innovation performance by considering the influence of institutional pressures on internal dynamics. The focus of this study is to understand how start-up teams leverage gender diversity in their teams to increase innovation performance. We aimed to

enhance the theory by examining the interaction between external pressures and internal dynamics. Our research focused on both macro and micro perspectives, analysing the various conditions affecting tech-based start-ups' capability to leverage gender diversity to achieve innovation performance.

Our research adopted a qualitative approach by conducting multiple case studies (Yin, Robert K., 2003) to understand how context and mechanism typically interact. This strand of investigation is considered crucial since gender is a vital social factor shaping organisational life that potentially influences a firm's performance (Adam et al., 2004). Therefore, there is a need to increase management's awareness that gender diversity is important not only for equality reasons but also to potentially improve a firm's innovation performance.

1.2 Motivation of the study

The motivation for this study is presented in this section. Gender is now recognized as a critical factor in business success and has become one of the UN's 17 Sustainable Development Goals (SDG), which focuses on the development of gender equality in all aspects of life (DESA, 2023). SDG number 5 places a significant emphasis on the empowerment of women, which encompasses the promotion of gender diversity within enterprises and organizations. However, the progress is slow, and existing literature addressing this matter is still limited. To accelerate achieving this objective, gender equality must be promoted in a broader social context. Therefore, it is essential for organizations to actively encourage gender diversity within the workplace (Eagly and Sczesny, 2019). However, whether having gender diversity could improve innovation performance was not fully understood. Thus, there is a need for comprehensive investigation to gain deeper insight on how organizations leverage gender diversity to increase innovation performance, particularly in tech-based start-up, an area that was overlooked in previous studies.

In this section, the significance of institutional pressures and internal dynamics in gender and innovation research will be discussed. Subsequently, a discussion on innovation performance is presented, including definitions and measurements. The chapter concludes by addressing the identified knowledge gap motivating the study.

1.2.1 Gender Diversity

There are at least three primary reasons why incorporating gender in innovation is crucial: the demographic, economic, and equality arguments. The equality argument, which aligns with

global Sustainable Development Goals (SDGs), emphasizes that men and women should have equal opportunities across all sectors. Demographic arguments highlight the importance of workforce distribution, arguing that excluding women from the innovation process represents a significant waste of human resources (Abels, 2012). From an economic perspective, addressing gender imbalance in innovation is vital for enhancing performance. Venkatesh and Morris (2000) demonstrated that men and women perceive digital innovation products differently, suggesting that involving women in innovation can lead to better product acceptance and outcomes. As a result, there is a growing interest in the topic of gender and innovation performance.

Previous research provided a strand of evidence that gender diversity in a team could influence innovation performance. However, the results were inconsistent. It is argued that men and women in the team create important synergies during innovation process (Okoń-Horodyńska et al., 2016). Likewise, other scholars suggest a significant and positive impact of gender diversity on innovation performance (Dai, Ye et al., 2019; Marinova et al., 2015; Ritter-Hayashi et al., 2019; Ruiz-Jiménez, J.M and Fuentes-Fuentes, 2016; Ruiz-Jiménez, J.M et al., 2014). However, other works proposed a contradictory argument and concluded that gender diversity does not significantly impact innovation performance (Biga-Diambeidou et al., 2021; Roh and Koo, 2019). In other research, men and women show no differences in their innovativeness (Steyn and de Bruin, 2020; Nählinder et al., 2015).

In contrast, Cropley and Cropley (2017) and Schneid et al. (2015) found a significant negative impact of gender diversity on team performance. Cropley and Cropley (2017) highlighted that an unsupportive organisational culture could hinder women's potential in contributing to innovation performance. On the other hand, Schneid et al. (2015) focus more on gender egalitarianism and collectivism as cultural contexts that influence the relationship between gender diversity and team performance. Moreover, instead of focusing on innovation performance like Cropley and Cropley (2017), Schneid et al. (2015) were more focused on team performance, such as task performance and contextual performance. While team performance is part of the team's outcome, we argue that innovation performance requires a more complex process than executing daily routines, such as task performance. In summary, while both mentioned the cultural context in moderating the impact of having gender diversity in a team, their research did not elaborate on the details of how and why some organization fails to benefit from a gender-diverse team. Therefore, there is a need to explore deeper into

how organisational culture influence the relationship between gender diversity and innovation performance.

We argue that previous research above has yielded inconclusive and often contradictory findings, primarily because it relies on a 'score-card' methodology (Collins et al., 2000) that treats gender as a static numerical ratio. By focusing solely on the headcount of men and women, prior studies have largely ignored the structural and relational complexity of gender (Bracke, 2014; Carver, 2003). Such gender-blind approaches assume that a woman enters a team as a neutral unit of labour. This approach fails to account for the institutionalized hierarchies (Jenkins and Keane, 2014) and the differential politics of mobility (Clarsen et al., 2014) that govern women's ability to contribute to the innovation process.

Our research, on the other hand, proposes a more comprehensive and substantive approach. Rather than treating gender as a fixed, independent variable, we consider its complexity by framing it as a social mapping system (Gheaus, 2015). This means our investigation moved beyond counting team composition and associating them with innovation performance. We analysed the context in which gender was constructed. We investigated how external institutional pressures within the Indonesian entrepreneurial ecosystem (Waylen, 2012) shaped the internal dynamics within the team which then influenced how gender diverse teams worked and collaborated. By moving from symbolic representation to substantive participation, this study provides a more comprehensive understanding of the mechanisms that drive innovation performance.

1.2.2 Institutional Pressures

The underrepresentation of women in politics has led to the adoption of gender quotas in legislation (Hughes et al., 2017). As more countries implement these quotas in the political sphere, public attention has increasingly shifted toward encouraging businesses to enhance female representation on their boards (Labelle et al., 2015; Hughes et al., 2017). Several countries, including Norway, Canada, Greece, Austria, Belgium, Denmark, and others worldwide, have developed specific laws governing gender diversity on corporate boards. Consequently, many firms in those countries have adopted gender board quotas as a critical component of corporate governance practices (Hughes et al., 2017).

The phenomenon mentioned above is one example of how formal institutions could force organizations to increase the adoption of gender diversity within their board. The influence of

institutions on organizations is multifaceted, establishing institutional pressures for organizations. Since organizations operate within institutional environments, their practices often mirror or respond to the regulations and frameworks of the broader context (Terjesen et al., 2015). Therefore, institutional theory was employed in our study to understand these pressures

Institutional theory provides a theoretical framework for analyzing how organizations respond to external pressures and shape their organization's behaviour. For emerging ventures like start-ups, gaining legitimacy by complying with institutional pressure is essential as they try to enter the industry, which is characterized by ambiguity and uncertainty, especially when they are more vulnerable than established firms (Freeman and Engel, 2007).

DiMaggio and Powell (1983) argued that institutions are not limited to formal regulations that provide coercive pressures. They categorized three types of pressures: coercive, normative, and mimetic pressures. Coercive pressures are associated with formal and informal institutions that enforce mandatory compliance through the threat of sanctions or penalties. Mimetic pressures are related to the tendency of organizations to mimic other successful organizations. Normative pressures are related to any process related to internalizing values that might come from cultural norms, education, or professional networks. These three types of pressures could provide a rationale for organizations to behave in certain ways, creating the possibility of isomorphism.

To exemplify, informal institutions such as social expectations and cultural norms could result in gender stereotypes within the industry. There is a notion that the IT industry is a masculine industry (Wajcman, 2000), causing persistent problems of gender imbalance in the IT sector (Ahuja, 2002). Even though some women successfully entered the industry and were involved in the innovation process, women tend to be invisible during the innovation process (Pecis, 2016).

As discussed above, one major factor that influences the gender gap in innovation is the institutional context (Carrasco, 2014). Institutional context could provide constraints and opportunities for gender-diverse teams in tech-based start-ups to achieve innovation performance. Therefore, it is important to understand external factors, such as societal norms, legal regulations, market dynamics, and investor expectations. It will help start-ups navigate their internal dynamics to leverage gender diversity to improve innovation performance,

especially within tech-based start-ups that face greater uncertainty than established firms (Freeman and Engel, 2007).

Even though there is a growing recognition of the role of institutions and their influence on the relationship between gender diversity and innovation performance in recent years (i.e. Arun et al., 2020; Attah-Boakye, R. et al., 2020; Zhang, L., 2020), there is a lack of attention on the individual behaviour of firms operating under the same institutional context. Moreover, how the response interacts with their internal dynamics was not fully understood. Examining these interactions is crucial to understand how tech-based start-ups, despite their limited resources and challenging conditions, can optimize and leverage gender diversity to enhance innovation performance.

1.2.3 Internal Dynamics

Apart from external factors such as institutional context that might have potential to influence gender diversity within a team, internal provisioning conditions within tech-based start-up is also paramount to be considered. The consideration of internal provisioning conditions is significant because it enables us to gain insight into the varying responses of organizations within the same institutional context.

Oliver (1991) elaborate on the capability of organizations to respond differently, namely Acquiesce, Compromise, Avoid, Defy, and Manipulate, emphasizing that organizations within the same institutional context might behave differently according to their internal strategies. Oliver (1997) argues that organizations can play an active role in responding to institutional pressures. Likewise, Farndale and Paauwe (2018) also present concern about how the decision-making process within organizations is not triggered only by external pressures but also by its internal components within organizations. The issues of the interdependent nature of the two sources of pressures need to be acknowledged, namely internal and external pressures.

On the other hand, there is currently no established consensus regarding the precise definition of internal pressures. As opposed to the definition of external pressures, the term "internal pressure" in organizations generally refers to the forces or factors that arise within the organization itself and can influence the behaviour, attitudes, and decisions of individuals or groups within the organization. Previous research includes various aspects of internal components of organization factors. Greenwood and Hinings (1996) used the term intra-organisational dynamic to describe the internal characteristics of organizations, which consist of interest, values, power dependencies, and capacity for action.

In the start-up context, there is a scarcity of research elaborating the definition of internal dynamic. Some literatures refer internal dynamic as dynamic capabilities that encompass the internal capacities and processes that enable the organization to adapt, innovate, and manage change effectively (Santos, A.A.A.d.S. and de Pádua, 2023). Other research such as von Kolpinski et al. (2023) defined internal dynamics within start-ups as the internal barriers, enablers, competences, and drivers that influence the implementation of sustainable circular business models. These dynamics include human-centeredness, managerial commitment, required skills, and cultural considerations within the organization. In this study, we define internal dynamics as internal provisioning condition of tech-based start-ups that influence their internal strategy, particularly in the context of managing gender diversity within the team.

While various definition of internal dynamics exists, most of previous research focuses on different aspects of an internal organisational component. For example, organisational commitment and manager role (Bornay-Barrachina et al., 2023), organisational strategy and culture (Farndale and Paauwe, 2018), workforce diversity, regulatory scrutiny, corporate culture (Dobbin et al., 2011), and internal corporate governance (Aresu et al., 2022). Based on these components, in this study, we summarize three components of internal dynamic: leadership, organisational culture, and HR policies and practices.

While this section provide an overview of internal dynamics as an internal provisioning condition of tech-based start-up that have potential in shaping gender diversity within the team, Chapter 2 section 2.3.4 will provide details explanation on three components of internal dynamics namely leadership, organisational culture, and HR policies and practices. Section 2.3.4 will also explains empirical findings on previous literature related to gender diversity within the team.

1.2.4 Innovation Performance: An overview

This section will provide an overview of innovation performance, beginning with the definition of innovation and its types, followed by a discussion on innovation performance including its definition and the antecedents factors, particularly focus on gender diversity. Understanding this concept will clarify our foundation in conducting this study.

Definition of Innovation

In the literature, we identified several definitions of innovation. Innovation can be defined differently depending on its focus; it can be defined as an outcome (products /services) and it

can also be defined as a process of creating new products/services (Agnete Alsos et al., 2013). In more classical literature, innovation is defined as new combinations of production factors such as the production of new goods, introduction of new processes, opening of new markets, access to new sources of raw materials and intermediates, and re-organization of an industry (Schumpeter, 1934, p. 66). Innovation also refers to an idea, practice, or object perceived as new by an individual or other adoption unit (Rogers, 2003, p. 11). In this study, we follow the more recent research of qualitative analysis of innovation conducted by Singh and Aggarwal (2022), innovation is defined as the operationalization of creative potential with a commercial and/or social motive by implementing new adaptive solutions that create value, harness new technology or invention, contribute to competitive advantage and economic growth.

Types of innovation

Trott (2021) had elaborated on different types of innovation such as product/service innovation, process innovation, organisational innovation, management innovation, production innovation, and commercial/marketing innovation. Each types of innovation focus on different outcome. For example, product/service innovation focused on developing new product/service while process innovation focused more the organisational process such as the development of new manufacturing process. On the other hand, organisational innovation focused on the new internal process of organization such as new division or new procedure in the organisational process while commercial/marketing innovation focused on new way of introducing product/service to the market.

In addition, Tidd and Bessant (2020) also categorized the types of innovation based on its novelty, which then can be categorized into incremental and radical innovation. Incremental innovation refer to improvement within existing products where radical innovation refers to entirely new product/service.

It is important to highlight that in this study, we focused on the product/service innovation. This does not imply that the list of innovations above is not significant. However, our focus on product/service innovation aligned with our investigated cases which focused on tech-based start-ups that produce product/service innovation. This focus has been chosen to ensure clarity of our study in tech-based start-ups that develop digital innovation. Moreover, we did not differentiate between innovation, whether it is incremental or radical innovation, because in practice, it would be difficult to assess the novelty of the product as it might be context-

dependent, what may seem incremental within the industry might be radical in a particular setting.

Innovation Process

Tidd and Bessant (2020) categorized innovation process into several processes namely searching, selecting, implementing, and capturing. In searching, it involves scanning the (internal and external) environment for and processing relevant signals about threats and opportunities for change while selecting involves deciding which signals that the organization wants to respond to. In implementing phase, the organization focused on translating its potential into something new, while capturing involves sustaining and growing its market for their innovation.

Another scholars such as Hisrich and Kearney (2013) describes innovation process from generating ideas and recognizing opportunities, analyzing the relevant areas and facts, developing insights based on the analysis, seeking connections or bridging, seeking creative leaps, developing concepts, evaluating alternatives, selecting and planning for implementation, and carrying out Implementation.

Although both frameworks provide insights into innovation processes, in practice, we found that the processes often overlaps, and the process often did not always linear, particularly in the context of tech-based start-up where the process often more complex and iterative. Therefore, in this study we intentionally chose to refer to general term of innovation process to maintain holistic and flexible process of innovation. Moreover, our study focused more on exploring the role of gender diversity on innovation performance rather than focused more on mapping gender diversity contribution on each stage of innovation process.

Innovation Performance

Innovation is important for start-ups to gain competitive advantage and has been known as a key success factor to win competition. Moreover, innovation is also important component in the progress of human society which not only provide a stimuli for economic growth but also contributes to the advancement of human societies (Trott, 2021). In order to be able to evaluate its innovation, managing innovation performance is important, especially for start-ups as it begin their journey to enter the industry. Moreover, innovation performance measurement is an important aspect of understanding and improving entrepreneurial success (Mardiani et al., 2023).

Innovation performance can be defined as the measurement that organizations can use to evaluate their innovation and provide past information to support continuous improvement (Schentler et al., 2010, p. 302). Innovation performance is a result of multiple influencing factors and represents all achievements and results derived from innovation (Robertson, J. et al., 2023). How previous research measure innovation performance varies. It highlights the complexities of measuring innovation performance, especially in the start-up context. Therefore, how previous studies measured innovation performance, and how we, in this study, develop a multidimensional concept of innovation performance will be explained in more detail in Chapter 2 section 2.3.5.

Innovation Performance and Work teams

A systematic literature review conducted by (Tshetshema and Chan, 2020) found that demographic diversity is an important factors to be considered when forming innovation teams. They found that high diversity of demographic dimensions, namely age, gender and culture increases team innovation performance when considered individually while the overall team demographic diversity has mixed effects. This indicates that it is important to considered specific types of diversity when exploring its impact on innovation performance.

Although did not mention the details mechanism on how and why, previous research shows evidence that compared to other surface level of diversity such as age, and ethnicity, gender diversity have a significant impact on innovation performance (Østergaard et al., 2011; Yang and Konrad, 2011; Ali, M. et al., 2014; Scharfenkamp et al., 2023). Therefore, in this study we focused on gender diversity.

In summary, while this section provides an overview of innovation performance and its significance, Chapter 2 delves deeper into difference measurement approaches used in prior research and a detailed rationale for how we measured innovation performance in this study. We also elaborated in 2.1 on why we should focus on gender diversity as the important factors in studying innovation performance.

1.2.5 Knowledge Gap

Previous research has given great attention to the topic of gender and innovation, particularly on how gender diversity have an impact on innovation performance (See Appendix 1). However, the results were far from conclusive due to several reason. First, most prior research was too focused on proving the impact of gender diversity on innovation performance. In

contrast, the explanation of how gender diversity could enhance innovation performance remained underexplored. Second, previous research has predominantly focused on established firms and often neglected to explore entrepreneurial ecosystems (Zhou, W. and Rosini, 2015), such as start-up teams. This is important not only because start-ups are the catalyst for economic growth but also due to the fact that diversifying team composition at a later stage might be problematic due to path dependence and resistance among existing team members (Huang, S. et al., 2023).

Third, previous research was more focused on developed countries (Ritter-Hayashi et al., 2019) while exploring this phenomenon in developing countries provides more nuance insight as it has different characteristic compare to developed countries (de Paulo et al., 2017). Therefore, we used Indonesia in our research setting as it offers a unique cultural context. The Indonesian context is highly patriarchal (WorldBank, 2020) and strongly influenced by religious practices (Aziz et al., 2020), and the formal policy to support diversity in organizations is not explicitly regulated. Considering the local context, our study illustrates how each tech-based start-up operates within a developing country with a high gender gap and patriarchal cultural context. On the other hand, the capital city of Indonesia is nominated as one of the best cities for the start-up ecosystem, creating a paradoxical situation for women entrepreneurs in the technology industry. Therefore, the phenomenon of gender diversity in a tech-based start-up team within the context of a developing country such as Indonesia provides distinctive contextual conditions.

Therefore, rather than focusing on proving the impact of gender diversity on innovation performance, as most previous research has, our study investigates how tech-based start-ups leverage gender diversity to enhance innovation performance by considering its external pressures and its internal dynamics. Hence, an intriguing overarching question is “How do tech-based start-ups leverage gender diversity within their team to enhance its innovation performance?” with some derivative questions that will be explained in the subsequent chapter.

The thesis is structured as follows:

Chapter 2: Literature Review

This chapter reviews the literature on related topics and theories, such as social role theory, institutional theory, gender, and innovation. It then leads us to the initial conceptual framework that guides our research.

Chapter 3: Research Design

This chapter reports the reasoning behind the selected approach and the methods employed in our study. It begins by outlining the theoretical and practical considerations influencing the research design to ensure that the methodology aligns with the objectives of our study. This chapter presents the philosophical underpinning of this study along with the rationale why case study research was used. This chapter also provides a background of the research setting, data sources, selected participants, and how the method of analysis was used.

Chapter 4: Findings

This chapter aims to delineate our analysis of each case, beginning with within-case analysis and closing with cross-case analysis. The within-case analysis begin with the description of each case along with their gender composition. The institutional pressures perceived by participants in each case were presented. Subsequently, internal dynamics including organisational culture, leadership, and HR policies and practices were presented alongside its innovation performance. The result of interviews with external stakeholders including investors, government, incubator service providers/consultants, and gender researcher was elaborated. Then, cross-case analysis were discussed. The last part of this chapter outlined the framework, as an outcomes of this study.

Chapter 5: Discussion

This chapter discussed the findings from our investigated cases according to existing theories and previous literature. It presented a comprehensive discussion on how our results align with, challenge, or expand upon existing knowledge. By critically engaging with prior research, this chapter identifies specific gaps, particularly related to institutional theory, internal dynamics, and innovation performance. The discussion underscores the significance of how this study advances understanding in areas or address a call from previous research.

Chapter 6: Conclusion

This chapter outlines the key findings by restating each research question and summarizing the corresponding results. It also elaborates on the study's contributions, discusses practical implications, and addresses research limitations. Additionally, potential directions for future research related to this study are presented.

Chapter 2

LITERATURE REVIEW

This chapter aims to investigate the existing body of literature related to the relationship between gender diversity and innovation within tech-based start-ups. Figure 1 illustrates the detailed structure of this literature review chapter.

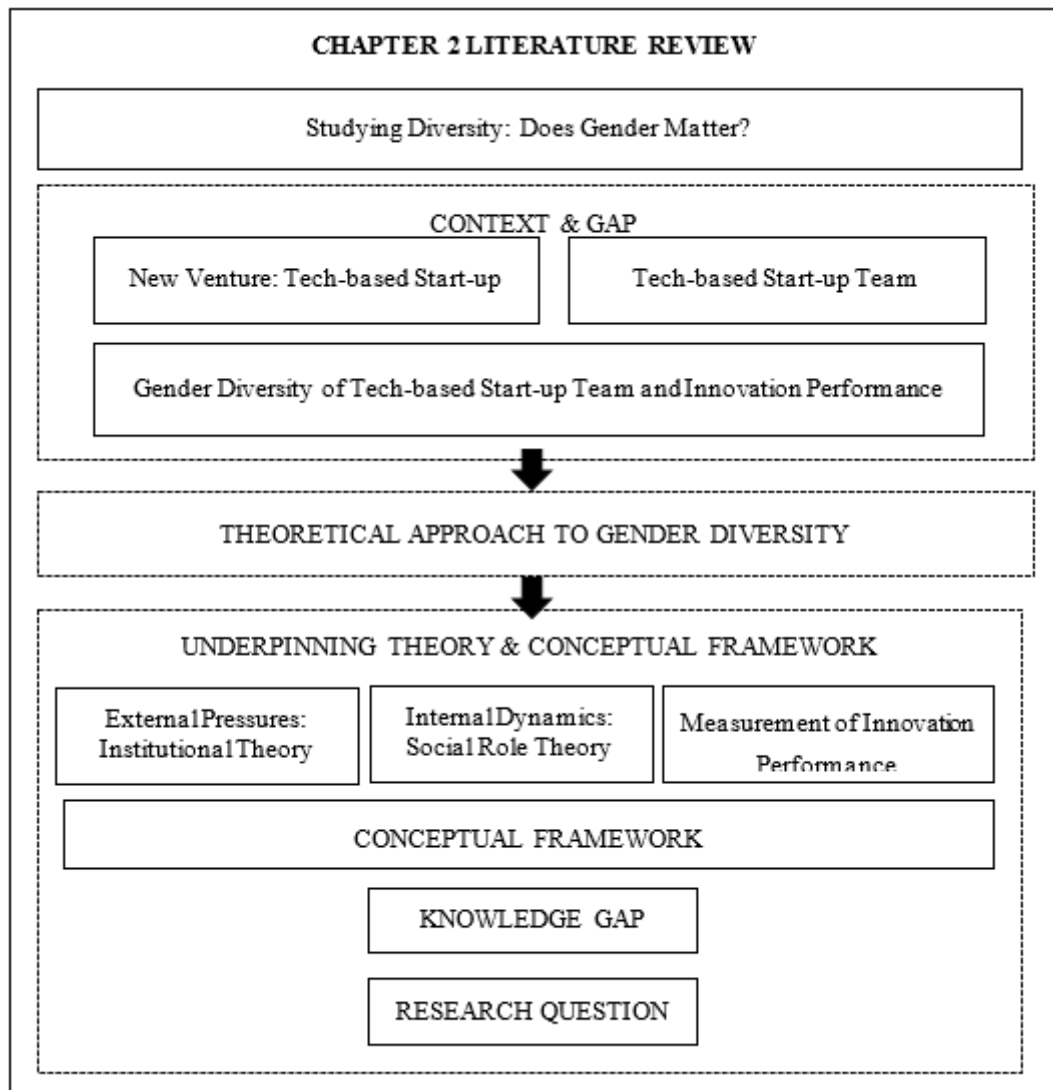


Figure 1. Literature Review Structure

The chapter begins by elaborating the justification of using gender diversity as a main issue in this study compared to other types of demographic diversity. Subsequently, we begin a discussion about context and gap by reviewing existing knowledge on gender and innovation, focusing on new ventures, particularly in tech-based start-ups. We started our review by

defining tech-based start-up and tech-based start-up team then reviewing previous articles that we found around the topic gender diversity, innovation, and start-ups.

The subsequent section outlines the theoretical approach that facilitates the selection of relevant theories to develop the conceptual framework. We discussed several theories related to gender diversity that we found in the previous literature. In the next section, , we elaborated on the underpinning theory to develop conceptual framework that we formulated as a guidance of our study. We then identify the knowledge gap and formulated several research question that guide the investigation in this study.

The selection of literature involves a systematic and rigorous process guided by predefined decision rules. The primary criterion for inclusion is the relevance of each source to the research topic and objectives with the use of keywords: “gender”, “innovation”, and “new venture” with all respected synonyms. At the beginning of the systematic review, Scopus-indexed articles with the most cited articles were prioritized, ensuring the credibility and reliability of the selected literature. After a thorough examination, the systematic reviews highlight the need to explore gender diversity and innovation within new ventures, particularly in tech-based start-ups.

2.1 What is Gender Diversity?

The discourse surrounding gender has evolved significantly since the 1960s, emerging from feminist thought to “conceptualize the social character of distinctions based on sex” (Bracke, 2014, p. 41). It invited feminist scholars to investigate how gendered identities are constructed and maintained. While earlier feminist scholars focused primarily on formal legal rights and access to the public sphere, later they expanded the analysis to explore how women’s presence in these spaces is governed by the complex social dynamics that shape their daily interactions and influence (Clarsen et al., 2014). This shift moves from getting access to examining how gendered power structures continue to shape professional experiences and social limitations within the public sphere even after formal barriers have been removed. To exemplify, statistically, there is an increase in the number of women entrepreneurs. However, previous research shows that women still have barriers and face many challenges in accessing funding or unfair scrutiny compared to men (See Balachandra, 2020; Hess et al., 2019).

On the other hand, building upon the discourse around gender, many countries have implemented regulatory mandates requiring companies to increase female representation on

their boards (Cunningham, 2020). This regulatory approach has invited a significant body of research on the impact of gender diversity within companies, shifting the focus from moral arguments for inclusion to empirical investigations of organizational outcomes. However, despite a significant number of research studies that use gender diversity as a category of analysis in their disciplines, the research process has remained masculinist in many ways (Jenkins and Keane, 2014). For example, within the field of innovation, innovation performance was often measured through the economic lens (Cunningham, 2020), such as its contribution to the revenue of the firms (Attah-Boakye, R. et al., 2020; Biga-Diambeidou et al., 2021), the number of patents (Javaid et al., 2023; Yoo et al., 2023) or products that have been produced (Galia et al., 2015; González-Moreno, Á. et al., 2018). Previous research found that women invest more in social initiatives (Taferner and Leitner, 2025; Apesteguia et al., 2012; Hechavarria et al., 2012). Consequently, when innovation performance is only measured through an economic lens, ways in which women contribute differently to innovation performance, such as by increasing its social impact, have been undervalued and unrecognised. As this example illustrates, innovation research is inherently gendered (Pecis, 2016). She argues that future research must move beyond a gender-blind approach to capture the social complexities of the innovation process.

Therefore, as elaborated by Bracke (2014) and Carver (2003), we are pushed toward a strong analytical understanding of gender and start to see gender as a social mapping system. It means that we should also consider relational systems of power in which identity is constructed (Gheaus, 2015). Mills, S. and Mullany (2011) argue that the way we talk and the way we associate with something might reproduce gender stereotypes and inequality. This is why understanding gender as a social mapping system is a complex process that cannot be quantified easily. As a consequence, when discussing gender diversity, focusing only on the ratio between male and female team members fails to capture the underlying social complexities (Bracke, 2014). We need to look into how diverse perspectives brought by different genders are actually utilized to drive creative problem-solving to improve innovation performance.

Scholars such as Bracke (2014) argue for the need to move beyond only surface-level, quantified observations. We must understand the specific contexts in which gender is constructed. To do this, previous research highlighted the role of both the state (Waylen, 2012) and institutions (Jenkins and Keane, 2014). Waylen (2012) argues that the state is a gendered

institution that can act as both an oppressor, by policing women's bodies, and a provider of rights, by supporting women in the public space. Our research setting, the Indonesian entrepreneurial ecosystem, illustrates this tension. Even though the Indonesian State upholds democracy as a core principle, this does not guarantee the successful implementation of gender equality across all aspects of life, particularly within tech-based start-ups, which often associate with the competitive and masculinist world.

Hence, to fully capture whether team members of tech-based start-ups experience fairness and efficacy after participating in this ecosystem, the institutional framework must be considered. Jenkins and Keane (2014) underscore that institutions often have an internal logic that resists equity. Thus, simply adding women to a team may not improve innovation if the underlying institutional pressures favour traditional masculine norms of leadership or unsupported policy and organizational culture (e.g. internal dynamics within tech-based start-up). Furthermore, we notice Carver (2003) warning against the narrow frame of treating gender merely as a synonym for women. By including men's voices in this study of Indonesian tech-based start-ups, we aim to capture the full spectrum of internal dynamics and institutional pressures that dictate how ideas are shared and valued across gender within the team.

To sum up, we did not define gender diversity as a static numerical ratio or treat gender merely as a variable. Following Collins et al. (2000), we reject a "score-card approach" (p.38) that focuses solely on balancing numbers to improve innovation performance. Instead, we defined gender diversity as substantive relational practices by considering how gender diversity within the team is influenced by external institutional pressures and internal team dynamics. We argue that for gender diversity to truly drive innovation performance, tech-based start-ups must move toward a substantive redistribution of power that allows for diverse thinking and ideas. We need to understand the role of institutional pressures and internal dynamics, which we aim to address in this study.

2.2 Innovation and work teams

As has been discussed in Chapter 1 section 1.2.4, innovation is important for any organization to gain a competitive advantage and increase organisational performance (Yildiz and Aykanat, 2021). Thus, as the role of innovation is important for organizations, scholars and practitioners still conduct research to explore specific actions and strategies that may help to improve innovation within organisational contexts (Rousseau et al., 2013). One key area of focus within this research is the role of work teams in fostering innovation.

A three-decade literature review conducted by Hülshager et al. (2009) found that team process variables such as team vision, team external communication (team members' relationships outside their team could invite diverse viewpoints and information), and team task orientation, were more strongly related to creativity and innovation measured at the team level than the individual level. It highlights the importance of understanding the team-level factors that influence innovation and how they can be effectively managed to enhance innovation within organizations (Wechtler et al., 2024). According to Rousseau et al. (2013), a team-based approach may enhance the process of innovation from generating creative ideas to successfully implementing ideas. Therefore, research on innovation in work teams has gained more attention in recent years. Innovation in work teams usually focuses on the extent to which a team, as a whole, develops useful new ideas and converts them into outputs (Zhang, M.J. et al., 2022).

As research on innovation and work teams has evolved, many scholars have paid attention to characteristics of the team and how this contextually influences innovation performance (Wang, H. et al., 2022). From the literature review conducted by Tm and Joseph (2021), there is a strand of research that highlights the role of diversity within work teams to enhance innovation performance. Drawing from the theory of value in diversity, following this strand of research, we argue that having gender diversity in a team composition has great potential to improve innovation performance. According to Livermore (2024), *“a greater variety in the forms and qualities of experiences is better, ceteris paribus, than worlds with less diversity of subjective experience”*.

As has been discussed in the previous section (Section 2.1), gender diversity is considered one type of diversity that has an impact on innovation performance (Østergaard et al., 2011; Yang and Konrad, 2011). However, the results from previous research were inconclusive. Several studies (i.e. Dai, Ye et al., 2019; Marinova et al., 2015; Ritter-Hayashi et al., 2019; Ruiz-

Jiménez, J.M and Fuentes-Fuentes, 2016; Ruiz-Jiménez, J.M et al., 2014) have provided evidence indicating a noteworthy and positive influence of gender diversity in a team on the performance of innovation. Nevertheless, other studies argue to the contrary, i.e. that gender diversity in a team does not have a substantial influence on innovation performance (Biga-Diambeidou et al., 2021; Roh and Koo, 2019). These conflicting findings suggest that further research is still needed to gain insight on the relationship between gender diversity within a work team and innovation performance.

According to Ruiz-Jiménez, J.M et al. (2014), gender-diverse teams will allow combinations of knowledge from individuals with different socialization histories (Ruiz-Jiménez, J.M et al., 2014). From an information-processing perspective, gender diversity will lead to a more diverse pool of resources that could impact the quality and quantity of idea generation in innovation (Schneid et al., 2015). Gender diversity also increases the opportunity to enhance the breadth of perspectives, cognitive resources, and overall problem-solving capacity (Dwyer et al., 2003) as well as new business opportunities (Mawdsley et al., 2023). On the other hand, gender diversity might also have detrimental effects. Some scholars have argued that diversity might create difficulties in coordination and increase the potential for conflict (Der Foo et al., 2005; Chowdhury, 2005). Thus, it remains important to further investigate the conditions under which gender diversity within work teams can enhance innovation performance

Despite the growing popularity of studies investigating innovation in work teams, little is known regarding the impact of having gender diversity on innovation performance within the entrepreneurial ecosystem. Therefore, our study focused more on investigating the role of gender diversity in a work team on innovation performance, specifically, within tech-based start-ups.

2.3 New Venture: Tech-based Start-up

Despite the extensive body of research investigating gender and innovation (Agnete Alsos et al., 2013), there is a lack of studies exploring the dynamics within entrepreneurial settings such as tech-based start-ups. Particularly, regarding women's participation in new ventures that focus on technology initiatives, which are traditionally known as male-dominated sectors (Kuschel and Lepeley, 2016).

On the other hand, it is important to address this significant gap because women's involvement in technology development is considered crucial and could support sustainable development

by empowering women, facilitating their access to crucial information, and engaging them in social, economic, and environmental development (Kerras et al., 2020). Moreover, Venkatesh and Morris (2000) presented empirical findings indicating differences between men and women in using digital innovation products. Incorporating women into the innovation process will increase the likelihood of achieving greater acceptance from potential users.

In addition, recognizing the significant contribution of women in the IT field can help address the persistent issue of gender imbalance by providing a role model (Ahuja, 2002). Ultimately, prior studies have demonstrated that having gender diversity within a team has a positive impact on technological innovation (Ruiz-Jiménez, J. M. et al., 2016; Ly-Le, 2022).

2.3.1 Definition

A new venture is defined as “... the end result of the process of creating and organizing a new business that develops, produces, and markets products or services to satisfy unmet market needs for the purposes of profit and growth” (Chrisman et al., 1998). Some authors limit the firm's age and size when defining a new venture and state that a new venture is a firm that is six years old or younger (Amason et al., 2006; Zahra et al., 2000). On the other hand, other scholars are more flexible and stretch the definition as long as they do not mature yet, which is usually eight to twelve years old (e.g Tocher et al., 2012; Zahra and George, 2017; DeGhetto et al., 2021).

As various definitions of new venture have been proposed, Klotz et al. (2014) defined the term ‘new venture’ as “... *a firm that is in its early stages of development and growth. In general, such firms are in the process of bringing their initial products/services to market, forming a customer base, and putting into place organisational processes and procedures*” (p.2). This study will adopt this definition since it considers the complexity of different industries without limiting the size or age of the firm.

Focusing on a tech-based start-up, it is defined as a company that attains profitability by engaging in research and development (R&D), acquiring new expertise, and expanding into new markets (Ahn et al., 2022). In Blank and Dorf (2020), start-up was defined as a temporary organization in search of a scalable, repeatable, profitable business model. Ries (2011) defined start-up as a human institution designed to create a new product or service under conditions of extreme uncertainty. In our study, we defined tech-based start-ups as new ventures that use technologies such as the Internet, e-commerce, computers, telecommunications, robotics, and

artificial intelligence, as a core component of their business model to develop innovative products, processes, or services.

2.3.2 Tech-based Start-ups Team

There is a notion that entrepreneurship is often seen as an individual act. However, most individuals frequently set up a team to create a new venture, particularly in technology-based ventures. The future of new ventures was significantly influenced by their initial condition in the early stages, especially their founding team (Milanov and Fernhaber, 2009; Eesley et al., 2014). It indicates that the composition of the initial team have a sustainable impact on the development and outcomes of ventures (Eesley et al., 2014). Moreover, diversifying a team at a later stage might be problematic due to path dependence and resistance among existing team members (Huang, S. et al., 2023). Therefore, we argue that gender diversity in the founding team has been important since the beginning of the development of the new venture.

Furthermore, the majority of studies investigating gender diversity were focused on the firm level. In this study, we focus on the team level as the team plays a significant role in the innovation performance of tech-based start-ups. Start-up teams should gain more attention from scholars as most tech-based start-ups are founded and led by teams rather than by individuals (de Mol et al., 2020; Steffens et al., 2012). However, studies around start-up teams were still limited (Klotz et al., 2014). Therefore, the start-up team was used as a unit of analysis.

Turning to the definition of start-up teams, previous scholars mention that start-up teams have a shared commitment and an interdependency, the members usually hold possession of an executive position in the foundation of the venture (Box and Larsson, 2018). Klotz, et al define a new venture team as “*a group of individuals that is chiefly responsible for the strategic decision-making and ongoing operations of a new venture*” (Klotz et al., 2014, p. 3). Shepherd et al. (2021) define a founding team as a group of individuals who collectively create a venture. Thus, we define a tech-based start-up team as a group of individuals who collectively create tech-based start-ups. This definition includes all individuals beyond their financial contribution to the venture and emphasizes the involvement of an individual in a strategic decision-making process that directly contributes to team performance. The context of decision-making in this study includes any strategic decision regarding product innovation.

This study focused on start-up teams for several reasons. First, the tech industry has historically been male-dominated, leading to the perpetuation of stereotypes and biases, which can be

harmful to foster innovation. Moreover, women who work in the IT industry often faced some specific challenges compared to other female-dominated industries (Ahuja, 2002).

Second, the tech-based start-up ecosystem is more challenging due to market uncertainty and rapidly changing technology development. Moreover, start-ups have less capital, fewer scientists and engineers, less legitimacy, brand presence, fewer strategic alliances, evolving organisational structures, and incomplete business processes compared to established companies (Freeman and Engel, 2007), which makes start-up teams play a critical role in navigating these complexities.

Third, the pervasive gender imbalance within the IT sector on a global scale underscores the urgency of addressing and rectifying these disparities (Gorbacheva et al., 2019). By focusing on start-up teams within the tech industry, this study also contributes to unfolding barriers and promoting a more equitable representation of genders in the tech industry. The ultimate goal is to contribute insights that can inform initiatives and policies aimed at fostering gender diversity and inclusivity within the IT sector worldwide.

2.3.3 Gender Diversity and Innovation Performance

As a new venture, tech-based start-ups are pertinent within the context of this study, as innovation plays a pivotal role in ensuring their survival upon their entry into the industry. As has been discussed above, tech-based start-ups have to face more complex challenges including less capital, expertise, and strategic alliances which make it difficult to compete with corporations. Therefore, they need to maximize their limited resources in order to innovate and gain a competitive advantage.

Box and Larsson (2018) confirmed that ventures founded by teams have a higher probability of surviving. This is likely because more people can provide access to different access pools from a more extensive network. When a team consists of a gender-diverse team, it is likely that the resources are more varied and members could have various perspectives representing different market segmentation. Therefore, investigation on the team level was considered important as it plays a critical role in new venture success.

However, there is a lack of scholarly research regarding the topic of gender diversity within tech-based start-ups and its potential influence on innovation performance. There has been research conducted within new venture team, which were considered relevant. Table 1 presents a compilation of relevant scholarly works that serve as a fundamental basis for comprehending

the relationship between gender diversity and innovation performance in the context of new ventures.

Table 1 Literature related to new ventures, gender diversity, and innovation

Source	Method & Sample	Constructs	Conclusion
Dai, Y., Byun, G., & Ding, F. (2019). The direct and indirect impact of gender diversity in new venture teams on innovation performance. <i>Entrepreneurship Theory and Practice</i> , 43(3), 505-528.	Quantitative Three large, government-sponsored, high-tech industrial parks in China. 132 firms	Innovation Performance (self-reported Likert) Gender Diversity (Blau Index) Female employee presence New venture team functional diversity (Blau Index)	Gender diversity in a new venture team is positively associated with the venture's innovation performance(Dai, Y et al., 2019)
Teruel, M., & Segarra, A. (2017). The link between gender diversity and innovation: What is the role of firm size?" <i>International Review of Entrepreneurship</i> , 15(3), 319-340.	Quantitative 26,956 observations from 5,383 firms in Spanish during the period 2007–2012	Gender composition (Blau Index) Innovation type (Process, product, marketing, organization) Innovation Investment (External & Internal R&D investment per employee, Training investment per employee, R&D cooperation (dummy)	small firms have greater difficulties in capturing the advantages of gender diversity during the innovation process as compared to large firms. the impact of gender diversity in innovation outcomes differs depending on the innovation type (Teruel and Segarra, 2017)
Biga-Diambeidou, M., Bruna, M. G., Dang, R., & Houanti, L. H. (2019). Does gender diversity among new venture teams matter for R&D intensity in technology-based new ventures? Evidence from a field experiment. <i>Small Business Economics</i> , 1-16.	183 master business school students who played the role of the top management teams in the 61 new ventures	R&D intensity is measured as the ratio of RD-to-sales Blau Index	There is no gender difference within the new venture team and there is no significant impact of gender diversity on R&D intensity in high-tech new ventures (Biga-Diambeidou et al., 2021)
Li, H., & Wang, M. (2021). Collaborative innovation networks and innovation performance of new ventures: the contingent roles of gender diversity and education diversity. <i>Innovation</i> , 1-24.	156 firms at Shenzhen University Pioneer Park and Nanshan TechnoPark in China	Innovation Performance (self-reported, likert scale) Collaborative innovation network (Self-reported, likert scale) Gender Diversity (Blau Index)	innovation performance increases sharply for firms with a highly gender-diverse founding team and high employee education diversity when engaging in collaborative innovation networks(Li, H. and Wang, 2021)

Teruel and Segarra (2017) argued that smaller firms have difficulties capturing the benefit of having a gender-diverse team by providing evidence from Spanish firms during the period 2007-2012 using statistical inference. They argue that even though smaller firms had a more flexible organisational structure, they were not equipped with specific tools and skills to

optimize the potential of their human resources nor having the ability to cope with the potential problem caused by gender diversity. This research provides a supportive argument that exploring tech-based start-ups, which are small firms, is important since they are the one that usually fails to benefit from gender diversity.

However, Teruel and his colleague used a firm level as a unit of analysis, which is not considered relevant when investigating gender diversity. Bear and Woolley (2011) suggest that team collaboration is improved by the presence of women in a team. Therefore, it is important to ensure the interaction among different genders in order to benefit from gender diversity because the benefit of gender diversity depends on how collaboration may occur. In an established firm, which might have a high gender diversity ratio, men and women might work in separate divisions where they do not have any interaction during the innovation activities. For instance, women are commonly found in more routine jobs such as clerical support workers. In contrast, men are commonly found in more exploratory jobs such as research and development due to the division of labor and gender stereotypes. When they work independently, it will reduce the possibility of stimulating synergy since they never work together on a daily basis. Therefore, we argue that when considering gender diversity, analysis at a team level is more relevant.

In relation to the importance of using a team level, Biga Diambeidou and his colleague conducted an experiment to investigate the impact of gender diversity in a new venture team on R&D intensity. The results suggest that there is no significant relationship between NVT on R&D intensity nor any significant difference between a gender-diverse team and non gender-diverse team regarding decision-making in terms of firm risk-taking (Biga-Diambeidou et al., 2021). However, the results were not convincing since the team was artificial and intentionally formed from business students for the experiments. It will reduce the resemblance of a real-world context where the team members might have completely different histories and environments. It might dismiss the long-term perspective that each team member might have. Focusing on a short-term focused team might result differently. Therefore, investigating tech-based start-up teams in a real-world context is paramount since it will represent the dynamic interaction on how gender-diverse team works.

Turning to another research, by conducting a survey from high-tech industrial park in China, Dai, Y et al. (2019) analyse the impact of gender diversity in a new venture on innovation performance. The finding shows a significant positive influence on the relationship between

functional diversity on innovation performance and the relationship between female employees presence on innovation performance.

However, even though they were investigating a real work context at a team level, many questions remain unanswered. Specifically, the underlying mechanisms that contribute to the effectiveness of gender diversity have not been thoroughly examined, particularly concerning the impact of internal and external pressures on tech-based start-ups. Moreover, China is considered to have high economic growth. Thus, investigating an industrial park where resources are easier to access and the culture is supportive of women working in a male-dominated sector might be different from others that operate in different institutional contexts. This fact calls for further research in a setting that has a different culture and economic condition. Therefore, the answer to the question in a different country context whether having gender diversity in a tech-based start-up is beneficial remains unclear, especially in an emerging country such as Indonesia, which might offer a different cultural context.

2.4 Theoretical Approach to Gender Diversity

It is important to see some relevant theories that have been used to explain the phenomenon of gender diversity and its relationship to innovation. Many theories had been used in examining the relationship between gender diversity and innovation. Table 22 summarizes the theories, which have been used in previous literature.

Table 2 Cited Theories in Reviewed Articles

Theory Used	Argument	Articles
Upper Echelon Theory	The upper echelon theory posits that the background characteristics of top management teams exert a substantial influence on the decision-making processes within corporations (Hambrick and Mason, 1984).	(Konadu et al., 2022; Loukil et al., 2020; Makkonen, 2022; Bass, 2019; Iren and Tee, 2018; Hemmert et al., 2022; Tonoyan and Olson-Buchanan, 2023; Bazel-Shoham et al., 2023; Wu, J. et al., 2022; Moreno-Ureba et al., 2022; Tonoyan and Boudreaux, 2023; Agustia, 2023; Bauweraerts et al., 2022; Chu and Oldford, 2023; Issa and Zaid, 2023; Lu et al., 2022; Prencipe et al., 2023; Oh and Song, 2023; Prokop et al., 2023; Issa and Bensalem, 2023; García-Sánchez et al., 2023; Zahoor et al., 2023; Phan and Yu, 2022; Leszczyńska and Thénot, 2020; Nadeem et al., 2020; Khan et al., 2021; Attah-Boakye, R. et al., 2020; Biga-Diambeidou et al., 2021; Ruiz-Jiménez, J.M and Fuentes-Fuentes, 2016; Welbourne et al., 2007; Galia et al., 2015; Ruiz-Jiménez, J. M. et al., 2016; Dezsö and Ross, 2012; Lin et al., 2022; Adams et al., 2023; Kuzey et al., 2022; Yuan et al., 2012)
Stakeholder Theory	The stakeholder theory perspective suggests that there is a positive	(Moreno-Ureba et al., 2022; Gangi et al., 2023; Agustia, 2023; Zaman et al., 2023; Corvello et al.,

	association between the presence of female directors on corporate boards and the likelihood of firms adopting an orientation that prioritises the interests of various stakeholders(Liu et al., 2020).	2023; Quintana-García, Cristina et al., 2022; García-Sánchez et al., 2023; Ain et al., 2022; Orazalin and Mahmood, 2021; Ben Rejeb et al., 2019; Crichton et al., 2021; Liu et al., 2020; Konadu et al., 2022; Horbach and Jacob, 2018)
Agency Theory	The agency theory proposition that the presence of women on boards improves the oversight process, leading to more effective boards (Azzam, 2022)	(Azzam, 2022; Moreno-Ureba et al., 2022; Zaman et al., 2023; Javaid et al., 2023; García-Sánchez et al., 2023; Ain et al., 2022; Phan and Yu, 2022; Orazalin and Mahmood, 2021; Ben Rejeb et al., 2019; Hernández-Lara and Gonzales-Bustos, 2019; Atallah et al., 2021; Attia et al., 2021; Martinez-Jimenez et al., 2020; Konadu et al., 2022; Makkonen, 2022; Iren and Tee, 2018; Galia et al., 2015; Mukarram et al., 2018; Martini et al., 2012)
Social Identity Theory	Social identity theory explain on how the social context influences intergroup relations (Hornsey, 2008)	(Yoo et al., 2023; Machokoto et al., 2023; Wikhamn and Wikhamn, 2020; Xie, L. et al., 2020; Quintana-García, C. and Benavides-Velasco, 2016; Østergaard et al., 2011; Guo, J. et al., 2017; Mir-Babayev et al., 2017; Garcia Martinez et al., 2017; Jayashree et al., 2019; Faems and Subramanian)
Social/Self-categorization theory	Turner, J.C. et al. (1979) suggests that individuals categorize themselves as belonging to various groups, evaluate in-groups and out-groups, and constantly categorize themselves	(Yoo et al., 2023; Li, Y.x. and He, 2023; Wikhamn and Wikhamn, 2020; Zouaghi et al., 2020; Colovic and Williams, 2020; Guo, J. et al., 2017; Richter, 2014; González-Moreno, A. et al., 2018)
Critical mass Theory	where women are a minority group, they often face various obstacles when attempting to voice their opinions and exert influence over board decisions (Torchia et al., 2011)	(Moreno-Ureba et al., 2022; Prencipe et al., 2023; García-Sánchez et al., 2023; Ain et al., 2022; Konadu et al., 2022; Saggese and Sarto, 2019)
Social Role Theory	people's perceptions of social groups are shaped by certain behaviours in their regular roles in society (Khushk et al., 2023).	(Shukla and Teraiya, 2022);(Huang, W., 2021);(Liu et al., 2020);(Horbach and Jacob, 2018);(Zicheng et al., 2019);(Khushk et al., 2023)

The majority of theories used in the previous study above did not actually explain the mechanism of how gender diversity might improve innovation. It also has several weaknesses. First, the upper echelon theory posits that the background characteristics of top management teams exert a substantial influence on the decision-making processes within corporations (Hambrick and Mason, 1984). As upper echelon theory focuses on the top management team, it might overlook the critical role of the non-managerial team, which is involved in the innovation process. Moreover, the use of upper-echelon theory in the context of a tech-based start-up is irrelevant due to the embryonic organization structure that is often less structured or less hierarchical. The composition is often more fluid compared to established firms.

Second, the stakeholder theory suggests that there is a positive association between the presence of female directors on corporate boards and the likelihood of firms adopting an orientation that prioritises the interests of various stakeholders(Liu et al., 2020). The focus of

stakeholder theory is on emphasizing the importance of considering the interests of all stakeholders when making decisions, which is not the aim of this study.

Third, agency theory has been commonly used in previous research related to gender diversity. The agency theory proposition that the presence of women on boards improves the oversight process, leading to more effective boards (Azzam, 2022). Although the way it was used varied, the main argument of previous research mainly suggest that having gender diversity in a team could reduce agency problem in the company, which in turn could improve performance of the company. Overall, agency theory focuses on explaining the conflict of interest between an individual and the principal, which is not the focus of this study.

Fourth, social identity theory explains how the social context influences intergroup relations (Hornsey, 2008). This theory assumes that people's identities are based on their social group memberships, as well as their individual traits, which in turn will influence their behaviour towards other social membership. Gender is a salient characteristic of social identity, it influence an individual on how they behave and interact with other gender.

Fifth, similar to social identity theory, Social/Self-categorization theory suggests that individuals categorize themselves as belonging to various groups, evaluate in-groups and out-groups, and constantly categorize themselves (Turner, J.C. et al., 1979) . Both theories are rooted in the same perspective of social psychology and take a broad perspective on social processes. Social identity theory and social/self-categorization theory highlight the social process that might poses a challenge for gender-diverse team collaboration to improve innovation. While this theory might provide valuable insight into the interaction among different genders within the team, it may have some limitations in explaining how and why gender-diverse teams could improve innovation.

Another theory is the critical mass theory. Where women are a minority group, they often face various obstacles when attempting to voice their opinions and exert influence over board decisions (Torchia et al., 2011). Critical mass theory emphasizes the significance of having a sufficient number of women in a group to avoid being perceived solely as tokens. Most of the research on gender diversity that use this theory suggest that a company should have a gender-balance composition in order to improve innovation performance. However, focusing on numbers might overlook the possibility of backlash and resistance as the number of women increases in the organization, which could undermine legislative initiatives such as gender quotas (Krook, 2015). The relationship between innovation performance and gender diversity

might be more complex rather than just numerical assumption. Our study aims to reveal how gender diversity within the team could enhance innovation performance, therefore relying only on critical mass theory was not adequately help us guides this study.

On the other hand, social role theory emphasises the differences between men and women, which is assumed to be beneficial for collaboration to foster innovation. Therefore, among those theories, social role theory is considered relevant to use as an embedded theory for the conceptual framework guiding this study. Furthermore, Social Role Theory underscores the recognition of prevailing social roles within society, exhibiting a noteworthy alignment with Institutional Theory, which deliberates upon external factors, aligning with the aims of this study. The detailed elaboration on both social role theory along institutional theory and how it was used as underpinning theories in the conceptual framework will be discussed in the following section.

2.5 Underpinning Theory

In this section, the underpinning theory of the conceptual framework is critically analysed. In the entrepreneurship literature, innovation have been examined through various theoretical lenses such as Schumpeterian entrepreneurial innovation and sociological of entrepreneurship.

Based on the theory of economic development, Schumpeterian entrepreneurial innovation focused on the role of the entrepreneur/innovator in identifying and explore the opportunities to introduce something new, which are multi-dimensional, technical, organisational, products, marketing, etc (Mehmood et al., 2019; Schumpeter, 1934). On the other hand, the sociological theory of entrepreneurship focuses on the individual traits and characteristics of entrepreneurs or the context in which entrepreneurship occurs (Thornton, 1999; Botelho et al., 2024). Even though this theory offer an interesting explanation on how individuals and organizations affect and are affected by their social context, it does not delves deeper into institutional norms and gender roles that might have potential interaction in shaping tech-based start-up's innovation.

On the other hand, the success of enterprise innovation depends not only on the internal resources of an organization such as an entrepreneur itself but also on the external institutional environment (Wu, Y. et al., 2024). When investigating the impact of gender diversity on innovation performance, it is important to look into the external pressures. Therefore, while those theories provide valuable insight, they have limitation in explaining the role of gender diversity on innovation performance. These two theories does not adequately

address how gender norms and other external pressures influence gender-diverse team in enhancing innovation in tech-based start-ups.

One of the proven and popular theoretical foundation for exploring external environment is institutional theory (Bruton et al., 2010). Therefore, institutional theory will be used in this study. Moreover, as the focus of this study related to gender diversity, as has been outlined in section 2.2, social role theory will be used to provide rational on how gender diversity might influence internal dynamic within tech-based start-ups to enhance innovation performance.

2.5.1 Institutional Theory

Institutional theory provides a valuable lens through which we can understand the complex dynamics of external pressures on gender diversity within tech-based start-up teams. This theoretical framework emphasizes the impact of internal and external institutional pressures on organisational behaviour and practices. Within the context of tech-based start-ups, the effort to achieve gender diversity is a complex process that is shaped by a variety of external and internal influences. This section elaborates on the institutional theory perspective, exploring the external pressures that shape gender diversity initiatives in tech-based start-ups, as well as the internal dynamics within teams that play a crucial role in fostering or hindering gender diversity.

The subsections that follow will meticulously examine two pivotal dimensions: external pressures and internal dynamics influencing gender diversity in tech-based Start-up teams. Through this exploration, we aim to gain deeper insights into the intricate interplay between institutional pressures and the pursuit of gender diversity in teach-based start-ups.

2.5.2 External Pressures and Gender Diversity

Tech-based start-ups are strongly influenced by external and macro-conditions which means understanding the context in which firms operate is essential for collecting and interpreting data on innovation (OECD and Eurostat, 2018). Institutional theory provides the basis for the systematic analysis of innovation that considers external environments (Carvalho et al., 2017). It has been suggested by Box and Larsson (2018) through their longitudinal research that institutional transformation would influence the survival of the new venture.

Institutional theory suggests that organizations gain legitimacy by responding to their environment and social structures. The institution can be defined as *“a system of social beliefs and socially organized practices associated with varying functional arenas within social*

systems” (Scott, 1987, p. 499). Institutional theory indicates that institutions influence economic activities, organisational structure, and human behaviour (Iannotta et al., 2016).

There are two perspectives of institutional theory: sociological and economic (Turkulainen et al., 2017; Edeling, 1998). The economic perspective focuses on how organizations behave to increase efficiency and gain profit, while the sociological perspective focuses on how organizations try to gain legitimacy in response to external pressures (Edeling, 1998). As for this study, a sociological perspective was used as it was closer to the motivation of tech-based start-up teams in responding to institutional pressures, particularly for those that develop initiatives that not only aim to obtain profit but also social value creation. It means that to gain legitimacy it is important to increase the reputation of tech-based start-ups and increase its social performance.

Responding to institutional pressures leads organizations to behave in a specific manner which is called isomorphism. Even though to some extent, it will limit the organizations' innovative capacity and constrain organisational change (DiMaggio and Powell, 1983), organizations adopt institutional isomorphism to increase their legitimacy. Institutional isomorphism is a concept of institutional theory to explain the homogeneity of organizations in a field (DiMaggio and Powell, 1983). They proposed institutional isomorphism to explain how organizations respond to their external environment. They identified three mechanisms, namely: coercive, mimetic, and normative.

Coercive pressure can be defined as a response by firms to formal and informal pressures to increase their legitimacy. It can be in the form of government regulations or social-cultural expectations (DiMaggio and Powell, 1983). Formal coercive pressure usually comes from government regulations that organizations must comply with. Conformity to such pressures is mandatory or they would face any possible sanctions. It can be in the form of rewards or punishments. For example, government regulation on gender quotas in a board team coerces the organizations to have a particular procedure to consider gender in its recruitment and promotion procedures. Another illustration is the provision of up to two years of paid maternity leave for women when in other nations, just a three-month duration is provided.

Another form of coercive pressure is drawn from informal pressures, which are usually related to the conformity of cultural expectations (DiMaggio and Powell, 1983). Even though sometimes it is not written down, it coerces organizations to behave in specific ways. If the organization does not follow the expectations, it might reduce its reputation within society or

industry. Organizations in a particular region should actively participate in the cultural tradition in which they operate.

Apart from regulation and cultural norm, in recent years, research found that religion is not only affect entrepreneurial intention (Ali, J., 2023) but also could become a social shaping force in entrepreneurship and business (Kumar et al., 2022). The phenomenon of how religion influence entrepreneurial activity have become more prevalent in Indonesia context (See Chapter 3 Section 3.6.3).

Mimetic isomorphism explains that in uncertain environments, organizations tend to imitate other successful organizations in the industry (DiMaggio and Powell, 1983). Organizations reduce the risk by adopting another successful organization's strategy and behaviour. If observed behaviour contrasts with specific rules, then mimetic behaviour is followed to reduce uncertainty and lower risk (Kondra and Hurst, 2009). For example, when opening a new branch in a location where society is represented by different cultures there is a lot of uncertainty about strategy and organization activities, therefore, organizations usually tend to mimic what others have done to gain acceptance from local societies.

Lastly, any process that stimulates the homogenization and internalization of cultural norms can be considered as a normative process (Kondra and Hurst, 2009). DiMaggio and Powell (1983) argued that formal educational processes and professional networks are the primary sources of normative pressures. Normative pressure is reflected in an effort by organizations to establish legitimacy from collective professional allegiance. If the organization is a professional association member, a set of legitimized norms or rules are usually developed to which the members are bound. Another example is when the organization adopts certain behaviours because the managers are taught to do so as a standard practice learned from their education.

Table 3 Types of Institutional Pressures

Type of Pressures	Definition	Examples
Coercive	formal and informal pressures exerted on organizations by other organizations upon which they are dependent and by cultural expectations in the society within which organizations function (DiMaggio and Powell, 1983)	Government regulation, funder requirements
Mimetic	Imitating behaviour of other organizations caused by uncertainty (DiMaggio and Powell, 1983)	Benchmark to other organization
Normative	Arising from professionalization such as formal education and professional networks and association (DiMaggio and Powell, 1983)	Formal educational program, Training, Professional network and association,

Several studies have examined the relationship between institutional context, gender, and innovation (see Table 44). The influence of the institutional environment on women's innovative activity is considered significant (Carrasco, 2014). Institutional factors, such as national norms, cultural values, and country-level institutional quality moderate the relationship between gender diversity and innovation (Attah-Boakye, R. et al., 2020).

According to the findings of Arun et al. (2020), there is substantial evidence indicating that both regional formal institutions and informal norms exhibit a significant influence on the extent of innovation pursued by women entrepreneurs. The results emphasises that women's belief in their technological advancements was strengthened by the improvement of formal institutions, leading them to move away from their natural tendency towards non-technological advancements. However, this study exclusively focused on the gender of the leader without considering the composition and dynamics of their team.

In the context of tech-based start-up teams, the decision-making in the innovation process does not exclusively depend on the leader. Moreover, previous research conducted by Arun et al. (2020) and Carrasco (2014), used the national index as the measurement of institution, limiting the clarity on how different new ventures within the same country might perceive different institutional pressures. Likewise, focal firms often tend to align with prevailing industry trends. If other firms operating within the same industry adopt the logic of gender diversity-performance, it is likely to enhance the likelihood of increasing female representation within the focal firm to gain legitimacy (Mawdsley et al., 2023), extending the theory of how institutions give pressure to adopt gender diversity within the organization.

Table 4 Institutional Factors in Gender Diversity Research

Source	Method & Sample	Constructs	Key Findings
Arun, T. M., Joseph, R. P., & Ul Akram, M. A. N. Z. O. O. R. (2020). Entrepreneur's Gender And Firm Innovation Breadth: An Institution-Based View Of Smes In An Emerging Market Context. International Journal Of Innovation Management, 24(07), 2050068.	Quantitative Using data obtained from the World Bank Enterprise Survey and World Value Survey, and deploying the Poisson regression method	Dependent Variable: Innovation Breadth Index Independent Variable: Presence of woman top manager (WTM) Moderator: regional institutional quality (RIQ) Enforcement Gender Role (EGR) Male Preferences Index (MPI)	Female entrepreneurs and company innovation breadth are negatively moderated by regional formal institutional quality. Regional gender role norms positively moderate the relationship between female entrepreneurs and company innovation breadth. Under negative formal institutional quality and informal gender norms, non-technological innovation broadens more than technology innovation.

			(Arun et al., 2020)
Attah-Boaky, R., Adams, K., Kimani, D., & Ullah, S. (2020). The impact of board gender diversity and national culture on corporate innovation: A multi-country analysis of multinational corporations operating in emerging economies. <i>Technological Forecasting and Social Change</i> , 161, 120247.	Quantitative 472 multinationals in 21 emerging economies, covering nine years (2009–2018).	Firm-specific variables R&D Spending (RDSALES) Gender Diversity (GD) Board size (BSIZE) Non-executive directors (NED) Single largest shareholder (SBO) Leverage (LEV) Return on equity (ROE) Return on assets (ROA) Market-to-book value (MTBV) Hofstede's National Culture aspects Individualism Versus Collectivism (IDV) Masculinity Versus Femininity (MAS) Uncertainty Avoidance Index (UAI) Long- Versus Short-Term Orientation (LTO) Indulgence Versus Restraint (IVR) Country-level Institutional factors Regulation quality (REGQUA) Strength of investor protection index (SIPI) Rule of law (RULEOFLAW) Government effectiveness (GOVEFFECT) Control for corruption (CTRFORCORR)	Gender diversity is positively associated with corporate innovation. national norms, cultural values, and country-level institutional quality influence boardroom influence gender diversity, level of investment in research and development (R&D), and corporate innovation is considered (Attah-Boaky, R. et al., 2020)
Carrasco, I. (2014). Gender gap in innovation: An institutionalist explanation. <i>Management Decision</i> , 52(2), 410-424. doi: https://doi.org/10.1108/MD-07-2012-0533	Quantitative SEM (PLS) Data of 40 countries in 2008	Dependent Variable: Female Innovation Indipendent Variables: the informal environment of women innovators (early marriage, the gender employment gap and violence against women) Total Fertility Rate and the Unemployment Rate Tertiary Education Rate, Average Annual Earnings, Public Spending on Family Benefits, the rate of women researchers (Women Researchers), the postsecondary level of education of female entrepreneurs (WPostsecondary), and the Indices of female Mathematics and Science Scales (WMEIndex and WSEIndex)	The influence of the institutional environment on women's innovative activity is significant. In order to enhance, diversify, and foster more robust innovation activities, it is imperative to employ innovative thinking when integrating the gender perspective into innovative environments(Carrasco, 2014)
Zhang, L. (2020). An institutional approach to	Quantitative	Dependent Variables:	The impact of gender diversity on performance

gender diversity and firm Performance. Organization Science, 31(2), 439-457.	longitudinal sample of 1,069 leading public firms in 35 countries and 24 industries	Tobin's Q and return on assets (ROA) Independent Variables: Gender Diversity (Blau Index) Normative (the prevalence of women on boards of directors in each country and industry, the percentage of firms in a country or industry that have publically announced pro-diversity policies or programs) Regulatory Legitimacy (country's legal environment for women in the workplace)	exhibits substantial variation across countries and industries owing to disparities in institutional contexts. The greater the degree of normative acceptance of gender diversity within a country or industry, the more advantageous it becomes for a firm in terms of its market valuation and revenue.(Zhang, L., 2020)

As we can see from Table 4, most of the studies that examine the influence of external pressures on the relationship between gender diversity and innovation used a quantitative approach and focused on the macro level of institutional pressures. It is important to adopt a micro-level perspective to investigate how different tech-based start-ups might perceive different external pressures. Understanding what kind of pressure and where it comes from provides distinctive insight that explains why some organizations within the same institution behave differently.

2.5.3 Social Role Theory

In previous section, institutional theory provides theoretical framework on how external environments influence organisational structures and behaviours, shaping internal dynamics within organizations. In this section, social role theory will be explained. Social role theory was used as an embedded theory within our study as it helps provide a clear rationale for internal dynamics within start-up teams and helps us explain why gender diversity matters for improving innovation.

Understanding social role theory in the organisational context helps to explore the dynamics of role expectations, gender norms, and societal influences on individual behaviour within the workplace. However, focusing only on social role theory oversimplifies the complexity and individual variability in how people interpret and enact their roles. In reality, societal expectations and roles can evolve, and individuals may challenge or reshape traditional roles. Therefore, to fill in this weakness, it is appropriate to use social role theory alongside institutional theory as it provides a framework for examining the complex interplay between external societal factors and internal organisational dynamics, as stated in the previous section.

Based on social role theory, gender is an important factor mediating human behaviours (Eagly et al., 2000). It not only occurs in daily life but also in the enterprise context. There are gender biases in implicit theories people hold about various forms of entrepreneurial activity (Gupta, V.K. et al., 2019). For example, women often find incongruities between their ideas of leadership and their female gender role expectations (Bullough et al., 2022), creating challenges for women to develop their own ventures (Schein, V.E., 2007)

In her famous research on “pink and blue brain”, Lise Eliot argues that there is only a small difference in men's and women's brains at the early stages of life (Eliot, 2010). However, this is amplified by life experience and education. It is also highly influenced by the nature and form of the external environment in which an individual grows up. Recent research conducted by Eliot et al. (2021) shows that despite the trivial differences between male and female brains, a significant body of research provides evidence of behavioural differences between men and women. For instance, women reported being higher in neuroticism, agreeableness, warmth, and openness to feelings. Meanwhile, men were more assertive and open to ideas (Costa Jr et al., 2001). Similarly, women are perceived to be more empathetic (having a cognitive and affective component), whereas men are perceived as more systemizing (understand a system and build one) (Baron-Cohen, 2003). For example, men assertiveness lead to bold decision in idea generation and investment as men tend to have more risk propensity (Yu et al., 2016) while traits such as empathy in women could help team to understand user expectation. These different traits will help team during innovation process. The combination of these two different perspectives can result in better innovation, especially for innovation that has an environmental and social impact (Nadeem et al., 2020; Konadu et al., 2022; Moreno-Ureba et al., 2022; Issa and Bensalem, 2023; Bazel-Shoham et al., 2023). This phenomenon is explained by social role theory, as women are typically more concerned about those issues.

Moreover, drawing from this theory, women are more inclined toward inter-relationships among team members, which might result in better communication and collaboration among team members (Bear and Woolley, 2011) and lead to the improvement of team cognition (He, J. et al., 2007).

From the organisational perspective, social role expectations could also lead to the division of labor and create a stereotype of some occupations. It is the outcome of gender role beliefs constructed by individual identity together with social structures created by socialization mechanisms. Therefore, occupational stereotypes between women and men represent the

distinction of each sex in activities to which they are physically better suited (Eagly et al., 2000). This reflects the circumstances presented by society and influence gender role beliefs. As a result, there is a tendency to associate specific skills and jobs as those typically suitable for males or females (gender stereotypes), as has been outlined in Fischbacher et al. (2024). This might explain why women are rarely found in the male-dominated sector such as tech-based start-ups.

Moreover, Eagly (2013) argued that women are more communal (selfless, concerned with others, and desire to be at one with others), and men are more agentic (involving self-assertion, self-expansion, and egotistical behaviour). These beliefs are embedded in individuals as a social norm, which is then shaped as a mindset and shared with other people within the organization. This could lead to the existence of gendered spheres in the workplace. Gendered spheres in the workplace need to be recognized, not only as an understanding of men and women as individuals but also to understand them as part of an organization (Alvesson and Billing, 2009). The existence of gender spheres in the workplace might hinder the collaboration among the team members to improve innovation.

As a result, this theory also provides a theoretical lens to understand why women are rarely found in the technology sector and how people of different genders act and behave differently in the workplace. For example, in a supportive environment, the involvement of women in an innovation team might encourage other women to be involved in the team and create a more gender-diverse team. In contrast, it might have the opposite result in a male-dominated sector.

As discussed above, the theory explains how men and women have different perspectives that could lead to two different outcomes, better elaboration of knowledge to support innovation performance (Schneid et al., 2015) or increase the possibility of conflict (Bendersky and Hays, 2012) that might hinder innovation.

2.5.4 Internal Dynamics and Gender Diversity

From social role theory, it can be concluded that gender is a critical factor in mediating human behaviours (Eagly et al., 2000). As men and women tend to have different cognitive thinking (Eagly, 2013), gender-diverse teams will allow combinations of knowledge from individuals with different socialization histories (Ruiz-Jiménez, J.M et al., 2014). From an information-processing perspective, gender diversity will lead to a more diverse pool of resources that could impact the quality and quantity of idea generation in innovation (Schneid et al., 2015). Gender diversity also enhances the breadth of perspectives, cognitive resources, and overall problem-

solving capacity (Dwyer et al., 2003). Women's involvement in the team will also increase the level of social sensitivity (Woolley, A.W et al., 2010), which is important in improving social value creation of product/service innovation.

On the other hand, gender diversity might also have detrimental effects. Some scholars argued that diversity might create difficulties in coordination and increase the potential for conflict (Der Foo et al., 2005; Chowdhury, 2005). Having a gender-diverse team sometimes puts women at a disadvantage, as women are more prone to experience social identity threats (Pietri et al., 2019). As a result, despite having a positive impact, gender-diverse teams have a potential detrimental impact on team performance due to communication and coordination failure (Chen, J. and Lin, 2024).

Social role theory was used in our study as a rationale when investigating gender diversity in start-up teams. The underlying assumption of this theory is that men and women will behave following social expectations about their role in society (Eagly et al., 2000). As a result, it might affect the beliefs, behaviours, and experiences of people within an organization, creating internal dynamics within the organizations, especially in tech-based start-ups, which are traditionally known as male-dominated industries. It creates more specific challenges for women working in this industry (Ahuja, 2002). Therefore, previous studies have commonly used social role theory to explain the relationship between gender diversity and performance (See Attah-Boakye, R. et al., 2020; Boulouta, 2013).

Having gender-diverse teams would influence internal dynamics within organizations, For example, women's ability to express their ideas sometimes was hindered due to unsupportive organisational cultures (Cropley and Cropley, 2017). Therefore, organizations need to implement HR policies and practices that help channel ideas from female employees and reduce inequality in the workplace (Pandit and Paul, 2023). Moreover, the role of the leadership in leading gender diversity is also significant (Homan, A.C et al., 2020). Without leadership that addresses the innovation process, women are significantly less likely to gain support for their ideas (Sardeshmukh and Smith, 2016).

The interplay between leadership, organisational culture, and HR policies and practices generates internal dynamics within gender-diverse teams. If these dynamics are not effectively managed, the organization's ability to foster innovation performance may be jeopardized. Thus, examining internal dynamics within organizations would give us a more thorough

understanding of how organizations develop their internal dynamics to leverage gender diversity in their team and achieve innovation performance.

Three component of Internal Dynamics

As has been discussed in Chapter 1 section 1.2.3. In this study we summarise three component of internal dynamics namely Leadership, Organisational Culture, and HR Policies and practices. We summarise our findings on the previous literature on these three component related to gender diversity research.

Table 5 Organisational Factors in Gender Diversity Research

Construct	Definition	Related Literature
Organisational Culture	Organisational culture is “a set of basic assumptions which distinguishes the members of one organization from other groups” (Hofstede, G.J., 2000)	The effects of gender diversity turn from negative to positive as the level of cooperative team culture increase (Roh and Koo, 2019) Unfavourable organisational climates (OC) hindered the capacity for innovation among female employees (Cropley and Cropley, 2017).
Leadership	Leadership is the process of interactive influence that occurs when, in a given context, some people accept someone as their leader to achieve common goals (Silva, 2016)	Gender Diversity had a stronger positive impact on performance under high Transformational leadership (Muchiri and Ayoko, 2013) Gender diversity was positively related to performance in high leader-member exchange (level of support and guidance of leader) (Stewart and Johnson, 2009)
HR Policies and Practices	HR is a practice in organization that include several instruments such as recruitment and selection, performance appraisal, career progress, training and development (Pandit and Paul, 2023)	HR policies and practices is importance to reduce gender inequality (Pandit and Paul, 2023) inclusive work processes and transparent human resource management practices increase the great proportion of women representation (Mastracci and Herring, 2010) gender-focused policies and practices with a gender diversity in organization could improve performance (Ali, M., 2016)

From the table, we can conclude that organisational culture, leadership, and HR policies and practices have a relationship with gender diversity within the team.

Organisational Culture

Organisational culture can be defined as “a set of basic assumptions which distinguishes the members of one organization from other groups” (Hofstede, G.J., 2000). Prior studies provide evidence that cultural context is important when studying diversity since it moderates the

relationship between gender diversity and team performance (Schneid et al., 2015). However, compared to national culture, organisational culture has had more influence on firm performance, especially in a new venture (Pothukuchi et al., 2002).

In relation to gender diversity, Cropley and Cropley (2017) found a negative relationship between the proportion of females in functional areas and organization's capacity for innovation. He then proposed that the observed outcomes can be attributed to the suppression of innovation capacity among female employees, which was influenced by an unfavourable organisational climate. Even though some scholars define organisational culture and organisational climates differently (Denison, 1996), in his research, Cropley used organisational culture and organisational climate interchangeably.

Another piece of research conducted by Dwyer et al. (2003) suggest that organisational culture is one important factors influencing the impact of gender diversity at the management level. They argue that firms with high levels of gender diversity and a strong emphasis on the culture that is internally oriented, emphasizes informal governance, and is in general a friendly place to work, had the highest productivity and highest performance.

Drawing from previous research, there appears to be a link between organisational culture, gender diversity, and innovation performance. It is important to understand how team members of tech-based start-ups perceive organisational culture, as part of internal dynamics, in facilitating gender-diverse team to enhance innovation performance. Although previous research has conducted, the ways in which organisational culture helped gender-diverse team to enhance innovation performance was not clearly understood, especially in teach-based start-up context, where organisational culture is not mature and highly influenced by its external environment. Therefore, in this study, we also focused on organisational culture as part of internal dynamic within tech-based start-ups.

Leadership

Over the years, there have been various approaches, theories, and definitions related to leadership. Northouse (2023) summarizes six distinct ways of conceptualizing leadership including leadership as a trait, an ability, a skill, a behaviour, a relationship, and an influence process.

First, leadership as a trait means that each individual brings to the table certain qualities that influence the way they lead (Trait theory). Second, in addition to being thought of as a trait,

people often conceptualize leadership as an ability, which refers to a natural capacity. It means that some people have the natural ability to lead, while others develop their leadership abilities through hard work and practice (Great Man theory). Third, leadership often seen as skill which defined leadership as a competency developed to accomplish a task effectively (Contingency theory). Fourth, leadership is seen as a behaviour. It is what leaders do when they are in a leadership role. Fifth, leadership is as a relationship, centering on the communication between leaders and followers (Transactional theory). Six, leadership is a process whereby an individual influences a group of individuals to achieve a common goal (Transformational theory) (Northouse, 2023).

On the other hand, we found several articles related to leadership and gender diversity. Research has identified the critical role of leadership in shaping the innovation landscape within organizations (Zuraik et al., 2020; Ng and Sears, 2020; Homan, A.C et al., 2020). Effective leadership, particularly concerning gender-inclusive practices, has been shown to significantly influence the innovation potential of a team or organization. Muchiri and Ayoko (2013) focused on the leadership style and how it could influence gender diversity within a team and found that gender diversity had a stronger positive impact on performance under high Transformational leadership. On the other hand, Stewart and Johnson (2009) found that the level of support and guidance of the leader is important and gender diversity was positively related to performance in instance of high leader-member exchange.

Therefore, rather than focusing on leadership style which have been discussed in the previous studies, we focused on the role of leadership in managing gender diversity within the team. In this study, we focused more on what the leaders do, as part of the internal dynamic, and in response to their institutional pressures, particularly in tech-based start-ups, where rapid changes in team structures, workflows, and decision-making processes are common, which make the role leaders become more critical.

Human Resource Policies and Practices

The capabilities of management are pivotal in creating an environment conducive to innovation (Ruiz-Jiménez, J.M and Fuentes-Fuentes, 2016). Management practices also play a crucial role in shaping the innovation culture within organizations (Guillaume et al., 2013; Fernández, 2015). Therefore, apart from leadership and organisational culture, HR policies and practices

is also an important factors in internal dynamic that have potential to influence the effectivity of gender diversity within the team to enhance innovation performance.

HR policies and practices within organizations include several instruments such as recruitment and selection, performance appraisal, career progress, training and development (Pandit and Paul, 2023). Previous studies concludes that innovative HR policies and practices are important to foster organisational innovation. Arulrajah (2014) proposed three role of HR policies and practices. First, HR policies and practices should provide required inputs for the organisational innovations, mechanism to bring innovations in the organisations, and mechanism to retain the innovation potential of the organisations.

Related to gender diversity, HR policies and practices is importance to reduce gender inequality (Pandit and Paul, 2023). Inclusive work processes and transparent human resource management practices increase the great proportion of women representation (Mastracci and Herring, 2010). Another research found that gender-focused policies and practices with a gender diversity in organization could improve performance (Ali, M., 2016).

Previous study also revealed that various contexts would require unique HR management practices (Olive and Olugbenga, 2021). They conclude that no single theory is considered the best as they all have varying strengths and weaknesses. However, our understanding of HR policies and practices in small and emerging firm is limited (Cardon and Stevens, 2004). Moreover, how tech-based start-ups develop its HR policies and practices in their early stages to leverage gender-diverse team to enhance innovation performance was not clearly understood. Thus, in this study we also include HR policies and practices as part of internal dynamic to understand how HR policies and practices play a role in managing gender diversity within the team to enhance innovation performance.

The importance of Internal Dynamics

Shore et al. (2009) argue that the role of context should be considered when investigating diversity. It can be done by examining multiple aspects of situations that interact with when and how gender diversity serves to improve innovation. As previously discussed, in contrast with classical institutionalism, the internal dynamics of organizations could trigger organizations to have different responses to external pressures (Greenwood and Hinings, 1996; Oliver, 1991). Nevertheless, the interaction between external and internal dynamics remains ambiguous. Certain scholars propose that external and internal dynamics mutually reinforce one another, whereas other studies provide evidence suggesting that they do not complement

each other but function as alternatives. In other words, when external pressure is already substantial, augmenting internal advocacy may not significantly alter the situation (Dobbin et al., 2011). Our study responds to the call for an investigation into the interaction between internal dynamics and external pressures as their roles might depend on certain contexts.

Drawing from the importance of gaining insight from both sources of pressures, it is surprising that the current body of research addressing the role of external and internal pressures about gender diversity in tech-based start-up teams is limited. It indicates a noticeable gap in our understanding. Despite the increasing recognition of the importance of gender diversity in fostering innovation, the specific influences of internal and external pressures on gender diversity within these teams remain relatively underexplored. Hence, in order to gain a comprehensive understanding of gender diversity and its determinants, it is important to examine how these external and internal pressures interact and influence the composition of tech-based start-up teams, shedding light on effective strategies for enhancing gender diversity and promoting inclusive environments within entrepreneurial settings.

Therefore, Figure 2 illustrates the conceptual framework that were used to guide our study. Two theories were integrated due to their varying nature in describing the external environment and internal dynamics. First, institutional theory helps the researcher to understand the perspective of external pressures, which consist of coercive, normative, and mimetic pressures. Second, social role theory explains gender differences that men and women have, which could lead to internal dynamics. The internal organisational components were also investigated by examining organisational culture, leadership, and management practices within tech-based start-ups.

2.5.5 Measurement of Innovation Performance

Building upon the introductory discussion in Chapter 1, this section provides a detailed review of existing literature on innovation performance by identifying different types of innovation performance and gaps that this study aims to address.

Previous research employed a variety of measurements to assess the impact of gender diversity within teams on innovation performance as can be seen in

Table 6.

Table 6 Innovation Performance Measurements in previous studies

Innovation Performance Indicators	Measurements	References
Patents	Number of Patent	(Yoo et al., 2023; Chu and Oldford, 2023; Lu et al., 2022; Javaid et al., 2023; Corvello et al., 2023, etc).
Financial-related measurement	Number of sales, ROA, ROI, the ratio between R&D expenditures to sales, the firm's new product sales out of total sales	(Bazel-Shoham et al., 2023; Wu, J. et al., 2022; Azzam, 2022; Bauweraerts et al., 2022; Biga-Diambeidou et al., 2021; Attah-Boakye, R. et al., 2020; Martini et al., 2012).
Self-Reported surveys	Product innovation, Team innovation performance	(i.e Doblinger et al., 2016; Jin et al., 2019; Ding and Ding, 2022; Talke et al., 2011; Zuraik et al., 2020; Dai, Y et al., 2019)
Others	the quantification of new products or services	(Galia et al., 2015; González-Moreno, Á. et al., 2018; Horbach and Jacob, 2018).

As has been outlined in

Table 6, one of the commonly used measurements is the number of patents (i.e. Yoo et al., 2023; Chu and Oldford, 2023; Lu et al., 2022; Javaid et al., 2023; Corvello et al., 2023, etc). However, measuring patents was not considered relevant simply because patents have requirements that start-up initiatives sometimes cannot provide. For example, because the innovation in the product is only categorized as incremental or because there is no specific regulation in the country about digital innovation. Many start-ups focus on entering new or emerging markets rather than securing intellectual property rights. Patents can be costly and time-consuming, making them less relevant for early-stage start-ups that need to move fast. Furthermore, not all innovative start-ups file patents, especially in software and service-based industries. Moreover, Mazzucato (2011) argued that the increase in patents is not indicative of an increase in innovation but rather a result of changes in patent legislation and a rise in the strategic utilization of patents. This has led to a significant exaggeration of their importance, almost to the point of being mythologized.

Another common measurement of innovation performance used in previous research was metrics and indices related to financial-related measurements such as Sales, ROI and ROA (i.e. Attah-Boakye, R. et al., 2020; Martini et al., 2012). Similarly, some research used the ratio between R&D expenditures to sales or the firm's new product sales out of total sales (i.e. Bazel - Shoham et al., 2023; Wu, J. et al., 2022; Azzam, 2022; Bauweraerts et al., 2022; Biga-Diambeidou et al., 2021). While financial-related measurements provide valuable insights into the financial health of start-ups, they may not be sufficient for evaluating innovation performance. Moreover, financial metrics like ROI and ROA do not apply to early-stage start-ups due to their lack of financial stability.

On the last row of the table, we can see that previous research use the examination of output metrics, including the quantification of new products or services (i.e. Galia et al., 2015; González-Moreno, Á. et al., 2018; Horbach and Jacob, 2018). Nevertheless, this measurement cannot be used in tech-based start-ups as they usually rely on a single product in their early stages (Njima and Demeyer, 2019; Tripathi et al., 2019).

Innovation Performance Measurement in Tech-based Start-ups

Given the various measures of innovation performance, it is crucial to understand how each metric is appropriately used in specific contexts. Innovation is highly contextual, depending on factors such as the stage of the firm, the industry, and the specific goals of the innovation process. Some pressures might not be relevant to use in the specific context. For example,

early-stage start-ups may prioritize measures related to creativity and ideation, while more established firms might focus on financial implications. Understanding this is essential for accurately assessing and fostering innovation in different organisational settings. However, it also makes measuring innovation performance a challenging task, particularly in a start-up context. Challenges in measuring innovation in start-ups include the volatility of performance metrics, the absence of historical data, and the need for adaptable measurement frameworks that align with the unique trajectory of these ventures (Mardiani et al., 2023).

While traditional performance measurement discussed above may not adequately represent innovation performance in the start-up context, we propose a new multidimensional measurement of innovation performance that could better evaluate product/service innovation in the tech-based start-up context. Given the dynamic and uncertain nature of start-ups, a single-dimensional approach often overlooks critical aspects such as the ability of the product/service innovation to penetrate a new market or their ability to use the newest technology (Gimenez - Fernandez et al., 2023). Moreover, the impact of the product/service innovation should not be overlooked (Ramani et al., 2017), especially in solving problems in society, such as social and environmental issues.

Therefore, a multidimensional framework allows for a more comprehensive evaluation by incorporating various indicators, in this case, including technological newness, market newness, and social impact. This approach ensures that both qualitative and quantitative factors are considered, providing a more accurate reflection of a start-up's innovation performance and long-term potential. First, in our study, the measurement indicators of innovation performance include the newness of the innovation, consists of Market Newness and Technology Newness (Talke et al., 2011). These measurements are more relevant for digital innovation as they do not rely on financial implications, which usually can only be seen in the long term and in more established firms. Market newness and technology newness metrics offer a more targeted and relevant approach to assessing a start-up's ability to innovate and compete in dynamic markets. These metrics provide insights into start-ups' ability to address unmet needs in the market or leverage cutting-edge technologies. Success in these areas can contribute to future financial performance but may not be immediately reflected in metrics like ROA or ROI. Market newness and technology newness provide a more actionable and relevant measure of innovation performance in start-ups because they capture real-world impact and competitive differentiation, rather than just legal protections or financial outcomes. Moreover, the same

measurement also used in previous research (i.e Doblinger et al., 2016; Jin et al., 2019; Ding and Ding, 2022) which have been proven to have validity and better capture the qualitative aspects of innovation, which may not be fully represented in financial metrics.

Second, besides market newness and technology newness, we also include social impact as an additional aspect of innovation performance. Although innovation can be seen as a catalyst for economic growth, some innovations could also have negative impact on social and environment such as public health risk, environmental degradation, harm to society, and economy (Coad et al., 2022). Social impact of innovation refers to the creation of positive social change (Molecke and Pache, 2019). It could encompass societal, economic, and environmental improvements. Social impact of innovation should not be overlooked because it helps identify and evaluate the contributions of innovation to social value creation to address societal challenges beyond financial implications (Ramani et al., 2017).

Research that only measured economic performance is considered gendered as it bias against women (Cunningham, 2020) since women are more engaged in social sustainability initiatives (Apesteguia et al., 2012). This might be the cause that women are often seen as invisible during innovation process (Pecis, 2016) since how innovation performance was biased towards financial related measurement only. Therefore, in this study, social performance will also be considered.

However, measuring social impact is not an easy task and is somehow quite problematic since it requires more time to be observed (Lemola, et al, 2008). Contradictory to numerical data, which is much easier to measure and monitor, data on long-term impacts such as social impact are not usually used as indicators, because they are more difficult to be assessed (Cangiano et al., 2017). Therefore, in this study we used Sustainable Development Goal (SDG) as a benchmarking indicator to assess the social impact of innovation from tech-based start-ups.

SDG has been commonly used to assess impact for several reasons. First, SDGs are a globally accepted framework that has been accepted by governments, academics, and practitioners. Second, SDGs cover a wide range of social, economic, and environmental aspects which are appropriate for evaluating the diverse impacts of innovation. Third, many governments and funding organizations use SDGs as criteria for allocating grants, subsidies, or impact investments (Hand et al., 2023). In summary, using SDGs as benchmarking indicators helps ensure that innovation is assessed comprehensively beyond economic implications. Moreover,

it also has been used in previous research to measure sustainability and impact of innovation (See Li, X. et al., 2023; Del-Aguila-Arcentales et al., 2023; Albert, 2022).

2.6 Knowledge Gap

The literature study discussed above clearly demonstrates that the correlation between gender diversity and innovation performance has gained significant attention, especially as it could advocate gender equality (Eagly and Sczesny, 2019), a key area in sustainable development goals (SDGs), which is a worldwide priority. Nevertheless, the advancement of theory in the context of technology-driven start-up teams has been understudied and the precise processes of how gender diversity can enhance innovation are not well defined.

Therefore, instead of using positivist approach that predominantly focuses on quantifying the relationship between gender diversity and innovation performance, as previous studies have done, we identified the need for a deeper understanding on how and why gender diversity within the team contribute to innovation performance. This can be achieved through a qualitative case study, which allows for a more nuanced exploration of the institutional context. Such an approach highlights potential differences and similarities across firms, particularly within tech-based start-ups, a context that has been largely overlooked in previous research.

We conducted an investigation and found that institutional theory provides a theoretical framework for understanding institutional pressures that might influence internal dynamics within tech-based start-ups. Moreover, social role theory is also useful for explaining the phenomenon of gender diversity within a team, providing a rationale for the complexity of internal dynamics within tech-based start-ups. By utilizing social theory as an underpinning framework, we can extend the application of social role theory by integrating it with institutional theory. This approach enhance our understanding of how institutional pressures shape internal dynamics within gender-diverse team in tech-based start-ups.

This study differs from previous studies in several aspects, explained as follows. First, as they were still in the embryonic stage, tech-based start-ups were significantly influenced by the external environment (Seo and Lee, 2019). Institutional theory provides a useful framework for understanding these external factors. Our study aims to develop a thorough comprehension of gender diversity and its underlying factors for innovation through the lens of institutional theory, answering the call of research on gender diversity by considering macro-level contextual influences (Shore et al., 2009). In various studies, it has been observed that previous research focused on institutional pressures and internal organisational characteristics

independently. For example, Attah-Boakye, R. et al. (2020) investigated the role of national culture on the relationship between gender diversity and innovation, highlighting the influence of external environments. While research such as in Cropley and Cropley (2017) focused on the role of organisational culture, highlighting internal provisioning condition that might influence the relationship between gender diversity and innovation performance.

On the other hand, we address a call to explore both the external and internal dynamics of tech-based start-ups as well as examine the interplay between these two factors, contributing to an existing gap in the literature by explaining the underlying mechanisms of divergent behaviours among various tech-based start-ups operating within the same institutional context. By doing so, it provides insights into effective approaches for fostering gender diversity and creating inclusive environments in entrepreneurial contexts. Moreover, we could extend the application of institutional theory to analyse tech-based start-ups, an area that has been largely neglected. Traditional research on institutional theory has primarily focused on how established firms gain legitimacy, rather than examining the dynamics within entrepreneurial ecosystems such as start-ups.

Second, our study includes social impact as one of the key measurement indicators of innovation performance. It aims to recognize a significant gap in the existing literature, where most studies predominantly focus on the financial outcomes of innovation, such as revenue generation, ROA, ROI, and other financial-related indicators. By integrating social impact into our analysis, we aim to provide a more comprehensive evaluation of innovation performance beyond the economic perspective. Social impact consists of a wide range of factors, including improvements in quality of life, environmental sustainability, social equity, and community well-being, and other indicators as stated in SDG. By acknowledging this aspect, we seek to highlight the broader implications of innovation, particularly how it contributes to societal progress, addresses social challenges, and bring values to communities. This approach not only enriches our understanding of innovation performance but also encourages a more balanced view of innovation performance.

Finally, our study differs from other studies since it collected data from an emerging country with unique cultures and its own set of specific institutional pressures in Indonesia. This study has the potential to provide novel perspectives in the field of gender and innovation research, which has traditionally concentrated on examining developed nations. Indonesia, being an emerging nation, exhibited a substantial number of 2270 start-ups in the year 2020. This

abundance of start-ups within the Indonesian context offers valuable case studies for the examination of the phenomenon under consideration. The exploration of gender diversity in Indonesia presents an intriguing subject due to its prominent collectivistic, patriarchal culture and significant gender gap index that might hinder the efficacy of gender-diverse teams.

2.7 Research Framework and Research Question

Previous section elaborated on the underpinning theory that help us understand the phenomenon of gender diversity and its impact on innovation performance. By adopting institutional theory and social role theory, we could investigate the influence of institutional pressures, coming from external environments, on internal dynamics within tech-based start-ups team. By adopting qualitative approach using case study, it helped us to gain deeper understanding on the provisioning condition for tech-based start-ups to leverage gender diversity to improve innovation performance. Thus, the research framework alongside the research question can be seen in Figure 2

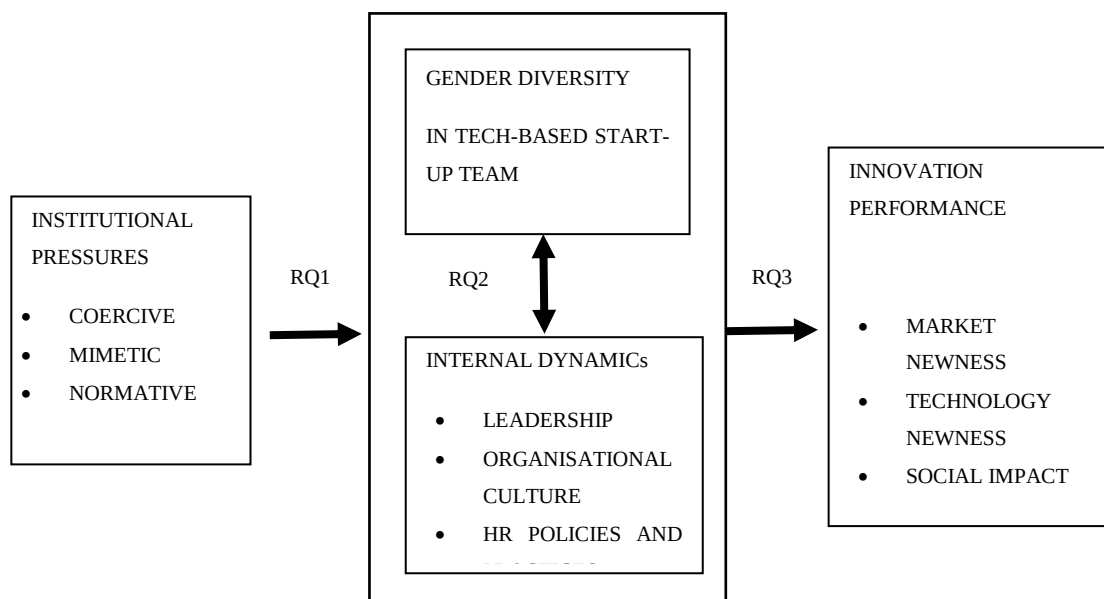


Figure 2 Conceptual Framework

Therefore, in order to address the aforementioned gaps outlined in 2.6, the main research questions:

How do tech-based start-ups perceive and leverage gender diversity within their team to enhance innovation performance?

With two derivative sub-questions:

RQ1. How do external pressures influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?

RQ2. How do internal dynamic influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?

In the next chapter, we will outline the underpinning philosophical assumptions and provide a detailed explanation of the methods employed in this study.

Chapter 3

RESEARCH DESIGN

This research primarily aims to examine how tech-based start-ups perceive and leverage gender diversity within their team to enhance innovation performance by using the lens of institutional theory. Existing literature predominantly relies on secondary data drawn from online databases, which only focused on comparing gender composition with their innovation performance. However, those studies (Appendix 1) often neglect the individual perceptions of team members. In contrast, as individual beliefs influence the effectiveness of gender diversity management practices (Martins et al., 2007), our study argues that the way team members perceive the role of gender diversity within their teams plays a crucial role in how they leverage its potential to enhance innovation performance. Understanding these perceptions is essential to recognizing the mechanisms through which gender diversity contributes to enhancing innovation performance.

Moreover, previous studies were particularly focused on established firms (See Appendix 1). On the other hand, tech-based start-ups, which have a long history in a male-dominated sector, have not been thoroughly investigated. Moreover, most previous studies employed a quantitative approach, focused on proving the relationship between gender diversity and innovation performance. It overlooked the significance of contextual factors such as the environmental, organisational, cultural, and other situational elements that influence how gender diversity impacts innovation performance. As a result, previous studies often resulted in inconclusive findings and failed to explain how and why, in some firms, gender diversity could/could not enhance innovation performance. This is crucial as contextual factors were influential in affecting organisational behaviour (Johns, 2006). Understanding contextual factors allows researchers to address specific organisational issues, leading to more effective and applicable human resource management practices (Cooke, 2018). It prevents overgeneralization, systemic bias, and necessitates careful adaptation to local conditions (Brown et al., 2022).

Therefore, this study aims to address this gap by observing real-life scenarios within tech-based start-up teams, which represent diverse gender compositions, and how they perceive the role of gender diversity to enhance innovation performance. Drawing insights from the lens of institutional theory, this study examined external pressures and internal dynamics of tech-based start-up teams. Moreover, adding a layer of uniqueness, this exploration is contextualized

within Indonesia, a region rich in cultural and religious nuances, factors believed to significantly influence how gender-diverse teams work to enhance their innovation.

The central question guiding this study is, "*How do tech-based start-ups perceive and leverage gender diversity within their team to enhance innovation performance?*" The objectives stemming from this question have been elucidated in the final section of Chapter 2. To achieve these objectives, specific strategies have been meticulously adopted and explained in this chapter.

This chapter elaborates on the reasoning behind the selected approach and the methods employed in our study. Figure 3 is a visual summary of the overall research design, providing a clear illustration of the structure and the sequential steps involved in this study. This comprehensive overview ensures that the reader understands the methodological framework guiding the study, setting the stage for a thorough exploration of the research findings.

It begins by outlining the theoretical and practical considerations that influencing the research design to ensure that the methodology aligns with the objectives of our study. First, in the preparation stage, we begin by understanding the underlying research philosophy that we used to conduct the study, along with the research approach, strategy, sampling method, and data collection method. All of those guided by the research questions were used to develop interview guides (Appendix 3) before we contacted and scheduled the interviews with participants.

In the second stage, we began data collection that consist of primary data using semi-structured interview and secondary data such as websites, company profile, and other relevant documents. Subsequently, we started data preparation that consist of how we created priori themes, transcription, and translation. We then conducted data analysis stage that start with within-case analysis followed by cross-case analysis. In the final stage, we then develop the theory based on our findings.

Preparation	<pre> graph TD A[Research Question] --> B[Develop Interview guides] B --> C[Contact Participants] C --> D[Schedule Interviews] </pre>	• Research Philosophy: Social Constructivism • Research Approach: Qualitative • Research Strategy: Multiple Case study • Sampling method: Purposive Sampling • Main Data Collection Method : Interviews
Data Collection	<pre> graph TD A[Interviews] --> B[Collect secondary data] </pre>	• Interview Method: Semi-structured Interview, Hybrid between online and offline • Secondary Data: Websites, company profile, other documents
Data Preparation	<pre> graph TD A[Creating Priori themes (Deductive)] --> B[Transcription] B --> C[Initial Coding phase (Inductive)] C --> D[Translation] </pre>	• Creating Priori themes (deductive based on the initial research framework) • Transcription mode: Non-verbatim • Translation mode: Data were going through initial coding phase without translation for familiarization and then translated for further coding phase (inductive process)
Data Analysis: Within Case Analysis	<pre> graph TD A[Analysis Case 1] <--> B[Analysis Case 2] B <--> C[Analysis Case 3] C <--> D[Analysis Case 4] D <--> E[Analysis Case 5] </pre>	• Thematic Template Analysis • Data Triangulation: ✓ Comparing interviews with other members within the same case ✓ Comparing interviews with other secondary data
Data Analysis: Cross Case Analysis	<pre> graph TD A[Cross Case Analysis] --> B[External Case Analysis] </pre>	• Finding Difference and Similarities across Cases
Conclusion	<pre> graph TD A[Developing Theory] </pre>	• Comparing to prior studies & literatures

Figure 3 Overview of Research Design

3.1 Research Methodology

In order to carry out a research, it is important to understand the alignment between research philosophy, research approach, research strategy, and data collection method. As has been depicted by Saunders et al. (2015) as a research onion in Figure 4 below.

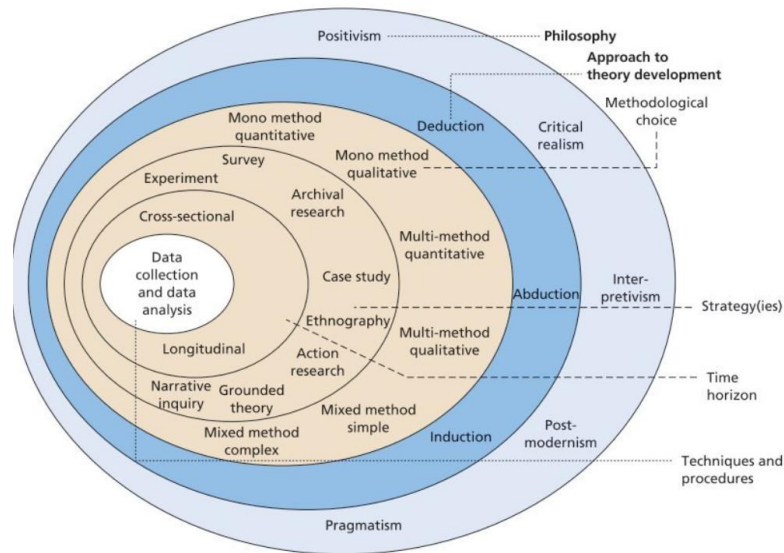


Figure 4 Research Onion

Therefore, in the following section we explained our chosen research philosophy along with research approach, research strategy, and data collection method in order to conduct our research.

3.1.1 Research Philosophy

Research philosophy refers to “a system of beliefs and assumption about the development of knowledge”(Saunders et al., 2015, p. 124). Philosophy is defined as fundamental beliefs and assumptions of the nature of reality, and the epistemology, which concerns the study of knowledge and how one acquires it (Easterby-Smith et al., 2021). Understanding philosophy is important for the researcher as it will guide the researcher to the appropriate strategy and approach when conducting a research. Therefore, the researcher need to determine their main philosophical position in order to carry out a research.

The starting point of debates across different philosophical theory is the view on ontology and epistemology. Ontology refers to the philosophical assumption about the nature of reality (Easterby-Smith et al., 2021). From the ontological position, there are four different position,

realism, internal realism, relativism, and nominalism (Easterby-Smith et al., 2021). Table x points out the difference between ontological position.

Table 7 Modified from Four Different Ontologies

	Realism	Internal Realism	Relativism	Nominalism
Truth	Single Truth	Truth is exist but obscure	There are many “truths”	There is no truth
Facts	Fact existed and can be revealed	Facts are concrete but cannot be accessed directly	Facts depends on viewpoints of observer	Facts are all human creation
Reality of the relationship of Gender Diversity and Innovation Performance	Objective and measurable; causal relationship exists universally.	It exists but should be understood through specific conceptual frameworks.	Context-dependent and shaped by social and cultural factors.	Purely a product of language and discourse; no inherent reality.
Focus of Research	Measuring innovation outcomes (e.g patents, number of product, etc) as directly influenced by gender composition.	Exploring definitions how and measurement affect findings.	Understanding variations in perceptions across contexts.	Analyzing how language constructs the connection between diversity and innovation.

From the Table 7, relativism is align with the aims of our study as we focused on understanding various perceptions across different cases. We believed that how gender diversity influence innovation performance depend and shaped by social and cultural factors.

Apart from ontology, epistemology is a key point of different philosophical assumption. It refers to the study of the nature of the knowledge and ways of enquiring into the physical and social world. Some literatures used different terms in defining ontology and epistemology. For example, Collis and Hussey (2014) mentioned two major paradigms which are positivism and interpretivism. On the other hand, while Saunders et al. (2015) defined five major research philosophies based on their epistemological position (Positivism, Critical Realism, Interpretivism, post-modernism, and Pragmatism), Easterby-Smith et al. (2021) defined two main different epistemologies, which are positivism and social constructionism. Likewise, in entrepreneur research, Lee, R. and Jones (2015) focused on two main (positivist-realist, structuralist) and subjectivist (social constructionist). The variations in how scholars define research paradigms do not necessarily indicate contradictions but rather reflect the complexity and evolving nature of research philosophy.

The key idea of positivism is that “the social world exists externally, and that its properties can be measured through objective method” (Easterby-Smith et al., 2021, p. 69) while social constructionism argues that “reality is not objective but is socially constructed and is given meaning by people in their daily interaction with others” (Easterby-Smith et al., 2021, p. 70). Previous studies using positivism such as in Attah-Boakye, R. et al. (2020); Wikhamn and Wikhamn (2020); Dai, Y et al. (2019) focused on proving the relationship between having gender diversity in a firm and their innovation performance. Positivism assumes that reality can be understood through scientific observation and quantification. The objective of the study using positivism was to offer a general conclusion related to the relationship between gender diversity and innovation performance by collecting and analysing large amounts of data which was not the aim of this study.

Unlike positivism, another epistemology that often used in management research is interpretivism. It emphasizes understanding subjective meanings and experiences of individuals within their social contexts. By adopting qualitative methods, interpretivist often focus on meaning and language in understanding knowledge and experience in the world and deny generalisation (Walsham, 1995). Even though it might offer insight from team members regarding their experience, this approach was not suitable to develop a theory about the phenomenon under investigation as we also need to understand the specific influence of external factors such as institutional pressures.

Moreover, our study did not use post-modernism as a research philosophy as it focuses on the role of language (Saunders et al., 2015). It often seeks to expose and question power relations, which is not the aim of our study. Our study also did not align with pragmatism as it often focused more on the practical solution to a problem rather than the development of theory.

This study, on the other hand, aims to gather various perspectives of team members within gender-diverse teams in tech-based start-ups related to its contribution to enhance innovation performance by considering institutional pressures. Therefore, there is a need to understand a variety of views from the team members. It aims to understand how gender diversity was socially constructed and influenced by institutional pressures and internal dynamics within each case. By acknowledging these different perspectives, which was overlooked in the previous studies, it aligns with an ontological position of relativism and social constructionism. In social constructionism, knowledge is not passively received but dynamically built-up. Social constructionism puts forward that reality is constructed through social interaction in which

social actors partially share meanings and realities (Saunders et al., 2015). Based on ontological position, social constructionism focuses on internal logic, human experience, multiple realities and inter-subjective social constructions, interpretation and understanding (Lee, R. and Jones, 2015), which is align with the aim of our study.

By adopting the constructivism paradigm, this study emphasize the needs to construct a theory that explain and understand the phenomenon (Levers, 2013). By using social constructionism paradigm, we acknowledged that each start-up might have a different perception in understanding how gender diversity enhance innovation performance, which might explain why there were inconclusive findings in previous studies.

3.1.2 Research Design: A qualitative study

This study adopted the social constructionism paradigm, an epistemology that contends that knowledge is socially constructed through human interactions which result in many interpretations of social reality (Merriam and Tisdell, 2015). In accordance with the decision to use the social constructionism paradigm, a qualitative study was adopted. A qualitative study was considered relevant for this investigation as it aligns with chosen philosophical underpinning of this research. However, there were also reasons why qualitative study was used in this study.

First, discussions on "gender diversity" and "innovation performance" in prior studies have been focused on a positivist approach, which employs quantitative methods. Consequently, gender was merely defined as a variable that fails to recognize the socially constructed aspects of gender (Ahl, 2004, p. 29). For example, we have to see whether a woman has the same position as a man in making decisions in a team or, in other words, whether men and women have an equal distribution of power within the team. One major drawback of such an approach was the failure to explain how individual team members understand the role of gender diversity to enhance innovation performance, how those understanding constructed and influenced by institutional pressures and internal dynamic. Our study highlighted these overlooked contextual factors, which is extremely important (Johns, 2006). Through the use of a qualitative methodology, it was possible to obtain a contextualized understanding of the role of gender diversity in enhancing innovation performance as each team member might have different perception towards the relationship.

Second, the identification of gender-diverse teams in technology-based start-ups provided a significant challenge as the industry is predominantly male-dominated. This significant gender

imbalance becomes challenging when employing a quantitative approach in the study. The scarcity of female representation in these teams means that gathering a statistically significant sample for meaningful quantitative analysis becomes more difficult. Consequently, this limitation could lead to a lack of reliability and validity of any findings exploring gender diversity's impact on innovation performance. Moreover, the lack of diversity might lead to skewed data. There is a risk of failure to capture the nuanced perspectives and contributions a more gender-balanced sample could offer. Thus, qualitative approaches would be better suited to explore the complexities of gender diversity in tech-based start-ups.

Third, according to Azungah (2018), the Qualitative research enables exploration within real-life contexts (Aguinis et al., 2010; Turner, S.F. et al., 2017) and facilitates a deeper understanding of the assumptions, values, and beliefs that shape behaviour (Yauch and Steudel, 2003), shaping gender diversity in tech-based start-ups team and providing insight into how it could enhance innovation performance.

3.1.3 Research Approach: Sequential deductive-inductive approach

In a qualitative study, there are three main research approaches: deductive, inductive, and abductive approach. According to Thomas (2006), “the inductive analysis allow research findings to emerge from the frequent, dominant, or significant themes inherent in raw data, without the restraints imposed by structured methodologies”. In contrast, with the deductive approach, initial codes are drawn from the existing literature on the topic of inquiry or what is known about the phenomenon (Azungah, 2018). Abductive approach mainly aimed at theory construction (Timmermans and Tavory, 2012). It requires the researcher to constantly iterate between the theory and the empirical data during the research process (Dubois and Gadde, 2002). On the other hand, in this research we used sequential deductive-inductive approach (Azungah, 2018). A sequential deductive-inductive approach is a systematic process that methodically uses both deductive and inductive reasoning to analyze data. This approach allows the flexibility between exploration of the natural phenomenon emerge from the data (inductive approach) and comparing to any relevant theory (deductive approach). It helped us to understand how personal experience of team members in gender-diverse teams of a tech-based start-ups were constructed and influenced by its internal dynamic and institutional pressures. Table 8 summarize the difference between each approach.

Table 8 Key features of Research Approach

	Deductive	Inductive	Abductive	Sequential deductive-inductive approach
Aims	Tests existing concepts and theory through empirical investigation (John Gill, 2010)	Build theory inductively out of observation of the empirical world (John Gill, 2010, p. 7)	Generating novel theoretical insights that reframe empirical findings in contrast to existing theories (Iddo Tavory, 2014).	Integrating the data and theory using a sequential process from deductive to inductive approach (Azungah, 2018)
Process	Top-down (From theory to data)	Bottom-up (From data to theory)	Top down and bottom up (continuous iteration between data and theory)	Start by top-down process followed by bottom-up process
The rationale	Relying only on deductive approach will limit the findings according to pre-defined rule or existing theory	A purely inductive approach focuses solely on developing theories from observations without prior theoretical grounding	Abduction often tries to begin a research without presuppositions and theories as it tries to seek a theory while in our study we used institutional theory to focus on the influence of external environments	By integrating both deductive and inductive reasoning, The research tries to validate existing theories while also allowing new insights to emerge from the data.

Following Azungah (2018), the chosen approach was the sequential deductive-inductive approach, start by developing initial codes, which are drawn from the existing literature on the topic of inquiry or what is known about the phenomenon of inquiry aided by the research aims, research questions and interviews questions. Subsequently, the inductive approach was used to derive themes from the data (Azungah, 2018).

The research applied a deductive approach by “basing analysis on pre-existing theory” (Gale et al., 2013, p. 3), in this case is institutional theory. The institutional pressures were examined to understand how they influenced team members perception toward gender diversity and how it influenced them to enhance innovation performance. In order to make full sense of the data, a list of a priori categories was generated.

In the next stage, an inductive analysis was conducted, by engaging in detailed readings of data not only to gain a holistic understanding of what was said but also to ensure that all important aspects of the data were not overlooked. It was done iteratively across all cases The details of this process was outlined in section 3.5.

Relying only on deductive approach will limit the findings according to pre-defined rule or existing theory, as a result, did not produce new theory, rather than focusing on testing the theory, which is not the aim of this study. On the other hand, inductive approach looks at the

distinct aspects of the world's diversity and tries to establish rules and laws to organize its endless variations. Therefore, using strongly inductive approach received critics as it is challenging to develop a generalizable theory (Timmermans and Tavory, 2012).

On the other hand, abductive approach usually associated with pragmatic philosophical standpoint. In terms of theoretical predisposition, abduction often tries to begin a research without presuppositions and theories as it tries to seek a theory (Flick, 2013, pp. 123-135). In this study, we used institutional theory as a starting point in understanding how team members perceive how gender diversity enhances innovation performance. Therefore, abductive reasoning was not considered relevant in this study.

Using a sequential deductive-inductive approach offers a more rigorous analysis in qualitative research. Deductive approach was used to develop an initial framework to guide this study and then an inductive approach was applied when adding new themes and code during the analysis stage. By doing this, the initial framework was continuously evaluated during the analysis. The sequential deductive-inductive approach has commonly used in previous research (i.e. Azungah, 2018; Klundert et al., 2020; Sorokina et al., 2022; Gupta, H. and Dhar, 2024).

3.1.4 Research Strategy: Multiple Case Study

According to David (2021), case studies are typically relevant to explore subjects and issues where relationships may be ambiguous or uncertain. This approach is especially valuable when the researcher aims to explore the relationship between a phenomenon and its surrounding context (David, 2021). Therefore, in order to accomplish its purpose, this study adopted a case study research strategy.

A case study research enable empirical investigation of a contemporary phenomenon within its real-life context using multiple sources of evidence (Yin, Robert K, 2018). A case study research is appropriate to explore new topic area which is not extensively been studied in the real-world context (Eisenhardt, Kathleen M, 1989; Yin, Robert K, 2018). It is relevant to be used to answer research question which require an extensive and in-depth approach of a phenomenon (Yin, Robert K, 2018) such as 'how' and 'why' research question (David, 2021). One of the key advantages of doing a case study is the ability to obtain plausible explanation of causal relationship from theoretical construct which have been conceptually developed through the framework (Siggelkow, 2007).

Despite the opportunities that mentioned above in using case studies, case studies research also receive some critics that become challenges for a researcher. First, it is often difficult to generalize from a specific case (David, 2021). To answer this challenges, Yin, Robert K (2018) emphasizes that scientific inquiries often require replication through multiple instances of an experiment. Similarly, case studies can also be conducted using multiple cases of the same issue or phenomenon to enhance reliability and validity. Moreover, “multiple cases are advantageous because they make it easier for researchers to identify and sharpen theoretically relevant construct definitions at an appropriate abstraction level and often mitigate alternative explanations and over-determined theory” (Eisenhardt, Kathleen M., 2021, p. 151). However, it is important to note that generalization in case studies is not the same with statistical generalization.”It should not be assumed that the results of a case study can be generalized to a larger population as one would do in an experimental or quasi-experimental design” (David, 2021, p. 290).

Another criticism of case studies is the amount of time and the volume of documentation that case studies generate (David, 2021). However, a strong understanding of theoretical principles is crucial, as it allows researchers to clearly identify key issues, especially when the data diverge from expected outcomes. To prevent overwhelming data, developing a theoretical framework beforehand helps guide data collection and analysis (Eisenhardt, Kathleen M., 1989; David, 2021) .

Our study chose multiple case study research for several reason. First, much of the research up to now has been descriptive in nature and paid less attention to the complexities of the contribution of gender diversity on innovation performance and how it was socially constructed within team members of a tech-based start-up. Previous studies (i.e. Dai, Y et al., 2019; Wikhamn and Wikhamn, 2020; Arun et al., 2020) overlooked the intricate dynamic between internal and external environments and how it might influence each start-up in understanding how gender diversity might enhance innovation performance. Therefore, this phenomenon requires more investigation that goes beyond investigating numerical representation of men and women in the team and its impact on innovation performance but also focus on how each start-up develop their understanding of the role of gender diversity on enhancing innovation performance.

Second, institutional pressures are an intricate concept that is deeply ingrained and occasionally difficult to perceive. Voinea et al. (2023) conducted a study to analyse how institutional forces,

including the extent of feminine and masculine cultures, technology and industry characteristics, and regulation, affect the relationship between board gender diversity and innovation. Nevertheless, their approach may restrict the range of external influences that various ventures may perceive. Likewise, studies conducted by Phan and Yu (2022), Orazalin and Mahmood (2021), Attah-Boakye, R. et al. (2020), Atallah et al. (2021) have relied on the country-level of institutional variables such as national culture, national diversity, and regulation quality. This strategy may obscure the actual pressures that start-up teams might perceive. Hence, a thorough investigation through multiple case studies is necessary to investigate the underlying institutional pressures perceived by the team member.

Third, multiple case study was considered relevant since it helped to get in-depth and rich data to better understand the phenomena. Multiple cases enable broader exploration and allow researcher to investigate a replication logic across cases (Eisenhardt, Kathleen M and Graebner, 2007) and are considered to be more compelling and more robust than single case studies (Eisenhardt, Kathleen M, 1989; Yin, Robert K, 2018). *A multiple-case design allows the researcher to extend the analysis and potential for generalizability and search for cross-case patterns and themes* (Mills, A.J. et al., 2010). It is also enable this study to compare the similarities and differences of the implementation practices in the different contexts (Silverman, 2022). Comparing each case was challenging due to the dynamic nature of tech-based start-ups and the rapid evolution of their innovations. The fast-paced changes made it difficult to compare cases directly while also acknowledging the uniqueness of each product or service. However, the multiple case study approach helped clarify the impact of different gender compositions on innovation performance.

Unit of Analysis

Our research defined a case as unit of analysis, which is a team of individuals involved in a new initiative within tech-based start-ups. The study examined various tech-based start-up team with varying gender compositions. Social role theory mentioned that societal expectations shape behaviours, skills, and interactions of individuals based on gender. Therefore, investigating teams as unit of analysis were considered relevant since innovation is a collective process that often shaped through team interaction (Acar et al., 2024).

Compared to previous research such as in (Teruel and Segarra, 2017; Sung and Choi, 2021; Zhang, L., 2020) that focused on firm-level, focused on team level were considered more

relevant for several reasons. First, most tech-based start-ups are founded and led by teams rather than by individuals (de Mol et al., 2020; Steffens et al., 2012). Second, investigating of the firm level might overlook the team interaction across different genders which influenced by social expectation and gender stereotype as proposed by social role theory. Therefore, focusing on the team level was considered more relevant.

Adopting multiple cases allows researchers to get insights into how start-ups with varying gender diversity ratios may exhibit distinct behaviours, ultimately leading to varied levels of innovative performance.

3.2 Sampling method and case selection

In order to answer the research question, it is important to understand which cases will provide the best opportunity to learn about the phenomenon, as has been suggested by Stake (2013). In case studies, choosing case randomly was not recommended to ensure that the entity under investigation is transparently observable (David, 2021). Therefore, we decided that we use purposive sampling to provide a variety of gender compositions in a team. It aims to sharpen the empirical focus on the focal phenomenon, mitigate alternative explanations, and enhance generalizability (Eisenhardt, Kathleen M., 2021).

There were few criteria that we used when selecting the case:

- a. In order to be categorized as a tech-based start-up, each cases should use technology (i.e. internet, web/mobile-based application, artificial intelligence, etc) as a core of their business (without it they could not run their business).
- b. the range of start-up ages observed in the sample is between 1 and 5 years. Some studies used firms that has been established at least one year and less than eight years (Li, H. and Wang, 2021). While not a prerequisite for selecting a start-up, it is crucial to comprehend every phase of a start-up to ascertain its continued eligibility as a start-up engaged in market research and product development.
- c. Each cases should have at least 3 or more members. It becomes easier to assess and analyse diversity when the team has 3 or more members, as there can be a better representation of various genders. It helps to measure the proportion of each gender within the team.

To find the candidate cases, we explore various website that contains list of start-ups in Indonesia (i.e. <https://1000start-updigital.id/start-up/>, <https://mikti.id/lib/>, etc). we then

manually checked the composition of the team through their official website, we then sent an introductory email and conducted first meeting with the gatekeeper. Subsequently, we sent a short proposal with participant information sheet to ensure that all participants understood the research objective and their right. Table 9 is the list of participating tech-based start-ups.

Table 9 Overview of the case

Cases	Context	Case Selection Rationale
Case 1 Shrimp.co	Tech-based start-up that provides solutions to help farmers understand the farm condition better in real-time way for a preventive actions towards the risk of farming. With IoT and machine learning technology, help farmers to maximize the farm efficiency.	Team member consist of 8 key team member with only 2 female member, representing male-dominated within aquaculture sector
Case 2 Milk.co	Tech-based start-up that provides crowdfunding platform a web-based service and mobile app (Android) that brings together donors who have excess milk and breast milk, and recipients of ASI who need it on the basis of medical indications. Milk.co offers breastfeeding sharing services by providing clinical lab checks, expeditions and Mother's milk certificates.	Total team member consist of 9 female and 3 male team member, representing female-dominated sector (health of mother and children)
Case 3 Cop.co	Tech-based start-up that focused on making a Super App for cooperatives and any collaboration group to grow.	Key team member consist of 4 female and 4 male team member, representing gender-balanced team
Case 4 Love.co	Tech-based start-up that provide access to a variety of family classes and communities that support you at every stage of parenthood. and seek help with the psychologist by using a web-based platform.	Key team member consist of 2 female and 2 male team member, representing gender-balanced team within female-dominated sector (health)
Case 5 Fashion.co	Provide on-demand service which enables tailors to join as a freelancer and accepting order, receive training and supplies	Key team member consist of 3 females and 2 males representing almost gender-balanced team within female dominated sector (fashion)
External Case	External cases consist of government, incubator service providers, consultants, investor, and gender researcher.	to gain insights into challenges, barriers, existing policy and other relevant issues related to the condition of start-up in Indonesia

Our study involved both male and female member of start-up team as participants. It was done intentionally because prior qualitative works regarding how gender plays role in innovation teams have been focused on exploring women's experiences in an innovation team (see Staffansson Pauli et al., 2020; Kovalainen and Poutanen, 2013; Rowe, 2018). It has been argued that organizations develop gender bias in innovation practices which make women more invisible in terms of innovation than their male counterparts (Pecis, 2016). However, focusing only on issues affecting women tends to overlook the comprehensive meaning of gender.

Men's perspectives have been neglected by not including men in the sample as if gender is only related to issues affecting women. As Fischer et al. (1993) and Nielsen et al. (2018) note, it is problematic that hypotheses that assert that women are disadvantaged cannot be tested if men are not included in the study. The research that has only emphasized women's specific challenges and barriers has reproduced an androcentric approach that has exaggerated male success (Alsos et al., 2018, p. 18).

3.3 Data Collection

Before collecting the data, we developed a protocol as a guidance in collecting the data. Data collection protocol consists of interview guides and list of additional sources (Appendix 3) that might help us to gather useful information from each case for the analysis. Interview guides consist of a list of guiding questions related to the topic to help us answer the research question. It aims to maintain consistency across cases. However, in order to acknowledge the uniqueness of individual cases, we modified/added several questions to deepen our understanding of each case depending on the responses of the participants during interviews.

Following the case study design (Yin, Robert K., 2003), data collection methods in this study consisted of primary data (e.g. in-depth semi-structured interviews) and secondary data (e.g. documents, websites, direct observation). Data collection was conducted between April 2022 and September 2023. Table 10 summarizes the amount and type of data collected within each cases.

3.3.1 Primary Data

Interviews were chosen as a primary data source because it was considered as a key source of evidence in case studies (Yin, Robert K, 2018) that aims to collect in-depth data, particularly, on a less known subject. Using interviews allowed us to get insight into how team members socially constructed knowledge related to gender diversity and how it contributes to innovation performance, which aligned with our research questions. We used a semi-instructed interviews using interview guidelines (Appendix 3). Although we had developed an interview guides (Appendix 3), we always used an open-ended question as initial question such as "Can you tell me your story about your experience working in this start-up?" to allow each participant to share their experience freely and to allow any other potential interesting or unexpected insights related to the phenomenon. This was also useful to minimize bias during interviews. In summary, semi-structured interviews helped us maintain consistency across different cases

while also allowing us to find flexibility and probe deeper into our participants' responses and adapt the conversation based on the context.

In this study, we conducted interviews with 20 participants from team members of tech-based start-ups and 8 additional participants from external stakeholders such as investors, government, incubator service providers, consultant, and gender researcher in Indonesia. Interviews with team members of tech-based start-ups were aims to understand how team members of a tech-based start-ups perceive the role of gender diversity on innovation performance while interviews with external stakeholders were aims to gain insights into challenges, barriers, existing policy and other relevant issues related to the condition of start-up in Indonesia. This was important as it will inform us about how team members perception about gender diversity might be constructed and influenced by their institutional condition.

Each interviews was conducted approximately 45 minutes to 1 hour. As data collection was conducted started on April 2022, the condition of Covid-19 pandemic in Indonesia during that time was still high and travelling to Indonesia was not recommended for safety reason. Therefore, most of the interviews were conducted online except several interviews (4 interviews), which was able to be conducted during the fieldwork between June and July 2022. Table 8 summarized the participant of this research.

Table 10 Overview of the participants

Cases	Respondent & Position	Data Collection Method	Interview Length and Process
Case 1 Shrimp.co	5 Participants: Jane (CEO) Jira (HR) Jazli (COO) Jaseline (HR) Jaiz (VP Impact)	Interviews, follow-up interviews, 3 days site-visit, websites, & documents	04 hours 43 minutes generating 93 pages of interview transcription
Case 2 Milk.co	4 Participants: Linda, Female (CEO), Labib, Male (CFO), Lina, Female (COO), Lais (Creative Designer)	Interviews, follow-up interviews, 3 days site-visit, officials websites & documents	04 hours 22 minutes, generating 120 pages of interview transcription
Case 3 Cop.co	4 Participants: Nira (CFO) Nafi (CEO) Nesti (HR) Nia (Marketing Leader)	Interviews, officials websites & documents	04 hours 03 minutes generating 77 pages interview transcription
Case 4 Love.co	4 Participants: Rani (Founder), Rara(Cofounder), Rian (Creative Designer), Rudi (Creative Designer)	Interviews, follow-up interviews, websites, & documents	04 hours 06 minutes generating 106 pages interview transcription

Case 5 Fashion.co	3 Participants: Hera (CEO) Hima (Operational & Partnership) Hita (COO)	Interviews, 1 days site-visit, websites, & documents	03 hours 02 minutes generating 103 pages interview transcription
External Case	8 Participants: Investor 1 (business development manager of OC) Investor 2 (CEO and portfolio director of MC) Investor 3 (VP Investment of KC) Government 1(digital start-up business coordinator of Kemenkominfo) Government 2 (Digital talent and Start-up development coordinator of Kemenparekraf) Incubator (Head of DigitalXProgram) Consultant (COO of ProjectI) Gender Researcher (Editor in Women Journal, former worker of Indonesia National Women's Commission, researcher at gender research center at the University of Indonesia)	Interviews	05 hours 49 minutes Generating 101 pages of interviews transcription

3.3.2 Secondary Data

In addition to primary data gathered from the interviews, secondary data were collected to provide background information for each case and to support the analysis. This study has three types of secondary data: Survey, documents and observations.

Survey

The survey was aims to get a description about how team members perceive their innovation performance. We used an instrument developed by (Talke et al., 2011) in measuring innovation performance. They used two dimension in measuring innovation performance: technology newness and market newness. It has been used and validated by previous (i.e. Galia et al., 2015; González-Moreno, Á. et al., 2018; Horbach and Jacob, 2018). The detail of the instrument can be seen in Appendix 2.

To assess participants' perceptions, we employed a 5-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). The survey instrument was distributed using a web-based portal provided by University of Leeds to all participants involved in the study, allowing for the collection of standardized responses across key indicators. Upon completion, the responses were aggregated, and the mean scores for each item were calculated to provide a quantitative measure. This averaging process enabled a comparative analysis of participants' perceptions about innovation performance across different cases.

Although in this study we used a survey as additional data, the main focus of the research remains on understanding the perception of team members related to their understanding on how gender diversity in their team enhance innovation performance. The survey data simply provides supplementary context to help triangulate the qualitative findings related to their innovation performance. The survey data provide supportive insight through basic descriptive statistic only. The core of the research remains focused on how people create and negotiate meaning about gender diversity and how it impacts innovation performance.

Documents

In order to get background information about each case, several documents were also collected to support the investigation. Complement to interviews, documents are created independently without a researcher's intervention (Merriam and Tisdell, 2015). Documents include company profiles, information from websites, fliers, social media posts, and other documents that are relevant to the research. In an initial plan, an annual financial report is to be collected to understand each case's financial condition. However, align with Azungah (2018) who mentioned about the challenge of obtaining documents for a research, none of the cases were willing to provide documents related to financial condition for confidential reasons.

Desk research was conducted prior the interviews to inform the researcher about general information about each case. These documents were useful during desk research before we conducted interview as it informed us about the background of each start-up, their vision and mission, and their organisational culture. It helped us understand the context of each case before the interview. List of documents obtained in this study were summarized in Table 11.

Observations

The researcher was observing the daily routine activities in the start-ups in order to understand the interaction between team members. The initial plan was to do direct observation for about a week. The researcher's presence on the first day might not be helpful since most team members still keep their distance and might not behave the way they do. Therefore, the whole week might help the researcher to observe the natural interaction between team members. Unfortunately, the plan was unable to work as intended; two of the start-ups only allowed for three full days of observations, while three other start-ups were still working online, preventing the researcher from conducting a direct observation.

During the fieldwork carried out from June to July 2022, two observation that was successfully conducted, provide additional important information to shape the analysis. One observation for

case 5 did not go well because only the operational team were working from the office while other key team members were working online, some pictures were taken, and a direct interview was done in the office, providing a different experience for the researcher. Therefore, the decision to drop observation as additional data has been revoked. Furthermore, three days of observation have been considered as adequate to observe natural interaction between team members, the third day of observation did not add any additional significant data. The total hours of observation were 24 hours, divided into 8 hours a day. The researcher came at 9 o'clock in the morning and finished at 4 o'clock in the evening, following a typical office-working hour of the firm.

Table 11 List of Secondary Data

Case	Secondary Data
Case 1	Company Profile (Websites), Code of conduct (docx), observation notes (docx), Pictures (jpg), Survey result (xls)
Case 2	Company Profile (pdf), Promotion Material (ppt), Company Reports (Instagram post), Observation notes (docx), Pictures (jpg), Survey result (xls)
Case 3	Company profile (websites), Survey result (xls)
Case 4	Company profile (Websites, pdf), On boarding session material (ppt), Survey result (xls)
Case 5	Observation notes (docx), Survey result (xls)
External Case	NA

3.4 Data Analysis

Once the data were gathered, they underwent analysis through several processes. The data analysis process consists of multiple phases, beginning with the preparation of data for analysis, which involves transforming audio recordings into written transcriptions. Data analysis encompasses the coding process, which involves extracting significant segments of data and organizing them into certain themes. The analysis approach involves Nvivo software to facilitate data management during the analysis phase.

3.4.1 Transcription and Coding Process

The majority of the interviews were performed remotely using online meeting platforms. The interviews were taped, resulting in audio and video formats. The audio was subsequently transcribed into written documents for further processing in the subsequent stage of analysis.

The interview data were not transcribed verbatim since it was not considered necessary. Verbatim transcription is also generally recognized as impractical because it is not only time-consuming but also challenging and often faces technical problems (Fasick, 1977; Wellard and McKenna, 2001).

After all the interview data have been transcribed, the researcher initially intends to translate all the transcription into English, a targeted language for the writing process, prior to the analysis process. However, after three interviews were translated and coded, the researcher found some difficulties and decided to code transcription using the original language without any translation process. There are several reasons behind this decision:

1. Most of the participants used mixed language (Bahasa and Javanese language), therefore, besides no translation software can be used, the researcher have difficulties to translate all the transcription without reducing any meaning.
2. The researcher encountered challenges in fully engaging with the data subsequent to the translation of the transcribed material. Recalling the context, intonation, and situational factors present during the interview may facilitate the process of memory retention.

Translating interview data's transcription was not without some issues. Some scholars also criticize the use of translation and back translation when analysing interview data since it will be difficult to find equivalent meanings in different language which has different cultures (Ozolins et al., 2020). Since there is no superiority in terms of the method of interpreting data, the original language was preserved as long as it could.

Translation requires knowledge of subject-specific terminology, awareness of style and grammar, nuances, and idiomatic expressions (Halai, 2007). Therefore, since the researcher is not a native English speaker, it is better to use the original language when analyzing the data. Furthermore, Twinn (1998) suggested that transcripts might work best when analysed in the original language rather than being translated prior to analysis. Similarly, it was also recommended to use original language when analyzing the data in order to prevent losing the meaning and context of the transcription (Van Nes et al., 2010). Furthermore, Chen, H.Y. and Boore (2010) found no difference in the final conclusion of the analysis from the original text and the one that had been translated before the analysis.

As previously mentioned, the process of familiarization involved the utilization of authentic transcripts. Subsequently, after all the coding in the first round was finished, all transcripts

went through translation into the English language, and the coding was going to the second round. The purpose of this action was to facilitate the assimilation of data with the terminology employed in scholarly publications, predominantly composed in the English. Furthermore, it facilitated a discussion with the supervisor regarding the code and the transcript.

3.4.2 Analysis Method

Case studies benefit from the prior development of a theoretical position to help direct the data collection and analysis process (David, 2021). Constant comparison refers to the extensive iteration between the emergent theory (particularly constructs and relationships) and data to create an increasingly close fit between the two—both within cases and across cases.(Eisenhardt, Kathleen M., 2021).

Our study relies on a theoretical framework as outlined in Chapter 2. The framework facilitated the researcher in systematically arranging the complete investigation, focusing on pertinent contextual conditions that need to be documented, as well as the explanations that need to be explored (Yin, Robert K, 2018). The basic assumption in this study was that gender diversity in a tech-based start-up will not directly influence innovation performance but it is also influenced by external factors such as institutional pressures and internal conditions such as organisational culture, leadership, and HR Policies and Practices. All the detailed dimensions of internal condition were found during the investigation.

Based on the institutional theory proposed by DiMaggio and Powell (1983), institutional pressures consist of three main mechanisms which are coercive, normative, and mimetic. Even though these dimensions were initially used to explain isomorphism in organizations, these dimensions were helpful to categorize external pressures for the investigation.

Template analysis was used by using NVivo software to help with the process. Template analysis was considered relevant because the researcher already had a theoretical framework to guide the study. Template analysis allows deductive reasoning but also does not limit the finding only to priori themes that have been developed. Template analysis also allowed the researcher to be more flexible with the templates and add other relevant ideas that might occur during the transcript analysis. That is why *“Template Analysis is not a distinct methodology but rather a style of analysis, and can therefore be used in qualitative research from a range of philosophical positions”*(King, 2017).

Template analysis offers high adaptability but, at the same time, is transparent by providing clear balance and an open structure of the coding. Template analysis also makes the coding process more efficient since the researcher will not easily be distracted by a lot of things in the field. However, there is no one method that is superior compare to others. As in template analysis, there are also some weaknesses which if it is not adequately acknowledged, might reduce the quality of the research.

First of all, since the template analysis offers flexibility in terms of the philosophical standpoint which it is derived from, failure to understand ontological and epistemological grounding might make the researcher not know how to analyse the data consistently and might be lost in the term ‘flexibility.’ Second, the use of a template might limit the findings that might be hidden in the word, such as the emotion and the sequence of the words spoken. Another weakness is that if the researcher is too focused on the theme, it might be challenging to theorize from the template because theorizing is not the same as summarizing the theme.

Therefore, in order to address those issues, a hybrid approach to thematic analysis was used. It created a balance between inductive and deductive approaches. Before the coding process, a set of priori themes was developed (deductive process). Priori themes were general themes related to the dimension under investigation. In this case, the priori themes were institutional pressures, organisational cultures, leadership, and HR policies and practices. Subsequently, additional coding was systematically derived from the interview transcript, resulting in the emergence of a data-driven concept (inductive process). The coding generated underwent a categorization procedure and was linked to a relevant set of priori themes. This hybrid approach has been widely used by many scholars to improve the robustness of the research (Fereday and Muir-Cochrane, 2006; Swain, 2018).

3.4.3 Stages of Data Coding

The analytical process of this study involved familiarisation of the data by reading the transcript, listening to the interviews and reading the notes taken during the interview. It followed by creating a set of priori themes based on the framework in Chapter 2. Based on this initial priori themes, each cases were analysed individually. During this process new codes emerged from the data and categories of themes were added which then used to analyse the subsequent cases. These process was conducted iteratively until final codes and themes were developed. The external cases then analysed to add new insight into the analysis. Overall, Figure 10 describes the analytical process of this study.

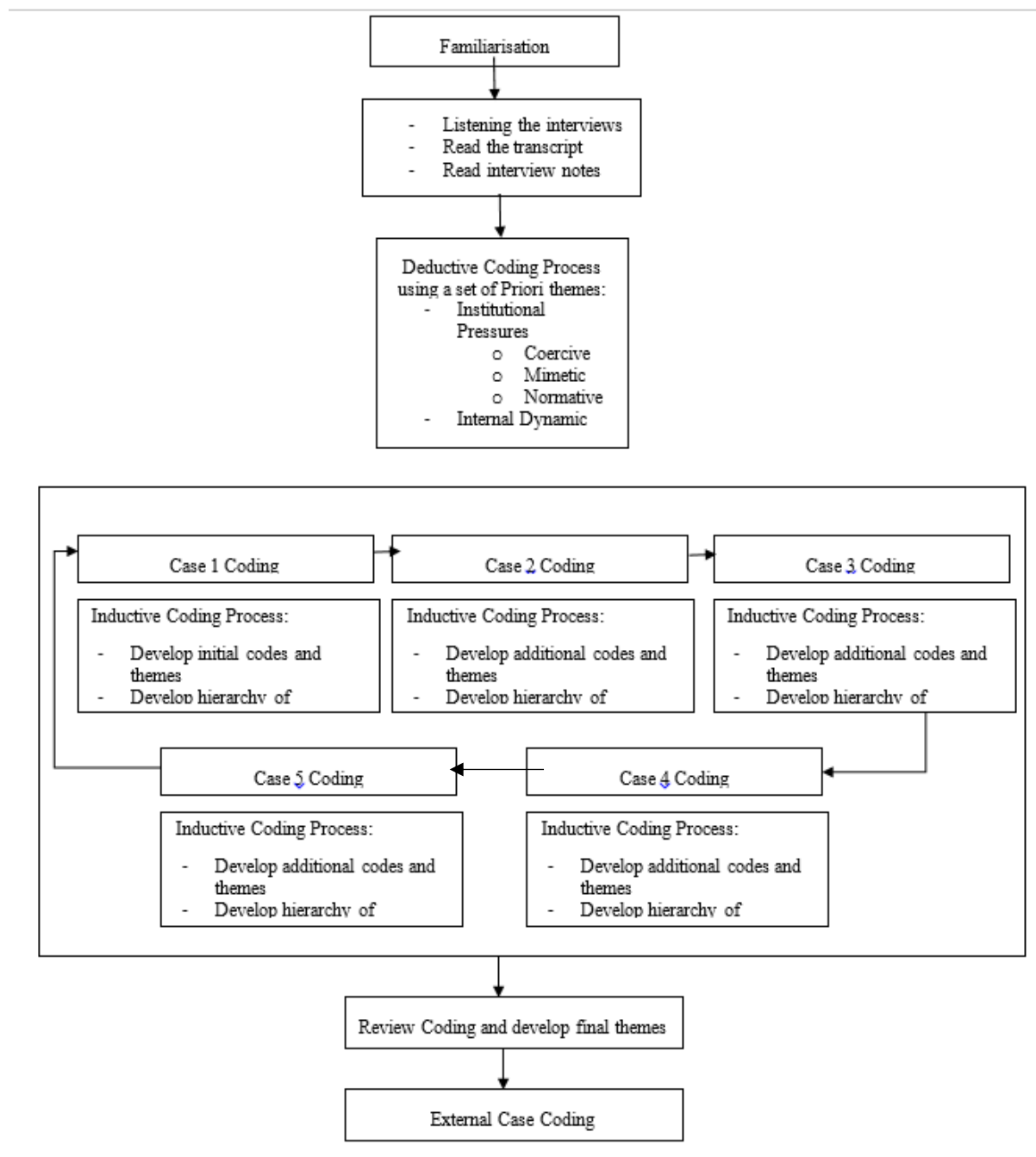


Figure 5 Data analysis process

Holistic coding was utilized during the data analysis process because it is an exploratory method, making it suitable for researchers who are learning to code qualitative data. It is particularly appropriate for studies that incorporate multiple sources of evidence and when the researcher has a broad understanding of what to explore within the data (Saldaña, 2021). The data analysis involved iterative processes to ensure all codes and themes developed were relevant and comprehensive.

Table 12 is the example of how the researcher analyse the transcript, assign a code, and create categories, describing the rational of the analytical process. The first column is the holistic codes that we developed as priori themes based on the literature. Align with chapter 2 section 2.3, the definition of these themes were described in the second column. The third column elaborates on the description of the themes to enable us to identify the interview transcript. The fourth column is an example of the interview quotes from the transcript that we assign to the themes. Subsequently, we identify the text and assign a code to this quote, for example, on the first row we made a code that we named as “investor requirement” as the participant mentions investor and assign a code “community expectation” when the participant mentions “people’s trust”. This code then becomes a template code when analyzing the next cases. After several iterative processes from one case to another case, we categorized each similar code and aggregated them into the same categories.

Table 12 Example of coding process

Holistic Codes: A priori themes	Definition	Description	Quotes Examples	Codes	Category
Institutional Pressures	Institutional pressures refer to the external influences and expectations exerted on organizations by the broader institutional environment (Davidsson et al., 2006)	Refers to external environment which influence new ventures related to their gender composition and innovation such as regulation, social and cultural norm.	“but in impact division we already have gender-balance team. Yes, the balance between woman and men is like that because at that time we are also running projects from investors also working with Kominfo and NGOs, so they had. We have to pay attention to what is called gender equality as well.”	Investor requirements	Coercive pressures
			Because I think society is the one that influence us the most. That is the reason why Milk.co become a non-profit organization. It’s because of the perception of the society. Besides social norm... We are looking for people’s trust. I think this is the most important things, people’s trust .	Community Expectation	Normative pressures
Organisational Cultures	Organisational culture is a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration(Schein, E.H., 1990, p. 7)	Refers to a whole set of values, beliefs, routines, and mechanisms that are present in everyday practices.	we are actually very open for feedback . So it's like we're pushing all the lines like that If you have something in mind or want to learn something, just reach out”	Openness	Values & Beliefs
			We have this suggestion box , it's actually like a Microsoft form, it's a kind of Google form where people can submit at any time when they think about anything, want about the product, want about the way we work or whatever.	specific feedback mechanism	Organisational practices
Leadership	Leadership is the process of interactive influence that occurs when, in a given context, some people accept someone as their leader to achieve common goals (Silva, 2016)	Refers to characteristics of leaders including their values and behaviours	It's just a coincidence to get such a proportion of employees. At that time, I was the first to enter Impact. Then maybe because the frontman is a woman . So there is a tendency to find female subordinates easier, because there are examples in the field that it's fine like that.	Role Model	Leadership for Gender Diversity
			That's what I said first, step by step, I said to HR, I need a girl at least 20% , from one to 6, yes, one and 6, it's not 20%, the more it develops, the more it's 5 to 1, then I need it 4 to 1 and then finish it later when it's 4 to 1 I need 3 to 1. Eh, sorry 3	Awareness and commitment towards gender diversity	Leadership for Gender Diversity

			to 2, so I always press HR, that's how I started from gender		
HR policies and practices	HR is a practice in organization that include several instruments such as recruitment and selection, performance appraisal, career progress, training and development (Pandit and Paul, 2023)	Refers to a whole set of policies and practices related to human resource management that influence how gender diversity was optimized	Because they need a leave or they ask for working from home because it's still early in the pregnancy, it's a bit fragile, that's why we also give a chance for that too,	Flexible working arrangement	Gender Aware Policies
			I should give you a nursing room because there weren't any nursing rooms in the building,	Providing supportive facilities	Gender Aware Practices

3.5 Quality of Qualitative Research

In order to ensure the quality of the research we used several criteria adopted and adapted from previous research such as Flick (2008) and Guba and Lincoln (1982).

Flick (2008) mentioned that qualitative research has to face the questions linked to concepts like reliability and validity. Therefore, we elaborated on how we ensure the reliability and validity of our research. One of the strategy used by the researcher to increase reliability and validity of the research was using triangulation.

Triangulation refers to combining different sorts of perspective during the research that might includes using several methods and/or in several theoretical approaches or participants (Uwe, 2017). Some specific examples were explains below.

Reliability

In order to ensure reliability of the study, we used interview guides (Appendix 3) to ensure consistency in data collection in different cases. We also actively discussed with peers, supervisors, and experts during conferences to minimize subjectivity of the researcher.

Validity

We used triangulation as a strategy to ensure validity of the study. First, we purposively select a diverse sample of tech-based start-ups with different gender compositions to increase generalizability of the findings. Second, we iteratively compared our inductive analysis with relevant literature to ensure relevant constructs that may influence the relationship between gender diversity and innovation were considered (theoretical triangulation).

On the other hand, Guba and Lincoln (1982) proposed several criteria to assess trustworthiness of the qualitative research which includes credibility, transferability, dependability, and confirmability. We employed these criteria to ensure that our research was rigourous.

Credibility

Data triangulation was employed by using multiple data sources such as interviews, surveys, and observation. Data triangulation was helpful in several stages of the analysis. For example, we combined survey and interviews when understanding innovation performance of each case. Data triangulation also helpful when understanding the organisational culture and gender

diversity practices of each case by examining company profile/regulation documents and interview transcript related to how team members perceive organisational culture.

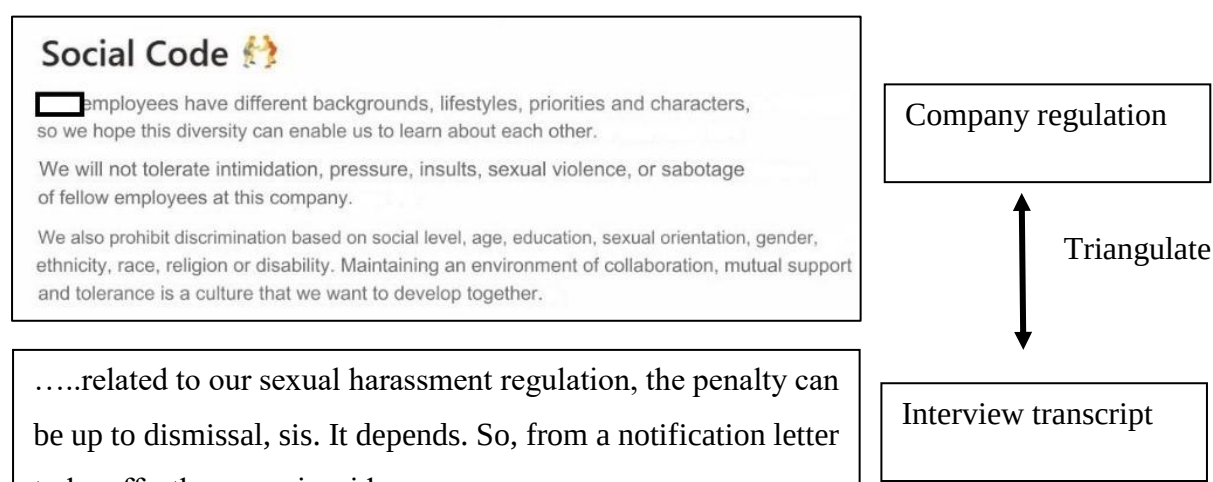


Figure 6 Examples of Data Triangulation

Moreover, our data triangulation also includes multiple source of participants. We involved men and women to ensure both genders were represented in participants. We also interviewed different levels of team members in tech-based start-ups from executive to operational level, to captured nuanced perspectives of gender diversity within tech-based start-up teams.

Transferability

We elaborated on the details of each case to describe the research context. Guba and Lincoln (1982) mentioned about ‘thick description’, which we elaborated on Chapter 4. It aims to enable others to determine the applicability of findings to similar settings. We also proposed a framework to enable future researcher to replicate and test our findings.

Dependability

To ensure dependability, we documented the details on how the study was conducted. The details of methodology of this study can be used as an audit trails which documented the research process, how the data was collected, and how it was analysed.

Confirmability

In order to ensure confirmability, researcher needs to understand the position during the research. Section 3.7 elaborated on the researcher position in this study that describe reflexivity

of the researcher. By doing this, the researcher acknowledge any potential biases and ensuring transparency in interpretations.

3.6 Research Setting: The Context of Indonesia

To better understand the differences in the relationship between gender diversity and innovation performance, several works suggested that the significance of this relationship is highly depends on national culture (Uzuegbunam et al., 2021; Santos, S.C. and Neumeyer, 2021). The national perception of women in different countries appears to mediate the impact of gender diversity in a team (Santos, S.C. and Neumeyer, 2021). Aligned with social role theory, how women behave in a new firm is also related to how social norms and gender norms are constructed within society (Uzuegbunam et al., 2021). Prior studies provide evidence that cultural context is important when studying diversity since it moderates the relationship between gender diversity and team performance (Schneid et al., 2015). Therefore, it is important to give a brief description of the research context to provide a general understanding of the context where the research was conducted.

3.6.1 Geographical Condition

Indonesia is the fourth most populous country in the world. It has 272.6 million population in 1.916.906,77 km². It has 16.766 islands, three different time zone, and very diverse in culture (Indonesia, 2022).



Figure 7 Indonesia in a World Map

(Source: [http:// www.bps.go.id](http://www.bps.go.id))

Among five largest islands in Indonesia (Sumatera, Java, Borneo, Sulawesi, New Guinea), Java is the most populous islands (see Figure 8). Almost all central government activities and industries are centralized in Java island. This is the reason why entrepreneurial activities such as new venture creation also mostly occurs in Java. This is also explain why our investigated start-ups were all located in Java Island.

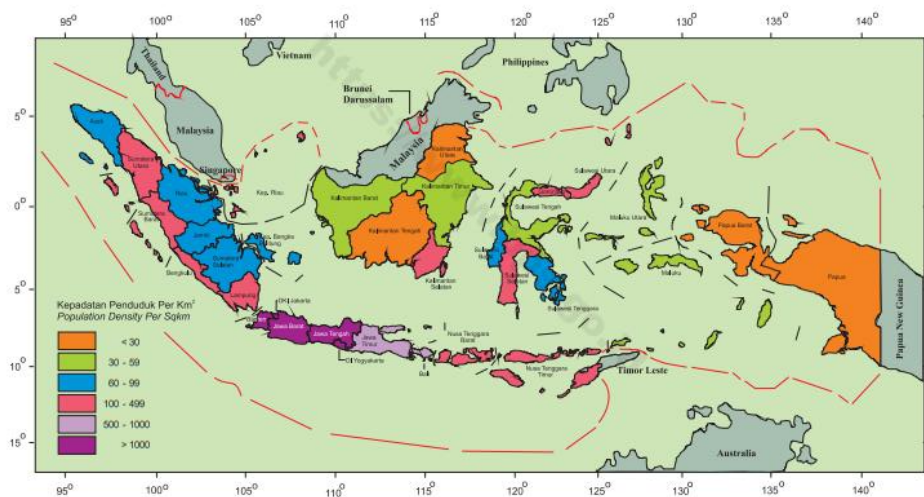


Figure 8 Indonesia's geography and population density

(Source: [http:// www.bps.go.id](http://www.bps.go.id))

The Ministry of tourism and creative economy partnered with MIKTI (Indonesia Digital Creative Industry Community) published a report that shows 70% start-ups were established and based in Java.



Figure 9 Start-ups distribution in Indonesia

3.6.2 National and Business Culture

Attah-Boakye, R. et al. (2020) found that national culture significantly influences innovation performance. They provided a shred of evidence that innovation performance is highly related to the country which is more future-oriented with a highly competitive culture, rigid codes of belief, and strong risk mitigation culture.

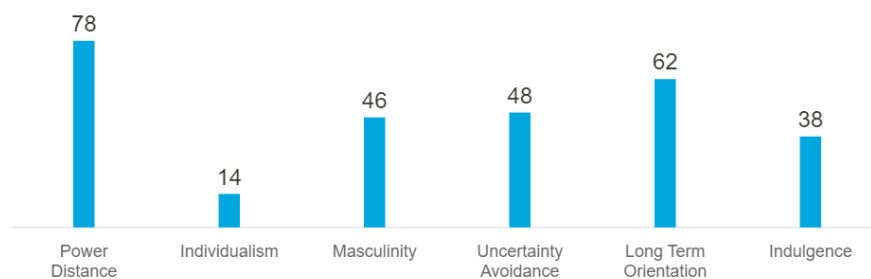


Figure 10 National Culture based on Hofstede Analysis

Source: <https://www.hofstede-insights.com/country-comparison-tool?countries=indonesia>

Based on Hofstede Analysis, Indonesia has high power distance means unequal rights between power holders and non-power holders, superiors are in-accessible, leaders are directive, and management controls and delegates. Power is centralized and managers count on the obedience of their team members. Low Individualism means that Indonesia is a more collectivist society. This means that social systems are strong and someone is expected to comply with the ideals of the society and groups to which they belong (HofstedeInsight, 2020).

In addition to national culture, we can also look into another framework that specifically focused on business culture such as Trompenaar's framework (Hampden-Turner and Trompenaars, 2020). Although there are several differences in the name of the dimension measured, both framework shared some similarities in describing culture of Indonesia. Based on Trompenaars's Framework, Indonesia has a high communitarianism, which is similar to the concept of collectivism in Hofstede which describes that people from Indonesia are more oriented toward groups. Based on Trompenaar's framework, people from Indonesia have a greater orientation towards their status deriving from who they are (family, age etc) rather than what they achieved. This dimension highlight inequalities, similar to power distance dimension in Hofstede Framework. Understanding the national culture is crucial as it will determine the perception of gender stereotypes in the country, which in turn will impact the functioning of

gender diversity in teams within start-ups. Moreover, it is critical to comprehend the entrepreneurial environment and the specific contributions made by women in this field. Both framework highlight that Indonesia has a culture of collectivism/communitarianism and power distance/ascription that might influence on how team members perceive and leverage from gender diversity in a team to enhance innovation performance.

3.6.3 The role of Institutional pressures in Business in Indonesia

Indonesia has strong institutional pressures, which can be seen from many example cases in Indonesia where people could put pressure on business. Two recent cases have been viral on how social culture has a great impact on business: the case of Holywings and the case of “Nasi Padang Babi”. Almost all Holywings outlets had been closed following the marketing campaign which is considered a blasphemy by saying “free alcoholic drink for people whose names are Maria and Muhammad”(Nugraha, 2022). It leads to public anger which then insists on closing the majority of their outlets. The second case occurs when one of the new restaurants opens and offered a non-halal Padang food that serves “Nasi Rendang” made from pork. It has sparked a polemic because it is considered insulting to Minangkabau society and culture, which is synonymous with Islam (Boy et al., 2023). These two cases show how institutional pressure, specifically religion and culture, have a significant role in business in Indonesia.

In the context of tech-based start-ups, the influence of the institution were also significant. For example, it was found that start-ups in Indonesia still face various problems due to the absence of start-up regulations and the complicated and lengthy start-up licensing process(Rohendi et al., 2023). Iskandar (2024) also emphasized the significance of government support, and a robust entrepreneurial ecosystem in fostering growth and attracting investment in the tech sector, which is currently not well established.

The influence of institutional factors in Indonesia on tech-based start-ups' development of gender-diverse teams remains underexplored in existing literature. This gap is significant, as the ability of tech-based start-ups to enhance innovation performance may be closely linked to their attitudes toward gender diversity. For instance, Labelle et al. (2015) found that organizations with gender-diverse teams solely to comply with gender quota regulations were less effective in improving firm performance. This suggests that the mere presence of gender diversity, without genuine commitment, may not lead to desired outcomes. Therefore, it is essential to examine how team members perceive institutional pressures in shaping their team's gender composition and how such perceptions may influence their innovation performance.

Understanding these dynamics can provide valuable insights into the role of gender diversity in fostering innovation in tech-based start-ups.

3.6.4 Women and Entrepreneurship in Indonesia

In Indonesia, the dynamics of labor force participation and gender representation in managerial positions reveal a complex landscape. As of 2022, the labor force participation rate among females stands at 52.7%, while their male counterparts exhibit a higher participation rate of 80.6%. This points towards a significant gender disparity in the workforce. The situation becomes more pronounced when considering the representation of women in senior and middle management roles. In 2010, only 19.4% of individuals in these positions were women, a figure that places Indonesia in the lowest quintile among countries with available data. The struggle for gender equity persists, emphasizing the need for targeted efforts to bridge the gap and promote greater inclusivity within the Indonesian workforce (WorldBank, 2022).

Employment in senior and middle management, female (%)

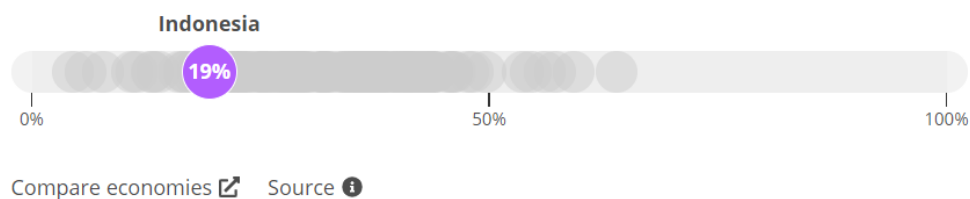


Figure 11 Employment in Senior and Middle Management

Data Source: Indonesia. Data retrieved from World Bank Gender Data Portal.

It is well known that entrepreneurial activities are related to innovation. Based on the report released by the Indonesian Ministry of Tourism and Creative Economy, in 2018 when the data was collected, from 922 start-ups, 91.18% of start-ups founders are male and only 8.82% are female (Zaky et al., 2018). One of the possible explanations that restrain women to become business founders is because most society in Indonesia adopts a patriarchal structure and strong gender role beliefs. Therefore, it is predictable that women are underrepresented in digital start-ups which are highly associated with masculine industries.

Statistical data on the numbers of people of the working-age as presented in Figure 12, provide evidence that significant numbers of women in Indonesia are not working and responsible for unpaid domestic work.

Jenis Kegiatan Type of Activity	Jenis Kelamin/Sex		
	Laki-Laki/Male	Perempuan/Female	Laki-Laki+ Perempuan/ Male+Female
(1)	(2)	(3)	(4)
I. Angkatan Kerja/Economically Active	84 994 772	55 157 803	140 152 575
1. Bekerja/Working	79 263 314	51 787 209	131 050 523
2. Pengangguran/Unemployment	5 731 458	3 370 594	9 102 052
II. Bukan Angkatan Kerja/Not Economically Active	18 313 469	48 242 255	66 555 724
1. Sekolah/Attending School	7 122 720	7 521 722	14 644 442
2. Mengurus Rumah Tangga/Housekeeping	3 850 999	36 726 944	40 577 943
3. Lainnya/Others	7 339 750	3 993 589	11 333 339
Jumlah/Total	103 308 241	103 400 058	206 708 299

Figure 12 Working age population by activity and gender in 2022

Indonesia has a sufficient climate for entrepreneurial activities that could foster innovation. However, drawing from the distribution of entrepreneurial activities between men and women, a significant gap existed. Despite a good climate, women are less likely to be involved in a business, especially in technology-based start-ups. Furthermore, the number of female founders of a start-up was far below that of their male counterparts. Based on the distribution of business fields, women tend to follow gender stereotypes and engage more in social activities or other forms of service industries which are well known as female-dominated sectors. This might happen because of strong gender role beliefs constructed by the social structure in society in Indonesia, which then potentially become institutional pressures. Consequently, it is critical to examine how this dynamic may impact team members perception towards gender diversity in enhancing the innovation performance of technology-based start-up teams.

3.6.5 Innovation and Start-ups in Indonesia

Indonesia Digital Creative Industry Society (MIKTI) is a non-profit organization that functions as a gathering place for all people who are interested in the development of Digital Creative Industries in Indonesia. Acknowledged by the Minister of Tourism and Creative Economy

Head of the Tourism and Creative Economy Agency, MIKTI published Database Start-up Indonesia. In 2021, Indonesia had 1190 start-ups, and 70% were founded by teams. Even though it is distributed in different regions, almost 70% of start-ups were founded and based in Java islands. Seventy-four percent (74%) of start-ups agree that Indonesia already has a good ecosystem for start-up growth. However, they propose several problems, such as difficulties accessing funding, human resources capability, facilities, market, and limited supportive regulation (MIKTI, 2021).

Indonesia become the highest internet user, with 202 million at a penetration rate of 73.7%. Moreover, the number is increasing by approximately 16% each year, and this fact is followed by the rising number of start-ups that propose digital innovation. Digital presence is emerging in MSMEs as the backbone of Indonesia's economy, with an estimated 15 to 20 % growth. With its unique demographic characteristics, examining the innovation landscape in Indonesia becomes more interesting. Moreover, different from developed countries, the characteristic of digital innovation in developing countries such as Indonesia were moving towards frugal innovation (Cadeddu et al., 2019).

Drawing from the fast-growing tech-based start-ups in Indonesia, it is surprising that we only found limited research related to team innovation and start-ups in Indonesia. For example, related to team innovation, Antonio et al. (2021) found that servant leadership and team ambidexterity had positive effect on team innovation. They highlighted the role of leader in encouraging team members to practice exploitation of old certainties and exploration of new possibilities in enhancing team innovation. On the other hand, Neubert et al. (2017) explore the role of spiritual capital, a set of resources stemming from religion and available for use in economic and political development, in enhancing innovation. They found that spiritual capital in entrepreneurs is associated with innovation, particularly differential innovations that are lower-risk opportunities for the poor. They found that spiritual capital may influence the recognition of opportunities and bolster perceptions of personal agency to innovate.

The research about Indonesian entrepreneurship has gained interest in political and academics authorities as it offers insight into the way entrepreneurship contributes to regional development and economic growth (Ratten, 2021). However, to the best of our knowledge, there is a scarcity in the research exploring the role of gender diversity in tech-based start-ups in Indonesia. Previous research by Antonio et al. (2021) and , Neubert et al. (2017) were the evidence that contextual factors offers unique insight. Therefore, it is important to differentiate

entrepreneurship across various country contexts to gain a deeper understanding, especially in the context of tech-based start-up and innovation in Indonesia.

3.7 Ethical Consideration

Ethical considerations are essential to ensure respectful and responsible interaction with participants. It helps the researcher in resolving ethical dilemmas, protecting participants' rights, and fostering trust, which in turn strengthens the integrity and validity of the research findings (Palaiologou and Brown, 2023). Ethical considerations are important not only because they are required by the University of Leeds ethical committee before data collection but also to ensure that the research conducted is safe for both the researcher and the participant of the research.

There were several aspects that the researcher needed to fully comprehend regarding ethics in this study. First is procedural ethic. It refers to ethical actions dictated as universally necessary by larger organizations, institutions or governing bodies (Tracy, 2019). Before the data collection was conducted, the protocol of the research had been reviewed by the committee of ethics at the University of Leeds (See Appendix 5). After all the pointed issues had been resolved, the researcher collected the data based on the protocol agreed.

When conducting qualitative research, interaction with humans is likely to be possible. Thus, it was important to ensure that every single participant in the research understood about their right and responsibility. Participation information sheets were given during the recruitment process to provide general information about the research (see Appendix X). Informed consent was also given to all the participants before the interviews to ensure that they understood the relevant information related to the recruitment process, the data, duration, and other related information about the study. They also had to understand their right regarding the mechanism to withdraw from the research at a time which was agreed by the participants and the researcher, stated in the informed consent. However, to ensure that the participant already understood their right, and well-informed about the research, the researcher always asked and reviewed the documents right before the interview started.

Second, the researcher needed to consider situational ethic. It refers to ethical practices that emerge from a reasoned consideration of a context's specific circumstances (Tracy, 2019). For example, in Indonesia the term gender refers to binary classification of men and women. Therefore, the researcher needed to align with legal and local moral consideration and prevent the use of non-binary term of gender either in written participant information sheet or direct

conversation. It highlight an example of complex interaction of situation, culture and issue when the researcher make ethical judgments, which might be different across different countries(Robertson, C.J. et al., 2002). Following their suggestion, the researcher need to follow culturally contingent ethical guidelines, or policies adapted to the local customs, must be considered.

The third consideration is relational ethics. Relational ethics involve an ethical self-consciousness in which researchers are mindful of their character, actions, and consequences on others (Tracy, 2019). It means that researchers, must always show respect for others. This includes involving participants in defining the research rules(Gonzalez, 2000). Related to this, there was a challenge related to the interview that was conducted online during data collection phase. Although there was no participant who wanted to withdraw from the research, one participant offered a paper and pencil interviewed as he had a personal reason related to talking to someone with different gender in private. However, after politely offered an online interview without having the camera on, he agreed to proceed. This was the example of how researcher tried to respect participant's consideration, the interview can only be conducted if both the researcher and the participant feel safe and respected

The interview process was recorded based on prior agreement with the participants. All the audio and transcripts generated from the interviews were securely stored in the cloud provided by the University of Leeds. It will be retained for a sufficient time to comply with university data management policy. In the report, the researcher ensured the anonymity and privacy of the participants. Direct quotes were used only if they were significant. However, the identity of the participants will never be published. This is also the case for each case. The names of the firms were also intentionally covered to protect their privacy and unintentional impact on the firm.

Researcher Position

In our study, the researcher took a position as a “Limited Realist” (King, 2017), which believes that reality does exist. However, the researcher cannot entirely remove subjectivity from the analytical process. The researcher has experience working in a start-up. As a woman, the researcher also has a potential bias when doing a study. Therefore, in order to prevent bias, the researcher always used a general question such as “Tell me your experience working in a start-up” as an opening question. It is also beneficial to open up the possibility of revealing interesting events that might be related to the phenomenon. Nevertheless, this technique also

potentially distracts the researcher from the research focus; therefore, interview guidelines were still be used in order to ensure that the relevant data also collected.

The research setting of this study was in Indonesia, a country where the researcher came from. Therefore, knowing the culture was very advantageous when conducting the interview. Apart from using the same language, the researcher understood very well how the expression and the mix-language used by the participants.

In regard to analysing the data, it was important to keep a reflective journal. It is important to capture day to day thinking processes that might be relevant in shaping the argument in the thesis. It is also important to ensure that the arguments written in the thesis report were actually reflected from the data, not the assumptions of the researcher. The reflective journal help the researcher in this situation.

This chapter presents the methodology employed in this investigation, outlining the approach adopted and explaining the reasoning behind each decision. It provides transparency and a foundation for assessing the study's thoroughness. This chapter is dedicated to verifying the validity and reliability of the study. The upcoming chapter will provide a detailed analysis of the results. It will begin by summarizing each case by the conceptual framework discussed in the conclusion of chapter 2. Subsequently, a comparative analysis presented to highlight the similarities and differences across the cases.

Chapter 4

FINDINGS

This chapter presents the results of the data analysis conducted in this study. The findings are organised based on the conceptual framework developed as in Figure 2, in response to the overarching research question, “*How do tech-based start-ups perceive and leverage gender diversity within their team to enhance innovation performance?*”, and its two derivative sub-questions, “*How do external pressures influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?*” and “*How do internal dynamic influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?*”. A synthesis of the answers to these research questions will be provided in the final section of the Chapter (Section 4.4.3).

Our findings contribute to academic literature and link the innovation literature with gender diversity and entrepreneurship literatures by proposing a new framework that describes the relationship between institutional pressures, internal dynamics (organisational culture, leadership, and HR policies and practices), gender diversity, and innovation performance. Our findings also provide new empirical evidence in a previously under researched context like Indonesia (a developing country that offers a new insightful context). Our study highlights the dynamic interplay between institutional pressures and internal dynamics, which has not been previously explored in the literature. The contribution of our findings on the academic literature will be elaborated more in Chapter 6 section 6.2.

For start-ups in Indonesia, our findings suggest practical implications on how to leverage a gender diverse team, by responding to institutional pressures and developing strong internal dynamics (e.g. inclusive organisational culture, leadership, and HR policies and practices). We also provide evidence that external actors within an entrepreneurial ecosystem, such as investors, consultants, and incubators, can apply these insights by raising awareness about the importance of having gender diversity within the team, and providing guidance on how to leverage it to enhance innovation performance. The contribution of our findings on the practical implications will be elaborated more in Chapter 6 section 6.3.

This chapter includes several sections. The first section, the within case analysis of the study, delves into the exploration and thick description of five cases. It is structured based on

conceptual framework outlined in Chapter 2 as follows: external pressures, internal dynamics, team innovation capability, and innovation performance.

The second section of the chapter elaborates the findings from the external cases, including investors, incubator service providers/consultants, government, and gender experts. This section provides additional insights from the perspective of external stakeholders that represent the institution where the tech-based start-ups function. Including these external cases is important to capture a more holistic understanding of the entrepreneurial ecosystem, as these actors play a critical role in shaping the institutional environment through policy, funding, mentorship, and cultural framework. Findings from external cases helped contextualise the challenges and opportunities facing tech-based start-ups and revealed how institutional norms are reinforced or challenged by the institutions outside of the tech-based start-ups. This broader perspective allows for a richer analysis of how tech-based start-ups were influenced, not just internally, but also through the external environments that include key institutional actors such as investors, government, incubation service provider/consultants, and other informal institutions which has been described by gender experts.

The third section of the chapter presents a cross-case analysis by discussing the identified patterns, similarities, and differences observed across the five cases, along with emerging themes. The cross-case analysis indicates that merely having gender diversity in start-ups does not necessarily result in enhanced innovation performance. It is essential to examine the phenomenon more comprehensively by considering the extent of external pressures and the ways start-ups address these pressures. Effective responses involve implementing strong internal strategies, including effective leadership, fostering a robust organisational culture, and adopting gender-responsive HR policies and practices. When these elements are established, start-up teams can build a strong innovation capability that will ultimately enhance their innovation performance.

The fourth section provides a clear structure where we present the answer to the main research question and two sub-questions. This section summarises the findings from the cross-case analysis, which become a basis for our proposed framework, depicting the interrelated components of the antecedence factors influencing tech-based start-ups in having gender diversity within the team (e.g. Institutional pressures), the internal provisioning conditions that support gender diversity within the team (e.g. Internal dynamics), and the consequences of

having gender diversity within the team (e.g. team innovation capability) that could help tech-based start-up in enhancing innovation performance.

In the next chapter, we will elaborate on how our findings relate to previous research, positioning our research in existing discussion and enhancing knowledge on the topic that link innovation, gender, institutional theory, and entrepreneurship literature.

4.1 Within-case Analysis

This section elaborates on the details of each case, starting from its business description to its start-up team member gender composition. Subsequently, the section details the findings in relation to gender diversity and its utilisation within the case.

4.1.1 Case 1: Shrimp.co

4.1.1.1 Case Description

Shrimp.co is a start-up firm that operates in the aquaculture industry. It has developed a device and integrated apps that help farmers increase their crop yields through the mitigation of failure risks and sustainable farming practices. Their innovation can be categorised as product/service innovation (Trott, 2021) as they offer a device and its integrated apps. Moreover, Shrimp.co also assisted shrimp farmers from the cultivation stage until the post-production phase.

The development of Shrimp.co had an extensive historical background. In 2015, one of the founders who owned shrimp fields, Jazli (male), who was currently the COO of Shrimp.co, encountered uncertainty in a shrimp farm (e.g. drastic changes in temperature, uncontrollable water quality, disease, etc) which result in frequent failure and lead to financial losses. He believed that technology could help him to overcome this situation. He then sought the assistance of a group of students affiliated with a university's robotic club. Subsequently, in collaboration with their fellow club members, they initiated a research project to design a tool that could aid shrimp cultivators in surveying their ponds. The initial device was created in 2016, and subsequently, a start-up, formally registered as a private limited company (Pte Ltd), was established in 2018.

The initial composition was six male team members, with the addition of a female member at a later point in time. The female member was a former student at the same university, who had just ended her contract with a multinational oil and gas company before she joined the founding team. She decided to dedicate her time to this start-up as she found that the project was exciting

and promising. After attending an accelerator boot camp in Sweden, the mentor in that programme suggested she take the position of CEO, a proposition that was subsequently supported by the rest of the team members. Even though the composition was still predominantly male, the CEO succeeded in increasing the composition of female members by 37% in just two years after she was appointed as CEO.

4.1.1.2 External Pressures

Even though the team was initially male dominated, Shrimp.co successfully increased its gender composition due to several pressures from its external environment. First, despite the lack of formal regulation regarding gender composition from the government, the requirement from investors becomes coercive pressure to achieve gender balanced composition in the team. Second, as Shrimp.co actively sought advice from consultants, they experienced mimetic pressures from consultants who also put the gender lens as an important aspect of increasing the impact of their innovation. Third, Shrimp.co had normative pressures stemming from the local culture. Inspired by this local culture, the CEO believes that gender diversity offers benefits to her start-up's performance. All these factors influence Shrimp.co to adopt gender diversity in their team and help them improve their innovation performance.

Coercive Pressures

Initial pressures associated with gender issues were encountered when Shrimp.co joined an incubation programme in Sweden. The mentor within the programme suggested that the sole female member of the team become the CEO. This female CEO then played a crucial role in promoting gender diversity within the team. The incubator's encouragement in appointing her as CEO became a starting point for enhancing gender diversity within Shrimp.co.

Another pressure arose from the investor who prioritised gender diversity in their team composition, highlighting the role of investor in encouraging the adoption of gender diversity within the team (Daniels et al., 2025). During the interview, the COO mentioned how gender was not an issue before the investor required it to do so: *"..., and it was only after foreign investors, especially impact investors, invested in us, that we began to consider gender diversity and incorporate it into our culture (Jazli, COO)"*. A Similar statement was also mentioned by the VP of Impact, *"....it seems like they [the investor] are also concerned about the proportion of gender in the company (Jaiz, VP of impact)"*.

Both statements emphasise investor requirements on the gender composition of the team. Since investors see it as one of the key performance metrics, Shrimp.co expected that all members

share a common objective on this issue and prioritise them. As a result, it not only increased gender diversity within the team, but also reinforced the belief in the advantage of having gender diversity among team members.

To summarise, from Shrimp.co, we could learn that the regulative approach from the government regarding gender quota (Labelle et al., 2015), was not the only external pressure that could coerce start-ups to adopt gender diversity. Due to its significant position of power, investors could also become an important actor who could actively coerce start-ups to adopt gender diversity within the team (Daniels et al., 2025). Moreover, Shrimp.co views investor requirements as a foundation for developing additional strategic measures to integrate gender diversity into the company's culture. This will be further developed in the discussion chapter, section 5.1.1.

Mimetic Pressures

As professional communities or other organisations could become a source of mimetic pressures (DiMaggio and Powell, 1983), through benchmarking and consulting with professional consultants, Shrimp.co exhibited mimetic behaviour by adopting best practices to have a gender diverse team to enhance innovation performance. By learning from external parties such as consultants, they integrated gender diversity practices into their operations, aiming to foster more inclusive and innovative environment.

The VP mentioned that benchmarking and learning from others are valuable mechanisms for acquiring best practices from experts. Given his lack of prior experience in working and developing a firm, this approach was essential for understanding the workflow and ensuring the smooth functioning of operations. He mentioned that *“As a fresh graduate with no experience, I didn't really know how to develop a company.... I learned a lot by engaging with communities, participating in accelerator and incubator programmes, and consulting with experts. They became our mentors and a source of benchmarking (Jaiz, VP)”*

Shrimp.co worked with a consultant to improve their impact, this consultant also required Shrimp.co to pay attention to gender issues in the workplace, including incorporating gender lens in their business practices.

Moreover, realising their weaknesses, Shrimp.co involved consultants to guide their business development. For example, consultants helped them cultivate a strong organisational culture aimed at fostering a supportive atmosphere for innovation. Their influence was regarded as best practices that enabled Shrimp.co to leverage the advantages of their gender diverse

workforce, thereby effectively promoting innovation. *“The HR team is currently consulting with an HR expert to develop a culture that will have positive impact on performance (Jira, HR)”*.

During the collaborative process with consultants who have prior experience working with other companies, Shrimp.co adopted best practices, provided by the consultants, which demonstrates a mimetic behaviour. Specifically, ProjectI, one of the consultants, advises them on gender equality initiatives, which has heightened awareness and concern about gender related issues within Shrimp.co.

In summary, even though Shrimp.co did not mention any local peers who successfully adopted gender diversity and improved their innovation performance, Shrimp.co demonstrated mimetic behaviour in adopting gender diversity through benchmarking and consulting with third parties. Shrimp.co adopted some best practices from consultant firms to successfully leverage their gender diverse team to improve innovation.

Normative Pressures

Normative pressures such as social norms and expectations could motivate an organisation to adopt gender diversity (Chang et al., 2019). During the investigation, several normative pressures that influence their behaviour towards gender diversity were recognised. Some normative pressures were perceived as enabling factors, contributing to increased awareness of the significance of gender diversity (e.g., national slogan of *“bhinneka tunggal ika”*). However, other normative pressures were also perceived as challenges and barriers in achieving gender diversity within the team (e.g. gender norms). Thus, normative pressures present conflicting roles for Shrimp.co that require them to develop strategic action in order to successfully leverage gender diverse teams to enhance its innovation performance.

As an enabling factor, the CEO mentioned that her concern about the diversity issue was actually inspired by the Indonesian official national motto, *“Bhinneka Tunggal Ika”*, a phrase that comes from old Javanese culture that means *“Unity in Diversity”*. The CEO mentioned how her strong beliefs on diversity were actually rooted in this local culture, as she stated:

Yes, I embrace diversity because I love it. As a 'Kejawen' person, respecting diversity is a core value for me. In Indonesia, we live by the slogan 'Bhinneka Tunggal Ika,' which come from Javanese language, means 'unity in diversity.' This principle deeply inspires me. The Javanese language conveys profound meanings, reflecting the Javanese values that my father always passed down to me.”
(Jane, CEO)

The statements clearly illustrate a positive impact from normative influences, specifically the local “Javanese” cultural value that led her to think about the importance of diversity.

Turning to the negative influence of normative pressures, Shrimp.co's efforts to promote gender diversity faced significant challenges due to the male dominated nature of the aquaculture industry. This contestation stemmed from gender norms about occupational stereotypes (Fischbacher et al., 2024). Many farmers perceived that field assistants were more suitable for men than women. “...most of the farmers from the farm request men (Jaselin, HR)”. Consequently, when female field assistants were sent, they often encountered scepticism and inappropriate behaviour, highlighting the industry's resistance to acknowledging the potential contributions of women in shrimp farming. Due to the same reason, it also added additional difficulties for Shrimp.co in achieving gender diversity in their field assistant team, as most candidates think that it was not a typical job for women.

“Even if there are women when it comes to the offering, Most of them are men [who accept the offer]. Because women are usually constrained by their parents' blessing for moving to another region, so in the end, there are still more men there (Jaselin, HR)”

Interestingly, these two examples also describe the role of family as source of normative pressures. The first example from the CEO underscores that her values about diversity were inherited from her father. The second example highlights the low rate of female field assistants, influenced by parents' approval of moving to other regions. When asked about the female candidate's willingness to work in other regions, the HR representative stated, “Usually this comes from family culture too” (Jira, HR). These examples clearly show that family values significantly shape gender norms and diversity values, reflecting broader normative cultural norms and practices transmitted within the family context (Ganguli and Krishnan, 2005).

To summarise, external pressures influence Shrimp.co behaviours in different ways. First, through coercive pressures, investor and incubation service providers influence Shrimp.co's decision to pay attention to their gender composition. Second, through mimetic pressures, third parties such as consultants have guided Shrimp.co in adopting the best practice of having gender diversity within the team to increase innovation performance. Third, normative pressures had multiple roles in influencing Shrimp.co in achieving gender diversity. While some factors such as local culture inspired the CEO to believe in the advantages of having gender diversity, the other factors such as gender norms rooted in society added another layer of difficulties in achieving gender diversity within the team of field assistants. Therefore,

Shrimp.co needs to navigate those conflicting pressures and develop its internal dynamic to successfully leverage gender diversity to improve their innovation performance.

4.1.1.3 Dynamic Interplay of External Pressures and Internal Dynamic

As has been discussed in the previous section, Shrimp.co experienced several institutional pressures, including coercive, mimetic, and normative pressures. It is important to note that these pressures provide conflicting roles, with some pressures, such as investor requirements and mentor/consultant advice, serving as enablers for achieving gender diversity, while other pressures, such as gender norms, serve as inhibitors in achieving gender diversity within the team. Those pressures required Shrimp.co to respond, navigate, and develop a well-defined strategy within its internal dynamic to address any obstacles to leverage gender diversity in fostering innovation performance.

We found several roles of institutional pressures in influencing how tech-based start-ups leverage gender diversity to enhance their innovation performance. First, the enabler factor, such as investor requirements, a form of coercive pressure, which influences the adoption of gender diversity within Shrimp.co. However, further investigation also showed that Shrimp.co did not only adopt gender diversity merely as compliance with investor requirements, but genuinely believed in the advantage of having gender diversity. This provides evidence of how institutional pressures have a positive impact on internal dynamics.

On the other hand, during the investigation, we also found that external pressures influence perceived barriers and challenges of having gender diversity within the team members. For example, due to gender norms, it is difficult to have gender diverse teams in some positions that are traditionally male dominated. Shrimp.co was faced with the choice of following the traditional rule or formulating an intervention strategy to invite more women into those positions. Shrimp.co chose to not compromise to such pressures and ended up targeting women during the recruitment phase, even though it was difficult, as the HR described:

“There aren't many women engineers who want to join start-ups, so we often target women and encourage our user to try it, even if it doesn't seem like a perfect fit. We believe they can bring a fresh perspective, different from men. When we finally tried this approach, it works (Jira, HR)”

Thus, even though external pressures have a potential to bring negative impact on the adoption of gender diversity within Shrimp.co, Shrimp.co demonstrated its ability to resist those pressures by adopting positive discrimination (Gurtler and Gurtler, 2019) in favour of women candidates during the recruitment process.

Interestingly, Shrimp.co did not only adjust their internal dynamics to respond to institutional pressures, Shrimp.co also initiated institutional change in the aquaculture industry. It highlights the role of Shrimp.co in institutional entrepreneurship by actively reforming traditional gender norms. Institutional entrepreneurship was described as activities that are related to institutional arrangements or transforming existing ones (Bakir and Jarvis, 2018). For example, despite farmers' initial bias against female field assistants, Shrimp.co kept sending female field assistants to the field to assist farmers. However, to ensure their female field assistants were safe and secure, the CEO came directly to the field to speak to the farmers, delivering a powerful message to prevent any misconduct behaviour from the farmers against their female field assistants.

This strategic action brought positive changes in farmers' behaviour which finally accepted women in the aquaculture industry. The farmers who were initially against female field assistants ended up being more responsive to them, which resulted in increased communication with farmers, and the ability of Shrimp.co to understand the problems in the field to develop better features for their product. The HR said, *“In the end, farmers are more likely to share their stories with our female field assistants when asked about the problem in the field. They prefer to express themselves more (Jira)”*.

Furthermore, Shrimp.co's role in initiating institutional change goes beyond challenging existing gender norms, as has been discussed above. Shrimp.co also actively promoted gender diversity values to their client. By adopting the Gender Action Learning System (GALS), Shrimp.co advocated for farmers to use the gender lens in the aquaculture industry. The VP of Impact believes that involving women in the aquaculture industry would have a positive impact on the aquaculture industry. *“...we are applying the GALS. We believe that involving women in cultivation will lead to significant improvements (Jaiz, VP of Impact)”*. As Shrimp.co experienced an improvement in their internal performance due to gender diversity, they also promoted this initiative to their client.

To sum up, the story of Shrimp.co above illustrates the dynamic interplay between external pressures and internal dynamics. On the one hand, institutional pressures have the ability to influence Shrimp.co's behaviour toward gender diversity within the team. On the other hand, Shrimp.co also demonstrated its capability to initiate transformation in the institution. Shrimp.co illustrated a proactive strategy in responding to institutional pressures by challenging and contesting existing rules. This highlights that start-ups could play a critical

role in signalling the value of gender diversity to the external environment. In the long run, it will initiate institutional change. However, this complex interplay may lead to some contestation within Shrimp.co, which would require a strong and effective internal dynamic, which will be discussed in the following section.

4.1.1.4 Internal Dynamics

In order to effectively respond to external pressures, Shrimp.co took action to develop an inclusive organisational culture, effective leadership, and supportive HR policies and practices. How Shrimp.co formulated its internal dynamic will be discussed in this section.

Organisational Culture

Shrimp.co displayed a strong commitment to their organisational culture. They believed that organisational culture is important to improve their performance. Shrimp.co adopted several values that they believe are important to provide a supportive environment. Among those values are, openness, equality, and respect. As the COO said, “...equality. It's not really like traditional companies in general who adopt Patriarchy or matriarchy. We are equal (Jazli, COO)”. It was also confirmed by the HR “our objective is to reinstate and prioritise respect, ensuring that it functions well for women and individuals from diverse backgrounds. (Jira, HR)”

The organisational culture was created to ensure that all team members shared the same perception of these values and beliefs (Hofstede, G. et al., 1990). For example, in the boarding phase (a phase that new team members need to complete before joining the team), new members were informed about the values and beliefs of their start-up. Before starting to work, they need to engage with existing team members, by completing some tasks in various games. This mechanism was necessary to ensure that all team members internalise the organisational culture and values as earlier as possible.

Moreover, Shrimp.co also paid attention to the sense of belonging of its team members. Therefore, even though they implemented a flexible working arrangement, they required its team members to schedule their work in the office, as they understand that working in the office will increase team member engagement and a sense of belonging.

From our experience, friends who come to the office are more engaged, so they will last longer. So we want them to be onsite in the office occasionally, (Jaselin,HR).

Although team members could work based on their preferences, they have to use a particular software to monitor the team's performance, to ensure that every team member completes their task on a daily basis based on the target assignment. They were also engaged once a month in a town hall meeting to ensure all team members got some updates about their start-up. This event was also used as a channel to enable all team members to convey their concerns and ideas. It highlights the practices to improve employees' effective commitment to develop inclusive organisational culture (Ashikali and Groeneveld, 2015).

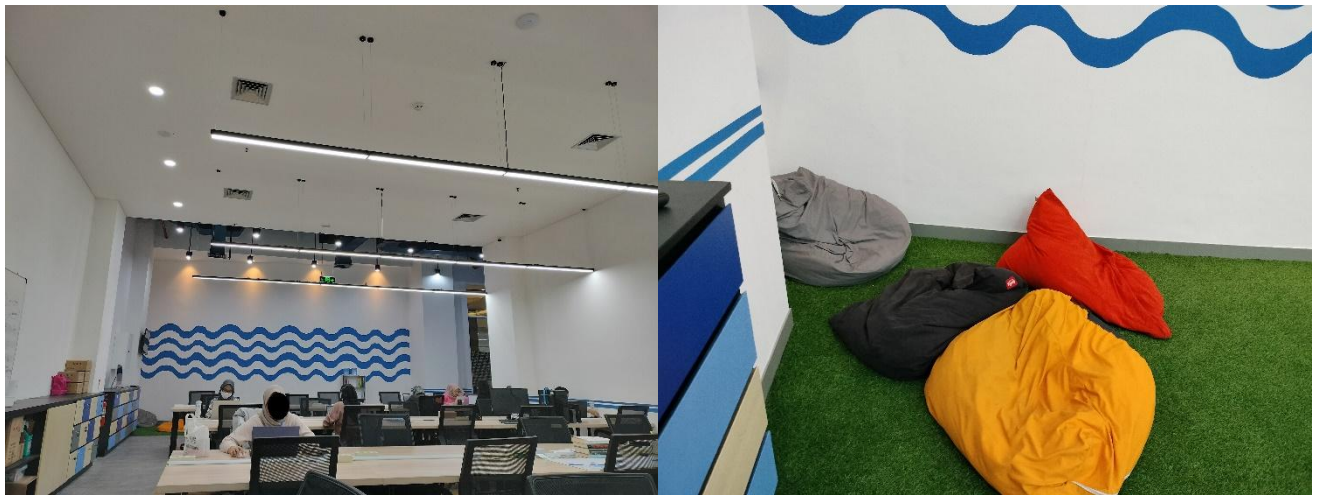


Figure 13 Shrimp.co's office layout

Furthermore, based on Figure 13, from how the room was arranged. It can be seen that there was an effort to break the boundaries between C-level team members and the rest of the team members. There were no dedicated places for C-level and other team members. Except for some divisions, such as marketing and engineering, all team members can sit freely in the big hall, which was equipped with a desk. It means that they could reach out to their C-level team members freely. This arrangement highlights their values of openness, freedom to speak, and equality at the same time.

Shrimp.co's serious efforts in building an inclusive organisational culture can be seen from how they sought advice from external parties, such as an HR consultant, to enhance their organisational culture. This was carried out due to the expansion of their team members, and the CEO's recognition of the need to redefine their organisational culture. The CEO emphasised that the organisational culture should evolve as the number of people inside the organisation increases.

so a culture of 20 people, it can't be implemented in a culture of 100 people, right? Now we're in the process. to build our own culture again like that because yesterday's culture of 20 people was implemented, now it can't be like that (Jane).

In general, while the initial culture of Shrimp.co stemmed from the values of the founders, the organisation invested serious efforts into developing and nurturing its organisational culture by consulting with professional consultant. Shrimp.co ensured that all team members internalised the values embedded within their organisational culture. Recognising the crucial role of organisational culture in fostering the innovation process, Shrimp.co prioritised the cultivation of a strong and cohesive inclusive organisational culture.

Leadership

As in Shrimp.co, initiatives to promote gender diversity within its team were supported by the effective leadership (Northouse, 2023, p. 5). We found two main roles of the leader in Shrimp.co. First, the role of leaders in demonstrating commitment to gender diversity. Second, the role of a leader as a role model and signalling value of gender diversity to the external environment.

First, the role of leaders in demonstrating the commitment toward gender diversity. This can be seen from the CEO statement on asking HR to put diversity as a priority. She tried to build an inclusive environment in her start-up. Nevertheless, she acknowledged that it needs to be done in phases. The first focus of having inclusive environment is that of having a gender diverse team.

I ask HR, I aimed for a gender balance in the team for at least 20% of women, gradually shifting from a ratio (male:female) of 5:1 to eventually achieving a ratio of 3:2. (Jane, CEO).

Following this, Shrimp.co has succeeded in increasing the representation of women in their team by 37% in two years. However, this representation did not occur at management level as it was still male dominated. Therefore, the CEO also stated that she had a commitment to increase gender balance in management level, as she stated, *“What I'm currently planning is for woman in management. Our management is still mostly male (Jane, CEO)”*.

Second, the role of leader as a role model. Given the fact that the aquaculture industry was traditionally dominated by males, the CEO refused to give up and followed the existing gender norms. She tried to find a way to deal with the problem in the field. In order to promote gender empowerment, and provide support for female field assistants, she proposed the addition of a greater number of women in this male dominated role. This approach aims to establish a more

balanced representation of gender in the field, and to foster a sense of empowerment among female field assistants. She personally delivered the messages and engaged in conversations with the farmers to ensure the wellbeing of her subordinates, and mitigate potential negative outcomes associated with the presence of women in male dominated environments, such as verbal abuse or sexual harassment.

The head of HR also stated that having a female leader was an effort to break down the bias and stereotypes. *“At that time, I was the first to enter Impact. Then maybe because the frontman is a woman. So there is a tendency to find female subordinates easier, because there are examples in the field that it's fine (Jira, HR).”* This statement highlights the importance of having a role model to improve gender diversity in a male dominated sector.

Moreover, another role of a leader is to actively signal the value of gender diversity to external environments. The commitment of the leader to having gender diversity within the team did not stop the leader from expanding this belief to their clients and customers. As they experienced a positive impact of having gender diversity in their team, Shrimp.co also believed that it had a great impact on their clients. Therefore, they implement the Gender Action Learning System (GALS) to promote more women in the aquaculture industry.

We are currently developing a programme called the Gender Action Learning System (GALS) and advocating it to our farmer clients. You know that the aquaculture industry is currently male dominated, but we believe that women can play a significant role in this field. (Jaiz, VP).

Another example is when the CEO actively challenged existing biases that often happened within the entrepreneurial ecosystem. For example, during the meeting with investors, she demonstrated certain behaviours to show her confidence. *“I'll definitely start with a firm handshake, make sure that your mind thinks that you are equal, not because you are a mother, a Muslim, or not just because you are a female founder (Jane, CEO).”* Her initiatives often triggered a response from her male colleagues about the power of a female CEO. This action was a form of the CEO's efforts to break down gender stereotypes. The nonverbal action, as such, is one important mechanism through which female leader role models inspire women performing a challenging leadership task (Latu et al., 2019).

To sum up, the leader in Shrimp.co not only demonstrated a certain level of awareness about the role of gender diversity in innovation, but also a strong commitment, and put gender diversity as a priority within the start-up. As a leader, she not only exhibited this commitment, but also worked as a role model for women in management in tech-based start-ups. Even though

she encountered some challenges, she kept trying to prove to the world that women also have the capability and should not be underestimated due to their gender.

HR Policies & Practices

Shrimp.co translated its commitment toward having gender diversity into several strategic actions within their HR policies and practices. It includes several policies, such as an inclusive recruitment process, fair payment and evaluation, flexible working arrangements, gender responsive regulation, and a social code of conduct to prevent misconduct or harassment. Shrimp.co also implemented several gender aware practices such as ensuring the welfare, health, and wellbeing of team members, providing equal opportunities in learning and promotion, and providing supportive facilities such as a breastfeeding room and bunk bedroom.

In terms of gender aware policies, Shrimp.co ensured that all its regulations were responsive and gender aware. For example, Shrimp.co ensured that it had an inclusive recruitment policy. It also developed a fair performance evaluation policy and some specific rules, and a social code of conduct to protect team members from improper practices such as sexual harassment or verbal abuse.

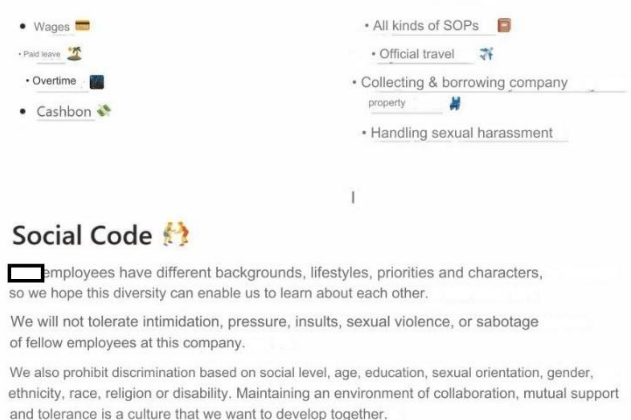


Figure 14 Shrimp.co's policy directories

Shrimp.co also ensures its regulations are adaptable and responsive enough to address urgent needs they might have overlooked previously. For example, throughout the development of their policy, there was an absence of regulations pertaining to flexible working arrangements. Nevertheless, in response to a team member's need to work from home due to their high risk pregnancy, Shrimp.co established this policy. As a result, Shrimp.co was used to the remote working practice, even before the pandemic.

Shrimp.co demonstrated several practices, which are considered important in a gender diverse team. First, Shrimp.co ensured the welfare of their team members by giving appropriate pay rates regardless of their gender. *“It makes me quite satisfied in here. Because employees get something that they really deserve, our company is quite generous (Jaselin, HR)”*.

Apart from equal payment, Shrimp.co also provided equal opportunities in learning and promotion. *“I still want to learn, and coincidentally Shrimp.co facilitates that, and the environment is quite open for learning like that (Jaselin, HR)”*.

The head of HR also stated the importance of equality in their promotion decision, as she stated:

we don't have a different mindset about woman and men, so it will be like, I can be a woman, but I can still get promoted, In summary, both of them have the same chance. Just based on their performance (Jira, HR)

Moreover, she wanted to make sure that having women in the team was not only to fulfil the matrix *“don't let the girl just to fulfil the quota. That's killing the purpose, we're not just trying to make woman and men are on the same proportion (Jira, HR)”*. This statement represents the value of equality that Shrimp.co was trying to pursue, and realised their main goal was not only equal representation in terms of numbers, but inclusivity in all aspects, which they believed would lead them to better performance.

Apart from equal opportunities, Shrimp.co also provided supportive facilities according to the needs of the team members using gender lenses. For example, in order to ensure that there was no barrier for women who come back from maternity leave, Shrimp.co created a breastfeeding room. However, to ensure the equality principle complied with, Shrimp.co also had similar facilities for male members, such as bunk-bed rooms for resting, and smoking rooms. Shrimp.co believed that this strategic action is to ensure that policies and practices within Shrimp.co hold on the equality principle.

Overall, we can see that Shrimp.co has implemented comprehensive policies and practices to accommodate gender diversity within the team. Shrimp.co ensures that the basic needs of its team members were facilitated by the principle of equality and respect.

4.1.1.5 Team Innovation Capability (TIC)

Given that Shrimp.co was committed to gender diversity and was able to develop internal dynamics that support a gender diverse team, Shrimp.co demonstrated some noticeable team innovation capability. This capability was enhanced by having gender diversity in their team. As is evident, their product innovation has been acknowledged in various competitions and

awards, such as the Deep Venture of the Year award, the Global Aquaculture Challenge, the Leave-a-Nest award, and several others.

We found three noticeable capabilities that were enhanced by gender diverse team. First, gender diversity in the team expands the team's social network (TSN). It enables Shrimp.co to access and engage in external activities that are beneficial for innovation. Second, gender diversity in the team enhances team collective intelligence, due to the different cognitive and thinking styles that men and women naturally have. Third, gender diversity within the team increased team integration through cohesive learning processes from different genders. The elaboration on each capability will be explained in the following section.

Team Social Network (TSN)

During the investigation, we found that Shrimp.co used their team's social network to help them during the innovation process. We noted that having a gender diverse team in the early stage could help them access a diverse network. One significant advantage of this social network was the ability to acquire talented human resources, which was crucial in building their key team members.

Human resources has been considered as a driver for innovation (Mariz-Pérez et al., 2012). Therefore, talent acquisition during the early stage of start-up development is critical to build strong teamwork, particularly with limited resources to conduct a comprehensive and professional recruitment process. As a result, the Shrimp.co initial team was formed, based on the circle of the founder's network. This strategic action would cut unnecessary cost and the lengthy time of the recruitment process. *"The core team was not coming from a professional recruitment process but from the circle of the founders and the founder's close environment (Jazli, COO)".* The COO mentioned how he recruited the first female team member, *"they know her because she also came from the same major, electronics, UGM [same educational background], we then invite her to join us (Jazli)."*

After the first female team member joined the team, she invited her female friends, who came from different educational backgrounds, to join the team, as she felt a lack of diversity within the team *"So now she is the CEO at Shrimp.Co. Then one more woman, Miss Jira , Ms.Jira is our CEO's friend (Jazli)".* Since then, the CEO, who believes in diversity, has had the initiative to invite more women to their team. It was easier for the CEO to hire a more diverse team beyond her predominantly male acquaintances from college.

The case of Shrimp.co illustrates how team social networks help transform a homogeneous team consisting solely of male members, into a more gender balanced team. A female team member who took the initiative to invite more women to join the team, initiated this change. This inspired her to strive for a balanced gender composition at both the operational and management levels. She believed that gender diversity was needed to improve innovation performance.

Team Collective Intelligence (TCI)

Another capability that enhances team innovation is the ability to build team collective intelligence through collaboration among a gender diverse team. Shrimp.co provided several examples where men and women demonstrated different cognitive and thinking styles. When it was combined during collaboration, it can be advantageous for a start-up team, as they have the potential to enhance the team's collective intelligence. For example, we found that gender diversity within the team could improve the decision making process and problem solving, due to the different perspectives that men and women have. Moreover, as men and women usually have different risk orientations, gender diversity in a team might help in the identification of risks and enhance the team's overall risk awareness, without inducing excessive risk aversion. For example, during product development, male engineers often focus on technical aspects, while women tend to focus on aesthetic features. Gender diversity helps ensure both elements were considered during product development, leading to more comprehensive and innovative solutions.

For example, in design, we used to have a female product designer, her name is A, she's the only girl among other engineers. She often gives unexpected input; for example, Ms. A came up with a different idea: "Why don't we create a mascot?". Then, we finally used the mascot. (Jira, HR)

She also mentioned another example,

"Engineers mostly are men; they tend to think that logic is important. But Tina is a female system analyst; she is quite detailed; I was like, oh, it turns out that there are a number of things that need to be noticed, like that, you know, so it's true. Gender diversity changes perspective, and with that collective and different perspective, they know what needs to be done more efficiently. That's good, actually (Jira,HR).

Turning to risk, the COO also mentioned that men and women tend to have different views about risk. He also elaborated, "He [his male colleague] likes risk and is more bold in taking a risk; he doesn't need to think much before taking action. Well, Miss Jane, is different, yes, she

is very detailed in calculating all kinds of potential risks, she is actually not risk averse either, but yes she is very detailed in calculating all kinds of risks.”

He also described the previous situation on how men and women have different approaches toward risky problems:

how to handle the situation in which the problem occurs is also different. So for A (male), this one man, during the crisis, he will like -I can solve this, yes-, even though the situation seems very difficult, -yes, I don't have the money for this, but that is not the solution, isn't it? if you save money and you will die even more, you have to take risks, you have to do something, even though it might use all and the only ammunition you already have, but there's a chance-. well, my female partner is not like that. So when she is in a difficult situation, she is setting down a lot of things, she will ask for a lot of evaluation. She said that we should not take things recklessly, many operation will be shut down (Jazli, COO).

The narrative he presents regarding the contrasting behaviours of his two colleagues effectively illustrates the inherent differences between men and women in their approach to problem solving and risks. Although sometimes, it is significantly different, as long as it could be managed to prevent conflict, both perspectives were necessary to enhance knowledge and readiness regarding potential risk, thereby preparing Shrimp.co to be more conscious of risks without being entirely risk averse.

Therefore, the presence of multiple perspectives, varying risk orientations, and different problem solving approaches served as a valuable catalyst for innovation, thereby mitigating the risk of groupthink, a pattern of thought where team members override critical thinking to conform to a group that could lead to poor decision making (Rose, 2011). Despite preventing groupthink, a gender diverse team has the potential to foster team collective intelligence, as it facilitates team learning, as team members naturally acquire knowledge from one another in order to accomplish a shared objective.

Team Integration (TI)

In the previous section, we found that men and women tend to have different styles of thinking, which could increase team collective intelligence as they work together. We also found that gender diversity could help the team to increase team integration, which is important during the innovation process (Bui et al., 2022).

As men and women tend to have different skill and capability in specific tasks, Shrimp.co demonstrates its team integration capability through continuous collaborative effort among their gender diverse team. By complementing each other strength/weakness, Shrimp.co were

able to better respond to changing environments. In Shrimp.co's case, we found that gender diversity helps improving team communication, increase productivity, and impact prioritisation. Moreover, gender diversity could trigger cross-functional collaboration and market knowledge integration.

The first aspect is improved communication. Shrimp.co acknowledged that having gender diversity in a team improved their communication and breaks down silos within the team members. The current CEO mentioned about how previously, the all male team, before she joined the team, had a significant issue with communication. She stated, *"before I came, [...] they had too many personal communication issues (Jane, CEO)"*.

Women participation in a team was seen beneficial, as women tend to focus on building connections and ensuring mutual understanding, while men tend to be more competitive with each other. Therefore, women's presence in the team could increase team integration.

For some reason, the girls' team were able to connect different groups together so they can break the circle boundary more than the boys do. For example, boys don't play this game with anyone else outside his group; they only like playing it with their own circle. Girls, on the other hand, are better at breaking down circle boundaries; they have more social capabilities. (Jira, HR).

The ability to break down boundaries among team members was important to enable effective collaboration among the team.

Second, interestingly, gender diversity was found to be a significant factor in enhancing productivity, primarily due to the unconscious intergroup competition that arises between genders in constructive ways. It can be seen from several statements from the participant, such as *"it is now starting to happen because of being pushed by these female friends, Boys, too, you have to be neat. we have to be more disciplined, if not, then we will get complaint by women, right?(Jaiz)"*. The CEO also stated *"In addition to having good ideas, the speed of work also created by the competition (Jane)"*

In the case of Shrimp.co, intergroup competition were facilitated by good organisational culture. As a result, it can serve as an effective strategy to enhance team integration and productivity. While there is a risk that competition might trigger unhealthy rivalry and decrease cohesion, thoughtful organisational culture and effective leadership can mitigate these issues. By forming mixed gender teams, Shrimp.co can leverage the diverse perspectives and strengths that both men and women bring to the team, by fostering mutual respect and collaboration. This balanced approach can create a healthy competitive environment that motivates teams to

perform at their best, while strengthening internal bonds (e.g. through various games and occasional celebrations). When competition is paired with team building activities (which have been mentioned as part of Shrimp.co's organisational culture) and a focus on shared goals, it can lead to increased innovation, higher productivity, and a more cohesive team.

As team integration increases, effective collaboration becomes easier to achieve. Especially when men and women tend to have different sets of skills, and they are likely to focus on different aspects, and very often work in separate divisions. Therefore, having gender diverse teams could increase the potential of cross-functional collaboration, a critical part of developing team innovation capability.

The CEO prioritises diversity, as she believes that it could help team members to collaborate and learn from each other. She stated: *"I'll look for diversity because you really have to learn from each other (Jane, CEO)."* To exemplify, one participant gave an example of how men and women focus on different things, and that was beneficial because it could complement each other. For example, one participant mentioned that women have a certain level of detail, something that is superior to men.

... about a presentation slide, for example, like that, they [women] are a bit more sensitive in the way I deliver the information. They are more detailed, while for me, what important is that the information is delivered, that's it, like that, it does happen. Yes, it often happens. (Jaiz, VP)

He highlights the natural characteristics of women who pay more attention to detail and features, while men tend to focus on function and information flow.

Apart from different cognitive behaviour such as attention to detail, he also told an interesting story about how different behaviours and styles were shown, and how he collaborated to fill each role of leadership's needs.

...the approach is different and for example she is more like result oriented, I don't care about this and that as long as the result is achieved, right? but, I am more people oriented, I do care about whether the team members are comfortable or not. So, the approach is different (Jaiz).

He argues that these differences were needed, depending on the context and stages of their start-up. During the growth stage, it is important to fulfil a hypergrowth promise to the investor; therefore, fulfilling the matrix becomes a priority. On the other hand, ensuring all team members' wellbeing is also critical. Therefore, he was there to take this role as he stated, *"it's interesting that it is usually like that. Sometimes we need to switch roles because that's how*

things work, so we also fill in each other's parts (Jaiz, VP)". He highlights how he and the female CEO often complement each other's roles to ensure the sustainability of their start-up.

Turning to another benefit, we found that gender diversity in a team could help Shrimp.co in identifying market needs, which is an important foundation during the development of product innovation (De Waal, 2016). As an illustration, women were deliberately assigned to the role of field assistants to collect data and identify issues in the field. Shrimp.co found that sending female field assistants helps them to enhance communication with farmers. Despite initial reluctance to female field assistants at the beginning, over time, they have become more receptive, and it turned out that female field assistants allow Shrimp.co to identify issues that were previously overlooked.

According to the HR representative, it has been observed that farmers tend to share their problems more freely with women during in-person communication, due to a reluctance to undergo scrutiny by the same gender. *"To girls, It's just the farmers who are likely to tell the story when asked if there are any complaints, sir; they like to tell stories. For a boy, farmers feel the field assistant should already understand that"*. However, in the context of indirect communication, such as through telephone calls or messaging services, it was typically observed that farmers tend to be more responsive to male individuals. This phenomenon highlighting the needs for both genders as field assistants.

In aquaculture industry, it is common to have a male working in the field. However, Shrimp.co's decision to have female field assistants was proven to improve their ability to understand the problems felt by the farmer, as they were more open toward girl field assistants. As a result, it increases the potential to capture the opportunities or problems in the field.

Another example, gender diversity also perceived to cultivate more holistic understanding of the market need, as women have attention to certain details that might go unnoticed by their male counterparts. *"I saw it myself, I feel that it has an effect, the lens used is wider. So get started. Because for example, like in women, they have a certain level of detail, which is usually stronger (Jaiz)"*, highlighting another benefit of having gender diverse teams, especially when sensing the market needs.

4.1.1.6 Innovation in Shrimp.Co

As discussed above, the main innovation of Shrimp.co was the utilisation of sensor devices to enhance productivity in shrimp farming. However, after more research and development, their

innovation expanded to digital applications, which help farmers improve the productivity of farming and early detection of prawn diseases. To enhance the results, Shrimp.co also collected the data from each farm, and developed a machine learning algorithm to increase detection and enhance the productivity of each farm. Shrimp.co continuously innovates, not only in its product and services, but also in its internal operations, to ensure that its operations meet sustainability standards.

Using a short survey regarding their innovation, Shrimp.co demonstrates a high rate of market and technology newness. The details on each dimension can be seen in Table 13 below.

Table 13 Summary of Innovation Performance of Shrimp.co

Innovation Performance	Item	1-5 (strongly disagree -strongly agree)
Market Newness	serve new customer needs – customer needs we had not served before	2.75
	require changes in established attitude and behavioural patterns from customers	3.25
	require major learning efforts by mainstream customers.	3
	take us up against new competitors – competitors we have never faced before.	2.5
Overall Market Newness		2.875
Technology Newness	are based on substantially different core technology never used in our industry	2
	involve peripheral technologies that are new to our industry.	2.25
	combine different technologies in a new way.	3.25
	use technologies that have an impact on or cause significant changes in the whole industry.	3.25
Overall Technology Newness		2.69
Overall Performance		2.78

Shrimp.co demonstrates its superiority through product innovation. The product was continuously enhanced in an incremental phase. In the initial phase, Shrimp.co focus on the development of a sensor device to monitor the shrimp pond. This device helped the farmers understand the water quality to ensure the shrimp was in the optimal condition to grow. In the next phase, they modified the device, so that it could send the water quality data to the cloud server to be monitored remotely. The innovation occurred gradually until they developed a super App that aims to help the farmers monitor the water quality and provide cultivation management that could support the farmer. The Apps also had an advanced feature to get real time cultivation prediction, and in-depth analysis based on the actual data of the cultivation

progress. The Apps also encourage the farmers to set targets and help them in the decision making process, by providing alternative recommendations based on the data.

Shrimp.co appeared to follow the technology advancements. The transformation of innovation from a single unintegrated device, cloud technology, and the provision of integrated data to support decision making processes, through the adoption of machine learning, was evident. Despite their incremental development, the outcomes were encouraging and can be observed in a statement of the CEO about their improved performance. *“Well, look at the numbers, if you see the numbers do not look good, it means that our innovation is losing. It is not just financial, but also numbers, for example, the number of users who already use our apps. And for now the numbers is good (Jane, CEO)”*.

Interestingly, the innovation of Shrimp.co was not limited to physical and digital innovation, but also another aspect of innovation, such as their processes and services. For instance, they broadened their network to open up opportunities for partnership and, at the same time, built a channel to reach out to the customer base. They built a community hub as a learning and community space for anyone involved in the shrimp industry. It can be farmers, farm experts, shrimp industry actors, academics, and the government. There were several activities, such as group discussion, networking, and promoting collaboration to enable collective learning with community members. This hub provided opportunities for both Shrimp.co and farmers to meet with different actors that help them achieve sustainable farming.

So we are making a community space. It's like a gathering place for stakeholders in the pond. So that we can gather more farmers there. It is the channel for us to engage with the farmers. So there, we also make programmes related to sustainability that support all the fisherman so that they can upgrade their skill. (Jaiz, VP).

Social Impact

Another aspect that improved due to the gender diverse team was the prioritisation of impact. Stereotypically, women are more prone to social and environmental impact (Lortie et al., 2017). The female CEO aligned with this stereotype, as she highlighted the importance of having an impact. The female CEO mentioned that she prioritised impact. She believes that impact is important in order to make their business sustainable. The CEO stated:

“Our core value is impact. We strive to make a positive difference in the lives of others. Our commitment to doing good and making a meaningful impact attracts investors who believe in our mission and see the value in supporting us (Jane, CE)”

Interestingly, the impact was seen as the core value of Shrimp.co. Therefore, the CEO believed that it should be monitored and maintained regularly. She then created a special division that was in charge of impact, and appointed the previous male CEO as the Vice President of Impact. She believes that it should also be aligned with business objective “...if the company's value is about sustainability, then there must be someone who makes sure that all aspects of the company, in and out, must be aligned with sustainability practices, meaning that there must be someone who really has equal power in charge there (Jane, CEO)”.

Shrimp.co presented various socially impactful activities. Shrimp.co frequently engaged in capacity building initiatives such as seminars, classes, and workshops to enhance the knowledge of farmers in the aquaculture industry. In Indonesia, shrimp farming was predominantly owned by local farmers, who often have limited knowledge and skills in utilising technological advancements. Typically, farmers rely on the knowledge passed down from previous experience to carry out agricultural practices. As an illustration, in order to comprehend the condition of water, farmers may conduct a sensory evaluation by means of taste, licking the water. Hence, the programme attempted to enhance their methodologies, such as by improving the farmers' digital literacy, which would enable them to proficiently utilise technology to improve their agricultural sustainable practices. Therefore, all these activities align with several goals of SDG, such as SDG 4 (providing quality education), SDG 6 (ensure sustainable management of water), and SDG 13 (combat climate change).

However, acknowledging the difficulties linked to changing established traditional practices, Shrimp.co introduced a programme to offer onsite assistance. The project provided field assistants to guide farmers in using advanced techniques and practices in prawn farming, during a full cycle. The objective was to enhance farmers' understanding of how to apply the knowledge they gained from the capacity building project to their agricultural activities. The aforementioned method was implemented to reduce the chance of agricultural misconduct, which often occurs due to farmers' insufficient understanding of risk management and preventative strategies. Recurring agricultural failures frequently lead to farmers collecting significant debts from predatory lenders, hence maintaining their position of poverty. By comprehending the purpose of these actions, it is evident that Shrimp.co's efforts are in line with SDG 1 (poverty reduction) and SDG 12 (sustainable production).

Remarkably, the impact extended beyond sustainable farming practices that concentrated on promoting environmental conservation. They also encompassed women empowerment in the

shrimp industry, for example, Shrimp.co were involved in the incremental effort to enhance farmers' awareness regarding the significant role of women in shrimp farming. Gender Active Learning System (GALS) was utilised as a framework to facilitate farmers' comprehension of this awareness. “...we are applying the GALS. We believe that involving women in cultivation will lead to significant improvements (Jaiz, VP of Impact)”. The process began with the recognition of women's involvement in family matters, leading up to their contribution toward enhancing sustainable practices in prawn cultivation. Shrimp.co believed that the provision of suitable education would result in farmers having benefits from the inclusion of women in their aquaculture operations. These activities aligned with multiple objectives in SDG such as SDG 1 (reducing poverty) and SDG 5 (gender equality).

Table 14 Social Impact of Innovation in Shrimp.co

Activities	Output	Short term	Long-term	SDG
Capacity building (Webinar, class, etc)	Informed individuals	Increase in awareness of sustainable practices, Digital literacy	Sustainability practices of shrimp farming	SDG 4, 6, 13
Field Assisted Programme	Assisted shrimp farmer	Cost reduction, Effective farming process, understanding best practices	Increase productivity Increase revenue	SDG 1 SDG 12
GALS Programme	Improved awareness and communication among family members	Woman involvement in shrimp farming and Division of roles in household, Financial Management awareness	Gender Equality Reduce P poverty	SDG 5 SDG 1

4.1.1.7 Summary

To summarise, Shrimp.co perceived various external pressures that influence Shrimp.co's behaviour toward gender diversity in a team. On the one hand, despite perceiving no formal regulation from the government to have gender diversity in their team, Shrimp.co was coerced to have gender diversity in their teams from its investor and consultant. On the other hand, normative pressures provided some challenges, such as gender norms and stereotypes, that lead to gender imbalance in the candidate pool and prejudice against women in the aquaculture industry. However, Shrimp.co navigated these conflicting roles of institutional pressures and developed strategy to build strong internal dynamics to support gender diversity in their team. These strategies include building strong commitment in their leadership toward gender diversity and incorporating them within inclusive organisational culture, as well as developing

gender responsive HR policies and practices, to ensure gender composition was not only an issue of compliance. Shrimp.co ensures that gender diversity in their teams becomes a competitive advantage in improving innovation performance.

Interestingly, the dynamic interplay between institutional pressures and internal dynamics results in contestation, which leads Shrimp.co to challenge existing gender norms. As a result, Shrimp.co has an important role in institutional transformation or institutional entrepreneurship (Garud et al., 2007), particularly in the aquaculture industry. Shrimp.co initiatives to promote gender diversity in the aquaculture industry were started by sending female field assistants to assist the farmers in the pond. These female field assistants were able to capture the neglected problems in the field, at the same time, challenging existing gender norms about women's roles in the shrimp cultivation industry. In addition, Shrimp.co actively promoted gender diversity by implementing a programme called GALS (Gender Action Learning System) to advocate for farmers about the important role of women. This strategic action was rooted in the belief that gender diversity could improve productivity.

Turning to innovation, having gender diversity in a team was perceived as beneficial in improving Shrimp.co team innovation capability. Gender diversity was not only improving team integration, but it could also improve team collective intelligence through a more comprehensive decision making process and problem-solving approach, due to diverse perspectives from different genders. Shrimp.co could also utilise their team social network to access diverse network pools, particularly in the process of effective talent acquisition. Having this team innovation capability, Shrimp.co demonstrated good innovation performance in all aspects, from market newness, technology newness, and sustainable impact.

Taken together, Shrimp.co was committed to fostering a diverse and inclusive workplace. Gender balance was not just a slogan or compliance issue. It was a core value that the founders believed would increase their team innovation capability, which, in turn, drive innovation and growth. Shrimp.co took proactive steps to ensure that women had equal opportunities to excel in leadership roles, and initial results were promising. as they perceive the potential benefits of having gender diversity in their team and its contribution to improve innovation performance.

4.1.2 Case 2: Milk.co

4.1.2.1 Case Description

Milk.co is a start-up that provides a web-based service and a mobile App (Android) that connects breastmilk donors and breast milk recipients, based on several criteria such as age, religion, and any medical condition (i.e. allergy, etc.). Milk.co developed a crowdfunding platform that offers breastfeeding sharing services, by providing preliminary consultation, clinical lab screening, distribution, and breastfeeding certificates to record the history of donor and recipient.

Milk.co is among the first start-ups that were initiated during a mentoring programme, initiated by the government to boost start-up growth in Indonesia. The founding team was formed during this incubation programme in 2017. The core team then decided to use “foundation” as their legal form in 2018. As a result, the revenue stream mainly came from donations and grants from competitions. During the data collection phase, Milk.co did not have any investors from venture capital.

Apart from their main services and core activity, several programmes were also offered, including education classes, consultations, medical screening, breastfeeding allowances, land donations for breastmilk banks, donation partnerships, donations for breastfeeding tools, milk registration donations, and regular donations.

Milk.co was chosen as a relevant case due to its unique characteristics, established from a government initiative incubation programme, with the assumption that it had been influenced by normative pressures from the programme. During the investigation, we found that they defined themselves as a social enterprise. They focused on creating social impact. Their decision to become a foundation was rooted in the intention to establish credibility and gain public trust, adding a layer of uniqueness to this start-up.

Initially, Milk.co had male dominated team members consisting of five men and one woman. However, after the competition was finished, three male members were resigned from the team. The remaining personnel from the initial team were the female CEO and the male CFO. Since then, the female CEO has recruited more women to join the team, as she argued that it would represent their intended predominantly female customer demographic. Consequently, the composition was reversed and had become a female dominated team comprising nine women and three men.

4.1.2.2 External Pressures

During the investigation, Milk.co did not perceive any external pressures that encourage them to build a gender diverse team. On the contrary, we found some pressures that became challenges for Milk.co in building gender diversity within the team to improve innovation performance.

Coercive Pressures

Milk.co did not perceive any government regulations that work as coercive pressures to encourage them to build gender diversity in their team. Instead, we revealed a unique coercive pressure that was deeply ingrained in religious beliefs.

Milk.co business process needs to follow the *fatwa* (a ruling on a point of Islamic law given by a recognised authority) from *Majelis Ulama Indonesia* (Indonesian Ulema Council). This regulation coerces Milk.co to follow religious principles in distributing human breastmilk. However, Milk.co not only commit to comply with any expected religious principle in their business process, but it also used religious values as their company's core value. The CEO stated “*We are coerced to follow religious rules. But actually, since the beginning, we were the ones who brand ourselves as ‘religious’ and prove that everyone who donated breast milk must comply with medical and religious rules (Linda, CEO)*”. Consequently, it has a significant impact on various areas, including Milk.co’s gender composition, organisational culture, and daily workplace practices.

First, related to gender composition, Milk.co’s decision to increase the number of women on the team was influenced by compliance with religious principles. For instance, due to limited resources and the need for efficiency, team members often take on customer service roles. During the assessment and consultation, female customers of Milk.co often need to show their breast condition. Due to religious prohibition to exhibit *Aurat*, private parts of the body that cannot be exposed or should be covered according to Islam (Zulfikar et al., 2022), in front of other gender, Milk.co needs more female team members who could assist during these phases. Therefore, the CEO decided to recruit more women into the team. Consequently, the team members of Milk.co were becoming increasingly homogeneous, with mostly consist of female team members.

Second, due to compliance with religious principles, Milk.co hindered collaborative effort between team members with different genders. For example, when asked about the collaboration among the team, the male CFO mentioned his limitation on coming to the office

due to religious reasons to prevent *ikhtilat*, fatwas that forbid free mixing across different gender (Hazim and Nazari, 2023). He stated, “... *because in the office, there are so many women, so I prefer to keep distance, limiting myself to meet in person. Because I don't think it is good for me [due to religious reason] (Labib, COO)*” as he explained the reason why he did not come to the office every day to prevent gender mixing.

For the same reason, all male team members work remotely. As a result, Milk.co encounters challenges in integrating the diverse potentials of individuals from different genders, potentially disrupting the engagement of all team members. One of team member said “*The problem is I'm working online, so the interaction is minimal. [means that he's not to engage with the office and the team] (Lais, male, designer).*”

In a gender diverse team, collaboration is undoubtedly paramount and often evolves through interaction among team members. However, in contrast to their female counterparts, male team members in Milk.co were not required to come to the office regularly and only worked remotely. Consequently, this arrangement reduced the likelihood of direct collaboration, which is typically important to foster innovation within the team (Lahiri et al., 2019).

Those examples underscore the significant role of religious logic that influences entrepreneurial activity (Kumar et al., 2022), including Milk.co's decision on gender composition of the team. Moreover, religion also influences the interaction among team members with different genders, thereby potentially hindering collaboration, which is crucial for enhancing innovation performance.

Mimetic Pressures

Mimetic pressure is one of the external pressures that come from competitor or other successful firms (DiMaggio and Powell, 1983). During the investigation, no evidence of mimetic pressures was perceived by Milk.co. Milk.co's stakeholders, including government bodies or incubation service providers, did not actively encourage the importance of gender diversity for fostering innovation. Moreover, as reflected in the interview, there was no mention of other successful start-ups advocating for gender diversity. Apart from one firm, mentioned regarding the payment system that Milk.co used, Milk.co did not demonstrate the mimicking behaviour from other organisations.

Overall, their unique business led to independent decision making regarding what they perceived as the best course of action for their start-up's future. Milk.co did not perceive the need to mimic other organisations, even for the best practices. Milk.co only consulted their

operation to religious scholars. Apart from this, no consultant or other third parties were intentionally hired to help Milk.co shapes their business. As a result, no mimetic behaviour regarding gender composition was found.

Normative Pressures

Milk.co perceived some normative pressures stemming from cultural norms and social expectations. Social expectation was the primary driver of normative pressure, due to strong financial dependency on society. We found at least two impacts of normative pressures on Milk.co. First, the influence of social expectations on gender composition of the team. Second, the influence of gender norms in occupational positions, which, in the long run, creates challenges in building an inclusive environment.

First, to align with religious principles and gain the trust of society, Milk.co decided to increase the number of female team members, particularly in customer service roles. This strategic decision was driven by the demographic composition of their customer base, which is predominantly female. By having female customer service representatives, Milk.co ensures that direct interactions with customers are in line with religious norms that advocate for gender specific interactions. This approach meets social demands and strengthens Milk.co's brand in upholding religious values. *"People insist that breast milk donation should be managed in Islamic way [according to religious principles]. (Linda, CEO)"*

Likewise, as public perception became paramount, the CFO mentioned that every decision was aimed at aligning with societal norms and expectations. *"Because I think society is the one that influences us the most. We are looking for people's trust. I think this is the most important thing, people's trust (Labib, CFO)."* highlighting the important position of society. Likewise, the CEO also mentioned similar argument *"We need our dream to be approved by the community by making people have good prejudices against us (Linda, CEO)"*. Therefore, having more female team members was seen as aligning with societal expectations. To increase public trust, Milk.co needed to brand itself as a religious organisation, a critical issue in breastfeeding donation, which in turn amplified the religious pressures that Milk.co perceived, as discussed earlier.

Second, normative beliefs about gender roles and occupational stereotypes become a significant normative pressure for Milk.co. For example, the female CEO felt the need to have a male team member, because she was pressured to stay at home to take care of her family, since her husband was working in another city. Similar to this normative belief, the male CFO

also planned to have male members when creating a new IT division, as he believed that men were more flexible in terms of time and workload.

It's not because we currently have fewer male employees; it's about practical considerations. Women sometimes face limitations, such as needing more flexibility with time, especially with the strict deadlines common in the technology division. Married women, in particular, often have additional challenges related to their roles. This is why I prefer to hire men for these positions. (CFO)

Turning to another factor, Milk.co did not feel any urgency related to gender diversity, as it was not being explicitly mentioned as a significant factor for innovation during the incubation process. No mentors in the incubation mentioned any recommendations related to gender composition. During the incubation process, Milk.co was only instructed to have different functional roles within the team. This approach led to the perception that gender diversity was not a pressing issue, as the focus was on ensuring a diverse set of skills and expertise within the team, without recognising the potential benefit of having a gender diverse team. It highlights the significant role of incubator service providers in driving start-ups' behaviour (Lesakova, 2012; Sedita et al., 2019).

In summary, the decision to have more female team members is mostly influenced by normative pressures. Given the current composition, the intention to have more male members was found during the interview. However, it was not driven by an awareness of the potential contributions of gender diverse teams to innovation. Instead, it was largely influenced by internal dynamics, specifically the hiring decision being based on occupational stereotypes, which will be further explained in section 4.1.2.4.

4.1.2.3 Dynamic Interplay of External Pressures and Internal Dynamics

Unlike Shrimp.co, Milk.co demonstrated a unidirectional relationship between external pressures and internal dynamics. The case of Milk.co clearly illustrated how external pressures can significantly influence internal dynamics. However, Milk.co did not demonstrate the capability to initiate transformational change in the institution. This is largely due to its high dependency on society as the main source of its financial resources. Therefore, following external pressures was seen as the best course of action.

As discussed in the previous section, external pressures, such as religion, influence Milk.co's decisions regarding the gender composition of their team. Religion also influences interactions between genders. Moreover, it affects other aspects of internal dynamics, such as organisational culture. For example, Milk.co used a religious curriculum as a performance assessment of their

team member. *“So every morning we have a praying routine... Then we also have a kind of routine such as Islamic study every day, it becomes one of performance indicator (Lina, COO)”*.

External pressures also become challenges in effective collaboration and building inclusive environments for gender diverse teams. We found several statements that reflect gender specific bias. For example, the CEO believes that as they focus on mother and child health, it is better to have more female team members due to their superiority in this field. She stated, *“When another male resigned, we only recruited women because this is indeed the field of lactation, and it is about mother and children (CEO).”* Another example of gender specific bias is also found in CFO statement related to recruitment. He mentioned, *“For a technology-related position, we are looking for a man (CFO)”*. Those examples reflect gender specific bias that may hinder the potential for achieving gender diversity within a team, due to bias in hiring decisions (González et al., 2019).

To summarise, Milk.co illustrates a start-up where its internal dynamic was affected by external pressures. The influences were not limited to the perception toward gender diversity value, but also perceived challenges in achieving gender diversity within the team. Furthermore, Milk.co did not show any intention to challenge existing pressures, which demonstrated that Milk.co adopted passive strategy in response to institutional pressures (Oliver, 1997), as they decided to follow social expectations to gain public trust.

4.1.2.4 Internal Dynamics

As has been discussed before, external pressures influence many aspects of the internal dynamics of Milk.co. Even though Milk.co did not prioritise gender diversity within its team, its existing composition consisted of men and women, which required Milk.co to leverage its team to achieve innovation performance.

There are three key findings of internal dynamics within Milk.co. First, their organisational culture was highly influenced by religious principles. Second, the leadership team acknowledged the value of gender diversity, but it did not put it as a priority within its team. Third, HR policies and practices did not reflect any inclusive practices and had a tendency to provide more facilities for women.

Organisational Culture

As has been discussed before, external pressures force Milk.co to adopt religious principles in their business. As a result, religiosity also influences many aspects of Milk.co's organisational culture, from its core values to its daily practices. For example, at every working table, there was a paper containing a religious text of morning prayer, to remind team members to pray before they start working, as can be seen in Figure 15. The CEO also used a religious curriculum in the performance assessment of each team member.

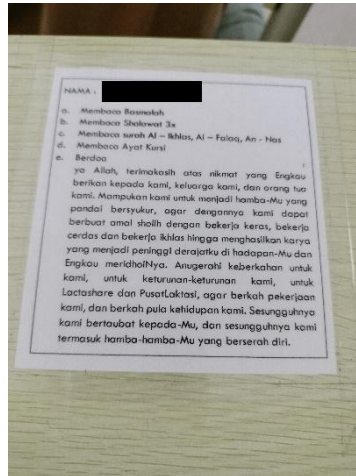


Figure 15 Morning Table Pray

Furthermore, religion also influenced the innovation process, particularly in highlighting impact and social value creation during product/service development. During the observation, it was also noted that the CEO frequently delivered motivational speeches to their team during the day, to reiterate their primary goal of making a positive impact on society, and motivate them for religious rewards. This reflects how Milk.co implemented the concept of altruism (Tan et al., 2005) and its manifestation in the form of providing value to others through their product/service. One of the team members stated that her challenge was to find a way to give more benefits to society. *“It’s about giving. It’s not just what is routine, so we are challenged to be able to give more than what we are used to give to society (Lina)”*.

On the other hand, in terms of organisational practices, Milk.co only required female team members to come to the office every day, while all male members work remotely. Therefore, despite having good values and beliefs in their organisational culture, Milk.co faced challenges in internalising those values within the team members who work remotely. One team member who worked remotely mentioned that he did not understand Milk.co's organisational culture. *“The culture... I don't really know yet, sis [...] (Lais, designer)”*. As a result, he often felt a low

sense of belonging and even mentioned his intention to find another job if he found better opportunities.

Moreover, due to lack of engagement, when the remote working team member was asked about the collaborative efforts among different genders to foster innovation, he surprisingly argued that gender does not matter as he stated: *“I don't think gender diversity matter. For me, it's more like that, so it has nothing to do with gender when we talk about innovation performance (Lais, designer)”*. He presented his perception of gender diversity, as he failed to recognise the potential of having gender diverse team to foster innovation.

To summarise, several things can be noticed from Milk.co related to its organisational culture. First, organisational culture was affected by external pressures (e.g. social expectation and religion). Second, religion not only influences organisational orientation toward social value creation, but also affects daily work practices that would potentially disrupt collaboration among different genders, due to preventing gender mixing according to religious values (Hazim and Nazari, 2023). Third, despite having good values such as openness and freedom to speak, Milk.co had difficulty in internalising those values and engaging the team members who work remotely. It also prevents remote workers from perceiving the value of gender diversity and its contribution to innovation performance.

Leadership

Upon conducting a comprehensive analysis, we found that leadership was an integral part that cannot be separated from organisational culture. The primary reason was that the leader is the one responsible for building, embedding, and evolving the foundational organisational culture to the rest of team members (Schein, E.H., 2010, p. 195). We found that the role of leader in Milk.co was significant in shaping Milk.co's internal dynamics.

Among all team members, the leadership role was centralised in the CEO, whether in developing organisational culture, HR policies and practices, or generating ideas during the innovation process. It can be seen from participant statements such as *“Usually, Mrs.Linda is in charge regarding the idea (Labib)”* or *“doctor Linda had various ideas(Lina)”*, and even the CEO itself acknowledged that she was the one who often proposed the idea *“Charity class was my idea (CEO).”*

Related to the perception of gender diversity in a team, although very limited, both the CEO and CFO demonstrated a certain level of awareness regarding the need for gender diversity in a team. The CFO stated: *“...we still need different genders to gain diverse input and*

perspectives...ensuring balanced decision making (Labib, CFO)." Likewise, the CEO also mentioned her perception of gender diversity in a team:

Why do we need gender diversity? It depends on the field. For roles related to customer service and programmes, which often involve a lot of interaction with women, it is more suitable to have women. However, for strategic positions, we still very much need men because they are more logical and good at analysis (Linda, CEO).

Both statements indicate that the acknowledgment of the importance of gender diversity was mostly rooted in occupational stereotypes, rather than recognising gender diversity's contribution to fostering innovation. However, despite unconscious bias (Stacey, 2021, p. 34), in the statement, both C-level executives in Milk.co still acknowledged that having gender diversity in a team benefited business. Nevertheless, solely relying on awareness would not guarantee innovation performance. Awareness of gender diversity needs to be followed by strategic action that can be seen in their HR policies and practices.

HR Policies & Practices

Apart from organisational culture and leadership, we found that the implementation of the commitment toward gender diversity can be seen from its internal human resources policy and practices (Pandit and Paul, 2023). As we expected, we found that Milk.co specifically designed their HR policies and practices based on perceived barriers and challenges of having a gender diverse team. As discussed previously, perceived barriers and challenges often come from external pressures such as social expectations, gender norms, and religion.

Related to HR policy, Milk.co implemented a specific policy where only female team members were required to come to the office. Team members were required to record their attendance using a biometric authentication device to verify their presence for a standard 8-hour workday. In the near future, the CEO mentioned her intention to implement scheduled shifts, as customers frequently request services on weekends, and also to accommodate flexible working arrangements. However, it was only intended for female team members, while male team members continued to work remotely.



Figure 16 Biometric authentication device in Milk.co's Office

Even though there was no specific policy that was intended to support gender diversity within their team, Milk.co also ensured that its team member was compensated properly, regardless of their gender. The CEO clearly said, *“After all, for us, our team is also the mover of goodness. We should pay them properly, right? they are helping this goodness to be more sustainable, right? So, we still pay them according to the minimum wage but also making them as an active fundraiser (Linda, CEO)”*. This policy aims to minimise the problem of gender pay gap.

Unfortunately, related to recruitment policy, Milk.co was influenced by traditional gender norms, that result in occupational stereotypes. It can be seen from the CFO statement, *“For operational, we prefer woman because we are in women's sector. Because they are the ones who know the best about it. But for IT position, we prefer men (Labib, CFO)”*. It demonstrated that Milk.co did not demonstrate the implementation of an inclusive recruitment policy.

Since the male CFO believes that technology is important in order to scale up their business, he persisted that they still need a new male member dedicated to developing their IT. Even though the statements raise concerns about gender bias in hiring decisions, in the short term, it contributed to a potential increase in gender diversity level in Milk.co as the existing composition was female dominated. However, if it persists in the long run, it will only strengthen the stereotype and will not promote an inclusive work environment, which is likely to be detrimental to the innovation process.

Turning to other HR policies and practices, Milk.co paid attention to its team members' health and wellbeing. Milk.co provided several facilities, such as affordable housing in the office area to increase safety and reduce commuting, regular gym/aerobics/yoga to support their physical

health after sitting for eight hours a day, and regular Islamic courses with daily assessment to ensure wellbeing and spiritual awakening. *“They are given the opportunity to do gymnastics once a week. Milk.Co's working hours are from 8 to 4. Each one can choose one day in a week to exercise(Linda, CEO).”*

Apart from the HR policies and practices mentioned above, no specific policies and practice were found, particularly in achieving and optimising gender diversity in the team. It highlights the fact that, despite a certain level of awareness from the CEO and the CFO related to the need to have gender diversity in a team, there is a lack of commitment to put gender diversity as a priority.

4.1.2.5 Team Innovation Capability (TIC)

Even though Milk.co did not put gender diversity as their priority, Milk. co team members could recognise several advantages of having gender diverse team. Even though limited, Milk.co could demonstrate a certain level of team innovation capability through the use of team social network, team collective intelligence, and team integration. In the team social network, Milk.co could leverage gender diversity to access external partners. Through diverse perspectives, Milk.co could develop collective intelligence and improve their decision making process. In team integration, Milk.co demonstrated how gender diversity could improve collaboration among team members, and increase communication and market knowledge integration.

Team Social Network (TSN)

Milk.co acknowledged that gender diverse teams help them access a diverse network that could help them access expertise and potential partners for collaboration. First, drawing from occupational segregation in Indonesia, women are commonly found within the health sector, particularly in professions such as obstetricians and gynaecologists, midwives, and nutrition consultants. These professions are closer to mother and child health, and breastfeeding issues. The female CEO, who is a medical doctor, explained how she utilised her network to help her grow her start-up. *“We also have a partnership with some people, in this case, is a professional, mostly a medical doctor (Linda)”*. Her colleagues have supported her by not only making donations, but also, assisting her in opening Milk.co pools in different cities. She said that it was difficult without the help of her colleague, due to the requirement for these people to have sufficient knowledge about the protocol.

Second, as their business should be aligned with religious principles, Milk.co should actively consult with religious scholars. It is widely known in the Islamic world that “ustadz” were closely connected to the male networks, rather than female ones as they tend to be more cautious about interacting with “non-mahram” (refer to the opposite sex and non-relative people). Therefore, having a male member makes it easier for Milk.co to access respectable “ustadz” according to their needs. In this case, the male CFO has access to “ustadz” (Ustadz is a general Islamic term used to refer to a man who is a skilled or knowledgeable religious teacher, or scholar who is well versed in Islamic teachings, practices, and scriptures) to guide them in doing their business. *“He often gives input from a religious aspect” (Linda, CEO).*

Due to their limited resources, initial start-up team members’ social network help Milk.co in achieving potential collaboration from external parties. It shows how team social network enables a heterogonous circle to become a potential collaborative partner, which is important during the innovation process.

Team Collective Intelligence (TCI)

Building team collective intelligence involves understanding, and leveraging, the interaction among team members through effective communication, and the integration of the diverse perspectives that men and women have in the team. As men and women in Milk.co worked separately, the collaboration was hindered. Direct interaction only occurred occasionally while most of the communication was through an online platform. Consequently, when asked about the benefit of having gender diversity in a team, only the CEO and the CFO, who have intense interaction, were able to acknowledge some of the advantages, including more profound decision making and problem solving processes, and balancing risk orientation.

For example, the CFO acknowledged that men and women tend to have different perspectives that could help improve the decision making process. *“Basically, we need different genders to get different input and perspectives so that we remain balanced in making decisions (Labib).”* Likewise, The CEO also emphasised the need for gender diversity to enhance decision making, by fostering a more balanced understanding that draws not only on intuition, but also on logic and data. The CEO stated: *“We need gender diversity because we need someone who uses their logic and thinks more strategically (Linda, CEO)”*, as she underscored different style of thinking between men and women.

Furthermore, the CEO also mentioned how men and women tend to have a different perception of risks. *“Because the implementation of risk mitigation can be different between*

genders(Labib, CFO)." Even though he had difficulty recalling any specific examples or elaborating on them in more detail, he mentioned that understanding both perspectives enabled him to understand risk more comprehensively, which helped him make better decisions.

To summarise, our findings from Milk.co suggest that team collective intelligence is more likely to be achieved through intense communication and collaboration. This was evident in the interaction between the female CEO and the male CFO. However, other team members working remotely faced challenges, in collectively integrating their knowledge and developing team collective intelligence.

Team Integration (TI)

Milk.co provided several examples on how Milk.co improved team integration through gender diversity. It includes solving the conflict among the same gender, triggering collaboration due to a different set of skills, and increasing market knowledge integration.

For example, most interactions occurred among female team members, due to daily interaction in the office, which explains why conflicts frequently occurred within the same gender. In this case, men often acted as mediators to resolve conflicts among women, as they were perceived as neutral parties. *"women prioritise feelings, so sometimes, when there is a conflict, male figures can become a mediator... (Lina, team member)"*.

Like Lina, Linda also mentioned that men's natural characteristics helped resolve conflict: *"Because they are naturally calmer, they are less likely to get into trouble, while women usually shows mood, or emotions that might be challenging for the team. They [male team members] tend to stay cool and emotionally stable (Linda, CEO)"*. Resolving conflict was important to increase team cohesiveness and enable collaboration to increase productivity among team members.

Another advantage of having a gender diverse team was increasing the potential for collaboration across different genders. The integration among the team can be seen in how Milk.co builds collaboration, particularly between the male CFO and the female CEO. CFO exemplified how diverse genders help them during the innovation process, for example, in transforming ideas into product development.

"Usually, Mrs. Linda is responsible for generating ideas, but she often has difficulties elaborating and translating her ideas into more actionable things. So usually, she explains her

concepts to me, and I translate them into something like a graphic design, which I then deliver to the developer (Labib, CFO)’’.

The above statement illustrates how the CEO and CFO work together to achieve the same goal.

Another instance of teamwork occurred when the CFO often helped her in managing a task that she found challenging due to her other responsibilities. The CEO discussed how her familial responsibilities constrained her availability and flexibility. The CEO described how they often distributed tasks to help each other and demonstrated teamwork capability.

Turning to another advantage of having gender diversity, Milk.co acknowledge ability to acquire diverse market knowledge. The CEO mentioned how gender diversity improves their ability to identify market needs. Even though Milk.co's primary target market was women, having men inside the team could trigger Milk.co to create new ideas to target men as a new potential market. The male CFO stated: The CEO, who initially never thought about this idea before, supported his idea. Consequently, Milk.co offered a more comprehensive range of products and services to both male and female customers.

In summary, despite their limited ability to utilise a gender diverse team, Milk.co still demonstrated their ability to utilise their gender diverse team, and develop a certain level of team innovation capability by utilising the team's social network to find potential partners, building collective intelligence through diverse perspectives, and increasing team integration through collaboration.

4.1.2.6 Innovation in Milk.co

In the early stages, Milk.co won several competitions, highlighting acknowledgement of their innovation capabilities. First, in the DigitalX incubation programme, Milk.co was selected from hundreds of other start-ups to join a national boot camp. Milk.co was also selected as one of the 20 best start-ups in another competition. Milk.co received several grants, training, and workshops, both at national level and international level. Most of the competitions used innovativeness as one of the categories for choosing the best candidates. During the competition, the digital innovation was in the form of android applications and websites, for landing pages that redirect them to the Apps, which can be categorised as product/service innovation (Trott, 2021).

During enquiries regarding innovation performance, it has been observed that all Milk.co team members did not have a comprehensive understanding of the concept, and referred to the

overall performance. After assessing their innovation, we tabulated the result, as can be seen in the Table 15.

Table 15 Summary of Innovation Performance of Milk.co

Innovation Performance	Item	1-5 (Strongly disagree - strongly agree)
Market Newness	serve new customer needs – customer needs we had not served before	3
	require changes in established attitude and behavioural patterns from customers	3
	require major learning efforts by mainstream customers.	2.67
	take us up against new competitors – competitors we have never faced before.	2.67
Overall Market Newness		2.83
Technology Newness	are based on substantially different core technology never used in our in	2.3
	involve peripheral technologies that are new to our industry.	2
	combine different technologies in a new way.	2.3
	use technologies that have an impact on or cause significant changes in the whole industry.	2
Overall Technology Newness		2.17
Overall Performance		2.5

From the table, we can see that Milk.co's innovation performance was greater in market newness, rather than technology newness. This is reasonable, since Milk.co encountered numerous challenges related to IT problem. After previous team members who focused on technology development left the team, the CEO shifted their focus toward service provision, rather than advancing their digital innovation. She intentionally increased the number of female employees, assuming that women have superior customer service skills, particularly when interacting with a predominantly female customer base. The lack of IT development has resulted in its gradual neglect over time, consequently resulting in low technology newness. One of the reasons was related to Milk.co's failure to keep pace with the rapid advancements in information technology, particularly in terms of mobile applications. *"We need more time to finally could develop new apps. Because the coding is already obsolete, and we don't have any documentation on that app for future updating. So, we really need to make a new one. We need to recruit new people (Linda, CEO)."*

The initial software programme was developed using the android operating system. The decision to use it was based on the fact that the majority of the population in Indonesia uses an android mobile device. Due to the frequent updates of the operating system, certain applications

that were previously compatible were no longer supported by the updated operating systems, resulting in occasional errors. *“we haven't added any new feature related to our digital innovations because there are already lot of activities and services that we currently offer and the demand is high, so let's just focus on this, it already takes a lot of energy (Line, CEO)”*. She described how her focus on technology development was disrupted, due to the overwhelming activities in providing services to their existing customer.

Milk.co tried to build new Apps several times but often ended unsuccessfully due to the failure to meet the requirements. Up to this point, the programmer responsible has been hired, either as a freelance worker or an intern. This issue was recognised by the CFO. He intended to establish an Information Technology (IT) department to address this matter. Nevertheless, due to their constrained financial resources and an extensive number of activities, their attention was split, resulting in persistent IT issues. *“I believe we have novelty and some unique features, but the problem lies in the technology. we don't have any dedicated human resources focused on the technology side (CFO).”*

As a result, although it succeeded in engaging market newness, the lack of attention to IT development has resulted in low digital innovation performance, particularly in the area of technology newness.

Apart from the weakness of their digital innovation, as discussed above, Milk.co shows their innovative capability to redesign their business model. It offers supplementary services, including breastfeeding consultation, training, short courses for health workers, and webinar series about breastfeeding, parenting, and other relevant topics. Each of these was offered at a predetermined cost to customers. This strategy was developed to add a new revenue stream, as Milk.co follows formal regulations prohibiting the selling of human breastmilk.

Social Impact

Turning to social impact, the majority of the participants exhibited enthusiasm when asked about it. Milk.co demonstrated a commitment to ongoing evaluation of its social impact. Milk.co presented its impact through social media as an act of fulfilling its obligation to its donors.

The female CEO mentioned how her male CFO also had the same vision regarding social impact *“because my co-founder, he also has a high social spirit (Linda, CEO)”* She mentioned how her co-founder helped them achieve social impact, as he also had previous experience

involved in various voluntary activities. *"he's not really a profit-oriented person. He more focus on how to deliver our service to the beneficiary, how we hold our faith (Linda, CEO)".* Having her male colleague support her idea of promoting social impact, strengthens her beliefs in achieving this objective together.

Table 16 presented below illustrates the social impact of digital innovation and services provides by Milk.co.

Table 16 Social Impact of Innovation in Milk.co

Activities	Output	Short term	Long-term	SDG
Charity Class (Education Seminars)	Educated individuals	Increase in awareness	Improved quality of life (breastfeeding practices, parenting, finance, depends on the topic of LCC)	SDG 3
Breastmilk Donation	Breastmilk provided	Reduction of stunting and unhealthy baby	Improved health	SDG 3
Breastfeeding Allowance	Groceries provided	Reduction of hunger	Improved quality of life	SDG 1,2,3
Breastfeeding Consultation services	Educated individuals	Increase in awareness	Improved health and wellbeing of mother	SDG 2
Breastfeeding Tools Donation	Reduce waste Providing affordable product	Sustainable product life cycle	Enhance sustainability	SDG 12
Short course for health worker	Educated health worker	Improve knowledge and best practices	Health service improvement	SDG 3

Based on the mapping with SDG, the impact of Milk.co was aligned with SDG 1 (reduce poverty) and SDG 2 (improve nutrition, end hunger), by giving free grocery allowances to poor mothers who need to breastfeed their babies. Milk.co also contributed to SDG 3 (good health and wellbeing) by providing breastmilk to babies who need them. Providing webinars and short courses about breastfeeding practices, in the long run, will help to increase awareness about the advantages of breastfeeding, and also improve health services by providing in-depth education about breastfeeding to health workers. In addition, Milk.co also facilitated donations of breastfeeding staff, and provided them to individuals who needed them. It will increase product lifetime, which in the long run will contribute to sustainability (SDG 12-ensure sustainable consumption and production patterns).

4.1.2.7 Summary

In summary, Milk.co perceived a lack of supportive external pressures that led to the prioritisation of gender diversity. No coercive, mimetic, or normative pressures that encourage

them to adopt gender diversity in their team. As a result, gender diversity was considered beneficial, but not a significant issue that needs to be prioritised. Their attitude toward gender diversity demonstrated that the gender diverse team they currently have was due to the demographic landscape. It was mainly caused by gender stereotypes that created challenges for Milk.co to build an inclusive and diverse workplace.

Internal dynamics within Milk.co were intertwined with religious principles. Organisational culture was influenced by religious values. The role of the leader was centralised (Pearce and Manz, 2011) in developing organisational culture, and HR policies and practices. Unfortunately, HR policies and practices only favour women, by providing more facilities for female team members.

From the discussion above, we could conclude several things. First, institutional pressures influence Milk.co business orientation toward non-profit oriented business, and lead to the implementation of religious principles to increase public trust. Second, as Milk.co did not perceive any external pressures that require them to have gender diversity in their team to foster innovation, Milk.co did not make gender diversity a priority. Consequently, Milk.co underwent a shift toward a predominantly female team membership, in order to better accommodate their main customer base, and to comply with gender norms and religious beliefs. Third, the relationship between institutional pressures and internal dynamics was unidirectional, as Milk.co did not have any initiative for institutional change. Instead, it chose to conform to certain societal beliefs, such as gender norms and religious values, to increase public trust.

To sum up, from a thorough investigation of Milk.co, it can be inferred that, although limited, Milk.co demonstrated a certain level of team innovation capabilities in their start-up, by utilising their gender diverse team. Evidence was found on how gender diversity contributes to team cognition, through team collective intelligence, team integration, and team social networks. Nevertheless, those capabilities were insufficient to overcome the persistent problem of their technological advancement. Despite the persistent lack of success in developing new technologies, they were consistent in their commitment to enhancing their innovation, in providing existing services and various programmes, rather than diverting their attention to their innovation in digital products. Consequently, despite huge market demand, Milk.co had a restricted ability to expand their business and reach their target customers beyond their existing scope. This limitation hinders the potential of Milk.co to seize the opportunity to expand their business by advancing their digital innovation.

4.1.3 Case 3: Cop.co

4.1.3.1 Case Description

Cop.co is a start-up that focuses on developing Enterprise Resource Planning (ERP) to enable co-operatives to digitalise their business processes, which can be categorised as developing product/service innovation (Trott, 2021). Cop.co supports Indonesian co-operatives in connecting to a larger co-operative ecosystem and strengthening their network to enhance the business. Cop.co was a second start-up that the founding team developed after their previous start-up acquisition by other firms.

During the ideation process, they found that co-operatives were a big potential market in Indonesia. In 2018, there were more than 25.6 million Co-operatives in Indonesia. Co-operatives represent the Indonesian value of “gotong-royong” (a principle of working together or mutual assistance) and are scientifically proven to contribute to economic growth (Siradjuddin, 2023). Despite having been operated for many decades, co-operative operations remained manual and considered inefficient. Thus, in 2018, Cop.co was established with the aim of facilitating digital transformation for all co-operatives in Indonesia. Over the course of three years, they had facilitated the digitisation of around 700 co-operatives, spanning across 12 provinces all across Indonesia. The objective was to enhance the efficiency, transparency, and accountability of co-operative management.

Cop.co was founded by five team members, four men and one woman. Following the seed funding, Cop.co expanded its team by recruiting additional team members. At the time of this investigation, Cop.co consisted of four male and four female key team members, and managed five additional people who were assigned as temporary members.

4.1.3.2 External Pressures

During the investigation, we have difficulty recognising any external pressures perceived by Cop.co regarding the gender composition of their team. Despite the gender balance composition, it was important to highlight that this composition was not intentionally planned, but rather, naturally developed.

No specific coercive, mimetic, or normative pressures were perceived by Cop.co that encouraged them to have gender diversity within the team. However, some external pressures were found to be related to how Cop.co utilised their gender diverse team. First, even though very limited, Cop.co acknowledged the exposure from the external environment (e.g. investors,

competition) related to gender composition. Second, Cop.co recognised some external pressures that act as inhibiting factors, creating barriers to achieving gender diversity and challenges in collaborative efforts within gender diverse teams to achieve innovation.

Coercive Pressures

Most participants highlighted the absence of significant external pressures regarding gender composition within their team. However, one female participant remembered her past experience during a pitching session, where one of the potential investors mentioned about the gender composition of the founding team. She said, *“They did mention like -This is a fund for a start-up who has women at the management level or at the founder at C level- But now, our investors who invested in us, there was no specific mention of that issue. It means that several investors are concerned about it (Nia, CFO)”*. In this statement, despite some investor awareness of gender composition, the female CFO highlighted that their existing investor did not put gender composition as a priority.

The CFO mentioned another story during their start-up incubation process, one of the mentors encouraged one of female team member to do the presentation for funding. The purpose was to highlight the presence of a female founder, which investors might take into consideration. This indicates that the mentor had a certain level of awareness related to gender as one criteria that might be considered by potential investors during assessment (Boerner et al., 2025). However, apart from this recommendation, no further suggestion about the importance of having gender diversity in the start-up team was perceived.

As Cop.co did not perceive any coercive pressures related to the gender composition of the team, it is not surprising that Cop.co did not see the significance of having gender diversity in the team or its potential contribution to enhancing innovation performance.

Mimetic Pressures

As start-ups often face uncertainty (Sommer et al., 2009), they tend to mimic a successful company's behaviour (Jiang and Tornikoski, 2019). In the interview with team members, a question about inspiring firms was asked, in order to identify any mimicking behaviour that the start-up might have, so as to deal with uncertainty. Some participants mentioned how they get some inspiration about organisational practices through benchmarking other start-ups. Unfortunately, none of the participants mentioned gender diversity.

During the benchmarking process with other successful start-ups, the CFO only mentioned how they were inspired to develop a strong organisational culture, highlighting the absence of a role

model organisation promoting gender diversity. *“They share about their culture, they implement it and how much it has been influenced the company's performance, from there, we think about it, we have to make it, then we think about the values that I mentioned earlier.”* Highlighting how she was inspired to build organisational values and cultures to improve performance.

Despite participating in the incubation programme, Cop.co did not engage with any external parties or consultants to explore best practices employed by other organisations. Therefore, no further mimetic pressures were observed. Unfortunately, our investigation found that the absence of mimetic behaviour did not represent Cop.co's independent ability to develop their own strategy, due to limited embeddedness in the industry or entrepreneurial ecosystem. It led to lack of exposure to successful examples of other companies who successfully leverage gender diversity to enhance innovation performance. It might also be because there is lack of successful role model within their own network.

Normative Pressures

Normative pressures can impact organisations to conform to shared values and ethical practices (Zhou, M. et al., 2024), including having gender diversity within the team. Even though Cop.co did not include gender diversity as a core value in running its business, the CEO mentioned that he personally values gender diversity. However, he mentioned that normative pressures sometimes create barriers and challenges to achieving this objective.

The CEO provided an example where normative pressures create barriers to achieve gender diversity in the team. The CEO mentioned that even though they currently have a gender balanced team composition, they were not distributed evenly across all divisions. The CEO mentioned the difficulty in finding candidates. The CEO stated: *“from the side who applied for the position, It's not balanced, mostly it is dominated by men or mostly by women. It's like that (Nafi)”*. The CEO found that it was hard to find gender balanced candidate pools in some positions. This situation arises from the division of labour, driven by occupational stereotypes rooted in gender norms and social expectations regarding specific jobs (Eagly, 2013).

Apart from barriers to achieving gender diversity in all divisions, normative pressures also often create some challenges in optimising gender diverse teams. It could affect the interaction between team members, which could potentially be detrimental to collaboration. For example, one female participant mentioned how one of her male colleagues did not feel comfortable when she was appointed to become his team leader. She assumed that the main reason was the

patriarchal cultural system, highlighting the challenges of women leadership in patriarchal cultural system (Adongo et al., 2023), which was commonly adopted by the majority of people in Indonesia. She stated: “*when I was promoted, one of my staff worked here longer than me, and he found that my appointment as his leader was a problem with him [...] if I think about it, wow, that's not surprising because of patriarchy in Indonesia, right*”, highlighting her suspicion about the influence of patriarchal culture on her colleague's behaviour.

Normative pressures could also come from the global entrepreneurial ecosystem such as professional global communities (DiMaggio and Powell, 1983). In this case, Cop.co found that the popularity of women founders also found in some global competition. She said:

we took part in a competition called XX. From Indonesia, there were 10 finalists, and then the top two were chosen to represent Indonesia globally. So, there's a mark for women founders. It turns out they did. Some investors are concerned about it too (Nira, CFO).

She highlighted the recognition of women founders in the global industry. It helps increase awareness of tech-based start-ups in having a gender diverse team.

In summary, Cop.co did not recognise any coercive and mimetic pressures that encouraged them to prioritise gender diversity, while some normative pressures were found and have multiple roles. On the one hand, Cop.co recognised some barriers and challenges to optimise their gender diverse team. On the other hand, Cop.co also understands that some normative standards indicate the notion of the importance of gender diversity for start-ups in the institution, particularly in the global industry. However, it does not put enough pressure on Cop.co to make gender diversity a priority within their start-up, nor express concerns that it has a significant impact on innovation performance. Interestingly, even though gender diversity was not a priority, Cop.co had a perfectly gender balanced team, and the CEO himself values gender diversity, which influenced the internal dynamic within Cop.co.

4.1.3.3 Dynamic Interplay of External Pressures and Internal Dynamics

As Cop.co did not perceive significant external pressures to adopt gender diversity in their team, there was no significant contestation between external pressures and internal dynamics. The relationship tends to be unidirectional, where external pressures influence some internal dynamics within Cop.co, particularly in perceived barriers and challenges related to gender diversity within the team. How Cop.co responded to these inhibiting factors influences Cop.co strategy in building their internal dynamics.

As mentioned in the previous section about external pressures, one factor that contributes to gender imbalance is the existence of occupational stereotypes in society. It was not only recognised by the CEO but also by other team members, as she stated:

I once complained to my boss, asking why we couldn't have women in these roles. He said if it's possible for women to use their motorbikes in Bekasi, it's fine, they have to travel frequently. However, in the end, it's still mostly men who take these positions. (Nia, team leader)

As Cop.co understood the problem with gender stereotypes, Cop.co was trying to challenge this phenomenon, but the outcome was problematic and ultimately resulted in a significant increase in employee turnover.

the operational team are dominated by women. when there is a man, it turns out that it doesn't take time for them to submit a resignation, and it often happens. So, indeed, the turnover is high. Especially for men, they usually don't last that long, I don't know why they don't feel comfortable like that. But indeed, the character of the work is demanding in terms of accuracy and detail. Something that is routine. (Nafi, CEO).

Overall, Cop.co experienced some inhibiting factors from normative pressures that triggered some challenges for Cop.co to leverage gender diversity to increase their innovation performance. Cop.co did not demonstrate the intention to respond to external pressures, resulting in their failure to develop strong internal dynamics.

4.1.3.4 Internal Dynamics

Despite some exposure to the notion of the importance of gender diversity during pitching, Cop.co did not see them as pressures that needed to be accomplished due to their coincidental gender diverse composition. As a result, Cop.co did not put gender diversity as a significant issue, which made them have difficulties in overcoming challenges coming from external pressures caused by having a gender diverse team

Cop.co's insensitivity to external pressures has led to a lack of strategic response within its internal dynamics that hinders its ability to navigate conflicting institutional expectations. As a result, their internal dynamic was not strongly developed. The organisational culture of Cop.co illustrates symbolic inclusivity, where all the values support gender diverse teams, but fail to accommodate the real issues in practices. Moreover, the leader did not share his personal values about gender diversity with the team members or translate the values into actionable strategies within HR policies and practices.

Organisational Culture

When it comes to organisational cultures, there were three values that Cop.co used as basic values for their organisational culture: respect, achievement, and family. The first value is respect. It means that each member needs to respect other members regardless of their gender, race, or religion. The second value is achievement, which means that all activities should be customer oriented, which leads to customer satisfaction. The last value was family, emphasising openness and breaking down barriers between the C-level and other team members. The CEO holds the belief that this could potentially enhance the cohesiveness of the team. During the interview, the term "respect" was frequently mentioned by almost all participants.

In the office, people speak up if they find something problematic, often shouting, "It's sexist, it's really bad." We don't have formal regulations or written policies related to that. Instead, we rely on our core values, especially "respect," and we hold firmly to that principle (Nira, CFO).

She highlights the role of social control in their organisational culture when implementing the value of respect.

Other aspects of organisational culture that were supportive of fostering innovation within a gender diverse team were also mentioned: "freedom of speech" and "continuous learning and growth". To ensure those values were embedded in the workplace, the CEO designed a programme to train and ensure equal opportunity for all team members to express their opinions. Each team member was expected to deliver a presentation on a topic related to business or the team's development. This was also seen as a mechanism to support organisational learning.

We have a sharing session every two weeks, where the presenter was chosen randomly. It can be someone from management or a team member. Often, new techniques emerge from these sessions, which everyone learns from and adopts. For example, if a new product development technique is shared, we take 2-3 weeks to practice and implement it (Nafi, CEO).

It aims to provide a bottom up mechanism for idea generation, with the principle that everyone can contribute. However, even though this was an excellent opportunity for everyone to speak up, as the presentation was random and was not carefully planned, Cop.co often experimentally implemented any suggested ideas. The effectiveness of this approach was also not measured, and its contribution to their product innovation remains vague.

Leadership

Leaders should understand diversity and inclusion, and the essential role these play in organisational outcomes (Northouse, 2023, p. 325). The leadership in Cop.co exhibit a certain level of awareness regarding the value of gender diversity. However, it did not follow by a strategic action in building a gender diverse team. As a leader, the CEO express his personal value on diversity as she stated:

I am concerned about having a gender diverse team because I believe in diversity in every aspect, not just gender actually. I want to create a team with a wide range of perspectives and experiences. I considered it, and yes, achieving gender balance is an important part of diversity. Balancing the team between genders is essential for creating an inclusive and effective working environment. (Nafi, CEO).

The leader's awareness on the value of gender diversity and equality was further demonstrated through the appointment of a female sales representative as a marketing leader. It was important, as it could become a role model for women. It demonstrated the commitment to equal opportunities for women in managerial positions.

Aside from a moderate level of awareness, no other strategic actions were identified during the investigation. The extent to which the CEO's personal values were internalised among team member, and how it was implemented in HR policies and practices, remains questionable.

HR Policies & Practices

HR literature suggests that the effectivity of HR policies and practices to support gender diversity within the team largely depend on whether or not leaders align themselves with the practice and enact the practice accordingly (Buengeler et al., 2018). Even though leadership in Cop.co demonstrated a certain level of awareness of the advantage of having gender diversity within the team, we could not find any specific HR policies and practices that was developed intentionally to support gender diversity within the team to enhance innovation performance. The CFO stated: *“We don't have any formal regulations or written policies related to that”* (Nira, CFO).

Cop.co experienced a major strike during the pandemic, and its previous office was closed. They continued to work online because of the focus on budget efficiency and the investor's request to cut operational costs. As a result, in the past two years, all team members in Cop.co have been fully working online. This transition required new HR policies and practices. However, during the interview, almost all the participants had difficulty explaining the HR policies and practices, in light of the new condition.

Turning to another aspect related to recruitment policy, there was no specific reference to the inclusive recruitment process. The hiring decision relied on the meritocracy through a comprehensive selection process.

“We don't see gender during the recruitment, specifically in our office culture; what matters is their skills. If someone's work was not good, whether they're a man or a woman, we don't care, we don't compare based on gender. It's all about their performance and capabilities" (Nia, Team Leader)”.

Even though it illustrated the positive signs of promoting equality through organisational policy, due to its informal nature, it also means that there was no specific intervention to improve women's involvement in their start-ups, which was seen by the CEO as a problem that caused gender imbalance in the candidate pools.

In conclusion, although the leader strongly believes in the importance of gender diversity, there is a noticeable discrepancy between these beliefs and the actual implementation of inclusive practices in their HR policies and practices. The disparity indicates that the leader's personal values were not adequately transformed into specific policies or activities inside the HR framework. It indicates a possible misalignment between values and operational practices on gender diversity.

4.1.3.5 Team Innovation Capability (TIC)

During the discussion with the participants, apart from the CEO, we found that the majority of participants had difficulty explaining the advantages of having a gender diverse team, particularly in realising its positive impact on team innovation capability. However, the CEO noticed some of the advantages by explaining the different traits of men and women, and how they could contribute to team innovation capability. For example, he mentioned how the team's social network was helpful in finding new partners, talents, and clients. Cop.co found that diverse perspectives and experiences could help during the decision making process, which improves their team's collective intelligence. Moreover, gender diversity helped Cop.co improve team communication. It could also trigger cross-functional collaboration and market knowledge integration.

Team Social Network (TSN)

Cop.co perceives some advantages of having gender diverse team, particularly in finding new team members and potential customer. Having gender diverse teams enable them to access different social network.

First, the CEO mentioned how he found his team when building this start-up. He mentioned that his co-founder was his friend “At that time I only had one co-founder, he was not part of the awardee of LPDP scholarship but from my high school friend. So, from a long time ago, he's been in the creative industry. We tried making business together several times, so yes, it worked.” Since then, key team members were formed from their own circle, as he found it worked effectively.

Second, not only to find the initial team member, the marketing team leader mentioned how men and women tend to have different circles, which can be seen from how they approach new potential customers. She explained that women tend to start with their own familiar circle, such as families or other close relatives. *“For female agents, they started with people they have close connections to, such as through family or friends. (Nia, Team Leader)”*. She highlights how men and women tend to have different approaches to their network (Song and Berger, 2019; Watson, 2012). It indicates that having women as part of the marketing team means access to different network pools for a new customer base.

Team Collective Intelligence (TCI)

As has been mentioned in the previous literature, having gender diversity also means having cognitive diversity that can improve team learning (Aggarwal et al., 2019). When asked about the potential benefit of having a gender diverse team, participants often referred to the different characteristics of men and women, which would be beneficial if combined. Different styles of thinking create diverse perspectives, which was seen as important during the innovation process.

The product division requires empathy, and women tend to have higher empathy. For other divisions that require logic, men usually excel in that area. So, you need diversity. That's what I think is important. (Nafi, CEO)

Moreover, the CEO mentioned that his female co-founder had great attention to detail. He stated: *“For very detailed things, she is better; she is the best (Nafi, CEO).”* This underscores the female team member's ability in areas that he typically overlooked, given his predominant focus on the technological aspects of the business.

HR also stated a similar statement, *“Men are more technical in general. This is what the point is, and for women, they are more likely to focus on manpower, how is the condition of our manpower (Nesti)”*. Both underscore the different focus men and women have during product development.

The CEO mentioned that gender diversity was indeed important, as integration between two different capabilities that men and women had, was the key benefit of having gender diversity. *“if I have too many men, the team will be too focused on exploration. But if there are more women in the team, they will be more focused on what is being executed in daily life. That's it (Nafi, CEO)”*. He indicates that a homogenous team would not work effectively. Likewise, the CFO stated *“We will get the view from all angles of perspectives. We could complement each other as well... So the different view makes it important to have diversity (Nira, CFO).”*

The CEO also mentioned the difference in orientation towards risk: *“But when challenged to come up with an innovative idea, they [woman] were struggling because somehow related to how they see the risk. Because it is certain if we want innovation, I believe, that you really have to have the courage to take more risks, outside of routine task (Nafi, CEO)”*. He mentioned that stereotypically, women are more prone toward risk, while men are more likely to take risk (Yu et al., 2016). This statement was confirmed by the female team member itself *“I think about the risks a lot because they often see me as the most sceptical person (Nira, CFO)”*. She mentioned how she was so sensitive towards risk.

Various examples above clearly describe that having men and women within the team could help build team collective intelligence. The team could get a balanced perspective toward risk, having multiple perspectives, and ultimately, through team learning, it will increase the team's collective intelligence.

Team Integration (TI)

Cop.co indicates that the potential benefit of having a gender diverse team includes increasing team cohesion through improved communication, collaboration, and market knowledge integration.

Throughout the meeting, the CEO observed that women were typically the ones who initiated discussions. They often had valuable contributions to make and encouraged further discussion, as he stated: *“It's just that mostly women who trigger us to speak more. Maybe in terms of ideas, it's quite balanced, yes, ideas, but usually there are triggers, for example, you need confirmation, you need discussion, that's a lot from women (Nafi, CEO)”*.

Moreover, having women as part of the team was seen as beneficial to trigger cross-functional collaboration. To exemplify, the CEO frequently observed that men and women tend to exhibit distinct focuses during product development. Men, in particular, often display weaknesses in addressing humanistic aspects, such as understanding human behaviours toward applications, and maintaining consistency in the application. *she also considers how a product looks and feels: its comfort, aesthetic appeal, and usability. Apart from her skills, her sense of aesthetics is indeed stronger* (Nafi, CEO). The CEO highlighted a dynamic collaboration within the product development team, catalysed by strong teamwork and collaboration among gender diverse team members.

Another benefit of having gender diversity in a team was to increase understanding of market needs. The CEO and the CFO mentioned that empathy is important when trying to develop a product. They mentioned how women tend to have a higher level of empathy. The CEO stated: *“N might have more empathetic feelings like that, so she's empathetic than others. Even sometimes are more use emotion in nature (Nafi, CEO)”*. Likewise, the female CFO stated: *“Yes, it's the same in terms of... It's like a product development, from the product division, it requires empathy. Well, women tend to have higher empathy”*. From this statement, we can infer that involving women in the team is beneficial in identifying market needs when developing a product innovation.

In summary, even though limited, Cop.co was able to describe how gender diversity that they already have could contribute to the improvement of team innovation capability.

4.1.3.6 Innovation in Cop.co

Cop.co developed a web based application for cooperation to carry out business activities, including data management and reporting services. The technology that was used to build the application was not advanced. Cop.co acknowledged that they only used simple technology when developing the apps. They think their advantage was the unique target market, which was not served before.

Table 17 Summary of Innovation Performance of Cop.co

Innovation Performance	Item	1-5 (Strongly disagree - strongly agree)
Market Newness	serve new customer needs – customer needs we had not served before	2.3
	require changes in established attitude and behavioural patterns from customers	3.67
	require major learning efforts by mainstream customers.	3.3
	take us up against new competitors – competitors we have never faced before.	2.3
Overall Market Newness		2.91
Technology Newness	are based on substantially different core technology never used in our industry	1.3
	involve peripheral technologies that are new to our industry.	1.67
	combine different technologies in a new way.	2
	use technologies that have an impact on or cause significant changes in the whole industry.	1.3
Overall Technology Newness		1.58
Overall Performance		2.25

However, in recent years, the competitor has started to grow, leading to competition in the same target market. With existing competitors, Cop.co was unable to gain a competitive advantage with their gender diverse team to win the competition. The CFO acknowledged the difficulties in focusing on revenue generation, as they also offered a free service to help small co-operatives digitalise their operation. In addition, investor focus shifted their attention during the ‘tech-winter’ into budget efficiency, “*all the investors who changed their focus. That's it and now like all start-ups are focused on budget efficiency (Nira, CFO)*”. Cop.co was asked to cut its operational cost, adding difficulty to its current operation, and lost its opportunity to gain traction from small co-operatives. As a result, Cop.co had difficulty winning the competition.

Social Impact

When asked about the impact, we found that women tend to prioritise the impact of their work. As can be seen from the statement:

... For me, the key is the impact. There are many start-ups out there, but co-operatives are uniquely Indonesian, and that's where we should make our contribution. Research shows that cooperatives significantly impact the economy. (Nesti, HR).

As can be seen from the statement, Cop.co was actively involved in educating existing co-operatives to understand digital transformation, specifically related to their operation. In

collaboration with the Ministry of Co-operatives and SME of Indonesia, Cop.co conducted a webinar series and workshops about digital transformation. The purpose of these activities was to ensure all co-operatives have the ability to improve their knowledge about digital transformation, which, in turn, increases their awareness of digitalising their operation using Cop.co products and services. These activities were actually aligned with SDG 9, specifically in increasing the access of small scale industrial and other enterprises to financial services, particularly in developing countries. Co-operatives often fail to scale up their business due to their lack of transparency in financial reports. By adopting the solution offered by Cop.co, it would increase the possibility of cooperation to get access to financial services.

Table 18 Social Impact of Innovation in Cop.co

Activities	Output	Short term	Long-term	SDG
Digital transformation Workshop	Informed individuals	Improve knowledge of Digital transformation	Co-operatives have the ability to manage digital transformation in their co-operative	SDG 9

4.1.3.7 Summary

By the end of 2023, we found that Cop.co was forced to undertake exit strategy. They failed to fulfil the investor requirement to gain some traction and increased profitability. As a result, Cop.co stopped its operation. There are several things that we could learn from Cop.co.

First, Cop.co demonstrated weak responses to institutional pressures due to the failure to address conflicting external pressures and navigate internal dynamics to respond and overcome barriers and challenges that emerge from this tension. The encouragement to have gender diversity from the mentor and potential investor regarding gender composition was insufficient to lead Cop.co to prioritise gender diversity. Moreover, as the investor who finally invested in Cop.co did not put gender diversity as a priority, coupled with difficulties in achieving gender diversity due to occupational stereotypes, Cop.co did not see gender diversity as a significant issue.

Second, the most important thing is that Cop.co is evidence that having a gender balanced team does not necessarily guarantee improved innovation. While gender diversity can be a powerful catalyst for innovation, simply having gender diversity within a team was not sufficient. Critical aspects of utilising gender diversity to improve team innovation capability remain crucial. Without a strong commitment from all team members, followed by an effective

leadership, a supportive organisational culture, and gender responsive HR policies and practices, they could not utilise the potential of a gender diverse team to improve their innovation, especially in a dynamic, changing environment. Even though during the interview, Cop.co was able to see potential benefits, it became increasingly evident that team innovation capabilities need to be more developed. Without well-developed team innovation capability and well-designed internal dynamics to support gender diverse teams, the innovation performance is most likely to be hampered.

4.1.4 Case 4: Love.co

4.1.4.1 Case Description

Love.co was established as a start-up through a university incubation programme in 2021. They focused on developing a web-based platform. This platform served as a hub for consultations, educational resources, and discussions on a wide range of topics related to family, children, and self-development, which were facilitated by professional psychologists. To support these services, Love.co designed and developed a website enhanced with AI features, and they are also planning to develop a mobile application.

In terms of gender composition, Love.co was founded by a team of two female and two male members. After achieving success in multiple competitions and securing various grants, they expanded their team by recruiting additional team members. Notably, the team's size has experienced substantial fluctuations over time, ranging from a small group of five individuals to as many as five members during a one-year period.

During the primary data collection phase, the team consisted of five members, with two males and three females. Despite the investigation revealing a gender balance composition during certain periods, they claimed it occurred coincidentally. Love.co did not make an intentional effort to maintain this balanced composition.

Love.co recognised some potential benefits of gender diversity. However, gender diversity was not considered a priority. Consequently, it comes as no surprise that in the middle of 2023, a year after data collection was completed, the team composition experienced a drastic change. The team then only consists of three female members. This transformation can be attributed to multiple factors, with the CEO highlighting the productivity and efficiency problem as a major driver. Nevertheless, it might also occur due to Love.co's failure to respond to external

pressures and cultivate their internal dynamics. These issues will be elaborated in the next section.

4.1.4.2 External Pressures

Apart from normative pressures related to the value of diversity from the CEO's family, Love.co did not find any other significant pressures that required them to adopt gender diversity in their team. Likewise, related to mimetic pressures, they did not find any recommendation related to gender composition despite actively seeking advice from external figures and benchmarking to other start-ups.

Coercive Pressures

As an early stage start-up that actively joined incubation from various programmes, Love.co did not perceive any encouragement related to gender composition. Apart from the incubation programme, Love.co still had limited stakeholders and did not secure any investment from investors. Thus, no coercive pressures were perceived.

Mimetic Pressures

To acquire data about mimetic pressures, we asked about external sources of inspiration, including other start-ups, competitors, or other organisations. The CEO referred to other successful start-ups when learning about the importance of culture and innovation. However, none of them specifically encouraged the adoption of gender diversity within a team.

As an early start-up, Love.co was actively seeking advice from others related to their product and service. For example, when they struggled to achieve product/market fit, they actively discussed this with a respected business figure. It led them to adopt the suggestion of expanding their target market to include families, which would broaden their target market to include married couples, parents, and teenagers, rather than focusing on romantic relationships alone. *“We might contact someone personally through LinkedIn. What we think is that he can be anyone who can give us some insight. For example, like in the past, we contacted an ex CEO of PT.XYZ, he gave us a lot of insight (Rani, CEO)”*

Despite actively seeking advice from external figures or other start-ups, Love.co did not mention suggestions related to the gender composition of the team. As a result, Love.co's lack of attention to gender diversity was potentially due to mimicking others who did not see gender diversity as a significant issue.

Normative Pressures

Previous studies mentioned that institutional pressures might have a conflicting roles (Pache and Santos, 2021). Love.co found a conflicting role of normative pressures influencing them to leverage gender diversity to achieve innovation performance effectively. On the one hand, the CEO found a positive influence from family values about the value of diversity. On the other hand, the CEO mentioned a prescriptive standard from an incubation programme that led them to think that gender diversity was not a significant issue. Moreover, she also recognised the influence of sociocultural norms as challenges for gender diverse teams to collaborate effectively.

In terms of enabling factors, the CEO of Love.co expressed that she believed in the value of diversity. She mentioned that it came from her own parents who keep advising her to be more inclusive when building a team, particularly in demographic composition and educational background. *“I was driven by my parents. Actually, it's not just about gender; it's also variety of the team, educational background, for example (Rani, CEO)”*. It highlights that family values could emerge as a source of normative pressures related to diversity.

On the contrary, the CEO mentioned how various incubation programmes that Love.co joined did not mention gender diversity. The mentor emphasised functional diversity more than demographic diversity, such as gender. *“There is no such a recommendation about gender during the incubation. Because actually, incubation looks more at the progress of the product [...] They never specifically mentioned about gender (Rani, CEO)”*. This lack of consideration has affected their normative perception toward gender diversity. It exemplified the role of incubator programme in shaping start-up's behaviour (Sedita et al., 2019).

For the inhibitor factors, the CEO of Love.co cited that one particular culture creates challenges in communication, especially when the team was gender diverse and the power between the team was not balanced. *“As he came from Jogja, he tended to adopt Jogjanese values. Sometimes, if he has a question, it will just going on his brain, he doesn't dare to ask directly (Rani, CEO)”*. She understood that one of the Jogjanese cultural values was ‘politeness’, and interrupting or asking too many questions was considered impolite. This assumption could hinder the value of freedom to speak.

To summarise, no noticeable influence was exerted on the adoption of a gender diverse team, whether through coercive, mimetic, or normative pressures. On the contrary, other normative pressures stemming from the incubation programme contributed to the lack of awareness of

gender diversity's value within participating start-ups. As a result, it created a normative, prescriptive standard that gender diversity was not a significant issue to be considered.

4.1.4.3 Dynamic Interplay of External Pressures and Internal Dynamic

Love.co did not consider gender diversity a significant issue due to the absence of strong external pressures to adopt such practices. While some recommendations regarding diversity were perceived from family values, they did not provide sufficient rationale for Love.co to prioritise gender diversity, especially when gender was never mentioned explicitly during the incubation. Consequently, even though one pressure existed, they were not strong enough to influence Love.co's priorities. As a result, Love.co responded passively by adopting an avoidance strategy, the process of minimising the threats to gain operational legitimacy (Ahworegba et al., 2020), and ended up not prioritising gender diversity.

Even though it was not prioritised, sometimes, Love.co had a gender-balanced composition in their team, which required Love.co to build their internal dynamics to leverage it. However, as we found, there was a lack of a comprehensive approach to gender diversity that was learned from the incubation. Love.co did not prepare for any potential issues within the gender diverse team, especially in a condition where both women were on the C-level and both men were on the operational level. There was an indication of a lack of power distribution, creating a power dynamic within the team. It means that power is not evenly distributed within the team members (Parola et al., 2024). Individuals within the team who have more power tend to dominate and take control during decision-making processes, which makes other less powerful members tend to resist expressing their opinions, or have their opinions overlooked. It creates some challenges for Love.co to utilise its gender diverse team to increase innovation. Without well-established internal dynamics, Love.co faced challenges in leveraging their team to achieve innovation performance.

4.1.4.4 Internal Dynamic

From the interview, we found that Love.co perceived some challenges within their gender diverse team that influence the utilisation of their team to achieve innovation performance. These challenges include managing inclusive environments within organisational culture, building effective leadership for gender diverse teams, and developing gender intelligence within their HR policies and practices.

Organisational Culture

Love.co's company profile articulates several core values of its organisational culture, such as respect, passion, collaboration, transparency, and openness. During the interview, participants also mentioned values such as equality, freedom to speak, openness, learning, adaptability, agility, and togetherness. However, as has been mentioned in the previous research related to organisational culture (Barbosa and Cabral-Cardoso, 2007), translating these values into tangible actions faced challenges during implementation to manage diversity in the workforce.

For example, one team member expressed his low sense of belonging as he stated: “*sense of belonging? maybe not really, maybe on a scale of 1 to 10 it's only 6 at most (Rudi, Team member of Case 4)*”. He mentioned that it was caused by several things, one of which was due to a high turnover rate that required him to keep adapting to new people. He mentioned: “*Some people come, and some people go, so I cannot really become who I really am (Rudi, Team member)*”. It highlights the importance of an inclusive culture among the team members (Moore et al., 2020). When a team member feels unaccepted, it could lead to conflict and emotions within the team (Garcia-Prieto et al., 2003), hindering the potential of having gender diversity.

For example, the feeling of not being accepted amplified when he received the negative feedback from the rest of the team, “*they think that I'm too direct, too harsh when criticizing them (Rudi, team member)*”. It not only resulted in a low sense of belonging but also his reluctance to provide further opinions during the discussion. “*...Right after I got the negative feedback. So I feel like, my ego was still high, and at the end, I chose to be quiet and passive (Rudi, team member)*”. Lack of involvement could hamper the utilisation of the potential advantages of having a gender diverse team (Blumentritt et al., 2005).

Furthermore, frequent changing of the team members creates another challenge for all team members, particularly in adapting new environment and building communication. One participant mentioned, “*When new people come in, we used to have fun chatting but suddenly I kind of feel a little reluctant to act with the new person (Rian, team member Case 4)*”. Aligned with Rudi's statement, it underscores the potential challenges arising from frequent team changes that can disrupt team cognitive, behavioural, and interpersonal processes (Li, J. and van-Knippenberg, 2021).

The CEO implemented various initiatives to embed their stated values into daily practices. The CEO stated “*I think the most important thing when building a team is an engagement between*

teams”. Regular sharing meetings were organised to enhance idea exchange among team members, aiming to increase opportunities for collaboration. However, another issue arose from the social culture norms, as the principle of "freedom of speech" faced obstacles from the cultural norms of Javanese team members. They tend to withhold their ideas as they feel it would be improper to intervene without a formal invitation. The CEO stated: *“I have to be more active asking. That's why it was so challenging (Rani, CEO)”*. Consequently, Love.co found it difficult to optimise their gender diverse team to create new ideas during the innovation process.

From the illustration above, it is evident that Love.co needs to strengthen its organisational culture. It can be seen that team members had difficulties adopting the value of openness, as it was challenged by local culture. Moreover, the negative feedback a team member received from his colleague highlights the challenges in upholding the value of respect, leading to feelings of not being accepted for who they are. It highlights the importance of building an inclusive organisational culture to support a gender diverse team (Blumentritt et al., 2005).

In summary, the Love.co case exemplifies how establishing an organisational culture should extend beyond the mere adoption of slogans and written values. It is also important to ensure the internalisation of these values within all team members. The fundamental impact of organisational culture is in the collective manifestation of shared values, as this internalisation cultivates a sense of identity and cohesion among team members.

Leadership

Previous research investigates how leadership interacts with gender on innovation outcomes, and found that female team leaders are engaged in less open behaviours of ideation, risk taking, and exploration, than their male counterparts (Zuraik et al., 2020). One unique feature of Love.co’s structure was the fact that all C-levels were women, while two other men were in the operational level. It led Love.co to face the risk of those behaviours, according to Zuraik et al. (2020), which detrimental to innovation performance.

On the other hand, both leaders recognised the potential of having gender diversity within the team. The CEO stated, *“In my opinion, gender diversity is important, that's why I actually understand why women really need to be supported to become leaders in many companies (Rani, CEO)”*, as she highlighted that leadership position was often dominated by men.

Likewise, the CFO also stated, *“In my opinion, gender diversity is very important, because the thinking of men and women is different...different point of view help us to exchange ideas,*

build ideas, then make decisions (Rara, CFO)". Both statements indicated that both leaders have an awareness related to the importance of gender diversity within the team. However, we had difficulty identifying how the leader awareness was translated into strategic action.

Moreover, even though the leader emphasised the significance of the equality value in order to achieve good teamwork, the statement from other participant demonstrated differently. For example, the CEO she stated, *"Because it's not only about gender diversity that the proportion that need to be balance, but the opportunity also need to be equal, also like the role of team member in every project, make sure that everyone can join (Rani, CEO)"*.

On the contrary, the male team member indicated lack of his involvement to the product development. It can be seen from the statement when he was asked about his contribution to the product development, *"I usually gave comments on part of the design and content. But, I am rarely involved in how the marketing works or about the future products that we want to develop (Rudi, team member)"*. When asked whose idea it came from usually, Rudi immediately referred to both of their leaders, which is aligned to what Zuraik et al. (2020) mentioned as less open behaviour of female team leaders.

Notably, both C-level positions initiated this start-up during their college years with a lack of previous experience in working in the industry, which also means a lack of prior leadership experience. The absence of diverse leadership experience may hinder the cultivation of a well-rounded leadership approach (Boak and Crabbe, 2019). It can be seen from how the leader failed to recognise several issues, such as a low sense of belonging among other team members.

In summary, the Love.co case indicates an inconsistency in incorporating the ideals and values of the leader about gender diversity into organisational practices that signal these values to all team members. The misalignment has resulted in difficulties in leveraging gender diversity for innovation. The leaders' inability to integrate these ideals into the organisational practices indicates a discrepancy between the leaders' views and the actual implementation of these values. It suggests that although there was an understanding of the existence of gender diversity, there was a lack of dedication to incorporating it into their start-up. As a result, it might prevent Love.co to leverage from gender diverse team to achieve innovation performance.

HR Policies and Practices

During the investigation, Love.co was unable to provide a detailed explanation of their human resource management practices. It was due to their lack of financial resources which was

described by Matei et al. (2024) on how budget constraint influence the development of HR strategies. She acknowledged this as their weakness and became a reason to not involve any external funding. When she was asked why she did not try to find any investor, she answered, *“you could say because our internal [system] weren't ready yet (Rani, CEO)”*. She also mentioned about her decision to call-off a contract with the investor.

However, it does not mean that Love.co entirely neglected the role of HR in their start-up. When Love.co had a large number of team member, the CEO assigned one person to handle issues related to human resources management, particularly in the recruitment process and building organisational culture. Unfortunately, this particular person left the team before finishing building a strong foundation of HR policies and practices. Rian, one of the team members stated: *“after this person contract has ended, it seems like the habit that just started to develop suddenly disappeared (Rian, team member)”*.

He also added that the frequent changes in team member composition ruin the communication chain among team members, *“Several times people came in and out. So those who coordinated the coordination lines that had been built, which at first were okay, then 3 months later, they had to start again, you know, it’s difficult (Rian, Team member of Case 4)”*. Along with the frequent change of team members, only four of the initial team remained in the team. It indicates that Love.co had difficulty in retaining its talent.

Moreover, due to a lack of gender diversity training, Love.co also faced difficulties in managing different styles of working, as demonstrated by different genders. *“Some challenges come with having different perspectives, as different thoughts lead to different behaviours. Well, it can be both a challenge and an advantage. ... This difference in approach is where the challenge lies (Rara, co-founder)”*. It becomes empirical evidence to the role of diversity training to enhance employee knowledge and awareness of diversity issues (Alhejji et al., 2016).

Likewise, one participant highlighted the differences of men and women *“You have to be smart, clever, negotiate and talk about it well because basically men and women are two different individuals and can never be the same in any way in terms of thinking (Rara, co-founder)”*. Both statements highlighted the need of the development of gender diversity management practices, to enable teams with diverse genders to work optimally within the team by embracing these differences.

Nevertheless, despite those challenges, Love.co is unable to provide any strategic action written within their HR policies and practices. The only identified HR policies and practices was the idea from the CEO about taking care of their members' wellbeing and self-development. The CEO stated, *"I would like to provide them with the facilities so that they'll be able to consult regarding their own mental health. It aims to support their personal growth (Rani, CEO)"*.

However, the initiative to provide mental health consultations and support for team members' growth, remain unimplemented due to their limited financial resources. The implementation of these ideas was deferred until the organisation grew. She implicitly referred to the financial limitation, underscores the pragmatic challenges due to limited financial resources that start-ups often encounter in prioritising comprehensive HR policies and practices, especially in policy and practices around employee wellbeing and professional development (Matei et al., 2024).

In summary, Love.co did not implement comprehensive HR policies and practices to support their gender diverse team. Despite some challenges, Love.co failed to navigate its HR policies and practices to overcome these challenges. Love.co's case indicates the difficulty for a start-up during their early stage to manage their team member, while at the same time focusing on the development of the product innovation, particularly due to financial constraints.

4.1.4.5 Team Innovation Capability (TIC)

Innovation capability has been conceptualised as a critical drive for organisations to innovate (Mendoza-Silva, 2021). In this study, we conceptualise team innovation capability at the team level. Focusing on innovation capability at team level is crucial, because teams are the primary units where the innovation often occurs through collaborative action.

Even though Love.co did not demonstrate a significant team innovation capability, several interesting statements were found related to their ability to develop team innovation capability. First, related to team social networks, Love.co mentioned the propensity of people in Indonesia to have a homogenous network in terms of gender. It signifies the relevance of having gender diverse teams in the early stage, in order to achieve sustainability of gender diversity in the future (Huang, S. et al., 2023). Second, related to team collective intelligence, Love.co's participant mentioned how diverse perspectives could help them achieve a better decision making process. Third, due to different perspectives that reflect different target market segmentations, the integration of different market knowledge could increase the potential of innovation to reach their targeted audience.

Team Social Network (TSN)

Previous research found gender differences in networking and how it influence firm performance (Watson, 2012). Related to this, the CEO mentioned the cultural norm in the Indonesian context, where women tend to form a group toward women, and men toward men, creating a homogenous circle, which can result in less access to a diverse network pool if the team only consists of the same gender. *“Well actually the challenge does exist when the team is not balanced. Even more in the Indonesian culture where women tend to be close to women, for example, like that, or men tend to prefer to hang out with men (Rani, CEO)”*.

This statement was proven by the fact that their initial team was formed through their own social network. “I was invited by a friend of mine who also now in a creative, he said that there is an offer from a friend who came from psychology that he already got funding at faculty (Rudi, team member)”. It highlights the efficient process for finding other key team members. Since the initial team members consisted of a man and a woman, they tend to invite their friends who share the same gender, increasing the level of gender diversity within the team. Apart from this, no other utilisation of the team social network was identified to support the innovation process.

Team Collective Intelligence (TCI)

One potential benefit of having a gender diverse team is a diverse perspective, which can develop team collective intelligence (Janssens et al., 2022). Throughout the interview, we found that a gender diverse team could result in diverse perspectives that could lead to a better decision-making process. It could also improve the ideation process. In addition, it could also help Love.co in understanding different views of risk orientation.

First, one participant mentioned the importance of having a gender diverse team to improve decision-making and problem solving. She stated *“So there will be different point of view, so this diversity really helps to exchange ideas, build ideas, then make decisions and then implement it. Solving problems is sometimes also important. So, in the end, the decision making is firmer (Rara, COO)”*. She highlighted that it would improve decision-making and problem solving.

Moreover, it could also help solve the problem. The difference sometimes can help in some situations, for example, when negotiating with third parties:

“We just have internal problems or we have negotiations. Women usually tend to be uncomfortable, for example, negotiating the price, especially when it is her own colleague; we

often feel uncomfortable. While the guy just like- why? Why do we have to have to think that it's not comfortable, think about our goal, we aim to make a profit, so we have to do it- like that (Rara)”

Women often rely on their emotions and prioritise emotional connections with others, while men tend to have a more objective perspective. This can be beneficial for women in helping them maintain a balanced orientation during the decision making process.

Second, apart from decision making, diverse perspectives also lead to team learning that could help in idea generation: *“So there are some other thinking that I never thought before that emerges from this diverse people”* (Rara, COO), as she referred to the different cognitive thinking styles that men and women have.

Third, in terms of risk, participants also mentioned how men and women have a tendency to have different perceptions of risk: *“So Between women and men, maybe in general it's more like men are more willing to take risks, well...it's just for women the thought lasts longer”*. She realised that women tend to be more cautious related to risk, but as a CEO, she understood that she needed to take risks in order to innovate. Therefore, she acknowledged that having a gender diverse team was important to have a balanced view of risk. Overall, even though limited, Love.co was able to recognise several advantages of having a gender diverse team.

Team Integration (TI)

While team collective intelligence refers to the variations in thinking styles and perspectives that arise from having a gender diverse team (Woolley, A.W. et al., 2023), Team integration emphasises the diverse skills and capabilities that men and women typically possess, which can be effectively combined through collaboration in various activities within the innovation process. Apart from collaboration within the team, team integration also increases the opportunity to comprehensively understand market needs.

For example, one participant mentioned how her male colleagues were more able to see the big picture of an issue. She stated, *“From male team members, they can see the structure in a big way, considering it in the broader ecosystem, I mean, like where should we go, how to plan, the details, they [refer to male team members] really knows (Rani, CEO).”* Likewise, the CEO illustrated, *“Gender diversity in Love.co plays an important role. They tend to have different experiences. They will share their different experiences, and that's something that is important for innovation”* (Rani, CEO).

Moreover, men and women tend to focus on different things. The CEO stated, "...like woman emphasises her emotional closeness with people like before, which technical things sometimes tends to go unnoticed (Rani)". This statement highlights the benefit of having both genders, as there was a tendency for women to emphasise interpersonal relationships and neglect some technical aspects. As both are important during innovation, it could help Love.co in collaboration to understand the market needs.

Turning to another advantage, as Love.co was targeting several target markets, including different genders, having a gender diverse team also enabled Love.co to better understand their customers. For example, when planning a new topic for webinar on family wellbeing, it was essential to comprehend the issues inside the family, from both male and female perspectives, in order to gain a comprehensive understanding. *"So, in the end, the decision making is firmer, it can be firmer if there are thoughts on the male side, then when we analyse the problems in the market, for example in the family, we can know what a man feels (Rara, team member)."*

Initially, when women first came up with the idea, the webinars they offered were solely focused on topics related to women's needs. As one male participant mentioned, *"I think because women initiated most ideas, then the content and topic for Love.co is more into women's topic, for a girl, woman, mother, I never find the topic that accommodates men's needs (Rudi, male)"*. As the team recognised this weakness, they became more sensitive to accommodating topics that were universal and fulfilled the needs of both genders.

In summary, although most of the team members could not elaborate in more detail, Love.co was able to identify some advantages from utilising their gender diverse team. Through the use of team social network, developing team collective intelligence, and increasing team integration, Love.co could recognise some potential benefit that a gender diverse team had to increase their innovation performance.

4.1.4.6 Innovation in Love.Co

Based on the questionnaire assessing innovation performance at Love.co, it can be concluded that Love.co had low performance in technology newness, with most prototypes based on low level technological advancements. At the time of questionnaire distribution, Love.co provided only a basic website. However, in their recent website updates, they have introduced the use of AI. This highlights the dynamic nature of innovation performance, which cannot be measured at a single point in time (Arshi et al., 2021). This particularly applies to start-ups in their nascent stages, during which product development remains in progress.

Table 19 Summary of Innovation Performance of Love.co

Innovation Performance	Item	1-5 (Strongly disagree - strongly agree)
Market Newness	serve new customer needs – customer needs we had not served before	3
	require changes in established attitude and behavioural patterns from customers	2.75
	require major learning efforts by mainstream customers.	2.75
	take us up against new competitors – competitors we have never faced before.	2.25
Overall Market Newness		2.69
Technology Newness	are based on substantially different core technology never used in our industry.	1.25
	involve peripheral technologies that are new to our industry.	1.5
	combine different technologies in a new way.	2.25
	use technologies that have an impact on or cause significant changes in the whole industry.	1.75
Overall Technology Newness		1.69
Overall Performance		2.19

Regarding market newness, Love.co asserted that few competitors were offering similar services. This perceived market novelty contributed to a market newness innovation score of 2.69 out of 5, which is slightly higher in comparison to their technology newness. However, the overall innovation performance of Love.co was rated at 2.19, placing it within the moderate to low range. It suggests that their innovation performance could be constrained by technological limitations, despite a favourable market positioning

Social Impact

In terms of the social impact of product innovation (Molecke and Pache, 2019), the CEO mentioned how Love.co helps improve their customer wellbeing, citing a case of a mother who was able to overcome her baby blues during their earlier time after giving birth. She said, *“this women is about to give birth. So, she really needs someone to calm her [...] through our website, she can get help. There's a social impact that I feel, even though we don't have any specific measurement yet (Rani, CEO)”*. Acknowledging the low awareness of mental health issues in Indonesian society, Love.co aims to improve the overall health of the community, encompassing both physical and mental wellbeing.

To address this awareness gap, Love.co consistently conducted free webinars as part of their ongoing efforts to educate the public about the importance of mental health. This multifaceted approach underscores Love.co's commitment to making a positive social impact, by addressing

mental health challenges and promoting overall wellbeing within the community. This commitment was aligned with sustainable development goal No 3, which attempts to ensure healthy lives and promote wellbeing for all, at all ages (DESA, 2023).

Table 20 Social Impact of Innovation in Love.co

Activities	Output	Short term	Long-term	SDG
Webinar	Educated individuals	Increase awareness	Improved wellbeing	SDG 3
Consultation Service	Educated individuals	Increase awareness	Improved wellbeing	SDG 3

4.1.4.7 Summary

Even though there were limited noticeable external pressures regarding gender composition, Love.co demonstrated some internal dynamics caused by their existing gender composition, which influenced how their teams worked together to achieve innovation. Some barriers and challenges were quite significant in shaping their collaboration, from a high turnover rate to an unsupported local culture.

Despite that, Love.co did not demonstrate a comprehensive approach to their internal dynamics to overcome those challenges. The organisational culture at Love.co was still in its early development and was unable to be effectively internalised among team members. It highlights the impact of an inclusive organisational culture on improving innovation performance (Blumentritt et al., 2005).

Due to its early stages, and having less experienced leadership, the leader's capacity to develop a strong organisational culture, and successfully implement HR policies and practices, to support a team with different genders to effectively collaborate to achieve innovation, was limited. It highlights that it is important to understand the critical role of leader in building leader/employee relationship that could help to develop inclusive organisational culture (Moore et al., 2020).

Moreover, addressing internal dynamics was crucial for Love.co in fostering a supportive environment to achieve innovation. Open and honest communication within the team can help bridge the gap between team members with different perspectives and experiences. However, the mechanism should be cautiously established, to prevent the detrimental impact of negative feedback, as experienced by one of the team members. It is important for Love.co to ensure that all members feel recognised and valued, irrespective of gender or any other characteristics

(Homan, A.C. and van Kleef, 2022). A culture of respect, inclusivity, and constructive feedback can lead to an effective working relationship among team members. It ultimately could help the team collaborate effectively to achieve innovation.

The resignation of all male team members during the analysis stage signifies a concerning issue within the team dynamics, especially due to power imbalance among team members (Parola et al., 2024). This signal was observed since the interview was conducted, where the male team member showed disinterest in this start-up due to a lack of sense of belonging. Despite being part of the founding team, he felt unaccepted as part of the team because of his characteristics. It leads him to continuously adapt and change his characteristics in order to be accepted by others. It suggests that the issues related to feeling unrecognised, harsh criticism, and discomfort within the team may have been deeply ingrained and not effectively addressed. It highlights the importance of inclusion within a gender diverse team (Hui and Farnham, 2016). Losing all male team members influences the gender composition of the team, along with diverse perspectives and skill sets. It could potentially disrupt Love.co's ongoing process of product development.

Ultimately, even though Love.co was able to recognise some potential benefits of having gender diversity on its team, these benefits did not significantly impact Love.co's team innovation capability. This can be seen from the limited elaboration on how it could improve its product development. Despite experiencing gender balance composition for some time, the potential benefits were not fully obtained because of the unsupportive conditions discussed above.

Moreover, as an early stage start-up, the product innovation was not fully developed to its maximum potential, resulting in difficulties in assessing its innovation performance. Most of the product innovation in Love.co was still under construction. They kept doing market validation and trying to engage with potential customers. Therefore, one important finding during the investigation of Love.co is that it is crucial to recognise the inherent challenges in measuring innovation performance during the very early stages of a start-up, as their technology was still under construction. It highlights the nature characteristic of long-term innovation (Mohedano-Suanes et al., 2021). The subjectivity of participant responses and the evolving nature of digital innovation make it a complex metric to quantify accurately.

In summary, Love.co's ability to innovate was hindered by unsupportive internal dynamics. From Love.co, we found that innovation could only be produced through collaborative efforts,

where all team members work under a supportive environment, highlighting the important role of organisational culture, leadership, and supportive HR policies and practices. While it is reasonable that Love.co was still in its early stage, the failure to address this issue led to unforeseen consequences that might be detrimental for innovation performance.

4.1.5 Case 5: Fashion.co

4.1.5.1 Case Description

Fashion.co developed an e-commerce platform that offers a convenient and efficient on demand service for skilled tailors who specialise in creating personalised garments. Potential customers uploaded images of their example clothes on the website, along with other information such as fabric type, size, and personal characteristics, in order to place an online purchase. On the other hand, tailors, operating autonomously, have the ability to accept the order after previously enrolling themselves on the platform by completing the digital application form, and through the verification procedure, including fulfilment of minimum quality standards.

Fashion.co provided independent tailors with training and supplies to standardise their quality. Initially, Fashion.co provided a platform for registered tailors to operate as independent freelancers, allowing them the flexibility to selectively accept or reject assignments. Tailors were able to exercise control over their own schedules, determining the number of jobs they wanted to accept. This enabled tailors to continue working remotely, even from their homes. Thus, Fashion.co helped tailors reduce expenses, as they did not need a physical boutique to begin their independent business.

Fashion.co was established as part of the DigitalX incubation programme. The team was comprised of six people, with a gender balanced team consisting of three males and three females. The composition changed due to a serious disruption during COVID-19 pandemic. One of the main IT personnel passed away, resulting in significant challenges in the IT development.

As a start-up driven by technology, Fashion.co experienced major problems in their product development. The CEO attempted to develop new application by allocating substantial financial resources, with the intention of constructing resilient information technology (IT) applications to replace their previous App. However, this often resulted in unsuccessful outcomes, placing this start-up on the edge of IT failure.

Fashion.co attempted to fill the technology gap by introducing a new revenue stream to sustain its business. Fashion.co shifted its business model, particularly in response to this situation. Initially, Fashion.co operated as a business to consumer (B2C) market and relied on its technology platform, as discussed above. However, Fashion.co saw the rise of new entrepreneurs during the pandemic as an opportunity. Therefore, they expanded their operations to include a business to business (B2B) model, which served small businesses and entrepreneurs. The expansion involved the recruitment of dedicated inhouse tailors and the acceptance of larger quantities to produce whitelabel fashion products. This approach was known as “market repositioning”. Repositioning here refers to the extent to which actors change their market positions (Wang, P., 2025). However, even though more focused on other businesses as a customer, Fashion.co did not remove its service for individual customers.

4.1.5.2 External Pressures

Fashion.co did not perceive any external pressures related to gender composition, nor understand its contribution to innovation performance. No coercive or mimetic pressures were perceived. From normative pressures, Fashion.co found that only one out of various incubation programmes touched on gender issues, thus justifying Fashion.co’s perception that gender diversity was not necessarily a significant issue.

Coercive Pressures

Similar to other cases, Fashion.co did not perceive any external pressures that forced them to pay attention to their gender composition, either from a formal regulative approach, or from other non-formal institutions. Consequently, Fashion.co did not perceive gender diversity as a significant issue.

Fashion.co engaged with several potential investors. Fashion.co was very selective when choosing their investors. At their existing stage, the Fashion.co team was aware of their weaknesses, and therefore hesitant to pursue a substantial amount of investment that require a demanding work culture and rapid business expansion. It demonstrated the founder’s entrepreneurship self-efficacy, how they belief in their capability to accomplish a job or a specific set of tasks (McGee et al., 2009) in building their start-ups. Therefore, Fashion.co selected an investor, who had low demands. The CEO further noted that her investor never raised the issue of the team's gender composition.

Mimetic Pressures

Fashion.co did not discover any references to gender composition when she engaged in benchmarking activities. Regarding mimetic behaviour, the CEO only discussed her inspiration from an established start-up in selecting partners to develop her team. The referred start-up emphasised the significance of referrals as a crucial factor in selecting team members, since it guarantees the trustworthiness of the candidate. *“So the founder explained how to find the team, it's different, they prioritise references for the team. That is how he recruits his teams. It inspires me (Hera, CEO)”*. The CEO mentioned how she recruited her team by adopting this approach, except for the initial team, which was developed during the incubation stage. Unfortunately, any inspiring firm she mentioned, did not mention gender composition as part of the criteria in selecting a partner.

Normative Pressures

In their early stage, Fashion.co joined several incubation programmes. In addition to DigitalX, where Fashion.co was established. Nevertheless, the CEO openly stated that none of these incubation service providers made any explicit recommendations regarding the adoption of gender diversity in a team. Only on one occasion, during a workshop hosted by a particular consultant, did the CEO hear about the importance of focusing on impact, specifically on women's empowerment and gender equality.

Besides DigitalX, I also joined R.Ing. ProjectI, NextDev. From what I've observed, ProjectI is the only one that emphasises gender and social impact, while other incubators tend to focus more on the importance of having more than one founder (Hera, CEO).

Her statement indicates that gender diversity was not a common recommended issue, even within most of the incubation programmes.

The CEO perceived a lack of pressure to have gender diversity in their team. As a result, the CEO never prioritised gender diversity as a consideration when building their team. Even though they once had a gender balanced team, the CEO admitted that it was not a deliberate priority, but rather, incidental. Moreover, their gender composition often changed due to their high turnover rate.

4.1.5.3 Dynamic Interplay of External Pressures and Internal Dynamic

Fashion.co is one of the cases that did not perceive any external pressures related to gender composition. They found one extreme disruption due to unforeseen causality, which is the COVID-19 pandemic, which took away the only person responsible for IT development. As a

tech-based start-up, it caused a severe disruption to their business. After several failures in developing a new App, Fashion.co decided to redesign their business model. The process of redesigning their main business becomes the main focus for a company's survival. As a result, Fashion.co overlooked the challenge of having a gender diverse team and develop its internal dynamics.

From Fashion.co, we could understand that the relationship between external pressures and internal dynamics varies in each case. In this case, Fashion.co did not demonstrate dynamic interplay between external pressures and internal dynamics, due to several reasons. First, due to a lack of external pressures related to the adoption of gender diversity, Fashion.co did not raise any concern about making gender diversity within the team a priority. Second, leadership have no internal motivation to have gender diversity, even though it was mentioned by one of the consultants during the workshop. Third, major disruption risks the chance of survival, leading to significant attention on the business activities, which made Fashion.co not prioritise developing strategy within their internal dynamics. Consequently, as gender diversity was not a concern, there is no contestation between external pressures and internal dynamics influencing Fashion.co in leveraging gender diversity to improve innovation performance.

4.1.5.4 Internal Dynamics

As Fashion.co did not perceive any significant pressures, most of their internal dynamics were developed in an experimental manner. It can be seen from several evidence. First, even though they have been operating for more than two years, Fashion.co did not demonstrate a mature organisational culture. Second, Fashion.co encountered challenges in identifying a suitable candidate for leadership roles, which was intensified by a high rate of team member turnover. Consequently, the CEO of Fashion.co decided to appoint her own mother as the COO responsible for managing the product division. Third, Fashion.co did not have a dedicated person to handle HR issues. As a result, Fashion.co had difficulties in establishing comprehensive HR policies and practices to support their gender diverse team.

Organisational Culture

The organisational culture of Fashion.co can be seen from articulated values and its organisational practices. Prior to the pandemic, Fashion.co did not have a dedicated office space and instead, adopted a hybrid work model, which involved a combination of online and offline work, facilitated by the use of public co-working spaces. However, due to the pandemic, almost all co-working spaces were closed, forcing Fashion.co to establish their own physical

office. Therefore, they rented a house to facilitate team members who wanted to work offline. These changes have posed significant challenges in developing organisational culture.

While facing challenges in building organisational culture in a dynamic environment, Fashion.co branded itself as having social impact as its most important value. Fashion.co aims to empower local Indonesian tailors by transforming traditional transactions, enabling local tailors to save time, and reaching more target markets. Fashion.co also provided tailors with some upgrading skills to enable them to develop and innovate. Most of the tailors that Fashion.co targeted were low income tailors, with some of them in rural areas. Hence, the CEO often encouraged all team members, by highlighting the detrimental impact that would arise if they could not carry out their tasks. It could lead to consequences where some of the tailors might not get the opportunity to improve their welfare. The CEO stated, *“The most important thing is to focus on the impact that we are doing this for our tailors, so if we don't perform well, we will miss the opportunity to help these tailors (Hera).”*

Moreover, the CEO also believed that focusing on social impact in their organisational culture would decrease the potential misconduct by their team member and increase their positive behaviour, as she expressed, *if they make it for impact, that's what they do. It would prevent them from doing any fraud (Hera, the CEO)*. Likewise, focusing on impact was seen as a motivating factor to have a good work performance, as another participant said *“Those are the core values. We work but I feel like, it doesn't feel like working because we are doing something for other people (Hima, team member)”*

Apart from focusing on impact, Fashion.co also highlighted some other values such as equality, teamwork, togetherness, openness, and collaboration. The CEO mentioned that it was important to give freedom to express ideas: *“Even girls are free here to express their ideas (Hera, CEO)”*. Similarly, another participant highlighted the same point, *“The thinking that you get certain privileges because of your gender needs to be put aside first, because we are all here together and everyone contributes (Hima, team member)”*. Both statements highlight the involvement of each team member to contribute during collaboration process, which is important to foster innovation performance (Blumentritt et al., 2005)

Turning to organisational practices, as team members implemented a hybrid working system, Fashion.co held regular meetings, often once a week. However, in exceptional cases, where urgent matters need to be discussed, the frequency of meetings may increase. *“For collecting ideas, we usually have random meetings, I mean. If it's needed, sometimes, it could be twice a*

day, sometimes once a week, sometimes once a month. So, it depends on the need (Hera, CEO)”. However, Fashion.co also had a weekly meeting to ensure that everyone was updated with recent information regarding their business. One participant said, “Yes, we have a weekly meeting. It was a moment when all team members met together (Hima, team member).

Overall, building an inclusive organisational culture is paramount when an organisation want to leverage the potential of having gender diversity within the team (Ashikali and Groeneveld, 2015), particularly in enhancing innovation performance. Building inclusive organisational culture means creating an environment where team members who are different, feel they are part of the whole (Northouse, 2023, p. 328). However, organisational culture in Fashion.co was still in the embryonic stage. Social impact has been a key component of their branding strategy. Other values, such as equality, teamwork, togetherness, openness, and collaboration, were mentioned during the interview. However, apart from regular meetings and sharing, there was no specific mechanism to transform these values into a consistent cultural practice, and the effectiveness of these values was difficult to measure, due to frequent changes in team composition. It highlights the challenges of building an inclusive organisational culture within the uncertainties of a growing start-up in its early stages (DeSantola, 2017).

Leadership

We found two main roles of leadership in Fashion.co that influence Fashion.co’s approach toward gender diversity. The first role is the leadership role, in raising awareness of having gender diversity within the team. The second role is the leadership role in signalling the importance of having gender diversity to the broader ecosystem. Related to the first role, Fashion.co’s leader only demonstrated a certain level of awareness about the importance of gender diversity for innovation performance. It leads to low prioritisation of having gender diversity within the team. Related to the second role, with women in senior positions, Fashion.co had the potential to serve as a role model in the tech industry, particularly in the start-up ecosystem, where women have historically been underrepresented. Even though Fashion.co did not use this as an opportunity to advocate gender diversity as a competitive advantage, by having women as their CEO, it helps in reducing the prevailing gender stereotypes to wider entrepreneurial ecosystem (Byrne et al., 2019).

First, related to commitment and awareness, even though not much evidence was found about the commitment of the leadership to gender diversity, the CEO showed significant gender differences on her team, which she perceived as beneficial for Fashion.co. In other words,

despite not having gender diversity as a priority, her statement indirectly demonstrated her value toward gender diversity:

I think that men are very good at fulfilling the matrix. But, business is not only about the matrix but also about the people. I think, women give life, men give tools. If you use an analogy, it's like that; it's like a man who builds a house, and a woman makes it home. Yes, the company is also like that. (Hera)

After specifically being asked about her opinion toward gender diversity, the CEO did not neglect it as an important thing, due to the different points of view that different genders might have. *"I think it's important....in my opinion, gender can also influence the way of thinking and different points of view (Hera, CEO)"*, as she highlighted one of the advantages.

Second, related to the leadership position, Fashion.co indirectly could contribute to challenging the prevailing notion, that leadership is predominantly male dominated. Internally, it also helps other women on the team feel less underestimated. One female team member said, *"The fact that we have a female CEO, it seems that these guys will not have any views on feeling more superior because they are men. For example, in other companies, most of the leaders are male (Hima, team member)"*.

Another interesting fact about the leadership in Fashion.co was, that the difficulty in finding the right candidates led the CEO to appoint her mother as COO. Similar to the CEO's perspective, the COO also recognised some advantages of having gender diversity within the team. However, Fashion.co still did not prioritise gender diversity within the team.

In summary, even though Fashion.co's leaders have a positive attitude toward gender diversity, as they focused more on shifting their business strategy, gender diversity in a team was not seen as a significant issue. Thus, it was not prioritised. As a result, while leadership is one of the key important actors in leading gender diversity (Northouse, 2023, p. 325), there was no guidance from the leaders in developing intensive strategy to build inclusive organisational culture and HR policies and practices.

HR Policies & Practices

As a result of not having a dedicated HR division, Fashion.co lacks formalised HR policies and practices. Consequently, employee management, recruitment, and performance evaluation have been conducted informally, often relying on the intuition and personal judgment of the leadership team, particularly the female CEO.

For example, the CEO cited her difficult experience in finding the right candidate for additional team members. She tried several methods, from recommendation, to open recruitment. In 2018, she met with another start-up founder who inspired her to prioritise recommendation over open recruitment, as she believed it would have more credibility. *“We prioritise recommendation because when we did open recruitment, every time we did, it didn't feel right (Hera, CEO).”* Despite her negative experience with the open recruiting procedure, she continued to conduct more open recruitments for some period of time. She said, *“We do several open recruitment. There was a number of times in 2018, 2019, 2020 (Hera, CEO)”*. It highlights the lack of recruitment policy in Fashion.co.

Apart from recruitment policy and practices, Fashion.co also recognised the importance of supporting team members' personal development. Fashion.co actively supported its employees in enhancing their skill sets through various learning opportunities, whether through access to online courses, workshops, or seminars. *“At Fashion.Co, we have the freedom to explore and learn whatever we want... we're encouraged to develop skills in other areas as well (Hima, team member).”*

This practice of promoting professional development through continuous learning and improvement, indicates a positive signal about Fashion.co's commitment to developing talent and fostering innovation within its workforce. However, without a well-structured programme in place, there was a risk that this initiative would become detrimental. Lack of tracking mechanisms and budgeting oversight could lead to inefficiencies and ineffectiveness in skill development efforts (Matei et al., 2024). This is particularly important as Fashion.co may have neglected this issue due to the absence of a dedicated person responsible for managing their human resources.

The CEO acknowledged that human resource management has been inadvertently overlooked, due to the pressing demands of other critical business functions. Recognising the pivotal role of the HR division, she underscores its importance in enhancing her ability to understand social dynamics within the team, so that she could mitigate any potential conflicts. She stated:

“So that's what I need all this time actually HR. but I haven't found it and I'm still looking for it. Because in my opinion, HR is a very important component. It doesn't mean that finance is not important. But I think that if we have HR, half of our problem is handled [....] (Hera)”.

As Fashion.co demonstrated lack of attention to HR issues, Fashion.co experienced some challenges in managing their team members. The challenges varied from conflict management

to a high turnover rate. For example, the CEO experienced a constant changing of their team members, *“The team was like had a very high turnover rate (Hera)”*. It was caused by various reasons, from pursuing education, to the romantic relationships between team members, that led to unprofessional behaviour. *“In Fashion.co, there are also those who are then getting married [...] which result in the resignation of them from the team.”* The CEO mentioned how this romantic relationship among their team members affects their work, resulting in both team members choosing to leave the team. She highlighted how gender diversity within the team could lead to unwanted consequences.

In summary, Fashion.co had no dedicated person to manage HR issues. Hence, it added a layer of difficulty for the leadership team to manage all the processes, from recruitment, talent development, and managing a supportive environment in the workplace. Consequently, HR policies and practices within Fashion.co were likely to be based on the leader’s judgment and experimentation. It could potentially result in inconsistency that leads to high turnover rate, or lack of professional behaviour within the team members. It highlights the important role of leadership development in leading HR policies and practices (Woods et al., 2024) .

4.1.5.5 Team Innovation Capability (TIC)

Fashion.co experienced significant disruptions throughout its crucial development phases. As their business model depended on digital technology to access the market, losing the key person responsible for IT development, led Fashion.co to rely on the capability to innovate, in order to survive in the most crucial time.

By utilising the team's social network, Fashion.co was able to survive by shifting its business model. Through team collective intelligence, Fashion.co was able to converge different perspectives, through decision making and problem solving approaches. Within the team integration, Fashion.co highlighted the task distribution of men and women in the production team. Moreover, Fashion.co also recognised how men and women could improve their sensitivity and empathy toward their clients and customers, which is important to develop product innovation (Kurz et al., 2024).

Team Social Network (TSN)

Fashion.co recognised some advantages of accessing the diverse networks, from having gender diverse networks for different purposes, including accessing the new talent, and searching for the new potential customers.

The main founder of Fashion.co is the female CEO, who then found three male co-founders-during the dating phase, when participating in the incubation programme. Since the incubation programme has a low women's participation rate, she recruited her female friend as a co-founder. *“Hera is my friend, sis. We used to go to the same school. But when we were in college, and we reconnected in this project (Hima, team member).”*

Another female co-founder was her mother, and she acknowledged that her mother's network helped her to sustain their business during the pandemic. *“Yes, I am. Because I assist UMKM in Java. Well, thus I have power on the network side, government relations, everything that can support her (Hita, COO)”*. It highlights the importance of a collaborative network to foster innovation (Li, H. and Wang, 2021).

Even though the online platform was not running smoothly because of the IT disruption caused by the death of her CTO, with her mother's network, she sustained their business. By transforming their online B2C platform into a B2B business model, she relied on offline clothing orders, obtained through her mother's connections, to gain revenue.

Even though both examples were an example of how Fashion.co utilise its team members' network, the network was limited to family and close relative relationship, typical of women social networks characteristic (Watson, 2012). We failed to get evidence related to how male team members also enrich their business and innovation through their social network, as existing male team member were only working part-time, limiting their contribution during innovation process.

Team Collective Intelligence (TCI)

Fashion.co were able to combine diverse idea and converge them into one impactful idea, as one participant said: *“because it's like sometimes when I feel like an idea that comes from a woman are different later when finally when meet with man's idea (Hima, team member)”*. It indicates how diverse perspective could increase a team's capability to generate new idea, which is an important factor for innovation (Tikas, 2023).

The advantage of gender diversity was also acknowledged in solving the problem, as one participant illustrated, *“I mean that when there's a problem, we tried to find the solution, so we're like, well, you're thinking about a solution from your point of view, I'm thinking from my point of view, how can we combine both? I think that's the key (Hera, the CEO).”* Likewise, another team member also demonstrated a similar advantage, *“men and women have their own perspectives that ultimately make a new idea just pop up like that. This is the middle way (Hima,*

team member)”. She highlights the potential collective intelligence that emerges from the combination of different styles of thinking from men and women in a team, which is beneficial during the ideation stage of the innovation process (Woolley, A.W. et al., 2023).

Team Integration (TI)

Fashion.co acknowledged some advantages of having a gender diverse team, including how the different skills that men and women had could improve team collaboration. Moreover, Fashion.co also experienced how different communication styles could help them interact with external parties.

For example, Fashion.co has two members responsible for the IT division. One male team member is responsible for developing the backend, and another female member is responsible for the frontend. *“Men usually focus on function, and they lack the ability to think of aesthetic things (Hima).”* The combination of both skills within one collaborative effort is needed during product development (Bear and Woolley, 2011).

Another example was recognised by Hima during the collaboration, *“We are still evaluating the website, then the girl is asking for something like A, then later the guys give their opinion B, and then when it's applied it turns out. In the end, we could diverge all opinions into one solution together (Hima).”* She underscored how the integration of the idea emerges during collaboration and is beneficial for the team.

Within the production division, which also consists of a gender diverse team, the head of the production team noted that men and women often exhibit distinct passions for their work, *“In the production, yes, for the defined product, the best one are males. That's when we talk about garments when we talk about boutiques; it's the girls who are doing a good job (Hita)”*. It indicates that men and women tend to have different preferences toward different tasks (De Pater et al., 2009). As both were needed, it could lead to task allocation based on individual preferences. As people work on their preferences, it would increase their potential to perform well, as they would give their maximum capability to innovate.

Furthermore, the CEO mentioned that having women on the programming team was beneficial, as they were able to understand from the user perspective, which led them to have a more holistic understanding of market needs. The CEO gave several examples of how gender diversity within the team could increase team recognition of customer and client needs, because women usually have more empathy, which is beneficial for sensing market needs.

"For instance, when learning UI/UX, women might understand it better, as older tailors may struggle with the technical aspects like pressing buttons. Men, on the other hand, might not consider the impact and focus more on the technical side, questioning why the tailors can't grasp it." (Hera, CEO)".

The CEO mentioned that most of their male team members work in technical areas. She mentioned their weakness in communication skills, particularly with external parties such as clients or customers. Women usually have the ability to bridge the communication gap between their client/customer and their internal team members.

For instance, when we tested with the tailors, the women tended to approach it differently. They are more empathetic and focus on finding ways to assist. On the other hand, the men might be more technical and less concerned with the impact, focusing instead on why something isn't working from a technical standpoint, like if they fail to log in (Hera).

Drawing from the examples above, when they were asked to reflect on their experiences, participants at Fashion.co highlighted the benefits of having gender diversity on their team. They demonstrated how it contributed to developing team innovation capability and survival during the critical time.

4.1.5.6 Innovation at Fashion.co

In its early stage, Fashion.co mainly relied on its digital product as an on demand service to effectively reach its intended market. Nevertheless, the product was not fully developed when Fashion.co encountered significant setbacks during the crucial stages of product development, because of the negative impact of the COVID-19 epidemic. They had significant challenges with the unexpected and tragic loss of their IT specialist, whose contributions were vital to developing digital product innovation. The team member was the only individual responsible for executing programming in product development. It significantly hindered Fashion.co's capacity to operate efficiently during the worldwide crisis. This was a typical challenge that happened to many start-ups during the pandemic that require start-up to change their business model (Guckenbiehl and Corral de Zubielqui, 2022)

Despite multiple attempts, finding a suitable replacement for a highly specialised position proved to be challenging. It put Fashion.co at a significant risk to failure of their business. She attempted to address the issue by engaging in various strategies, such as recruiting additional IT professionals and collaborating with freelancers. The COO mentioned significant financial losses during the development of a new product.

At that time...we decided to build one ourselves...we ended up spending around 20 million just on salaries for that month. After nearly two years, we realised it felt like a significant waste of money (Hita, Production manager)

Ultimately, the CEO decided to temporarily deploy a simple website solely as a landing page, with all other procedures executed with simpler Apps, such as an online form, spreadsheet, etc.

In the face of challenges and a pressing need to generate revenue, Fashion.co was forced to transform its business strategy. The original vision of being at the forefront of digital innovation had to be set aside temporarily. Due to the suspension of digital product development, the team redirected its attention to maintaining the current product lines and exploring other sources of revenue.

Turning to their innovation performance, Fashion.co faced challenges in articulating their innovation performance. The CEO noted that assessing innovation performance relied on evaluating the collective performance of their start-up, yet there was a lack of standardised metrics for measurement. Typically, metrics such as traction, transaction volume, and the number of beneficiary tailors served, were used to measure their performance. Therefore, we used market newness and technology newness as standardise innovation performance in Fashion.co, with the result presented in Table 21.

Table 21 Summary of Innovation Performance of Fashion.co

Innovation Performance	Item	1-5 (Strongly disagree - strongly agree)
Market Newness	serve new customer needs – customer needs we had not served before	3
	require changes in established attitude and behavioural patterns from customers	3
	require major learning efforts by mainstream customers.	2
	take us up against new competitors – competitors we have never faced before.	2
Overall Market Newness		2.5
Technology Newness	are based on substantially different core technology never used in our industry.	2
	involve peripheral technologies that are new to our industry.	1
	combine different technologies in a new way.	3
	use technologies that have an impact on or cause significant changes in the whole industry.	3
Overall Technology Newness		2.25
Overall Performance		2.375

Fashion.co's innovation primarily focus on market newness, rather than technological advancement, as the focus on technological progression was hindered due to significant disruptions caused by the pandemic. Digital innovation in Fashion.co relied on simple technology such as a web-based platform. In terms of market newness, Fashion.co's innovation offers originality as it targets customers previously underserved in the digital industry. Moreover, due to the simplicity of the technology involved, extensive learning efforts on technology were not required. Fashion.co's innovation notably reshaped the fashion industry by introducing a novel supply chain model distinct from traditional methods.

Social impact

Fashion.co positions itself as a hybrid start-up with a dual orientation (Bonina et al., 2020), focusing on profitability and social impact. They emphasise enabling and strengthening the capabilities of local tailors. Fashion.co aims to enhance the capabilities of local tailors who frequently encounter issues such as low pay and limited skills. By providing opportunities for these tailors to scale up their welfare, Fashion.co not only contributes to the growth of the local economy but also addresses social inequalities within the fashion industry.

Their programme aims to enhance the skills of local tailors. Fashion.co was committed to skill development through its “Fashion.co Academy” initiative. This programme focuses on providing high-quality education in sewing, and other relevant skills within the fashion industry. Fashion.co combined its skill building initiatives with a specific focus on empowering women. Fashion.co collaborated with the Ministry of Villages, Underdeveloped Regions, and Transmigration to organise workshops for women in rural areas. The courses gave participants sewing skills to promote self-development and encouraged economic independence.

In addition to the Fashion.co Academy, Fashion.co's primary business line was “Fashion.co Personal”, where customers place orders for custom clothing sewing. This platform not only expands the customer base for local tailors but also increases the frequency of orders they receive. Furthermore, Fashion.co ensured that standard payments were higher compared to previous rates, thus improving the tailor's welfare. Additionally, the quality of the sewing was standardised, leading to increased customer satisfaction. Fashion.co claimed that they already assisted hundreds of tailors in scaling up their businesses, thereby contributing to the growth and sustainability of the local fashion industry.

Furthermore, Fashion.co remain committed to make a meaningful impact by upholding ethical fashion as a core value.

we are deeply committed to maintaining an ethical supply chain. We ensure that every part of our supply chain is ethical. This includes factors like fair employee salaries, safe work environments, and reasonable working hours. We also focus on minimizing environmentally harmful waste, as fashion is one of the biggest waste producers. By paying attention to these details, we aim to reduce waste. (Hera).

The CEO demonstrated her focus on impact by contributing to initiate an ethical supply chain in Fashion industry.

Fashion.co aims to revolutionise the fashion industry in Indonesia by advocating for an ethical supply chain and prioritising the reduction of fashion waste. Through supplying other brands, Fashion.co seek to inspire and encourage fellow fashion brands to adopt ethical guidelines within their supply chains, thereby contributing to environmental sustainability. This initiative aligns with Sustainable Development Goal (SDG) No:12, which emphasises responsible consumption and production. By promoting ethical practices and fostering a culture of sustainability, Fashion.co aspire to drive positive change and create a more environmentally conscious fashion industry in Indonesia.

Table 22 Social Impact of Innovation in Fashion.co

Activities	Output	Short term	Long-term	SDG
Fashion.co Academy	Workshop conducted	Improved skill, women empowerment	Improved quality of product, gender equality	SDG 4 (Quality education, SDG 5 (Gender Equality)
Fashion.co Personal	Costumer served, tailor got ordered	Increase production	Increase revenue, and tailors' welfare	SDG 1 (No Poverty)
Fashion.co Brand	Served Clients	Reduce fashion waste	Ethical Fashion supply chain conducted	SDG 12 (Responsible Consumption and Production)

4.1.5.7 Summary

Similar to other cases, Fashion.co is an example of a start-up that did not perceive any external pressures that encouraged gender diversity within its team. The absence of such pressures influenced Fashion.co's attitude toward gender diversity. Despite having a gender diverse team at some point, it did not make Fashion.co prioritise such composition. Moreover, in a high turnover rate, maintaining gender composition was a difficult task.

The Fashion.co's case did not demonstrate any dynamic interplay between external pressures and internal dynamics. As a result, their internal dynamics were more experimental and based on the leader's judgement. This can be seen from its inconsistency and lack of attention to HR

issues. The team's frequent changes also challenged organisational culture. It demonstrates a typical challenge in early stage start-up in building internal strategies (DeSantola, 2017).

Despite being poorly planned and mostly constrained, Fashion.co's operations demonstrated a low degree of team innovation capability. During the interview with Fashion.co's team members, it was shown that gender diversity enhanced their ability to see and understand situations, enabling them to transform challenging conditions into opportunities. However, the potential of having a gender diverse team was not fully embraced.

On the other hand, confronted with the dilemma of either adapting their existing business model despite inadequate IT infrastructure, or starting a new digital platform, Fashion.co made the strategic decision to introduce an additional business line. This new line focuses on supporting other clothing brands by producing white label fashions, a strategic step that Fashion.co took to save its operation.

Fashion.co's strategic decision to dispose of their previous technology demonstrates their adaptability and innovation in response to any unforeseen conditions. While not fully acknowledged, the presence of a gender diverse team was considered beneficial, even though the balance was not intentional, but rather, a result of natural demographic composition. Therefore, the potential long-term benefits that Fashion.co could derive from a gender diverse team remained uncertain.

The story about Fashion.co highlights the potential advantages of gender diversity, which, unfortunately, was not fully tapped, due to failure to respond to external and internal challenges. Fashion.co's journey underscores how uncertain conditions and unforeseen circumstances can lead to significant start-up disruptions (Guckenbiehl and Corral de Zubielqui, 2022). The COVID-19 epidemic forced a transformation in business strategy. Challenges such as high turnover and fluctuating team dynamics have added complexity in achieving gender diversity. It provides Fashion.co with the ongoing challenge of continually enhancing its team innovation capability to foster innovation performance.

4.2 External Case

Apart from team members of start-ups in each case, we also interviewed external stakeholders to gather varied insights on the existing condition of gender diverse teams in the start-up ecosystem. External interviews were grouped into four categories: investors, incubator service providers/consultants, government representatives, and researchers on gender issues in

Indonesia. By gathering insights from these various stakeholders, we aimed to triangulate external pressures perceived by start-ups. This method helped us grasp additional perspectives from the larger ecosystem, in which start-ups function and offered useful insights into how external entities perceived and supported gender diversity initiatives in the start-up community.

4.2.1 Cluster 1: Investor

We interviewed three participants from the investor cluster. First, we interviewed KC, a venture capital who has experience assessing more than a hundred start-ups. Second, we interviewed MC, a subsidiary company of a state owned venture capital. Third, we interviewed OC, a venture capital that has a specific fund for women founders.

Several criteria have been discussed for selecting start-ups that seem potentially viable for investment. While each investor has a unique set of due diligence criteria for assessing start-ups, there was a general agreement on the crucial significance of human capital. Beyond the originality of the idea, product viability, revenue projections, and traction, team composition were identified as critical factors that influence start-up success. One participant said, *“But what we see, first and foremost, the most important thing is people, who run the business (VP investment of KC)”*, as he emphasised the critical role of team composition.

However, investors have different perspectives regarding the valuation of team composition. While one investor prioritised experience, others emphasised educational background and functional diversity as primary considerations. Interestingly, none of these investors explicitly mentioned gender diversity as an issue of their evaluation criteria.

Well, to be honest, gender diversity is something we haven't seen in KC yet, such as a gender quota or some sort. We see it more, honestly, as just meritocracy. So we believe whether someone is good enough or not, we don't ask them to have a minimum of how many women or men; we don't have any requirement like that (VP investment of KC).

He added that using gender diversity as a criterion could limit their option because the number of start-ups that have gender diverse teams was relatively limited *“Because that limits companies where we can invest in, sometimes we find companies that are really good but we can't because they don't have female founders, right? (VP of KC)”*. Likewise, the portfolio director of MC also indicated that gender diversity was not considered a significant factor, as they did not find a significant correlation with growth. *“I conducted a small research in our previous start-ups, and it turns out that gender diversity doesn't really have a significant impact on the growth of a start-up (MC)”* he stated.

MC acknowledged that in the upcoming year, they will have a specific programme that uses gender composition as one criterion. It is because MC was a subsidiary of a state owned company that care about gender composition. Therefore, in the future, they would start looking at the gender composition of the team. *“Next year, we want to run an impact fund, which is something new, so why are we running it? because we actually a subsidiary of a state-owned company that currently has women's empowerment programmes. A certain percentage of the team must be women. so, this is something that we also highlight about start-ups in the future (MC)”*. He highlighted how gender diversity will be considered in the next programme.

MC also recognised that gender diversity was not a common criterion among investors, particularly for local investors from Indonesia. *“Usually for things like that, it's still discussed in international VC only, right, ma'am, for global venture capital, because venture capital from Indonesia mostly still looks at products as the main criteria (MC)”*.

On the other hand, a business development manager from OC mentioned that they had a specific fund for women founders. Even though OC prioritised women founders, they had difficulties achieving this goal. As she stated: *“currently, 30% of women are women, and the remaining 70% are men. So it turns out that if we want to find founders who are specifically women, it is also quite difficult...”* Different from MC, who saw gender diversity as an insignificant factor, a business development manager from OC appointed a potential benefit of having gender diversity in a start-up team. *“Yes, I have that experience. One unique thing is that on average, when the founders and co-founders are a mix of male and female team members, most of them are always good (OC)”*. She highlighted that most of the start-up team who has gender diverse teams were more stable as she stated, *“It turns out that the results in the field show that the mixed gender was actually more stable (OC).”*

She elaborated on this in more detail, including the capacity of gender diverse teams to produce ideas and the agility of start-up teams in the decision making process, as she mentioned:

Teams with mixed genders tend to be more open to others and more open to differences because they are accustomed to diversity. Men and women have different emotional styles and ways of handling situations, right? This diversity helps them become more adaptable to changes and helps them in the decision making process. Moreover, when dealing with clients, these teams are generally more experienced and effective compared to other homogeneous teams. (OC, Business Development Manager)

In summary, the interview with investors found that gender diversity was often not seen as a significant factor in evaluating the valuation of start-ups. However, recognition of the value of

gender diversity began to develop when certain investors began allocating a dedicated fund to support women entrepreneurs or teams that are gender diverse. The limited number of women start-up founders was highlighted as a barrier to achieving this objective.

4.2.2 Cluster 2: Incubator/Consultant

Within the second cluster, we interviewed two participants: a principal director of the incubation service provider called DigitalX, and a COO of a consultant who assists new ventures or companies that focus on impact, called ProjectI. From the interview, we found that gender composition was not a significant issue for incubator programme. Although ProjectI has been involved in a programme which prioritise gender, the decision to incorporate them into start-ups remains optional for start-ups. Therefore, it is not surprising that most of the start-ups did not prioritise gender diversity within their team.

First, we interviewed a principal director of an incubation service provider. Their programme aims to provide equal opportunity for Indonesian people to create start-ups, by facilitating them through a series of webinars, workshops, and incubation.

He acknowledged that there was a significant gap in Indonesia when it comes to understanding digital technology, particularly among certain communities. Despite hosting programmes aimed at enhancing digital literacy, many people still perceive digital technology merely as a tool to facilitate basic transactions, such as connecting service providers with consumers, through platforms such as motorcycle taxi Apps or e-commerce platforms. *“Our goal is to expand their understanding to include broader applications of digital technology, such as digital distribution and the utilisation of advanced technologies like AI, machine learning, big data, or webtree (Principal Director)”* He highlighted that the majority of existing start-ups were only using basic technology.

When asked about the factors contributing to the start-up failure, he mentioned the team as one significant factor: *“So many start-ups fail because of the team (Principal Director)”*. He indicated that start-up teams often face challenges related to disagreement that can lead to team disintegration. Additionally, a lack of expertise within the team could also pose significant challenges to the development of the start-up. Therefore, the composition and capabilities of the start-up team were seen as critical factors that influence the success and sustainability of the start-up. Likewise, he also mentioned a significant gap between technical skills and an entrepreneurial mindset.

In terms of gender related issues, he illustrated his difficulty to invite more women into the programme. *“We are still having difficulties looking for female founders and especially female developers, yes, this is also something we are trying to encourage continuously (Principal Director)”*. He added that most women were afraid to be in a male dominated sector.

“Even though women can be businesspeople, they might hesitate when it comes to digital technology. They may think, ‘Oh, I’ll be working with developers, and they’re all men,’ which can make them uncomfortable. The environment is indeed male dominated, so it’s still very challenging to find women who are willing and brave enough to fully step into the digital world.” (Principal Director)”.

Therefore, it is not surprising that start-up teams might have a low gender diversity rate.

Even though he was aware of the phenomenon, as an incubator, DigitalX had no specific regulation or recommendation to encourage start-ups to have gender diverse teams *“We don’t have one yet, yes, directly, yes, there is no such a thing as a recommendation that there has to be men and women, in the team, right, no, no, no, we don’t ask them to.”* Additionally, he mentioned that they used to try a programme specifically for women, but the results were not as expected.

“At that time, we had planned to do a special class for girls. It’s just that at that time, when we checked again, it turned out that it was difficult to find participants. Women who are indeed interested in the field of digital technology are still very limited (Principal Director)”

He highlighted the fact that the intervention programme did not work as expected.

On the other hand, he mentioned that his programme implicitly invites more women to join the incubation by ensuring that their mentors consist of men and women. It aims to inspire more women to be involved in start-up development. He said: *“Yes, my direction is that every time we have any activity, there should be at least 20% of the mentors are women or at least one speaker has to be a woman, don’t let the panel of all men (Principal Director)”*. He intended to provide a role model in order to invite and inspire more women into digital world. However, this was not written formally in the policy.

When asked about noticeable differences when working with a gender diverse start-up team, he highlighted that products influenced by women often exhibit a more socially oriented approach, while all men teams tend to be less socially oriented.

start-ups with female founders often have higher social awareness and tend to be more socially oriented rather than just business-focused. They also have a greater sensitivity when it comes to market research, making an effort to genuinely connect

with the market. This is something that typically happens in gender balanced teams. On the other hand, I notice that many leadership teams are still dominated by men, with no women involved at all. This is very common, likely because most of these leaders come from tech backgrounds (Principal Director of DigitalX).

Another interview was conducted with the COO of ProjectI, a business consultant that helps businesses grow in a sustainable, impactful, and responsible way by conducting several activities, such as incubation and acceleration. ProjectI advocate their clients about impact, based on Sustainable Development Goals (SDG). Two out of five investigated start-ups (Shrimp.co and Fashion.co) cited ProjectI as an incubator service provider that introduced gender issues. However, only Shrimp.co intensively worked together with ProjectI.

ProjectI expressed a concern regarding business impact. The COO mentioned one specific programme related to women empowerment when they worked with Oxfam. She stated: *“We're actually collaborating with Oxfam on specific initiatives aimed at increasing the women's economic empowerment in the start-up we're facilitating (COO ProjectI)”*. Even though not exclusively focusing solely on gender, ProjectI acknowledged that gender was one of the issues to be considered by their clients.

ProjectI acknowledged that most companies in Indonesia, particularly start-ups, exhibited a low awareness of gender related issues. There was a notable challenge in integrating the gender lens into business operations, particularly when considering the necessity to align such initiatives with performance metrics. Most of their clients asked about the impact of having such initiatives on their business. She mentioned that the awareness of business in gender related issues was still low. She stated: *“It's still Western-centric and feels like an issue that only big companies deal with, right? As for what we are talking about in Indonesia, So ... it's not yet punchy, for example, what if I pay more attention to women's welfare, for example by giving periods break, then so what? Will revenue go up immediately? For example, or will people work immediately efficiently, and effectively? (Consultant)”*. She underscores issues that were often raised by business managers about the impact of using gender lenses on business performance.

Even though ProjectI could not show direct evidence of the potential benefit of having gender diversity, they advocated it, as it could improve decision making processes. She highlighted its pivotal role in comprehensively understanding consumer needs and preferences as she stated:

We believe that having gender diversity will help in the decision making process, that is what we often say. So if you are all man and you'll think like a man. Yes, later on, you won't be able to catch what female consumers want, for example. But,

if you are all women, then you cannot grasp what the male market thinks like. So, what we are pushing for is actually more about having diversity. We believe that having this diversity will enrich your decision making process and make it more strategic. You will have a more holistic understanding (COO ProjectI).

Nonetheless, she also noted that expressing concern about gender issues did not always lead to innovation, particularly when viewed solely as a matter of compliance. *“If the activity to increase gender awareness within the company is very much connected with their business operations, it will become a strong driver [for innovation]. But if this is only limited to compliance. Or very limited awareness means that they already aware but it will not be a priority in the end, it doesn’t create any differences (COO ProjectI)”*. She highlighted that having gender diversity in a team does not always represent a company’s commitment to it.

ProjectI highlighted another advantage of having gender diversity. She mentioned that gender was a global issue. Hence, it might increase opportunities for start-ups to secure funding. She mentioned that some investors have an interest for a team who have women within the founding team. *“Because if we are looking for funding, it is available out there. There are many investors who also gender oriented, for example, let’s say investing in women (COO ProjectI)”*. She noted the fact that even though most investors were not concerned about gender issues, some of them acknowledged and prioritised it.

In summary, it can be concluded that not all incubators prioritise addressing gender issues. Although ProjectI has acknowledged its significance, the decision to incorporate them into start-ups remain optional, given that gender represents one of the 12 dimensions for impact in Sustainable Development Goals (SDGs). ProjectI asked their client to choose which impact goals they want to contribute. If they opt to address the impact on gender, particularly on gender diversity, ProjectI offers guidance on integrating gender lenses into start-ups.

Furthermore, ProjectI underscored that awareness regarding gender issues within the start-up ecosystem was relatively low compared to larger corporations.

4.2.3 Cluster 3: Government

Since 2014, the Indonesian government has shown significant interest in developing the digital ecosystem, particularly in fostering digital economic growth. It can be seen through initiatives such as the 2017-2019 digital roadmap focusing on e-commerce, and the ongoing formulation of the 2023-2030 digital economy roadmap. Jakarta, in particular, was recognised as the city with the most vibrant start-up growth ecosystem among 1,100 cities worldwide, supported by a diverse demographic landscape. Presently, Indonesia has approximately 2,000 start-ups.

The Ministry of Tourism and Creative Economy (Kemenparekraf), alongside several other ministries, actively participates not only as regulators but also as facilitators in fostering start-up growth. Through various incubation programmes, the Ministry encourages Micro, Small, and Medium Enterprises (MSMEs), especially in the creative economy sector, to thrive and innovate in their business operations.

Despite these efforts, 9 out of 10 start-ups struggle to sustain their businesses. The deputy for digital economy mentioned the reason, as he said: *“Primary obstacles to start-up growth include capital constraints (38%), human resources shortages, particularly a lack of digital talent (29%), inadequate facilities (15%), and limited market access, compounded by low entrepreneurial capacity among Indonesians. (Deputy for Digital Economy)”*.

The creative economy encompasses three key sectors: crafts, culinary, and fashion. It significantly contributes to the GDP, with women predominantly leading these sectors. However, in digital start-ups and other sectors, the representation of female digital talent stands at only around 30%, largely due to the perceived lack of interest and talent among women in the digital domain. He mentioned, *“From our data, women founders are only 3 out of 10, it’s less than 30% (Deputy for Digital Economy)”*.

In response, the Ministry of Tourism and Creative Economy has launched initiatives to foster women's interest and involvement in the digital sphere, such as the “Baparekraf Digital Talent for Women” programme. In collaboration with external partners like Google and Indosat, the Ministry attempted to cultivate a more inclusive digital ecosystem.

The second participant we interviewed came from the Ministry of Communication and Information Technology (Kominfo). Various aspects of support for the growth of start-ups were mentioned. First, regarding infrastructure, Kominfo's role in providing internet access was crucial. The quality and quantity of internet access across Indonesia continuously expanded, indirectly impacting the availability of technology provided by start-ups in various regions.

Second, regulatory aspects were addressed, focusing on Kominfo's electronic system registration based regulations, which aid in the governance of start-ups or electronic system providers in Indonesia. This mechanism simplifies the registration processes and enhances information availability about Indonesian technology providers.

Third, in terms of society or users, Kominfo aims to improve digital literacy, technology adoption, and acceptance among the public. This initiative aims to increase productivity in Indonesia's utilisation of technology.

Last, Kominfo directly supported start-ups through various programmes. These include the DigitalX programme, which launched in 2015, and aims to foster innovative ideas and nurture new entrepreneurs in the digital start-up world. Another programme, DigitalY, aims to assist start-ups in creating resilient founders capable of developing innovative products until achieving product/market fit.

Furthermore, Kominfo established the "hub.id", a programme that facilitates digital start-ups in accessing investors, business partners, and networks from the private sector, state owned enterprises, government, and organisations. The goal of "hub.id" was to foster the sustainability of digital start-up businesses, through collaboration and synergy between start-ups and stakeholders, as well as to provide access to early stage investors focusing on digital start-ups entering Indonesia.

These programmes, as narrated by Kominfo, aim to support the growth of the start-up ecosystem in Indonesia. Nonetheless, even though confirmed with the lower rate of women's participation in start-ups ecosystem, gender had not been recognised as an issue. *"So we don't have any specific discussion about gender (digital start-up business coordinator)"*. When it was confirmed about the reason, he cited: *"Maybe it wasn't made specifically [the programme] because there weren't any barriers for women to access or to become key actors in our digital ecosystem or start-up industry (digital start-up business coordinator)"*. This statement underscored the lack of attention to gender related issues within the start-up ecosystem. It also indicates the sporadic and uncoordinated nature of government support in recognising and addressing gender imbalance in the start-up ecosystem.

To conclude, the interviews conducted with government representatives, from two different ministries involved in the start-up ecosystem, revealed a lack of cohesion among various programmes aimed at fostering start-up initiatives. While Kemenparekraf, in close collaboration with micro and small to medium enterprises, acknowledged barriers hindering the achievement of gender diversity within start-up teams, Kominfo did not perceive this as a significant issue. Kominfo justified its stance by pointing out the recent emergence of women founders within the start-up ecosystem. This perspective discrepancy underscores a broader

challenge of integration and alignment within government led initiatives for supporting start-ups leveraging gender diversity to improve innovation performance.

4.2.4 Cluster 4: Gender Expert

To gain insight into the gender landscape in Indonesia, we interviewed a gender expert, a researcher from the Gender Research Centre at the University of Indonesia. She discussed various issues related to labour laws, gender roles, cultural shifts, and education in Indonesia, particularly focusing on the formal and informal sectors, disparities in opportunities and expectations between genders, women and technology, and biases within educational institutions.

She acknowledged that significant progress has been made in advancing gender equality, primarily driven by the women's movement. Over the years, mainly since the reformation period in 1998, there has been a notable development in gender related policies at the national level. For instance, initiatives such as gender mainstreaming and the implementation of quotas for female representation in elections, exemplified by the 30% quota for women in political candidacy, signify substantial development in policymaking. However, despite these advancements, challenges persist in translating policy into effective implementation, especially related to labour law. The current labour laws in Indonesia predominantly focus on the formal sector, leaving gaps in addressing issues specific to the informal sector, such as start-ups. Comprehensive regulation is needed, particularly in enforcing women's rights.

Apart from the low regulation and its enforcement, she also mentioned about existing cultural factors. *“When we talk about cultural factors, there are many aspects to consider. It’s not as simple as implementing a policy and expecting social norms to change overnight. There are many factors that influence how social norms evolve. (Gender Researcher)”*. She provides numerous examples that demonstrate the deeply rooted gender stereotypes in society and the resulting issues. *“...they need to prove themselves while their male colleagues doesn’t need to do that. Moreover, there is no role model of women to work in the field of technology (Gender Researcher).”*

When was asked about the cause of gender imbalance in IT, she mentioned that it was unsurprising, drawing from the low number of women pursuing education in technology *“The percentage of women who study in the digital technology sector is also small, so it is natural that there are also few female workers in the digital sector (Gender Researcher)”*. She also mentioned her own experience during college related to gender stereotype,

“It's just that when there are guests at the workshop, it is the girls whom the teacher often tells to make coffee or make some food first, while the boys are never told like that, right? In my own experience, I also felt that boys at that time were very often given information and opportunities for internships, information and work opportunities, even though they were not as smart as the girls in my class (Gender Researcher)”.

She highlighted the phenomenon that is also rooted in the education institution.

She found there is a lack of sustainable effort to overcome those problems. Instead of government, most of the initiatives to solve this problem often came from external parties such as global funding or grants. *“For example such as “Girls in Tech”, it's a programme initiated by a global movement which aims to support and empower women to participate in the technology sector (Gender Researcher)”.* The lack of support from the government was acknowledged as one factor contributing to the low improvement in the gender gap in Indonesia.

On the other hand, digital technology was seen as an enabler for women, as it can offer flexible working arrangement. A factor that was considered significant for women to pursue their careers.

“So, in the past, the job seemed very conventional, sis, for example, you came nine to five to the office, right? But with today's jobs for example in start-ups, you can work from home, for example, or you can work in a cafe, you can work in a co-working space, etc., it's an opportunity, the woman who used to be burdened with other responsibilities finally has a kind of middle ground, (Gender Researcher)”.

She argued that having women involved in digital technology was an opportunity to generate innovations that not only contribute to mitigating gender bias, but also, serve to address gender related issues.

“When women enter the innovation process, there is a hope that the products will benefit women's livelihoods. For example, when women enter the technology world to create a start-up, They will create a start-up that is useful for solving gender problems; . So the hope is that the technology produced by the innovations will also help to solve gender problems (Gender Researcher)”.

Overall, while acknowledging the positive progress made in acknowledging gender issues in Indonesia, it is clear that strategic actions were still needed to close the gap between creating policies and putting them into practice, particularly in addressing gender related challenges and ensuring women's equitable access to education and employment opportunities, particularly in the digital technology sector.

In addition to regulatory interventions, there was a pressing need to enhance societal awareness surrounding gender norms. This was seen as crucial for challenging issues arising from gender stereotypes and sociocultural norms, which often serve as barriers to women's empowerment in the technology industry. By fostering a more inclusive and supportive environment, it would be possible to foster greater gender equality and promote the participation of women in the technology sector.

4.3 Cross-case Analysis

Having presented all five cases from different start-ups, the cross-case analysis was conducted to find patterns, such as similarities and differences across cases. All of the cases presented in sections 4.1.1 to 4.1.5 showcased start-ups that have gender diversity in their team, but with different gender compositions. Case 2 (Milk.co) and Case 5 (Fashion.co) represent start-ups with female-dominated members. In contrast, Case 1 (Shrimp.co) represents a start-up with male-dominated members, while Case 3 (Cop.co) and Case 4 (Love.co) have a gender-balance team composition.

Among the five cases, only Shrimp.co and Milk.co were concerned about gender composition in their team, while the three other cases demonstrated that their gender composition was formed naturally in respect to demographic landscape. However, even though Shrimp.co and Milk.co were concerned about the gender composition of their team, only Shrimp.co demonstrated commitment to have gender diversity in their team. On the other hand, Milk.co intentionally made their team female dominated, as they argued it represented their target market and was superior in the field they were focusing on.

The following section will discuss and compare external pressures, internal dynamics, team innovation capability, and innovation performance from five different cases to find differences and similarities across different cases

4.3.1 External Pressures

Table 23 illustrates a cross-case comparison among five cases regarding external pressures perceived by each case.

Coercive

After comparing all five cases, it can be concluded that there were no specific formal regulations on gender composition from the government perceived. Despite the absence of a regulative approach on gender diversity, we found that investor requirements and religion could

play a critical role in influencing start-up's behaviour toward the adoption of gender diversity within their start-up.

First, related to the regulative approach, it is surprising that none of the start-ups cited a regulation related to gender diversity. The fact that the majority of the cases were established through incubation programmes initiated by the Indonesian government, such as DigitalX (e.g., Milk.co, Love.co, and Fashion.co), our investigated start-ups did not mention any encouragement in adopting gender diversity within their teams. Even though the Indonesian government was promoting gender mainstreaming programmes as their national agenda, it was not integrated within the incubator programme that was initiated by the government.

This finding was triangulated through an interview with the programme director of DigitalX, who confirmed that there was indeed no direct recommendation for achieving gender diversity in a start-up development during the incubation programme. Apart from the lack of support to raise awareness about having gender diversity in start-up teams, the female participants who joined the incubation were also less than 30%, making it difficult to ensure all team members have a gender diverse team.

Second, even though there was no regulative approach, we found stakeholders played a critical role in influencing a start-up's attitude toward gender diversity. For example, Shrimp.co cited investor requirements as one of the coercive pressures. Their investor required them to pay attention to gender composition of the team. Following the requirement, Shrimp.co monitored and tracked gender composition of the team regularly.

However, it is important to note that not all investors had the same concern on gender issues. It was outlined in other cases such as Cop.co and Fashion.co. Even though during pitching for funding, Cop.co found that some investors were raising gender diversity issues, Cop.co mentioned that there was no such requirement from their existing investor. Likewise, Fashion.co did not find this issue raised by their investor. This is evidence that an investor could potentially influence start-ups to adopt gender diversity within their team (Xie, F. et al., 2024). Unfortunately, our investigation revealed that some investors have a low awareness about the importance of having gender diversity within the team to improve innovation. As it was mentioned by one of the investors, this might be due to the assumption that the investor had about insignificant impact that gender diverse teams have on the performance.

This finding was aligned with the analysis from the investor perspective. Only one out of three investors demonstrated a dedicated allocation for funding at least one female founder within

their start-up teams (Hohl et al., 2021). Even though team composition was one of the criteria mentioned by all investors, gender was seen as a lesser priority, compared to other criteria such as diversity in function, personal characteristics, and education.

Third, different from other cases, Milk.co offer a unique perspective when perceiving coercive pressures. This start-up embraced religious logic, perceiving it as coercive institutional pressure, that led to the development of homogeneous teams and limited interaction across genders due to preventing from *ikhtilat* (Hazim and Nazari, 2023). The religious interpretation about the restriction on interaction between men and women, coupled with society's expectation that this start-up should be organised in Islamic ways, have resulted in the integration of strong religious values in this start-up. Milk.co demonstrated an example of how religion impacts entrepreneurial activities (Kumar et al., 2022).

Mimetic

Mimetic pressures usually come from uncertainty (DiMaggio and Powell, 1983), which results in tech-based start-ups copying the behaviour of others. With minimum experience, tech-based start-ups often conduct mimetic behaviour through consulting and benchmarking. Although the majority of the start-ups started to benchmark and consult to external parties, only Shrimp.co engaged with a consultant who provided them with some best practices in adopting gender diversity within their team. As a result, apart from Case 1, all other cases did not exhibit mimetic behaviour in adopting gender diversity practices, due to a lack of aspiring successful firms that served as role models in achieving innovation performance through gender diversity. Consequently, instead of prioritising gender diversity within their team, the majority of our investigated start-ups mimic others who see gender diversity as an insignificant issue to improve innovation performance.

Normative

We found that normative pressures have conflicting roles in affecting start-ups to leverage gender diversity to achieve innovation performance. On the one hand, some normative values that came from family values and local culture, such as the “Bhinneka Tunggal Ika” slogan, influenced start-ups to have a positive attitude toward gender diversity. On the other hand, gender norms and gender stereotypes provided challenges for start-ups in leveraging gender diversity to achieve innovation performance.

Shrimp.co and Love.co cited family values as one normative pressure that inspired them to believe in the value of diversity. They cited how their parents advised them to consider gender

diversity when building a team. Likewise, the CEO of Shrimp.co was also inspired by her father about diversity values. This underscores family as one source of learning mechanism about diversity values that could become normative pressures for start-ups, to adopt gender diversity within their teams.

Apart from positive influence, normative pressures influenced any perceived barriers and challenges in achieving and utilising gender diverse teams. Gender norms and gender stereotypes could become barriers for start-ups to achieve gender diversity, due to gender imbalance applicants in the applicant pools during recruitment. Social expectation about some jobs creates a division of labour, which leads to the belief that some positions are more suitable for men rather than women. Shrimp.co, Cop.co, and Love.co experienced similar problem when they wanted to recruit more women in a position that was stereotypically dominated by male.

Only Milk.co and Fashion.co did not express the problem of gender imbalance in the candidate pools. There were two main reasons. Milk.co tends to look for a candidate aligned with gender stereotypes. Therefore, they did not see gender imbalance in the candidate pools as a problem. Second, Fashion.co did not see gender as a significant issue during the recruitment. Therefore, whether the candidate is a man or woman, did not create any differences for Fashion.co.

In summary, as external pressures had multiple roles in affecting start-up leverage from gender diverse teams, each start-up was challenged to respond to the positive pressures and adjust its internal dynamics to navigate the negative pressures. This created some contestation for the start-up, creating a dynamic interplay between external pressures and internal dynamics.

Table 23 Cross-Case Analysis of External Pressures

	Aggregate Dimension	Case 1 Shrimp.co	Case 2 Milk.co	Case 3 Cop.co	Case 4 Love.co	Case 5 Fashion.co	Emerging themes with case study source
External Pressures	Coercive Pressures	No formal regulation promoting gender diversity was perceived by all team members					Formal regulation promoting gender diversity (1,2,3,4,5). Shareholder Pressures on gender composition (2) Religious pressures (1)
	Mimetic Pressures	Formulating organisational culture and HR policy with consultant and lawyer to create a supportive environment for gender diverse team.	No mimetic pressure was found during the investigation as Milk.co focused on its own values to develop organisational practices.	Benchmarking to other start-ups about how organisational culture influences performance but no direct reference to gender composition	Mimetic pressures were sourcing from public figures and other start-ups but no direct reference to gender composition.	Benchmarking other start-ups about hiring/talent acquisition approach but no direct reference to gender composition	Benchmarking & Consulting (2,3,4). Absence of aspiring firms promoting gender diversity (1,2,3,4,5)
	Normative Pressures	Gender specific bias in the aquaculture industry poses a challenging situation in promoting gender diversity for institutional change. Family values and cultural motto inspires diversity approaches adopted by the leader	Gender stereotypes lead to bias in hiring decisions during recruitment	Occupational stereotypes in society cause gender imbalance in candidate pools in some positions. collaborative efforts potentially hindered by patriarchal culture	Occupational stereotype shapes the industry composition, leading to gender imbalance in team composition	Lack of support in promoting gender diversity within a team during the incubation process	Cultural norm and social expectation (1,2,3,4). Education and Family Values (1,2,3,4,5). Incubation and Professional Network (1,2,3,4,5).

4.3.2 Dynamic Interplay of External Pressures and Internal Dynamic

It is not surprising that among the five investigated cases, only Shrimp.co experienced contestation to deal with external pressures as they found conflicting roles of external pressures. On the one hand, Shrimp.co was encouraged to adopt gender diversity by its investors and consultants. On the other hand, some pressures provided unfavourable conditions for Shrimp.co to adopt and leverage gender diversity to achieve innovation.

Consequently, Shrimp.co responded and navigated those conflicting roles in order to sustain their business, while gaining legitimacy from its institution. The result was surprising as what Shrimp.co had done, beyond surviving and navigating its internal dynamics to address existing challenges, related to the adoption of gender diversity. Shrimp.co demonstrated its capability to challenge existing pressures and initiate institutional transformation. Shrimp.co not only adopts gender diversity within their internal dynamics but also promotes and signals gender diversity value to the broader ecosystem.

For example, Shrimp.co aims to transform the aquaculture industry, which was traditionally male dominated, by involving more women in the fields. In rural and coastal communities, aquaculture is a vital livelihood where women make a significant contribution, yet often face lack of recognition and are undervalued (Morrison et al., 2023; Gopal et al., 2020). Shrimp.co's action highlighted the interventions to empower women and enhance their sustainable livelihoods in aquaculture industry.

Moreover, during the meeting with other stakeholders, the CEO of Shrimp.co also demonstrated her power to challenge existing gender norms about female leaders, who are often being underestimated in the entrepreneurial ecosystem. This act not only highlighted Shrimp.co's organisational commitment to advancing women's leadership, but also contributed to dismantling structural barriers associated with the "glass ceiling" phenomenon (Haslam and Ryan, 2008). Such efforts are critical in redefining leadership paradigms and fostering a more inclusive business environment.

However, this contestation only occurs in a start-up that tries to challenge unfavourable conditions from external pressures. In contrast, other start-ups did not experience the complex dynamic between external pressures and internal dynamics. For example, Milk.co, passively chose to comply with external pressures, as they rely on public trust and strong financial dependency with society. This led to the decision to have more female team members, aligning with the expectation of major customer. Moreover, it aligned with Milk.co's internal religious

culture, which limits the interaction among different genders due to religious reasons. On the other hand, the rest of the cases (Cop.co, Love.co, and Fashion.co) demonstrated similar behaviour, where they did not perceive any significant pressures to adopt gender diversity, nor had internal motivation to do so. As a result, they only showed a unidirectional relationship, with institutional pressures affecting internal dynamics, but not vice versa.

4.3.3 Internal Dynamics

Table 24 illustrates a cross-case comparison among five cases, regarding internal dynamics identified in each case.

Organisational Culture

Organisational culture plays a pivotal role in facilitating innovation processes (Büschgens et al., 2013; Alateeg and Alhammadi, 2024). From the table, it is evident that each case developed its organisational culture in distinct ways. Milk.co, for instance, cultivated a unique organisational culture rooted in strong religious values. Their interpretation of *ikhhtilat* (religious prohibition on gender mixing) emphasised limitations on interactions between men and women. Consequently, collaborative efforts might be hindered, as communication across genders was greatly restricted, with most interactions occurring exclusively through online platforms, while female members worked offline in the office.

Shrimp.co and Cop.co shared some similarities in their organisational culture, emphasising diversity, openness, and respect, as some important values in the organisational culture. However, both cases had a different level of effort to embody these values and internalise them within all team members. Shrimp.co notably succeeds in cultivating a robust organisational culture characterised by these values, whereas Cop.co struggles to maintain them due to institutional pressures. On the other hand, while they shared similar values in “openness” and “respect”, Love.co did not consider diversity an integral part of their culture. Similar to Cop.co, Love.co also faced the same issues in internalising these values within its team members.

On the other hand, Fashion.co and Milk.co had similarities in how they used social impact as part of their core business values, based on the belief that it would enhance productivity and integrity among all team members by emphasising the profound influence of their work on the lives of others. Moreover, Fashion.co contend that this approach fostered a robust organisational culture. Unlike Milk.co, which limits direct interaction across different genders, and most of the meetings were mostly conducted offline with all their female team members,

Fashion.co conducted a regular meeting to ensure all team members were kept updated. This routine increases when other significant issues need to be discussed together.

Overall, having an excellent organisational culture written formally into the company profile, was a good start to highlight the importance of developing a robust organisational culture to support gender diversity within the team to enhance innovation. All cases agreed that organisational culture was important in their start-ups. However, out of the five cases, only Shrimp.co realised that organisational culture needed to be continuously maintained. Shrimp.co also argued that it should be evolved alongside the growing number of team members

Recognising their shortcoming in addressing organisational culture, Shrimp.co collaborated with third party consultants to effectively develop and internalise their values within the organisational framework, thereby providing substantial support for a gender diverse team to foster innovation.

In conclusion, the findings from the analysis regarding values in organisational culture consistently underscored the importance of openness or freedom of expression. Across all cases, this value was prominently cited as crucial in fostering a gender diverse team. In addition, the finding also suggests that while organisational culture may be depicted in company profiles as slogans and artifacts, mechanisms should be in place to ensure the internalisation of these values by all team members. This is especially crucial for gender diverse teams, where the organisational culture should foster openness and respect, to ensure all team members have the freedom to speak, regardless of their gender, ultimately leading to optimal collaboration to achieve innovation.

Leadership

Leadership has a critical role in shaping start-ups and leading gender diversity in a team (Homan, A.C et al., 2020). Among five cases, only the leader of Shrimp.co demonstrated a strong commitment towards gender diversity. While Cop.co also acknowledged and exhibited some degree of awareness toward gender diversity, his actions to achieve this goal remain limited. On the other hand, Milk.co, Love.co, and Fashion.co, had a female in the leadership position, serving as a role model, signalling the positive value of breaking the glass ceiling phenomenon for women. Visibility of female leaders can inspire and empower women in leadership tasks (Latu et al., 2019), challenging existing gender stereotype, and in the long run, would drive gender diversity practices.

Unfortunately, their leadership was not consistently accompanied by a strong commitment to ensure that their organisations address gender diversity issues. With this limited experience, some leaders struggled to translate their awareness of gender diversity value within its organisational framework.

From the analysis of all cases, it can be concluded that leadership plays a pivotal role as the primary catalyst in raising awareness about the significance of gender diversity for fostering innovation. As initiators of change within start-up teams, leaders prioritise gender diversity and integrate it into the value of organisational culture and HR management practices within the start-up. More significantly, leaders can demonstrate their commitment to gender diversity by becoming role models, thereby signalling the importance of embracing gender diversity values to the entire industry.

In summary, leadership is a critical actor that could help start-ups lead and leverage gender diversity within start-ups to achieve innovation performance. Moreover, the leader could have an important role in transforming existing institutional pressures. The emergence of successful start-ups with gender diverse teams would not only challenge existing gender norms, but also have the potential to catalyse institutional change that breaks the glass ceiling phenomenon.

HR Policies and Practices

HR policies and practices have a strong relationship with leadership and organisational culture (Biswas, 2009). We extracted various strategies implemented by our investigated start-up, to overcome any perceived barriers and challenges related to gender diversity within the team. It includes an inclusive recruitment policy, establishing gender aware practices, and developing gender intelligence.

Consistent with the earlier findings, it is noteworthy that Shrimp.co stood out as the sole case demonstrating a relatively comprehensive formalised set of HR policies and practices aimed at supporting gender diversity to foster innovation. In addition to developing a "social conduct" policy to foster a supportive environment for all team members, Shrimp.co also implemented flexible regulations that could be adapted to address emergent needs. For example, while other cases implemented a flexible working arrangement policy after the pandemic, Shrimp.co had already implemented this policy long before the pandemic, as part of their response to a female team member's request during pregnancy. Even though it was not set up formally in the previous policy, Shrimp.co demonstrates their responsive policy to accommodate any urgent needs from the team members.

Another distinctive finding regarding HR policies and practices emerged from Milk.co. Throughout the analysis, it was observed that Milk.co provided numerous supportive facilities to assist their team members, from physical activities to housing accommodations. However, these HR policies and practices were predominantly directed toward female team members who worked offline in the office on a daily basis. Consequently, male team members who worked remotely could not access these facilities.

This situation exemplifies a form of positive discrimination, as the CEO understood the challenges that women often face when pursuing their careers. However, if continues, Milk.co risks impeding inclusivity and compromising the principle of equality, which is essential for fostering effective collaboration between individuals of different genders to foster innovation.

Furthermore, other cases such as Cop.co, Love.co, and Fashion.co, exhibited limited formalised HR policies and practices, relying instead on experimental approaches depending on the needs. The reasons behind this situation varied among the cases. For instance, Fashion.co was preoccupied with survival, due to pressing demands in critical business functions. As a result, HR policies and practices became less prioritised. On the other hand, Love.co faced challenges after losing one of the team members dedicated to HR functions, which hindered their ability to address HR issues effectively. In contrast, while Cop.co had a dedicated HR function, the absence of direct guidance from leadership led to the absence of significant HR policies and practices to accommodate gender diverse teams.

The findings highlight the role of HR policies and practices in translating organisational values into actionable initiatives. The findings underscore, that without robust HR policies and practices, organisational values only remain slogans, lacking tangible implementation. It becomes evident that effective HR policies and practices are vital for operationalising values within organisational culture, particularly in supporting gender diverse teams.

In summary, our findings suggest that leadership, organisational culture, and HR policies and practices need to be integrated to support gender diverse teams. These three components of internal dynamics need to be aligned to respond to any perceived barriers and challenges from institutional pressures. It not only helps start-ups leverage gender diverse teams to activate team innovation capability and improve innovation performance, but also helps in transforming existing institutional norms, leading to institutional change.

Table 24 Cross Case Analysis of Internal Dynamic

Aggregate Dimension	Case 1 Shrimp.co	Case 2 Milk.co	Case 3 Cop.co	Case 4 Love.co	Case 5 Fashion.co	Emerging Themes with case study source
Org. Culture	Organisational cultures developed as teams grew and were carefully designed to provide a supportive and inclusive environment for gender diverse teams	Religious pressures influence organisational culture and values, which drive them toward hybrid organisational model	While the organisational culture exhibits openness, Sociocultural norms appear to influence team collaborative efforts (patriarchal culture)	The organisational cultures have been defined but not sufficiently internalised, resulting in low engagement and consequently led to high turnover due to the failure to cultivate a sense of belonging among team members.	The impact oriented approach has been utilised to foster a positive organisational culture and is perceived as a catalyst for enhancing team members' productivity.	Developing inclusive organisational culture (1,2,3,4,5)
Leadership	Strong commitment to gender diversity, demonstrated through awareness raising efforts and effective role models. The leader underscores a belief the potential of gender diversity to drive innovation.	A certain degree of awareness in gender diversity was shown but it was mostly based on occupational stereotypes rather than recognising its true contribution to innovation.	Leaders acknowledge the potential of gender diversity for innovation but struggle to address external pressures and fail to translate their beliefs into strategic action, hindering support for diverse teams.			Leading Gender Diversity: Commitment and awareness (2, 3) Role model: Signalling Gender Diversity value (2)
HR policies and practices	Gender supportive HR policies and practices were created to optimise gender diverse team	HR policies and practices were created to support female team members (positive discrimination). Inclusive HR policies and practices were then suspended	Leaders' beliefs in diversity have not been effectively translated into concrete policies or actions within the HR framework.		Amid pressing demands in critical business functions, HR policies and practices have inadvertently been overlooked and experimental, resulting in a lack of formalisation in HR policies and practices	Implementing Gender Responsive policies and practices (1,2)

4.3.4 Team Innovation Capability (TIC)

Table 25 Team Innovation Capabilities Across cases, summarise the emerging themes of team innovation capability across the five cases. After comparing all cases, it can be seen that all cases share some similarities and differences in how they utilise gender diversity in their teams to achieve innovation capability through using team social networks, developing team collective intelligence, and building team integration.

During their early growth stages, these start-ups were challenged by the global Covid-19 pandemic. At that moment, their survival depends on their TIC. Some start-ups were hit hard by the pandemic and were forced to show how innovative they could be, while others only needed to make minor adjustments to their operations.

For example, Fashion.co was hit hard by the pandemic. As a tech-based start-up, Fashion.co needed to overcome its IT failure, caused by the loss of a key person in IT development. Faced with multiple failures in developing new Apps, Fashion.co decided to redesign its business model and prioritise revenue generation, rather than continuing to develop new Apps that led to financial loss.

On the other hand, Milk.co, however, saw opportunities due to the sudden increase in digital literacy in society during the pandemic. Milk.co took advantage of this phenomenon by offering various online charity classes. Milk.co created a new revenue stream by developing a new business line. The other two start-ups, Cop.co and Love.co, struggled to adapt to remote working arrangements, making collaboration for innovation more challenging.

Among all cases, participants in Shrimp.co were able to recognise the potential of having a gender diverse team, and leverage it to develop team innovation capabilities. Even though other cases acknowledged some benefits, they were not fully able to describe in detail how it helps them achieve innovation performance. On the other hand, with Shrimp.co, even though the pandemic also hit them, their business was not heavily affected. Team members were already familiar with the culture of remote working, even before the pandemic, which helped them to quickly adapt to the challenging situation.

In summary, across the various cases, we can conclude that team innovation capability of each case is shaped by their internal dynamics. A critical comparison reveals that high performing teams (Case 1) exhibit a foundation of inclusive organisational culture, strong commitment of leadership, and supportive HR policies and practices, as enablers of innovation. In more detail,

the mechanisms through which team members collaborate to foster innovation, was found to be different. For instance, for Case 1, developing inclusive organisational culture is an important factor to develop team innovation capability within gender diverse team, whereas other cases such as in Cases 2, 3, 4, and 5, organisational culture was not seen to play a critical role in fostering innovation, causing failure to identify potential problems within gender diverse teams to foster innovation. Furthermore, Case 1 highlights the central role of a gender diverse team to develop team innovation capability, highlighting the value of diverse perspectives in developing team innovation capability. In contrast, as in Case 5, innovation was primarily driven by an urgent need for organisational survival, where team composition only plays an insignificant contribution to it. These variations underscore the importance of internal dynamics, suggesting that team innovation capability is not merely an automatic outcome of gender diverse team, but facilitated through organisational culture, leadership, and HR policies and practices in which the team operates.

Team Social Networks (TSN)

Several themes emerged from the analysis. One of them is Team Social Network (TSN). In enhancing TIC, gender diversity enables start-up teams to capture opportunities from their own network in various ways, such as exploring talent acquisition, potential collaborative networks, funding opportunities, and any other advantages that contribute to the innovation process.

Apart from Milk.co, all cases used their network to find co-founders or to recruit new talent. One participant explicitly mentioned that recruiting someone they knew was beneficial, as it is more effective and efficient. The risk of recruiting the wrong person can be minimised. It could also increase the retention rate and prevent turnover. Interestingly, we found that each team member had a tendency to invite persons of the same gender, which illustrates how having a gender diverse team in the early stage could increase the level of gender diversity in the future.

Apart from recruiting new talent as a critical resource for the innovation process, a diverse social network was also found important to get access to any potential collaborative networks. As in Milk.co, the female networks help them to get access to medical doctors, specifically in mother and baby health (which are female dominated), while the male network helps them to get access to respectable Islamic scholars (which are male dominated) to guide their business. Furthermore, in Cop.co, the participant mentioned different approaches that females tend to have when accessing new potential clients. Drawing from the various examples from each case, it is evident that each case leverages gender diverse teams through their social network

differently. However, all cases used their team's social network to get access to resources they needed during the innovation process, whether talent, partners, or customers. Gender diversity was proven to provide access to different network pools.

Across all cases, the ability to utilise team social networks to develop team innovation capability reveals similarities and differences. A key similarity is how all cases acknowledge the potential of using team social networks to access different network pools. However, differences emerge from how they utilise these networks to foster innovation. While some cases only use their network to recruit new talents (Case 4), other cases (Cases 1, 2, 3, and 5), utilise team social network to not only accessing new talent, but also to identify the potential collaborators, clients, and customers that are important during the innovation process. These findings suggest that the effectiveness of gender diverse teams is not inherent, but contingent upon how they utilise their team social networks, which act as mediators in transforming the potential of gender diverse team into team innovation capability.

Team Collective Intelligence (TCI)

All cases demonstrated similar statements related to the advantages of having gender diverse teams. First, all cases mentioned how diverse perspectives from men and women could help them make better decisions and solve problems.

For example, CFO of Milk.co said, “Basically, we need different genders so that we can get diverse input and perspectives...so that we could maintain the balance in making decisions (Labib, Milk.co)”. Similar statements are also found in Shrimp.co and Cop.co. It underscores the importance of diverse perspectives and the positive impact of having a gender diverse team. Moreover, as men and women have different approaches toward problems, a gender diverse team also means diverse problem solving approaches. It would often stimulate creativity in finding solutions.

Second, as the orientation of men and women toward risk were also found to be different, combining varied perceptions of risk from different genders provides a rational foundation for strategic decision making, leading each case to adopt a more balanced perspective on risk. It could lead start-ups to become more risk aware, without being risk averse. These differences could help a start-up identify risks, and to navigate those risks to prevent their detrimental impact.

Almost all cases had the same experience of how men and women tend to have different orientations toward risk, which could help them understand various aspects of risk. This could

increase the team's collective intelligence related to risk identification, in order to have better responses and navigate any potential risks.

However, a cross-case comparison reveals divergent approaches in leveraging gender diverse teams to cultivate team collective intelligence. In Case 1, the start-up successfully utilised diverse perspective, which stem from differences in individual intelligence across different gender, through inclusive decision making practices that actively engaged diverse members, particularly women, during innovation process. These practices fostered shared understanding, learning, and cognitive synergy, which contributed to the development of collective intelligence. In contrast, for example, in Case 4, while gender diversity was present within the team, even though at some points they also experienced the advantage of having gender diverse teams, there were minimal mechanisms in place to support inclusive collaboration, or integrate varied perspectives, into team processes. As a result, the team exhibited lower levels of collective intelligence, with interactions marked by dominance of certain member voices (in Case 4, female team members have more power in decision making process) and underutilisation of other team members (e.g. male team members). This contrast highlights a critical insight that gender diversity alone does not automatically enhance collective intelligence; rather, its effectiveness depends on intentional facilitation through inclusive communication norms, equitable participation, and inclusion. These findings underscore the necessity of moving beyond demographic representation toward cultivating inclusive organisational cultures that enable the cognitive potential of diversity to emerge.

Team Integration (TI)

Team integration emphasises how men and women tend to have different skills and preferences that can effectively complement each other, leading to collaboration and team integration. From the findings, we can conclude that having a gender diverse team could improve team integration through communication, collaboration, and market knowledge integration.

For example, in Shrimp.co, the male VP tended to pay attention to something the female CEO failed to notice. He often filled in role gaps, and they complemented each other's role to provide better leadership for the whole team. He explained how he and the CEO worked together in the leadership team, complementing each other strength and weaknesses. Complementarity and synergy was revealed as one of the advantages of having a gender diverse team.

Comparing all cases, it can be concluded that all cases found that gender diversity is important in triggering cross-functional collaboration. Each case demonstrated that men and women tend

to complement each other in some functions, effectively improving collaboration during innovation.

Apart from collaboration, communication is also important for a gender diverse team. Maintaining the communication chains was critical to achieving effective collaboration during the innovation process. A majority of the cases asserted that gender diversity played a pivotal role in improving communication among team members, breaking down silos, and even effectively resolving conflicts, even those that arose between individuals of the same gender. Having a gender diverse team not only improved communication within the internal team, but also, helped the start-up communicate with external stakeholders. For example, how Fashion.co illustrates how they could communicate better with their clients.

Similarly, Shrimp.co also provided examples of how their gender diverse team could help them communicate more effectively with farmers. Another advantage of having gender diversity within the team that could help in building team innovation capability, is the ability to understand the market. All five cases exhibited similarities in perceiving the advantages of gender diversity, particularly in understanding different market segmentation.

For example, even though Milk.co and Love.co initially provided a women specific service, they intended to expand their target market. They mentioned that gender diversity in the team was extremely important when trying to broaden their target market beyond their existing customer base. Milk.co mentioned, *“So we think about a charity class with the topic that are not only about lactation but about fertility in men and women (Labib, Milk.co)”*. As he emphasised the need from different market segmentation.

Similarly, Rara, a team member of Love.co stated “I think it's a good thing because we're targeting the family, it's universal, that's not only a service for women, not just for mothers. So with the hope that we can catch the target market that we are aiming for, namely fathers and mothers (Rara, Love.co)”. It highlighted that the potential to acquire market knowledge from different market segments was often helped by gender diversity in the team.

Apart from helping the team to understand market needs based on gender, almost all cases highlight the importance of "empathy," a trait commonly associated with women, in understanding customer needs. Consequently, having a gender diverse team enhanced their sensitivity to understand customer preferences. It could improve their ability to meet customer demands.

To exemplify, Jira, HR of Shrimp.co mentioned that their clients tend to tell a lot of stories to their female field assistants, compared to their male colleagues. Likewise, Hera, the CEO of Fashion.co also mentioned that female team members tend to perform better when understanding the tailors' needs. These exemplify how women tend to have more empathy, and understand non-technical aspects from the customer's perspective.

In summary, we found gender diversity could increase team integration, from collaboration between different genders, to understanding market knowledge. Moreover, it could also improve communication between the internal team and their customer/client. However, apart from Case 1, which successfully developed team integration through open dialogue and share responsibilities across team members, all other cases only demonstrated superficial team integration, such as identifying different market needs, while other potentials remained untapped. This comparative insight suggests that gender diversity alone does not guarantee team integration. Team integration could only be developed if all team members could integrate their individual competence in achieving common goals. The contrast between cases highlights the critical role of internal dynamics in facilitating gender diverse team.

Table 25 Team Innovation Capabilities Across cases

	Aggregate Dimension	Case 1 Shrimp.co	Case 2 Milk.co	Case 3 Cop.co	Case 4 Love.co	Case 5 Fashion.co	Emerging Themes with case study source
Team Innovation Capabilities (TIC)	Team Social Networks	Talent recruitment (GD within the founder team catalyses GD in a team as early joiners predominantly originate from the founders' network), idea exploration from external sources	Fundraising opportunities, idea exploration from external sources, potential partner selection (GD expand external network)	Talent recruitment, Potential collaborative partner, idea exploration from external sources	Talent recruitment	Talent recruitment, Potential collaborative partner	Network expansion in “external focus” search activities (1,2,4)
	Team Collective Intelligence	Different approaches toward the idea-generation process. Diverse perspectives enrich the decision making process and make start-ups more risk-aware	Different perspectives help problem solving and idea generation process,	diverse ideas and perspectives, exploration vs exploitation, risk balancing, GD help	Diverse ideas make the decision making process firmer	Divergent point of view, solving problems with different approaches.	Enrich Decision Making, Problem Solving, & Risk Balancing (1,2,3,4,5)
	Team Integration	Women have more empathy and attention to details (GD helps identify market needs) Cross-functional collaboration (share leadership role) GD breaks down silos which is helpful for collaboration and improve communication and improve productivity	Combine data and intuition, different market segment perspectives, customer focus, and attention to details (GD helps identify market needs) Task distribution across gender based on gender role (trigger collaboration) improve communication	Women have more empathy and attention to details (GD helps identify market needs) Cross-functional collaboration (Task distribution, skill complementary) improve communication	the market needs identification based on different gender perspectives Cross-functional collaboration (Task sharing)	GD helps identify customer and partner needs as women usually have more empathy and patience in facing customer/client Women possess the ability to engage in multitasking, improve productivity	Identification of Market knowledge (1,2,3,4,5) Cross-functional collaboration across gender (1,2,3,4,5) Improved communication (1,2,3,4,5) Improved Productivity through intergroup competition (2)

4.3.5 Innovation Performance

From the findings, we argue that innovation is contextual, contingent upon some specific circumstances, as demonstrated by each case that provides products/services in various sectors. Each start-up functions at a different stage of development, indicating varying degrees of their product development. Therefore, comparing their performance quantitatively poses significant challenges, due to the nature of the continuous evolution of their innovation.

As has been discussed in Chapter 2 section 2.3.3, compared to other innovation performance measurements, which focused on financial implication, evaluating market newness, and technological newness appears to be the most appropriate criteria, particularly in a new venture such as start-up. This approach considers relevant, as it measures the level of innovation present in any digital innovation.

The comparison of the innovation performance of each case can be seen in Table 26 below:

Table 26 Digital Innovation Performance across Cases

Innovation Performance	Shrimp.co	Milk.co	Cop.co	Love.co	Fashion.co
Market Newness					
serve new customer needs – customer needs we had not served before	2.75	3	2.3	3	3
require changes in established attitude and behavioural patterns from customers	3.25	3	3.67	2.75	3
require major learning efforts by mainstream customers.	3	2.67	3.3	2.75	2
take us up against new competitors – competitors we have never faced before.	2.5	2.67	2.3	2.25	2
Overall Market Newness	2.875	2.83	2.91	2.69	2.5
Technology Newness					
are based on substantially different core technology never used in our industry	2	2.3	1.3	1.25	2
involve peripheral technologies that are new to our industry.	2.25	2	1.67	1.5	1
combine different technologies in a new way.	3.25	2.3	2	2.25	3
use technologies that have an impact on or cause significant changes in the whole industry.	3.25	2	1.3	1.75	3
Overall Technology Newness	2.69	2.17	1.58	1.69	2.25
Overall Performance	2.78	2.5	2.25	2.19	2.38

Table 26 Digital Innovation Performance across Cases, exhibits that Shrimp.co has the highest value in digital innovation performance. These results were not surprising, as Shrimp.co effectively demonstrated its team innovation capabilities and showed a clear dedication to gender diversity. This was coupled with strong internal dynamics, such as effective leadership,

exceptional HR policies and practices, and supportive organisational culture, which had been discussed in section 4.1.2.

The second highest performance was Milk.co, followed by Fashion.co. Both cases had moderate levels of technology newness, due to a lack of technological advancement in both their innovation. Both cases experienced the same problem of IT development failure, due to the loss of a key person who was responsible for their initial technology, and had difficulty recovering from this problem. Both cases made the strategic decision to continue their operations using a more basic technology, while temporarily neglecting technology development. They intended to ensure they could still generate revenue to sustain their operations.

Compared to Fashion.co, Milk.co significantly has a higher value of market newness. The market demand for Milk.co products was continuously growing beyond their capacity, while no direct competitor was targeting the same market. On the other hand, Fashion.co target market did not grow in the same manner as Milk.co.

Turning to other start-ups, both Cop.co and Love.co show similar moderate values in their innovation performance. Moreover, their technology newness was also similar, only valued at less than 2 out of 5. The technology in their innovation was limited to a web-based application, which they considered to be not highly technologically advanced. Even though in their recent development, Love.co considered integrating AI in their Apps and planned to develop mobile Apps, it was not at the development stage yet. This made them less confident in putting a higher value on the dimension of technology newness.

In terms of market newness, Cop.co exhibited a notably higher value compared to Love.co, potentially influenced by existing competitors of Love.co that also target the same market segment. Additionally, it could be due to lower awareness of mental health needs, suggesting that the market may not have been ready for the product offered by Love.co.

It is important to note that none of the cases received ratings of 4 or 5, either in market newness or technology newness. It indicates a lack of confidence in assigning high values, possibly due to the ongoing development of their product/services. Surprisingly, it also applies to Shrimp.co, despite their technology adoption, such as the integration of IoT technology and utilisation of machine learning in their application, which is considered the most advanced technology in the aquaculture industry. It leads to the assumption that either Shrimp.co set a high standard of their own innovation, or it was caused by their internal benchmarking to other industries, which

can result in a more critical evaluation of its digital innovation initiatives, even when they were already utilising advanced technologies.

Our findings show that measuring innovation performance solely on a quantitative approach was insufficient to understand each start-up's innovation performance, due to the possible bias in these responses. The start-up teams themselves conducted the assessments. As a result, start-ups with higher standards and ambitious targets, tend to view themselves as less innovative compared to others, while those with lower achievement targets may exhibit overconfidence in their innovation.

Therefore, we also added an additional dimension, which was often overlooked in the previous research as a complementary measurement. We performed a qualitative assessment of the impact and sustainability contribution of product innovation in each case, Table 27 illustrates the comparison of each start-up's contribution to Sustainable Development Goals.

Table 27 Digital Innovation Performance on Sustainability

Sustainable Development Goals	Shrimp.co	Milk.co	Cop.co	Love.co	Fashion.co
Goal 1. End poverty in all its forms everywhere	X	X			X
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture		X			
Goal 3. Ensure healthy lives and promote wellbeing for all at all ages		X		X	
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	X				X
Goal 5. Achieve gender equality and empower all women and girls	X	X			X
Goal 6. Ensure availability and sustainable management of water and sanitation for all	X				
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all					
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation			X		
Goal 12. Ensure sustainable consumption and production patterns	X	X			X
Goal 13. Take urgent action to combat climate change and its impacts[b]	X				

The investigation reveals the influence of digital innovation performance on the contribution to global sustainable development goals (SDGs). Each case demonstrates various contributions to SDGs. From the table, it is clearly observed that Shrimp.co showcases various contributions to different goals of SDGs. The innovation of Shrimp.co's product/services, not only influences

the welfare of low-middle income farmers, but also encourages them to promote women empowerment, by advising them to involve women in their business to improve its sustainability. Moreover, Shrimp.co continuously educated and assisted farmers to implement sustainable practices to improve the environment.

Surprisingly, consistent with the prior assessment, Milk.co ranked second in terms of its innovative impact, with Fashion.co following closely behind. Even though the number of contributions to SDGs was comparable, each case contributed to SDGs in different ways. While Milk.co focused on health improvement and reducing stunting in children, Fashion.co focused on quality of life for low-income tailors, through skill improvement and business development. Both cases are considered impactful and contribute to economic growth.

Aligned with previous measurements, both Cop.co and Love.co's innovations were considered to have low impact. Likewise, their contribution to SDGs was considered limited. This was not solely due to low market readiness, but also because of inefficient internal dynamics configuration, which could hinder the development of team innovation capabilities that were needed for their innovation performance.

Cop. Co expressed their intention to enhance economic growth by facilitating the expansion of small cooperatives through increased access to additional funding. Love.co intended to contribute to improving societal wellbeing and reduce the divorce rate in the country. However, both initiatives encountered numerous challenges; apart from low market readiness and insufficient capacity to adopt digital transformation, Cop.co, and Love.co struggled to develop their internal dynamics to address these external challenges and capitalise on opportunities for innovation.

To conclude, using self-reported questionnaires to measure innovation performance poses a challenge, due to the subjectivity of team members' perceptions of their product/service. This might hinder the ability to objectively compare each case's innovation performance. Thus, it underscores the notion that innovation is inherently contextual (Autio et al., 2014) and long term oriented (Mohedano-Suanes et al., 2021), often defying conventional quantification. As a result, interpretations of innovation performance may vary, depending on the context and timeframe considered during the measurement.

Recognising the complex nature of innovation, highlights the significance of using qualitative components and quantitative measures when assessing digital innovation initiatives. Recognising and addressing the subjectivity of innovation measurement is crucial for

enhancing the rigour and reliability of research in this field. It emphasises the importance of using a combination of qualitative and quantitative approaches, and considering multiple perspectives, to gain a comprehensive understanding of innovation and its implications.

Financial measurements, such as revenue growth and return on investment, are crucial indicators, but they only offer a limited perspective on the larger impact of innovation. Furthermore, they are not relevant to the initial phases of a start-up. By utilising the holistic measuring approach outlined in this present study, many aspects of innovation can be measured, including its contribution to global sustainability development, which is usually overlooked in previous studies because they are more difficult to be assessed (Cangiano et al., 2017).

4.4 Key Findings in Relation to Research Questions

The purpose of this chapter was to present the results of data analysis from the five cases. After comparing the results of each, the overall research outcomes were summarised in Figure 17. The figure illustrates key constructs of the research framework, to illustrate the relationship between each construct. The broader ecosystem of institutional pressures consists of coercive, mimetic, and normative pressures. Internal dynamics within start-up teams consist of gender diversity, organisational culture, leadership, and HR policies and practices, and the outcome within start-ups consists of team innovation capabilities and innovation performance.

We will start by elaborating the answer to two sub-questions (4.7.1 and 4.7.2) before we discuss the answer to the overarching questions in 4.7.3.

4.4.1 Sub-question 1: How do external pressures influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?

This subsection indicates how the findings answer the above research question. It presents the summary on how external pressures influence start-ups to leverage gender diversity in their team, to achieve innovation performance. By analysing data from five cases, we identified several key external pressures that influence tech-based start-ups in leveraging gender diversity within their team to enhance innovation performance. We also noticed variation across different cases. Across five cases, we found that external pressures have multiple roles in influencing how tech-based start-ups leverage gender diversity to enhance innovation performance. In most cases, tech-based start-ups perceived external pressures as barriers to

achieving gender diversity within the team, providing challenges in enhancing innovation performance. While in Case 1, some external pressures provided encouragement in adopting gender diversity within their team.

a. Coercive pressures

Regulative approach was commonly found in the previous studies related to coercive pressures (Labelle et al., 2015). However, we found that each case did not perceive any regulation related to the encouragement in adopting gender diversity within the team to enhance innovation performance. This absence of regulation led to a lack of awareness regarding the importance of having gender diversity within the team to enhance innovation performance.

Apart from formal regulation from the government, stakeholders were also found in the previous literature as one source of external pressures that influence the adoption of gender diversity (Daniels et al., 2025; Dwivedi, P et al., 2022). However, only Case 1 perceive pressures from their stakeholder, in this case, it is the investor that encouraged them to adopt gender diversity within the team to enhance innovation performance. In the contrary, Case 2 perceived expectation from their customer to have more female team members, in order to interact with them during breastfeeding consultation. While the rest of the cases did not perceive any encouragement to adopt gender diversity from their stakeholders.

On the other hand, religion was found as a significant social force on Case 2's organisational practices, yet it has been relatively underexamined (Gümüşay, 2020). Surprisingly, Case 2 was significantly influenced by religion in their business activity, including their decision on gender composition of the team. Case 2 intentionally had more female team members, not only to align with their customer expectation, but also to align with religious pressures that, interpretatively, limit direct interaction between men and women. Without any further strategies, this could become a barrier in enhancing innovation performance within the team. Although this phenomenon was observed only in Case 2, it provides a valuable insight and raises important considerations for further analysis. The uniqueness of how religious pressures could influence tech-based start-ups in leveraging gender diverse teams to enhance innovation performance, highlights its potential relevance and suggests that it may be indicative of broader patterns or underlying factors that require closer examination for future research.

b. Mimetic Pressures

Regarding mimetic pressures, most of the cases did not exhibit mimetic behaviour in adopting gender diversity practices, due to a lack of aspiring successful firms that served as role models in achieving innovation performance through gender diversity. However, only Case 1 actively engaged with external parties to benchmark and consult on their organisational practices, including the adoption of gender diversity in a team. Only Case 1 actively engaged with a consultant who promoted the adoption of a gender lens, including gender diversity within the team.

These findings highlight the mimetic behaviour of attitudes toward gender diversity. In the context where no successful firm adopts gender diversity as a strategy to achieve innovation performance, most start-ups also do not see gender diversity as a significant issue in improving their innovation performance. Nevertheless, the role of external parties, such as incubators and consultants, should not be overlooked. By promoting best practices in gender diversity, these external entities not only increase the likelihood of start-ups adopting gender diversity practices, but also, contribute to advancing gender diversity within the broader entrepreneurial ecosystem. Unfortunately, gender diversity has never been mentioned by most of the incubation programmes, which led to the low awareness of tech-based start-up in embracing gender diversity within their team.

c. Normative Pressures

External ecosystem, including social expectation and industry norm, could become sources of normative pressures (Voinea et al., 2023). From normative pressures, all five cases perceived gender stereotypes and gender norms as barriers in leveraging gender diversity to enhance innovation performance. For example, all cases experienced difficulty in having gender balanced candidate pools during the recruitment phase for some positions that were stereotypically male dominated. This phenomenon became barriers for tech-based start-up in achieving gender diversity within the team.

However, another aspect of normative pressures appears to have had a positive impact on perceptions related to gender diversity in a team. For example, Case 1 found a positive influence from cultural values that inspired them to adopt gender diversity within the team, which they led. The Javanese value of “Bhinneka Tunggal Ika” inspired them to develop some intervention to respond to any barriers coming from normative pressures, to achieve gender diversity within the team. For example, even though the candidate pools were male dominated,

Case 1 intentionally chose to recruit a female candidate, even though she had slightly lower values in competency testing during the recruitment.

In summary, institutional theory provides a framework to analyse the influence of external pressure on tech-based start-ups in leveraging gender diversity to foster innovation performance (Zhang, L., 2020). In our study, we found that tech-based start-up team members perceived conflicting roles of institutional pressures. While some cases (Cases 2, 3, and 5) only perceived barriers to achieve gender diversity within the team (e.g. gender stereotypes and gender norms), two other cases (Cases 1 and 4), were able to perceive some positive influence from institutional pressures to adopt gender diversity within the team (e.g. investor, consultant, family values, cultural values).

Interestingly, we found that external pressures and internal dynamics are interconnected, which are depicted in figure 17, as the doubled-headed arrow between institutional pressures and internal dynamics within tech-based start-ups. It illustrates the dynamic interplay between these two dimensions. We found that start-up teams perceived institutional pressures from their external environment and were forced to respond to those pressures and develop their own internal dynamics. However, internal dynamics within the start-up also have the capability to influence the broader institutional environment, through institutional transformation, demonstrating institutional entrepreneurship (Bakir and Jarvis, 2018). It means that start-ups could also play a critical role and contribute to initiatives that help to transform institutions. As has been shown in Shrimp.co (Case 1), they challenged existing gender norms in the traditionally male dominated sector by actively promoting gender diversity to broader entrepreneurial ecosystem. Thus, creating an arrow from internal dynamics to institutional pressures. Even though we only found this in one case, the capability of this start-up to create a dynamic interplay between institutional pressures and internal dynamics, should not be overlooked.

4.4.2 Sub-question 2: How do internal dynamics influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?

This subsection elaborates the key findings on how internal dynamics influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance. Although we found some variation in different cases, we found several key dimensions on internal dynamics that influence tech-based start-ups in leveraging gender diversity within the

team to enhance innovation performance, namely organisational culture, leadership, and HR policies and practices.

a. Organisational Culture

Organisational culture can be seen from shared norms, values, and expectations within team members (Hofstede, G. et al., 1990). After analysing five different cases, we found that all cases agreed that organisational culture was important to support gender diversity in the team to enhance innovation performance. However, out of the five cases, only Case 1 (Shrimp.co) realised that organisational culture needed to be continuously maintained, along with the growing numbers of team members.

Along with effective leadership, organisational culture could help tech-based start-ups embrace gender diversity (Northouse, 2023). The value of openness or freedom to speech was consistently identified, in all cases, as a critical aspect in organisational culture in fostering gender diverse teams to enhance innovation performance. Other values such as respect, and collaboration were cited occasionally as important values.

Our findings also suggest that while organisational culture is often represented through slogans and symbols, effective mechanisms are required to internalise these values. Organisational culture was not created automatically, but needs to be carefully crafted and intentionally developed. For example, we can see that all of our cases have defined their organisational culture through slogan and symbols within their company profile. However, not all cases ensure all their team members understand and internalised those values. As in Case 2, one of team members, who constantly worked remotely, stated that he did not remember their organisational culture and only read it once in the company profile. As a result, he had difficulty in realising the potential benefits of having gender diverse teams. Similarly, in Case 4, the CEO mentioned openness, but one of team member did not feel accepted within the team, this hinders effective collaboration among team members. On the contrary, Case 1 developed their organisational culture, and they even updated their organisational culture to meet with existing needs. Case 1 ensure their team members understand and internalised their organisational culture and values from onboarding sessions, to regular town hall meeting. Case 1 even make sure those values are internalised and implemented on a daily basis, by providing reward and punishment to those who break the rules. As a result, Case 1 appears to be the only case who successfully leverage gender diverse team to enhance innovation performance.

In summary, for gender diverse teams to function effectively, it is crucial to cultivate organisational values such as openness and respect, to foster inclusive participation and collaboration. However, these values must be genuinely internalised by all team members to ensure their consistent application in everyday interactions. Without such internalisation, it becomes challenging to fully harness the potential of gender diverse teams in enhancing innovation performance

b. Leadership

Leadership plays a pivotal role for organisations in embracing diversity practices (Northouse, 2023, p. 325). There are two significant roles of leadership in tech-based start-ups in leveraging gender diversity to enhance innovation performance. The first role is raising awareness and commitment toward gender diversity within team members to enhance innovation performance. The second role is signalling gender diversity value to a broader ecosystem.

First, leadership plays a critical role in raising awareness and commitment toward gender diversity within the team members. As gender diversity within the team also potentially triggers some challenges, such as conflicts and gender stereotypes, it is important to develop strategies to overcome the drawbacks of having a gender diverse team. This strategy could only be developed if all team members are aware of the importance of having gender diverse teams. Without the awareness and commitment, leveraging gender diversity to enhance innovation performance is a difficult task. Moreover, as most organisational practices within tech-based start-ups relied on their leadership, awareness and commitment from the leaders was important to ensure that it was facilitated by an inclusive organisational culture, and HR policies and practices. For instance, the leaders of Case 1 explicitly guided the HR division in achieving more gender balanced team members. She also ensured their organisational culture was inclusive and supported gender diverse team. She also ensured that all team members understood the importance of having gender diversity within the team.

Second, the findings show that leadership served as a role model to signal the importance of embracing gender diversity values to enhance innovation performance to the entire industry. As has been shown in Case 1, where the leaders intentionally visit the field to ensure that their clients understand the objective of sending female field assistants, she also developed a programme called GALS to ensure their clients understand and use gender lens in their business. This is important as it helps tech-based start-ups respond to unfavourable external pressures, such as gender stereotypes or gender norms that become barriers in achieving gender

diversity within the team to enhance innovation performance. It also helped tech-based start-ups in gaining support from external stakeholders such as investors, clients or customers. In the long term, it could initiate institutional transformation in supporting gender diversity within male dominated sectors such as tech-based start-ups.

c. HR policies and practices

HR policies and practices, along with leadership and organisational culture, could influence the effectiveness of diversity management practices (Ashikali and Groeneveld, 2015). It means that HR policies and practices become an important component within internal dynamics of tech-based start-ups to enhance innovation performance. HR policies and practices written formally within tech-based start-ups, represent their commitment to achieving gender diversity to enhance innovation performance.

We found several HR policies and practices that were implemented in tech-based start-ups who successfully leveraged gender diversity within their team. It incorporates an inclusive recruitment policy, establishing gender aware practices, and developing gender intelligence.

From the analysis, we found that not all cases could develop HR policies and practices to support gender diversity within the team to enhance innovation performance. This was due to a lack of awareness regarding challenges that could occur in gender diverse teams, hence their HR policies were not able to answer the challenge of having gender diverse team. Most of the cases (except Case 1) relied on experimental policies and practices. For example, Case 5 adopted a variety of methods for member recruitment, ranging from informal recommendations by existing members, to more structured open recruitment initiatives. Similarly, Case 4 implemented diverse approaches to team engagement, changing from conventional regular meetings to more socially oriented activities, such as birthday celebrations. These examples illustrate a pattern of exploratory HR practices, reflecting a trial and error approach, rather than a standardised or formalised HR framework. Some cases, such as Case 4 and Case 5, even did not have any specific department related to HR management, due to a lack of competencies in handling these issues.

In tech-based start-ups, leadership, organisational culture, and HR policies and practices are interrelated as internal dynamics. Leadership not only plays a role in implementing HR policies and practices but also significantly influences the development of HR policies and practices. On the other hand, HR policies and practices reflect organisational cultures, translating tangible values into visible strategic action. HR policies and practices also serve as a mechanism that

offers equal opportunities in shaping leadership positions within gender diverse teams. These are examples of how the relationship between leadership, organisational culture, and HR policies and practices are interconnected to each other. These internal dynamics reflect the unique characteristics of emerging ventures, which are different from those of established firms (Katila et al., 2022).

The double-headed arrows between internal dynamics and gender diversity, describe the ability of gender diverse teams to develop new organisational cultures, HR policies and practices, and leadership. On the other hand, internal dynamics also could be developed to intentionally put gender diversity as a priority. As has been shown in some cases (Cases 2, 3, 4 and 5), their teams were gender diverse as a result of the demographic landscape, which in turn shaped their culture of respect, openness, and equality. In Case 1, the leadership prioritised gender diversity. It successfully transformed their gender composition from a male dominated team into a more gender balanced team, indicating the influence of internal dynamics on gender diversity.

4.4.3 Overarching Question: How do tech-based start-ups perceive and leverage gender diversity within their team to enhance innovation performance?

Research on gender diversity has increasingly focused on particular workplace environments that may influence the impact of gender diversity on innovation performance, in order to understand the cause of inconclusive findings from previous research (Xie, L. et al., 2020). Our study, on the other hand, focused on how tech-based start-ups perceive and leverage gender diversity within their team to enhance innovation performance.

From the analysis, we found that tech-based start-ups that successfully enhance innovation performance through gender diverse teams perceive gender diversity as strategic advantage to develop team innovation capability. However, the potential to develop team innovation capability depends on their perception and responds towards institutional pressures, it also subject to how team members manage their internal dynamics.

Throughout the analysis, we found the emergence of team innovation capability as a dimension that provided a missing linkage between gender diversity and innovation performance. These capabilities might become an answer to inconclusive findings that investigate the direct impact of having gender diversity on innovation performance (Arun et al., 2020; Biga-Diambeidou et al., 2021; Schneid et al., 2015). We found that gender diversity has great potential to develop team innovation capabilities that will help start-ups improve their innovation performance, by optimising team social networks, team collective intelligence, and team integration. However,

it is important to note that not all gender diverse teams have the same level of team innovation capability. It depends on how they design their internal dynamics to support gender diverse teams and to respond to unfavourable institutional pressures.

Gender diverse teams are essential to enable start-ups to access diverse networks to find talents, collaborators, partners, or potential clients/customers, particularly in start-ups with limited resources. Moreover, gender diversity in teams resulted in cognitive diversity, which is an essential aspect in developing team collective intelligence. However, without team integration, developing team collective intelligence would be difficult. We found that gender diversity also increases team integration and triggers communication, collaboration, and market knowledge integration. Therefore, three aspects of team innovation capability were interrelated and beneficial to improve innovation performance.

We described the mechanism on how tech-based start-ups perceive and leverage gender diversity to enhance innovation performance within an integrated framework in Figure 17. It is important to note that the antecedents and the consequences of having gender diversity within the team cannot be separated. It is important to look at external pressures and internal dynamics, as they could influence tech-based start-ups in developing team innovation capability that could enhance innovation performance.

This framework offers a logical explanation for the inconclusive results found in earlier studies, about the relationship between gender diversity and innovation performance. Our findings emphasise that gender diversity does not always result in improved team innovation capabilities. It depends on how the team successfully leverages gender diversity to develop them. We highlighted that team innovation capabilities are crucial aspects for improving innovation performance.

In summary, our proposed framework also suggests that, despite the potential benefits that gender diversity in a team has, without strong internal dynamics and a strong belief in the value of gender diversity, these advantages will remain untapped. Tech-based start-ups need to have the capability to respond to external pressures and navigate their internal dynamics. This explains why having gender diversity does not automatically foster innovation performance.

The detail explanation of these findings, along with relevant theories, will be discussed in Chapter 5.

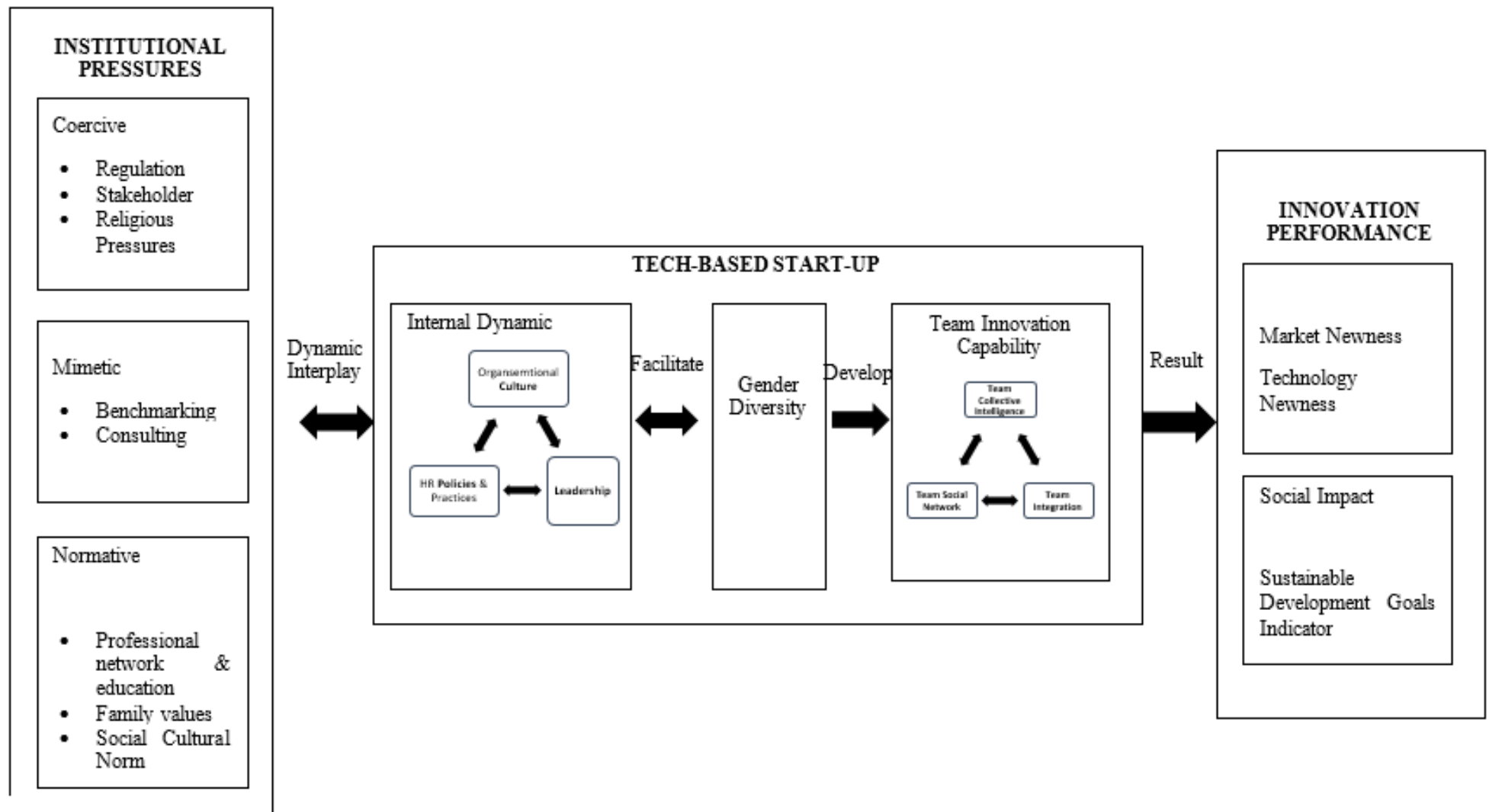


Figure 17 Gender Diversity and Innovation Framework in Start-up Team

Chapter 5

DISCUSSION

Building upon the findings presented in the previous chapters, this section seeks to develop knowledge and understanding of the key themes, patterns, and implications emerging from the data. This aims to develop the conceptual framework and make a theoretical contribution through the analysis of case study results. Through this chapter, we examine the implications of the findings for advancing our understanding of the relationship between gender diversity and innovation performance within start-up teams by comparing them to previous studies.

The main overarching research question of this study is, “*How do tech-based start-ups leverage gender diversity within their team to enhance innovation performance?*” Our research revealed that the relationship between gender diversity and innovation performance is complex and should not be isolated from its context. This phenomenon should be understood by considering any provisioning conditions, including the internal and external ecosystem.

To understand the provisioning condition that support tech-based start-up in leveraging gender diversity to enhance innovation performance, we have develop two derivative research questions. The first research question is “*How do external pressures influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?*” and the second research question is “*How do internal dynamic influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?*”. The first section of this chapter will discuss the answer to the first research question by elaborating the role of external pressures. The following section will discuss the answer to the second research question by elaborating the role of internal dynamics and the interplay between these two dimensions.

Our main finding can be summarized that tech-based start-ups could leverage gender diversity in their teams to achieve innovation performance by responding to institutional pressures and navigating internal dynamics. As a result, they could build team innovation capability to enhance impactful innovation performance.

By critically examining the intersections of theory and empirical evidence, this chapter aims to deepen our understanding of gender diversity and analyse its influences on innovation performance in tech-based start-up teams. It will thereby enrich scholarly knowledge and

discourse on gender, entrepreneurship, and innovation while providing invaluable guidance for future research.

5.1 External Pressures

The first research question derived from the overarching research question mentioned above is “How do external pressures influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?” This question aims to understand how external pressures influence start-ups in leveraging gender diversity to increase innovation performance. In contemporary organisational studies, institutional theory serves as a predominant approach in understanding how organizations respond to their external environment (Greenwood et al., 2017). DiMaggio and Powell (1983) have identified three main forces that contribute to the phenomenon of organizations becoming more similar (isomorphism). These forces include coercive, normative, and mimetic pressures.

In previous studies, such as in Arun et al. (2020), we found that the quality of regional formal institutions influences how female entrepreneurs innovate. They found that negative regional institutional quality negatively moderates the relationship between having a female entrepreneur and firm innovation breadth. Likewise, Attah-Boakye, R. et al. (2020) also found that gender diversity is positively associated with corporate innovation when there is a supportive environment that includes the following: rule of law, government effectiveness, and control of corruption.

Our research, on the other hand, complements Arun et al. (2020) and Attah-Boakye, R. et al. (2020), we explored different cases in a single country context to deeply understand whether firms operating in the same institutional context would behave similarly regarding how they leverage gender diversity to achieve innovation performance. Moreover, our research does not limit the institutional context to formal institutions (e.g. regulation and government effectiveness) but also considers other informal institutions, such as social and cultural norms. Thus, it provides new insight into how institutions influence the relationship between gender diversity and innovation performance.

In this study, we found that external pressures do not always lead to isomorphism, as the response of each start-up to these pressures varies. For example, in the previous chapter, we elaborated on how Case 2 responded to external pressures by adopting a compliance strategy and decided to have more female team members, as society expected, in order to gain public trust. On the other hand, Case 1 responded by challenging existing pressures and initiating

institutional change by sending female team members as field assistants in a traditionally male-dominated environment. Interestingly, while Case 2 and Case 1 perceive significant pressures, Case 3, Case 4, and Case 5, only perceive limited external pressures as they do not perceive gender diversity as a concern. This finding highlights that each start-up perceives different pressures, and their strategy toward these pressures varies.

The variation in how start-ups respond to institutional pressures depends on several things. First, among all cases, only Case 1 received coercive pressure from its investor to adopt gender diversity, while other cases were subjected to weaker pressure in the form of recommendations to have gender diversity. Moreover, it also depends on the nature of the relationship between the source of pressures and the start-up. When the relationship is not long-term, start-ups may find it easier to ignore or avoid such pressures.

Furthermore, the decision to respond to external pressures is influenced by the internal motivations of the start-up. If a start-up is already internally motivated to embrace gender diversity, it is more likely to conform to external pressures. For example, in Case 1, the leader argues that she personally believes in gender diversity values. Thus, external pressures that require them to have gender diversity only strengthen her own values and facilitate alignment and internalization of this value to all team members. Conversely, in cases where there is no intrinsic motivation to adopt gender diversity, it becomes easier to disregard any perceived external pressures.

Another aspect that significantly influences how start-ups react to external pressures is the ability to navigate their internal dynamics to adjust to external pressures. During the pandemic, the business of Case 5 was highly affected due to the IT failure that required Case 5 to adjust its business model. As a result, instead of focusing on their internal dynamics, Case 5 focused on finding a new business model and put the gender composition of a team as an insignificant issue. On the other hand, despite its limited experience in developing an organisational culture for a gender-diverse team, Case 1 had sufficient resources to engage with consultants to adjust its organisational culture and HR policies and practices. As a result, they had the capability to incorporate any issues from external pressures related to gender diversity.

In summary, in contrast with DiMaggio and Powell (1983), our finding underscores the fact that even though the institutional context may bring isomorphism, it is not always predictive. Organisational capacity to respond and react to these pressures might vary, which leads to

heterogeneity in start-ups' behaviours in leveraging gender diversity to achieve innovation performance.

Instead of falsifying institutional theory related to isomorphism as has been outlined by Aksom and Tymchenko (2020), we tend to highlight that contextual factors should not be overlooked, especially in an emerging venture such as tech-based start-ups. Through our findings, we demonstrated that tech-based start-ups could also play a critical role in institutional change by introducing new business models, technologies, and practices, a process that institutional theory does not adequately capture. Case 1 is a clear example of the emergence of institutional entrepreneurship. Case 1 demonstrated the capability to initiate institutional change by transforming a traditionally male-dominated environment into a more inclusive and gender-diverse environment. Thus, following Garud et al. (2007) on the emergence of institutional entrepreneurship, we give nuance on how, why, and in what context heterogeneity occurs as a response to different perceptions towards institutional pressures.

The theoretical contribution in our findings lies in the elaboration of the relationship between institutional pressures and internal dynamics that influence tech-based start-up team in leveraging gender diversity to achieve innovation performance. The following section will explain whether, how, and why coercive pressures, mimetic pressures, and normative pressures influence how start-up teams take advantage of gender-diverse teams.

5.1.1 Coercive Pressures

In our study, we could only find limited coercive pressures that force start-ups to adopt gender diversity. As coercive pressures related to regulation, we did not find any hard or soft formal regulation perceived by our cases that coerce start-ups to have gender-diverse teams, especially in the start-up ecosystem. However, we found religiosity as a distinctive feature of informal coercive pressures that influence how start-up teams could leverage gender diversity to enhance innovation performance. Religiosity refers to the level of commitment, involvement, and intensity of religious beliefs, practices, and activities in individuals' lives (Ali, J., 2023). Our research complements Ali, J. (2023) who found that religiosity influences entrepreneurial intention. We found that religiosity influences not only entrepreneurial intention but also entrepreneur behaviours, which influence how they shape their ventures, in our case, how they perceive gender diversity and leverage it to improve innovation performance.

Moreover, we also found that investors have influenced gender diversity adoption in one of our investigated start-ups (e.g., Case 1) by advocating gender diversity in their start-up and

formalizing it within indicators that should be fulfilled. This then coerces start-ups to make gender diversity a priority.

Formal regulation on gender diversity

Our analysis found that the majority of start-ups perceived a lack of formal regulation related to the encouragement to adopt gender diversity in their team to promote innovation performance. This finding was somewhat surprising given the fact that the Indonesian government had initiated incubator programs aimed at boosting start-up growth while also having a specific program called the gender-mainstreaming program, which focuses on addressing gender inequalities in society. However, none of the start-ups involved in this program recalled receiving any suggestions related to gender composition.

We initially suspect that regulations can help shape start-up team perceptions of appropriate organisational norms (Zhang, L., 2020) and help increase gender diversity (Allemand et al., 2022). On the other hand, the regulative approach was found not to effectively increase firm innovation performance (Labelle et al., 2015). They emphasized that public policies aimed at augmenting the representation of women on corporate boards should be introduced gradually and voluntarily rather than swiftly and coercively to prevent an outcome of “suboptimal” board compositions. However, we argue that the findings of Labelle et al. (2015) had bias as they only focused on the big corporations that operated before the regulation was published. Consequently, the approach to gender diversity within these corporations may be perceived merely as a response to compliance with regulations rather than a genuine commitment to fostering gender diversity so that they could improve their innovation.

On the other hand, following Eesley et al. (2014), we argue that the founding team composition in the early stage of a venture such as a start-up plays a critical role in future success. Start-up founding teams are usually established during the incubation program. Therefore, we suggest that direct intervention through regulation in this phase may be effective in raising awareness and fostering gender diversity within start-up team rather than in an established corporation such as in Labelle et al. (2015). Therefore, we oppose to previous literature that argue regulative approach is not effective in leveraging gender diversity in achieving innovation. We argue that it might be effective in emerging venture that just started their business as long as it is coupled with the guidance on how to effectively leverage it to improve innovation.

Unfortunately, during the investigation we did not find any regulation regarding gender diversity in Indonesia. Thus, we cannot conclude the effectivity of regulative approach in

fostering start-up team to embrace gender diversity in start-up teams. We could cautiously suspect that lack of regulation regarding gender diversity might answer why most of our investigated start-up did not prioritise gender diversity. It is important to interpret this with caution due to various underlying factors that might exist, which we did not examine. Nonetheless, our finding strengthen the argument by Mensi-Klarbach et al. (2021) who found that additional forces were needed as self-regulative approach was not effective to force firm to adopt gender diversity. Therefore, we propose that a regulative approach is an important initiative that accelerates awareness related to the importance of gender diversity in teams. By starting an initial step, we could move to a more advanced program to help start-ups leverage gender diversity to achieve innovation performance.

Investor pressures on gender composition

Through the analysis, we found that investors play a critical role in strengthening internal dynamics to support gender diversity in a team. For example, even though the CEO of Case 1 has demonstrated great commitment toward gender diversity, without coercive pressures from investors, it might be difficult for the rest of the team members to share the same values and commitment towards gender diversity. Interviews from Case 1 revealed that team member strengthened their belief in gender diversity because it was not just their leader's value but also the investor requirement. It can be seen from several team member's statements such as "...the CEO is the same as the investors, want an inclusive environment (Jaselin, team member, Case 1)" and "...they [investor] are also concerned about gender, yes, the proportion of gender in the company (Jaiz, VP, Case 1)". As a result, Case 1 conformed to the pressures from the investors and utilized this support as an opportunity to help them not only to benefit from gender diversity but also to challenge existing gender norms in the industry and initiate institutional transformation.

Our finding aligned with previous research about the critical role of shareholder in shaping corporate governance, including recommendations for having gender diversity in the internal team composition (Perrault, 2015; Marquardt and Wiedman, 2016; Rastad and Dobson, 2022). Complement to these research, our findings strengthened the argument that investors might also has influence on the adoption of gender diversity by providing new empirical evidence in the context of emerging venture such as start-ups.

Even though Knippen et al. (2019) also suggest that external pressure has a positive effect on increasing gender diversity. However, they argue that it did not help in countering the gender

bias on corporate boards as most of the firms see it only as compliance. In contrast to Knippen et al. (2019), we found that Case 1 genuinely embraced gender diversity and did not see it merely as compliance with investor's requirement. We can see it from Case 1's effort to consult with third parties to help them leverage gender diversity, not only to enhance their innovation performance but also to promote it to their clients. Case 1 believed that by actively using a gender lens in their client, it could also improve their client performance as Jaiz (VP, Case 1) said *"We are applying the GALS in our client. Let women also be involved in cultivation because we believed that there should be improvement"*. Jaiz believed that having both perspectives from men and women in decision-making process were beneficial to foster innovation.

Unfortunately, this scenario was observed in only one out of five cases. It is important to restate that Cases 2 and 4 did not have any investors, while Case 3 and Case 5 had investors who did not prioritize gender diversity. Consequently, apart from Case 1, none of them perceived any coercive pressures related to gender diversity.

Even though it was only found in one case, our finding is consistent with that of Rastad and Dobson (2022) and Gormley et al. (2023), who found that shareholder activism serves as a means to enhance board gender diversity, offering an alternative to government-mandated quotas. Unfortunately, interviews with three investors revealed that in Indonesia, even though the founding team was mentioned as an important criterion during the due diligence investment assessment, gender diversity was not perceived as a significant factor.

Complementing research conducted by Åstebro et al. (2022), who explore European venture deals, we also highlight a gap in recognizing gender diversity as an important investment criterion in the Indonesian context. Likewise, Cassion et al. (2021), who analysed 48,000 companies on Crunchbase and compared funding allocation based on the gender composition of founding teams, found that gender composition was not a significant factor in raising funding. Instead, they found that the CEO's gender, notably that of a male CEO, is the most important criterion in securing funding. This underscores the lack of shareholder awareness about the importance of gender diversity and addressing gender-based prejudice in the investment industry.

Religious pressures on culture and strategic orientation

During the investigation, we found one unexpected factor that emerged as a coercive pressure that influences the attitude towards gender diversity. This distinctive factor is religiosity.

Religiosity refers to a guiding perspective on life that is manifested via beliefs, narratives, symbols, and practices of worship, internalized within individuals and guides their behaviour and connection to other people (Mazereeuw-van der Duijn Schouten et al., 2014).

It is surprising that DiMaggio and Powell (1983) did not specifically explain how religious pressures categorized within the framework of isomorphism could potentially bring quite significant pressures to the organization. Religiosity was recognized as an omnipresent informal institution affecting individuals' decision-making (Weaver and Agle, 2002). In recent years, there is a growing interest in how religiosity, as an informal institutional factor, influences individual entrepreneurial activity (Miao et al., 2022).

In our study, we found that religiosity influenced Case 2 in terms of their ability to utilize gender diversity to achieve innovation in several ways. First, Case 2 decided to recruit more female team members to enable their team to also work as a customer service who provides breastfeeding consultations. Breastfeeding consultations often need visual contact with female customers. There are strict rules in religion regarding gender interactions, especially in intimate contexts such as breastfeeding consultation. Recruiting more female team members ensures that these consultations can be conducted in a manner that respects religious norms. As a result, their team member was female-dominated.

Second, Case 2 only required female team members to come to the office every day while all male members worked remotely in order to adhere to Islamic regulations aimed at minimizing gender mixing, known as *ikhtilat*. This practice is commonly found in Islamic countries (see van Geel, 2016). It can be seen from the Case 2 team member's statement, "*We can discuss everything. But you know, because in the office, there are so many women, so I prefer to keep my distance to meet in person. Because I don't think it is good for me either [due to religious prohibition] (Labib, COO Case 2)*". This practice, often caused by religious interpretation, if not navigated effectively, might hinder collaborative effort during the innovation process.

Based on these findings, we follow Weaver and Agle (2002), who argue that religiosity could influence individual behaviour within the organization and could become a form of informal institutional pressure (Miao et al., 2022). We also support Gümüşay (2020), who argue that religiosity need to be integrated into institutional theory as another source of pressures for legitimacy. This construct also elucidates the importance of religion, its interconnectedness with other structures of authority, and its integration into and influence on inter-institutional networks.

In our study, we categorized religious pressures within coercive pressures as we found empirical evidence that supports the notion that religion is widely regarded as a social force that shapes entrepreneurship and business activity, behaviour, and practice (Kumar et al., 2022). For example, the adoption of the Islamic framework in Case 2 influenced Case 2 attitudes toward gender diversity within the organization. It results in paradigm shift in business activities, wherein religious principles influence beliefs, behaviours, products, processes, and practices (Gümüşay, 2020).

In this case, we found that religious pressures influence how gender-diverse teams work together in daily basis. Which, in turn, influences their innovation process. For example, the Islamic religion entails specific depictions of the interaction between men and women, with prohibitions of certain practices. Hazim and Nazari (2023) explain in detail that there have been fatwas that prohibit unrestricted mixing between men and women, commonly referred as “*Ikhtilat*”. The limitation on how men and women have a direct interaction might influence their collaborative effort within the team. However, as discussed in van Geel (2016), the use and meaning of the term *ikhtilāṭ* in the public spheres are debatable, conversations are ambiguous, and they continue to evolve. Scholars have different views on the extent to which the interaction between genders is categorized as compulsory, recommended, permissible, disliked, and forbidden. As a result, it leads to multiple interpretation of its practices (van Geel, 2016).

However, compliance with these pressures does not always result in a detrimental impact on collaborative effort. For example, Case 2 took a stance where they did not fully prohibit gender interaction but limited it as much as possible in their professional environment. Hence, despite this restriction, collaboration between individuals of different genders still occurs in different ways (e.g., online meetings).

We also found that religious pressures do not entirely bring negative consequences in the innovation process. Some religious values influence how strong organisational culture was built. Moreover, religious values also work as a reminder to treat all team members in a good manner. To exemplify the employer-employee relationship that is considered in the following Hadith: “*Give the worker his wages before his sweat dries*” (Tirmidhi; Ibn Majah), which requires organizations to pay attention to their team’s welfare and well-being, increasing the potential of an increased sense of belonging of start-up team members, which could result in

optimal productivity. The statement from the CEO clearly aligned with this statement: *“Our team is also the mover of goodness. We should pay them properly(Linda, Case 2)”*.

In Case 2, we also found that that religious pressures trigger start-up teams to pay more attention to achieving responsible innovation. Our findings support the argument that religious values and principles lead to spiritual leadership and ethical business behaviour (Astrachan et al., 2020). For instance, during the observation, the leader of Case 2 often provides a motivational speech about the good cause in what they are doing and the benefit that they would get in the afterlife (refer to religious principle). Therefore, every single program that they made during the innovation process always reflects this main philosophy of making an impact on society.

Interestingly, our research is consistent with the findings of Alotaibi et al. (2022), who observe that a religious approach does not necessarily have a negative impact on performance. The extent to which the start-up team adopts religious principles is a determining factor. For instance, the specific start-up that we investigated demonstrated a commitment to Islamic principles through the implementation of more rigorous screening standards that align with their investment objectives, which focus on giving benefits to society. It can be seen from the CFO’s statement when was asked about their decision in selecting an investor *“...we’re afraid that investor will change the direction, it will influence the decision making process....because we want to do dakwah (a religious mission) so we prefer to become a non-profit organization (Jaiz, Case 2)”*. This approach aims to introduce ethical business practices to the industry. Spirituality and religious belief, on the other hand, are beneficial as they could increase employees’ well-being and interconnectedness with the community, as well as provide a sense of purpose and meaning at work.

However, the role of religiosity in this study needs to be interpreted with caution as it was only significantly shown in Case 2. Moreover, it only represents one particular religion (Islam). However, our findings yield new theoretical insights about the impact of religion as a coercive pressure on business, particularly in this case, on the decision on gender composition and its interaction within start-up teams, as well as how it influences organisational culture and its strategic orientation. Moreover, our findings underscore the notion that religion still has a significant role in and across organizations and societies within some institutional contexts, particularly where religion is considered an important informal institution (Poushter et al., 2019).

Our research addresses a call to link the dimension of religion and institutions in the context of entrepreneurship (Ayob and Saiyed, 2020). We also complement previous research that links religiosity and attitude towards gender diversity by providing nuance insight and empirical finding within developing country (Cui et al., 2015; Guo, X. and Yang, 2023).

5.1.2 Mimetic Pressures

Mateos de Cabo et al. (2024) found that firms tend to exhibit mimetic strategy regarding their gender composition on board, imitating the average behaviours of their tied firms. In this study, we found that mimetic behaviour arise from adoption of best practice within the industry through two main mechanism: benchmarking to other start-up (found in all Cases) and consulting with third parties (Case 1, Case 4). Unfortunately, as our investigated start-up did not have any social networks with other firms that put gender diversity as priority, we did not found any mimetic behaviour leading to the adoption of gender diversity within the team. Instead, we found that they tend to mimic other successful firms who did not put gender diversity as priority. Our finding strengthen Mateos de Cabo et al. (2024) about the role of social network, in which start-up learn and interact, in influencing start-ups in adopting gender diversity in their team.

Benchmarking and consulting

In this study, we found that only Case 1 was actively seeking advice from third parties, such as consulting firms, who assisted them in building an effective organisational culture and adopting gender lenses in their business. *“...the HR team is still in the consulting stage with one of the HR consultants to create a culture (Jira, HR leader in Case 1)”* and *“Regarding using gender lens and increasing impact of our innovation, I am currently engaged in the ongoing process, , assisted by one of my friends in the organization, called ProjectI (Jaiz, VP in Case 1)”*.

However, we found that only a limited number of consulting firms provide recommendations about gender diversity. Only one particular consultant (ProjectI) mentioned by some participants such as in Jaiz from Case 1 and Hera, a CEO from case 5: *“What I see is like it's just only ProjectI that focus on gender and social impact. For other incubations, I think they just emphasized the importance of not just a single founder.”*

As we managed to interview ProjectI, their recommendation towards gender was only part of their focus on impact as they used SDG as a matrix for measuring impact. Due to gender equality is one of SDG goal, they highlight the importance of using gender lens in the

organization. They also mentioned that it was impossible for organization to focus on all aspect of SDG. Therefore, they usually ask their clients which aspect of SDG they want to focus on. If they wanted to focus on gender, ProjectI would assist them in using a gender lenses in their organizations.

Moreover, all of our investigated cases perceive the absence of aspiring and successful firms in embracing gender diversity to achieve innovation performance. As a result, no mimetic pressures related to gender diversity was perceived. Interestingly, our analysis discover a connection between start-up's commitment to gender diversity and its engagement in benchmarking practices. Apart from all other cases, we found that only Case 1 who have a strong commitment about gender diversity and coincidently active in seeking for advice in leveraging their gender-diverse team including building strong organisational culture and relevant HR policies and practices to support their gender diverse team.

Consulting firms play a significant role in this process by providing expertise, insights, and recommendations based on best practices observed across various industries. Particularly related to gender diversity initiatives leading to mimetic pressures for the start-up. Given the absence of consulting firms providing guidance on this matter, we emphasise the necessity for clear and specific guidelines on implementing gender diversity in order to enhance innovative performance within the consulting industry.

As we found study related to how firms engage in mimetic behaviour related to the adoption of gender diversity are rare, we extend the research by Mateos de Cabo et al. (2024) and Mawdsley et al. (2023) about the role of social networks of firms in giving mimetic pressures to adopt gender diversity. Our study, on the other hand, provides additional empirical evidence that when start-ups do not perceive successful stories of other firms adopting gender diversity to drive innovation, they are more likely to also not adopt gender diversity as a priority. Our research indicates that the lack of best practices demonstrated by other firms hinders gender diversity adoption, in spite of the work of some consultancies to promote it.

5.1.3 Normative Pressures

As previously discussed in the previous chapter, our findings reveal that normative pressures have a significant impact on start-up effectiveness in leveraging gender diversity to foster innovation. Start-ups face various challenges, often from prevailing societal expectations and industry standards. It impedes efforts to promote gender diversity to drive innovation. For example, cultural norms that caused gender segregation in occupation will cause gender

imbalance in candidate pools, as has been found in Cases 1, Case 3, and Case 4, making it difficult to achieve gender diversity. Gender stereotype in task distribution was also found (women were associated with administrative tasks), reflecting gender norms in society. Moreover, patriarchal culture (refer to Case 3 female team leader) also emerged as a factor that could hinder collaborative effort during the innovation process.

These normative pressures primarily serve as inhibitory factors shaping perceptions of the influences of gender diversity on innovation within start-up teams. The mechanism by which these pressures create barriers and challenges will be discussed in the following section.

Cultural norms and Social expectation

One major factor that we found influencing the lack of gender diversity within start-up teams is conformity to cultural norms and social expectations. In accordance with the present results, Adom and Anambane (2020) have demonstrated that cultural influence has on the emergence of gender stereotypes, influencing women in entrepreneurship activities. Likewise, we found that start-ups in Indonesia operate within societal contexts where traditional gender roles and stereotypes firmly embedded in society influence the start-up's development process. We found that this situation influences start-ups in hiring practices and team dynamics. For example, as in a statement demonstrated by one participant, "*For a technology related position, we are looking for a man (Labib, CFO of Case 2)*". The statement clearly demonstrates a gender-specific bias during the hiring process where the CFO associated some particular position to be filled in by some specific gender. This phenomenon will reproduce gendered practices that will impede start-ups from having gender diversity and improve their innovation performance.

The example above illustrates the barriers to achieving gender-diverse teams, mostly due to an entrenched expectation that there are roles that are more suitable for one gender over another, leading to occupational stereotypes. As a result, some positions result in male-dominated environments, particularly in the tech industry and entrepreneurship, where gender norms often prevail (Armstrong et al., 2018; Ranga and Etzkowitz, 2010). As a result, even though some start-ups intend to foster gender diversity, as shown in Case 1 and Case 3, during the recruitment process, they often face gender imbalance in the candidate pools, making it difficult to achieve a gender-diverse team.

Despite this, we also found that conformity to cultural norms creates barriers for women seeking to enter or advance within start-up teams. For example, Linda, the CEO of Case 2,

expressed her difficulties in joining international incubation or competitions that require her to attend physically due to her domestic roles.

if there is a competition from inside or outside, he (refer to the male CFO) is the one who is more active in participating because it is more possible, he's more flexible. Well, this is where we share with each other. More likely. Why? Due to the condition of my family, So I can't possibly even go anywhere (Linda, CEO Case1).

Our findings provide additional empirical evidence that in Indonesia, women stereotypically hold full responsibility for taking care of unpaid domestic roles, creating particular difficulties in juggling between work and domestic roles (Priyatna, 2013). Our findings are also consistent with those of Armstrong et al. (2018), who found social expectation and work-family conflict as barriers for women to advance their careers in the IT sector. It is difficult for women to pursue their careers as they are seen as unreliable due to double-burden responsibilities (e.g. family and work) that women have. Even though those women were unmarried, we found that most of them still have limitations to have flexibility, for example, because of their parents blessing to work in another region or remote area as Linda(Case 2) stated “*Mothers still want their daughter not far from their homes*”.

In the previous chapter, we also provide evidence that women may face implicit biases and assumptions about their capabilities and suitability for certain roles. Similar to the findings in Egypt (Hattab, 2023), implicit bias and patriarchal culture, which is widely rooted in Indonesian culture, is amplifying this effect and influencing organisational culture. For example, when women are put in leadership positions, they experience difficulty in managing their male team members as it is contrary to the existing norm that women should be inferior to men.

This finding broadly supports the work of other studies in this area linking women and leadership positions within countries with a patriarchal culture (i.e. Adongo et al., 2023; Koburtay et al., 2023). Likewise, Chaubey and Kuknor (2024) also found a lack of awareness about the impact of gender diversity on firm performance within patriarchal culture countries.

The pressure to adhere to prevailing cultural norms and social expectations can contribute to the underrepresentation of women in start-up teams, hindering efforts to achieve gender diversity and realize its potential benefits for innovation. However, it is important to note that this finding is not found in all cases.

To exemplify, when Case 1 found difficulties when sending female field assistants, which was traditionally male-dominated, Case 1 navigated and responded to this challenge by educating farmers through a series of workshops implementing Gender Active Learning Systems (GALS) to underscore the importance of involving women in this sector. *“We are now applying the GALS in the intro. Let women also be involved in cultivation because my assumption is that there should be improvement. (Jaiz, Case 1)”*. Moreover, internally, Case 1 also provided evidence that their product was improved when involving women in the process. *“it's different whenever all engineering is guy, is all different, when girl join, it makes different (Jane, Case 1)”*

Those examples highlight that in some cases where start-up teams successfully manage this pressure by creating a supportive environment (as in Case 1), women were seen to contribute to the innovation process, contrary to the previous research where women were often seen as insignificant to innovation process (Pecis, 2016). Our findings provide a novel contribution by highlighting the significant contribution of entrepreneurial actors, such as in Case 1, to respond to specific pressures and work against existing gender norms by educating their clients to understand the role of gender by using the *Gender Active Learning System*.

Family Values

We discover that normative pressures mainly stem from prescriptive standards influencing attitudes and behaviour. Our finding reveals that they can arise from the learning process, either through education or family values. In this case, normative beliefs about the importance of diversity, respect, and other behavioural values were found to be passed down through family values, which in turn reflected in leadership values.

For example, the CEO of Case 1 explicitly mention this influences during the interview. *“Bhinneka Tunggal Ika, it's unity in diversity, yes, the Indonesian language has a very deep meaning and those meanings should also be taken from the Javanese values that were always passed down by my father (Jane, Case 1)”*. Similar statement also expressed by Rani, the CEO of Case 4. *“I'm more driven by my parents for gender. It's not just gender, it's also to the variety of backgrounds, for example (Rani, Case 4)”*.

These findings reflect those of Ganguli and Krishnan (2005) who also found that family values shapes gender norm beliefs and enhances femininity. Our finding complement to this research as we found that family values also could influence the leader's perspective on embracing gender diversity.

Our findings on family values also make a complementary contribution to the research conducted by Edelman et al. (2016) and Ononye et al. (2022). They examine the influence of family on entrepreneurial activities and found family support, such as financial support, social network, and psychological support, contribute to young entrepreneur's start-up formation and process. We, on the other hand, focuses on the impact of family on the more intangible support that goes beyond financial and network support. These forms of support encompass essential values and principles, which shape start-up's development and influence the perception of gender diversity within start-up teams.

Education and Professional Networks

In our study, we found that all of our start-ups were involved at least in one of the incubation or acceleration programs during their early stages. For example Case 2 involved in DigitalX program, Case 1 involved in one of accelerator program in Norway, Case 3 joined in Antler Incubation Program, Case 4 participated in several incubation program such as DigitalX, University incubation, and Case 5 who also involved in several incubations such as DigitalX program, Telkom incubation program, and etc.

Aligned with previous research, our finding highlight the critical role of business incubators for facilitating start-up learning process (Sedita et al., 2019; Al-Mubarak and Busler, 2010). The incubator program, given its role as a catalyst for start-up creation, has the ability to actively enhance understanding regarding the potential impact of gender diversity on innovative performance. However, we found that the incubator service providers do not see gender diversity as significant factor.

we don't have any specific regulation about gender composition, yes, directly, yes, let's go. there has to be a girl or a boy in the team, , no, no, no, we don't push there. Actually, right now, what I'm asking from my team is just now. For the attendance of the activity, we must have a gender column because we want to see what percentage of women actually participate in our activities(DigitalX Program).

Furthermore, the limited representation of women in the incubation program poses additional challenges, as it would be hard to advise a gender-diverse team where the participant pool is imbalanced in gender composition. *“It's still very difficult to find participants who are women, who want to be like that, who have the courage to really enter the digital world (DigitalX Program).”*

Our findings provide novel empirical evidence that supports the notion that incubation programs often reflect a gendered phenomenon (Maxheimer and Nicholls-Nixon, 2022) where

the issue of inclusivity was not a concern. We found there was a lack of intervention programs initiated by incubators and the government on the issue of gender imbalance in participation in business incubation. Unexpectedly, this issue was found neglected by one participant from the government who mentioned that gender was not an issue and there were no specific challenges for women to be involved in start-up development.

maybe there are some activities that occur in Indonesia that are usually carried out by another ecosystem where they talk about women, start-ups, and others. But if we look at the start-up world, start-ups, actually, the barriers don't really exist. Directly, there is no barrier created to prevent women from being able to become good founders or playing the main role or the supporting role like that, right? (Government 2).

Our findings emphasize a gendered phenomenon in the incubation program. It illustrates the lack of use of gender lens in start-up incubation programs, which is critical for start-up development. It was important in catalyzing change in women's entrepreneurial landscape. Therefore, our finding fills in the gap and addresses a call to bring broader contextual and institutional factors within an ecosystem that act as enablers or inhibitors of women entrepreneurs' innovation activities (Brush et al., 2022).

Summary of External Pressures

Davidsson et al. (2006) argue that start-up teams experience greater pressure to gain legitimacy, ambiguity/uncertainty, and political involvement. We found that our investigated cases only perceive limited pressures (e.g. shareholder, consulting firm) to adopt gender diversity in their team. Instead, we discovered that they perceived institutional pressures (e.g., social and cultural norms) when they seek to adopt gender diversity in their team, especially in highlighting the issues related to gender imbalance in the IT sector.

Our finding highlights the influence of gender norms that create challenges for women within the tech industry. We also discover new aspects of family values and religious pressures as external pressures that serve as a nuanced insight that has not yet been widely explored within the institutional theory domain. Reflecting on institutional theory, our research provides evidence as to how heterogeneity occurs between different start-up teams functioning in the same institutional context.

Even though Zhang, L. (2020) and Schneid et al. (2015) found that a broader institutional context is important in shaping the relationship between gender diversity and innovation performance, our findings reveal that this depends on the response of each start-up. Coupled with their attitudes towards gender diversity, each case experienced different level of external

pressures. Hence, we add more empirical evidence to support Davidsson et al. (2006) who argued that institutional pressures are not assumed to lead deterministically to a fully predictable response.

Our findings answer a call to fill in the gap mentioned by Su et al. (2017), who found that previous research linking institutional theory and entrepreneurship had too much focus on the macro-level perspective (e.g. national level). With the neglect of micro-foundational analysis, the existence of a dynamic interplay between internal and external pressures could have been potentially unnoticed if the analysis had solely concentrated on macro-level perspectives and the examination of existing structures rather than exploring the mechanism in which they are intertwined. This is especially important as institutions are not static and can evolve overtime. It requires start-ups to have the capability to adjust their internal structure in order to better respond to the dynamic of institutions. Failure to respond to the institution and navigate its internal dynamics will result in failure to leverage gender diversity to achieve innovative performance.

Therefore, in the next section, we will discuss the dynamic interplay between institutional pressures and internal dynamics within start-up teams to shed light on the intricate relationship between external pressures, internal dynamics, gender diversity, and innovation within start-up teams.

5.2 Dynamic Interplay between External Pressures and Internal Dynamic

While external pressures refers to any forces that come from external environments, we defined internal dynamics as the interactions, relationships, and communication patterns within our investigated start-ups that could influence the behaviour, attitudes, and decisions of individuals or groups within the organization. In our study, we focused on the dynamic interplay between leadership, organisational cultures, and HR policies and practices.

Our research recognizes the influence of both external pressures and internal dynamics related to the adoption and the effectivity of gender diversity within the team. Previous research considered several aspect that influence innovation performance of an organization such as the role of team/organisational culture (Crompton and Crompton, 2017; Roh and Koo, 2019), the role of leadership (Muchiri and Ayoko, 2013; Stewart and Johnson, 2009), and the role of HR policies and practices (Pandit and Paul, 2023; Mastracci and Herring, 2010; Ali, M., 2016). Although previous studies have examined various aspects such as organisational culture,

leadership, and HR policies and practices, they have not explored the interplay between these aspects, particularly on the potential influence of external pressures in tech-based start-ups.

On the contrary, while Attah-Boakye, R. et al. (2020) and Voinea et al. (2023) only focused on the institutional context where the organization functions without considering the internal factors, we argue that working under the same institutional context does not mean that start-ups would consistently demonstrate similar behaviour. We argue that it depends on how start-ups respond to institutional pressures and navigate their internal dynamics. Therefore, by combining both perspectives, we focused on the macro and micro perspectives and considered the dynamic interplay between external pressures and internal dynamics such as organisational culture, leadership, and HR policies and practices.

In our study, we found that the dynamic interplay between external pressures and internal dynamics is a crucial aspect of organisational behaviour. It could demonstrate the capability of tech-based start-ups to respond to such pressures. Studies highlight various ways in which organizations respond to external pressures. Adapting from Oliver (1991) synthesized on organisational responses to institutional pressures, Moser et al. (2020) categorize organisational knowledgeable responses into three major types: passively responding to avoid non-conformity, reactively mitigating institutional pressures and proactively developing institutional environments toward less interfering setups.

Aligned with their findings, all of our investigated start-ups can be categorized within these three categories where Case 2 is an example of a start-up that passively responds to external pressures by following religious principles and social expectations. On the contrary, Case 1 proactively responds to external pressures by initiating institutional transformation. Cases 3, 4, and 5 adopted reactive responses by ignoring some pressures and compromising to other pressures related to gender diversity.

To exemplify, instead of following industrial norm, Case 1 sent female team member as field assistant in a traditional male dominated sector (e.g. aquaculture industry) as a signal to work against traditional work culture. Even though it has a detrimental impact in the beginning, Case 1 decided to formulate strategy to overcome any challenges and involved farmers in a workshop to learn how to use gender lens in their business. On the other hand, Case 2 decided to have more female team member as they thought it follows social expectation and aligned with religious rules. Unlike Case 1 and Case 2, Case 3 decided to did not put gender diversity as priority even though some potential investor and incubator mentioned about the importance

of having gender diversity within the team. It illustrates how Case 3 ignored these pressures and did not put it as a priority. Likewise, Case 4 and Case 5 did not see gender diversity as an important issue even though there was a certain level of awareness from their leaders that it is important for organizations. As a result, even though they had gender-diverse teams at some point of time, they were not able to maintain the composition when there was high turn-over rate in their start-up.

Another important finding is that the proactive response shown by Case 2 illustrates that Case 2 is an example where a start-up could experience continuous contestation to deal with external pressures as they found conflicting roles of external pressures. To exemplify, on the one hand, the investor and the leader wanted to cultivate gender diverse team while society and industry norms provided some barriers and challenges resulting in gender imbalance in candidate pools, gender stereotypes, and gender-specific bias. However, we found that the contestation only occurs in start-ups that try to challenge unfavorable conditions caused by external pressures. In contrast, another start-up that did not perceive any external pressures or simply ignored some pressures related to gender diversity would not experience any complex dynamic between external pressures and internal dynamics.

Our research elaborates on the power of start-ups in initiating institutional transformation. We address a call by Box and Larsson (2018), who invite more research to explore the role of and the distribution/possession of power that new ventures have against gender stereotypes. Instead of waiting for gender institutional transformation to increase the likelihood of surviving, Case 2 accelerated the transformation itself, showing the power that start-ups could have against existing gender norms. Therefore, our research provides a novel contribution by providing an example of the role of a start-up as an actor in transforming an institution, particularly by advocating stakeholders in male-dominated sectors, such as the aquaculture industry, to adopt a gender lens in their business.

Our findings contribute to the existing research on factors influencing the strength of institutional pressures on organizations and vice versa. Previous studies have shown that the impact of these pressures is shaped by organisational culture, particularly its orientation toward flexibility and control (Zhou, M. et al., 2024), as well as by high-performance work systems (HPWSs) and organisational inertia (Feng et al., 2024). Additionally, the strength of institutional pressures is affected by managerial cognition (Julian et al., 2008) and organisational identity (Martin et al., 2011). In contrast, our research identifies financial

dependency, internal motivation in response to existing pressures, and internal dynamic capabilities as key factors that influence how organizations experience and respond to institutional pressures. Differences in these aspects lead to variations in how start-ups react and respond to institutional pressures, creating a dynamic interplay between external pressures and internal dynamics.

To summarize, instead of showing a unidirectional relationship between external pressures and internal dynamics, our research demonstrated that the relationship could be complex and dynamic, depending on each start-up's capability to respond to external pressures. Institutional pressures could influence start-ups to behave in certain ways to gain legitimacy. On the other hand, start-ups could also have the capability to initiate institutional transformation. Therefore, we can conclude that organisational responsiveness involves understanding and adapting to external pressures and navigating its internal dynamic to address challenges and align with evolving institutions. Start-ups need to adjust their internal capabilities to respond to external pressures and effectively utilize their gender-diverse team to achieve innovation performance.

5.3 Internal Dynamics

Pache and Santos (2021) defined internal dynamics within organizations as political processes influencing responses to conflicting institutional demands. However, we found that even though not all start-ups perceive conflicting institutional demands, each start-up develops their own internal strategy to leverage gender diversity. Therefore, in our study, we define internal dynamics as the interactions, relationships, and communication patterns within our investigated start-ups which includes organisational culture, leadership, and HR policies and practices.

As has been explained in previous section, external pressures may affect start-up teams in different ways. External pressures could influence perception and attitude towards gender diversity within start-up team. It also significantly shapes leadership values, organisational culture and HR policies and practices within start-up teams. However, we found that the relationship was not unidirectional. We found that start-up teams also initiate institutional change by challenging existing gender norm and signalling values of gender diversity to global tech industry through their internal dynamics. As can be seen in Case 1 when they appointing female CEO, initiating women in management program, and advocating client to use gender lenses in their business.

The influence of internal dynamics on the relationship between gender diversity and innovation performance have been explored independently in previous research, including the role or

team/organisational culture (Cropley and Cropley, 2017; Roh and Koo, 2019), the role of leadership (Muchiri and Ayoko, 2013; Stewart and Johnson, 2009), and the role of HR policies and practices (Pandit and Paul, 2023; Mastracchi and Herring, 2010; Ali, M., 2016). Nonetheless, we found a weakness in their approach that solely focuses on one aspect of internal dynamics. For instance, Muchiri and Ayoko (2013) oversimplify the role of leadership and missing the interaction between leadership and gender composition of the team. While we agree that transformational leadership was important in managing conflict among diverse team, without strong organisational culture and comprehensive HR policies and practices, it is insufficient to sustain gender diversity within the team to achieve innovation performance. Therefore, our study provide a more comprehensive investigation on the internal dynamics that consist of organisational culture, leadership, and HR policies and practices and how those elements influenced by external pressures and facilitated gender-diverse teams to achieve innovation performance.

It is important to understand all three aspects to prevent overlooking the alignment between these aspects, especially in the context of tech-based start-ups where organisational culture are not yet mature, the leadership are less structured, and HR policies and practices were not comprehensively established. Only by looking at bigger picture, we could understand how it provide a supportive condition for enhancing innovation performance through gender diverse-team.

5.3.1 Organisational Cultures

The majority of research examining the role of culture in fostering innovation within gender-diverse teams has predominantly focused on a macro perspective, particularly by analysing national culture (i.e. Hemmert et al., 2024; Bazel-Shoham et al., 2023; Gangi et al., 2023; Attah-Boakye, R. et al., 2020). Only limited research that explore the intersection of organisational culture, gender diversity, and innovation performance (i.e. Cropley and Cropley, 2017; Dwyer et al., 2003; Roh and Koo, 2019). Furthermore, previous research has showed that when compared to national culture, organisational culture has had more influence on firm performance, especially in a start-up (Pothukuchi et al., 2002). Therefore, we contribute to the empirical evidence on the critical role of organisational culture as a component of internal dynamics to support gender diverse team to achieve innovation.

Developing inclusive organisational culture

During the analysis, to foster inclusive organisational culture, our investigated start-up mentioned several values, such as openness, respect, equality, and togetherness. The statement about openness was found in all cases such as “*we are actually very open for feedback. So it's like we're pushing all the lines like that If you have something in mind or want to learn something, just reach out (Jaiz, VP Case 1)*” or “*That's right. And yes, we want people to have any ideas or any questions to speak up like there is no stupid question, there is no stupid idea (Nira, CFO Case 3)*”, which underscore the importance of freedom to speak.

Aligned with Dwyer et al. (2003) and Cropley and Cropley (2017), our findings indicate that a supportive organisational culture is crucial for leveraging gender diversity to drive innovation. Interestingly, different from prior research, we found that the specific characteristics of an organisational culture considered supportive for fostering innovation different in certain aspects. While Dwyer et al. (2003) found that organisational cultures implementing a clan structure (e.g. emphasizes internal focus and collaboration over competition) were conducive to fostering innovation, our research presents a contrasting perspective. In cases where gender diversity has been successfully utilised for innovation, we observed that intergroup competition played a significant role in increasing productivity.

Despite the stereotype that women are more cooperative than competitive (Eagly, 2013), in environments where women are minority, they often engage in competition with men by increasing their productivity. The CEO stated “*In addition to having good ideas, the speed of work also created by competition [...] those who are in the minority usually have higher values and those who are in the minority have a higher work ethic because they are in the minority*”. To demonstrate their capabilities and avoid being underestimated, women tend to increase their productivity. For example, Jira, team member in Case 1 said “*I've been underestimated several times, I often mean all management like that, I think she can't do it like this how about that? If you are belittled based on background or gender, it's normal for us to just prove that we can do that too*”.

On the other hand, as men are competitive, men are motivated to compete with women, leading to increased productivity in both sides and enhanced innovation performance through collaborative efforts. As stated by Jaiz, VP in Case 1, “*It is now starting to happen because of being pushed by this female friend, Boys, too, you have to be neat. You have to be more disciplined if no then we will get complaint by women*”.

Despite creating disintegration and conflict among the team, within inclusive organisational culture, intergroup competition as has been mentioned above trigger all team members to increase their productivity. Related to this finding, further investigation may be necessary to examine the contrasting characteristics of females in this case. Drawing from low participation of women in IT sector, it is possible that women who successfully join the tech start-up are not typical women who conform to gender roles and stereotypes. Therefore, the tendency to avoid competition may not be their primary characteristic. In order to succeed, it is crucial for these women to develop resilience and determination to increase their legitimacy in a male dominated sector.

Nonetheless, it is important to note that this competition was not aims to trigger a conflict as women have another capability to prevent conflict by improving communication among team members. It is equally important for the organisational culture to foster and encourage these efforts. Failure to do so may lead these women to feel uncomfortable and ultimately decide to quit or move to another start-up that offer more supportive environments. As exemplified in case 3 where one of female participant moved from what she called as “a non-feminist start-up” and decided to stay in her existing start-up as she found it more supportive. She mentioned, *“I left my previous job because the office is very patriarchal and not feminist, so that's how it is, sis (Nia, Team Leader Case 3)”*, as she illustrated a non-supportive environment in her previous start-up.

Moreover, we found another interesting fact. In contrast to Cropley and Cropley (2017) who found that women are more sensitive to unfavourable organisational cultures, our research reveals that men also experience similar feelings. For instance, in case 4, when male participant responded to negative feedback from others, it caused him to feel low sense of belonging and limit his motivation to express ideas or provide criticism. He described, *“When I first joined [...] There are so many ideas that I made [...] Yes I did, right after I got the negative feedback. So I feel like, my ego is still high and at the end I choose to be quite and passive (Rudi, male, team member Case 4)”*. This ultimately could led to groupthink that hinder team process to foster innovation.

As organisational culture in tech-based start-ups is still in the embryonic stage, the role of leader is significant in building strong organisational culture that embedded positive values into daily practices. This is important to ensure that organisational culture was shaped and

internalized to all team members to support gender-diverse team to improve innovation performance.

5.3.2 The role of Leadership

The role of leaders as diversity managers is generally acknowledged in previous research (i.e. Homan, A.C et al., 2020; Muchiri and Ayoko, 2013; Stewart and Johnson, 2009). Nevertheless, there is a notable absence of a dynamic and all-encompassing theory regarding the interaction between team diversity and team leadership (Homan, A.C et al., 2020). Therefore, our findings answer such a call by elaborating on the role of leadership in leading gender diversity in a team. We found two major roles of the start-up team leaders in leveraging gender diversity to achieve innovation. First is leadership awareness and commitment toward gender diversity. It underscores the role of leaders in setting gender diversity as a priority in start-up teams to achieve innovation. Second, is the leadership role in signaling diversity values. It emphasizes what the leaders have done to put gender diversity as an essential issue in a broader ecosystem outside their own start-up. The following section will elaborate on this alongside the example that we found in our cases.

Leadership awareness and commitment toward gender diversity

A leader's belief in diversity would determine the effectiveness of gender-diverse teams (Shin, 2023). Thus, the most critical factor in leading a gender-diverse team is the leader's awareness of gender diversity in their start-up team. The CEO of Case 1 stated, *"in fact, it is the diversity that can actually make the teamwork, in my opinion (Jane, CEO Case 1)"*. Likewise, the CEO of Case 3 mentioned, *"I consider about having gender diverse team because I have confidence in actually something that is very diverse in the team. It's not just gender [might also be age, ethnic, etc.]. Actually, I want to build a team that's really very diverse (Nafi, CEO Case 3)"*. Leader's awareness of gender diversity is a starting point in building inclusive start-ups as the leader is the one that has significant role in building organisational culture (George et al., 1999).

However, having an awareness of gender diversity value within start-up team members to achieve innovation is insufficient to benefit from gender-diverse teams. It should also be followed by a strong commitment to achieve this objective. Although most of the leaders in our case showed a certain degree of awareness about gender diversity values, only one leader demonstrated a strong commitment towards gender diversity in the team. The difference between awareness and commitment is the motivation to translate a leader's personal beliefs into practices, as shown by the CEO in Case 1. She said, *"I asked HR to aim for a gender*

balance in our team, with at least 20% of the team consisting of women. We intend to gradually shift the ratio of males and females from 5:1 to 3:2", she expressed how she inquire HR to consider gender composition in the team. Unfortunately, apart from Case 1, no other cases express this level of commitment.

Furthermore, leaders also need to allow their team to recognize the value of differences that might occur caused by different perspectives that men and women have, thereby cultivating value-in-diversity beliefs (Leroy et al., 2022). In other words, leaders not only need to have self-awareness about the value of gender diversity but also should actively internalize this value within all team members. Martins (2020) refers to this strategic action as strategic diversity leadership. Our findings contribute to previous research by demonstrating how the leader successfully promotes their personal belief about gender diversity to all team members.

For example, apart from the CEO, all of participants in Case 1 understand the importance role of having gender-diverse team. As has been expressed by Jira (HR leader of Case 1), *"gender is quite often emphasized, because really our CEO is a woman and she wants our start-up to be a safe place for woman too, so she said that give woman a chance too"*. Likewise, Jazli (COO of Case 1) also mentioned, *"From our CEO, she always entrusted if we can push gender proportion in the workplace now"*. Both statements indicate that all team members understand their leader's value of gender diversity. This is important because building a solid and inclusive organisational culture requires active participation of all team members (Moore et al., 2020).

Dwivedi, Priyanka and Paoletta (2023) found that firm's efforts to enhance the representation of women in senior management, frequently driven by external stakeholder demands, can unintentionally divert its focus away from internal diversity initiatives. Once these firms have gained the legitimacy of being diverse firms, the leader may unintentionally shift their attention away from diversity issues and allocate less time and effort to internal underlying diversity practices. Contrary to their finding, our finding shows that the leaders motivation towards gender diversity does not always based on fulfilling external pressures, in Case 1, we found that the CEO have a great attention towards internal diversity practices not only in the lower level of employee but also in the management level. The CEO stated, *"With the growth in the percentage of women in here, the more growing our company mean that there may also be a correlation, right? Again. , but what I'm currently planning is for woman in management. Because our management now is still mostly male"*. Surprisingly, they also actively promote gender diversity among their clients. The VP of Case 1 stated, *"we are applying the GALS*

earlier in the intro. Let women also be involved in cultivation because we believed that there should be improvement". Thus, our findings provide new empirical evidence that as long as external pressures coupled with internal motivation that support gender diversity, it would go beyond compliance and result in better innovation performance.

Leadership Role in Signalling Gender Diversity Value

As has been mentioned before, the leader's awareness and commitment often begin with external pressures, either from normative pressures such as family values and education or coercive pressures such as requirements from stakeholders. However, the start-up team leader also plays a role in initiating transformation in the institution. This process called as "Institutional Entrepreneurship". This term refers to the 'activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones'(Maguire et al., 2004, p. 657). For example, when women hold key leadership positions, such as at the C-level, the start-up becomes a role model to break the notion of gender stereotypes.

Not only as a role model, a leader could become a mentor to help break the glass ceiling phenomenon, helping women to have equal opportunities to achieve the same position. It can be seen in one of the participant's experiences as she said, "*The experience I got from the CFO, especially my direct supervisor Ms. Rani, all these mentoring experience is something that I can't get anywhere else. So that's why until now I still survive because of the leadership is what I feel OK, this is what I think (Nesti, female team member of Case 3)*". A similar story was also expressed in Case 1, where one of the head departments played the role of a mentor to increase the capability of one of the female team member.

*Initially, Mrs. Ir was hired as a secretary, so most people assumed she would handle administrative tasks. As a result, she was given administrative work. However, after some time, she started working with the marketing team, managing reports and finance tasks. Eventually, she transitioned to the finance department, where the head of finance trained her. He had specific expectations for his team members and believed that employees should meet these targets after a few years. **He personally trained Mrs. Ir**, who quickly met his expectations and demonstrated her ability to learn and grow. **She and she is now on track for a promotion.** This experience made me realize that Mrs. I has the potential to succeed in roles beyond administration and can excel when given the opportunity (Jira, HR Case 1)*

Furthermore, as described before in Case 1, a female CEO defies gender stereotypes by demonstrating her dominance among male-dominated stakeholders through a firm handshake,

direct eye contact, and other behaviours that are typically not associated with traditional gender roles. It was her strategy not to be underestimated.

During a meeting with venture capital, I've encountered many people who are so patriarchal. They don't even bother to look me in the eye. It's a form of underestimation. Sometimes, that's the reality of meeting people. To counter this, I always make sure to have a firm handshake. When they experience that, they often express surprise, saying, "Oh my God, I didn't expect your handshake to be so firm." It starts with something as simple as a handshake, which can convey so much. I'll definitely start with a strong handshake to make it clear that I am equal. Not just because I am a mother, a Muslim, or a female founder. That's just the way it is. While reality may suggest otherwise, I believe it's important to assert my position confidently (Jane, CEO Case 2).

Given the example above, our findings complement Kogut and Mejri (2022) by providing evidence that women tend to be underestimated and face challenges within the entrepreneurial ecosystem. Therefore, women entrepreneurs need to adopt survival strategies to prevent these challenges from hindering their success and growth in building tech-based start-ups. Moreover, this finding provides more empirical evidence to the argument made by Glass and Cook (2018), who argue that the presence of influential women board members can encourage equality initiatives, thereby contributing to the reduction of stereotypes and biases within the broader ecosystem.

Furthermore, our findings contradict the critical mass theory that emphasizes the importance of numerical presentation of gender composition to improve innovation performance (i.e. Prencipe et al., 2023; García-Sánchez et al., 2023; Ain et al., 2022; Moreno-Ureba et al., 2022; Saggese and Sarto, 2019). We discovered that relying solely on numerical representation is inadequate for mitigating token pressures. When women demonstrate the ability to exert influence and actively participate in the decision-making process, even in numerically small numbers, they can effectively address the issue of tokenism. As has been shown in Case 1, Jane was the only woman on the team and was successfully appointed as the CEO. This provides an example that even though she was a minority, she had the capability and power to become a CEO. As a CEO, she even successfully made changes and improved gender diversity in her start-up.

5.3.3 HR Policies and Practices

During the analysis, we found that external pressures influence start-ups in achieving and optimizing gender-diverse teams. For example, normative external pressures such as gender norms and patriarchal culture could become barriers and challenges in gender-diverse teams.

Therefore, start-ups need to navigate their HR policies and practices in order to overcome those barriers and challenges. We pinpoint some strategies that come from our investigated case in supporting gender-diverse team, including inclusive recruitment policy, establishing gender-aware practices, and developing gender intelligence.

Inclusive Recruitment Policy

One of the important HR policies and practices in achieving gender diversity within the team is inclusive recruitment policy, particularly in a country with a high gender gap, such as Indonesia. Based on social role theory, Eagly et al. (2000) argued that prevalent gender stereotypes emerge from the societal division of labor based on gender, creating a gender norm. In this study, we found that prevailing gender norms in the technology industry have led to this sector being dominated by men, creating invisible barriers for women to participate in this field.

From the interview with the government and incubation program, we found a poor participation rate of women in the start-up incubator program, which is below 30%. As a result, gender diversity was difficult to achieve due to gender imbalance in candidate pools. Referring to a statement by Jira (HR in Case 1), Nia and Nafi (Team member and CEO in Case 3), and Rudi (Team member in Case 4), most of the vacancies are often dominated by a certain gender, depending on the characteristics of the job. For example, a vacancy in engineering would be predominately male, while an administrative position would often be predominately female.

Moreover, we found there is also an internal factor related to gender-specific bias in hiring decisions that contribute to gender imbalance in some divisions. For example in Case 2 clearly demonstrated gender bias in hiring decisions. The statement by the CEO, *“Sometimes gender does matter. For operational, we prefer women because we are in women’s sector. Because they are the ones that know best about it,”* and the CFO statement, *“For technology-related positions, we prefer men”*. These statements clearly illustrated gender-specific bias in recruitment practices that would directly influence gender composition in the team as they assign specific tasks for a specific gender.

In order to solve the problem of gender imbalance in some divisions, Case 1 used a positive discrimination approach and prioritised women to be able to be accepted in the engineering division even though the result of the female candidate was below the male candidate. It aims to boost women’s participation in a male-dominated division in their start-up team. *“We also target women for specific roles and encourage everyone in the targeted division to participate,*

even if it doesn't align perfectly with their expectations. I always urge them to give it a chance, as it may offer new perspectives and insights. This approach is how I persuade our team to embrace women in these roles (Jira, Case1)''. As has been outlined previously, the CEO of Case 1 gave a clear instruction to the HR team to increase female team members.

Different behaviour in hiring decision illustrated by Case 1 and Case 2, clearly demonstrated that hiring decisions requires a comprehensive approach that includes awareness, interventions, and structural changes to promote fair and inclusive recruitment policy and practices. Aligned with Mastracci and Herring (2010), Case 1 enhanced the proportion of women's representation in their team by implementing inclusive HR policies and practices.

We also provide a new insight of the central role of leader in shaping HR policies and practices, extending the traditional view of leaders who only seen as a implementer and communicator of HR policies and practices (Buengeler et al., 2018) rather than as an actor shaping HR policies and practices. It is particularly more relevant in start-up where HR policies and practices were often overlooked.

Gender-responsive practices

Following Ahuja (2002) and Armstrong et al. (2018), we also found that women experienced some specific challenges working in the IT sector. For example, women often leave their careers at some point in their lives, for example, upon marriage or childbirth, in order to prioritize their family responsibilities. Understand this situation; Case 1 provides supportive facilities for women after paternal leave to prevent such conditions. For example, flexible working arrangements and breastfeeding rooms should be provided in the workplace. The CEO said, *"I have to provide a breastfeeding room because there is no breastfeeding room in this building; I mean, breastfeeding is important because I also experienced the same thing. because I know there are not many mothers. Sorry, not many women want to continue working when they have children. So we must support it (Jane, CEO Case 1)''*.

Case 1 illustrated how start-ups implement gender-aware practices by providing responses to address the needs of their team member regardless of their gender. Implementing HR policies and practices is crucial in mitigating gender inequality (Pandit and Paul, 2023). We provide new insight from start-ups as part of the entrepreneurial ecosystem, an ecosystem that was seen as gendered due to the low participation rate for women even in the foremost start-up ecosystems (Hattab, 2023).

Turning to another research, our study criticizes Kidder et al. (2004), who argue that gender-focused policies and practices might create a backlash that might negatively affect performance. It is important to note that gender-focused policies and practices do not always mean discrimination towards men. Both genders should be fully involved in developing such policies and practices. For example, apart from having a breastfeeding room to facilitate women after maternity leave, Case 1 also provided a similar room equipped with a bunk bed for male team members to take a brief rest in the workplace. Both gender should be involved to ensure that both needs were accommodated and equality principle was implemented through various policies and practices.

Developing Gender Intelligence

According to Eagly and Wood (1999) some aspects of social behaviour, personality, and abilities differ between women and men. Therefore, it is not surprising that men and women demonstrated different thinking styles, risk orientations, and approaches to problem-solving, as we found in our analysis. Therefore, all team members need to develop gender intelligence. Zemsky (2001) used the term “gender intelligence” to refer to the understanding and appreciation of natural differences between men and women, as well as acknowledging human achievement that contributes to an institution's mission regardless of gender. Even though the term was not widely used by academic scholars.

For example, Jaiz, VP from Case 1 mention about “gender education” as he aims to increase awareness of their member about gender differences. He said, *“What I also think is important is usually gender education. Sometimes we didn’t realize that it comes from a different approach. So, it feels like one person is right and the other is wrong. When we understand, we know that we used different approach, so acceptance becomes easier. That is why I think gender education is important too (Jaiz, VP)”*. He highlights that common understanding to embrace and value differences is important. To address this issue, Case 1 provides diversity training and adopts various approaches and tools to align differing perceptions. They employ methods such as design thinking, the business canvas model, and other strategies to create a shared understanding among team members.

The failure to recognize differences between genders could make teams fail to leverage the potential of gender-diverse teams. As can be seen in Case 4, where one participant mentioned about how women have difficulty in viewing his opinion as a constructive feedback. He the

differences between men and women and stated that women are unable to appreciate his perspective, perceiving it as criticism, resulting in him receiving negative feedback.

I think I have had difficulty working with women since the time I got negative feedback. Just like I told you before, they think that I'm too direct, too harsh when criticizing them. I think it's because they are woman, I just realized that if I want to criticize woman I need to be more careful, because not all women could handle it [...]at the end I choose to be quite and passive (Rudi, Case 4).

As a result, despite having an equal number of men and women, due to a lack of gender intelligence, it would be difficult to see the differences as a competitive advantage.

As has been discussed above, we elaborated on several strategies implemented by our investigated start-ups in leverage gender diversity in a team to support innovation performance. Apart from pinpointing the strategy of HR policies and practices, our research provides a contribution to the HR literature. In HR literature, previous studies have given leaders a relatively passive role mainly seen as actors who implement and communicate HR policies and practices (Buengeler et al., 2018). We expand this view by providing insight into how, in the context of start-ups where their HR policies and practices are not well developed, HR policies and practices rely on leadership. Therefore, instead of playing as an enactor, leaders play a significant role in shaping HR policies and practices that support gender diversity within the team.

We also elaborate on the role of HR policies and practices in translating organisational culture into tangible action. Unlike Ali, M. (2016), who proposed that gender diversity acts as a mediating factor between HR policies and practices and firm performance, we argue that HR policies and practices have a central role in shaping gender-diverse teams. Inclusive HR policies and practices reflect a manifestation of inclusive organisational culture. While organisational cultures are intangible, HR policies and practices make them more visible, which would attract a more diverse team, as outlined in signaling theory (Spence, 1973), ensuring the sustainability of gender-inclusive practices.

In summary, our findings indicate that in the context of emerging ventures like tech-based start-ups, organisational culture, leadership, and HR policies and practices are deeply interconnected. We conceptualize these three elements as internal dynamics and provide evidence that they must be examined together for a comprehensive understanding of each case.

5.4 Team Innovation Capability: Mediating factor

Our research reveals a missing linkage between gender diversity in start-up teams and innovation performance. The relationship is influenced by several factors, such as external pressures and internal dynamics. Furthermore, we found a mechanism that serves as a mediating factor. We refer to this as team innovation capability.

Past scholars have predominantly conceptualized innovation capability as an organisational-level construct (Tikas, 2023). For example, innovation capability has been previously defined as “the ability of an organization to transform ideas and knowledge into new products and systems for continuously adding value benefitting to the organization and its stakeholders”(Lawson and Samson, 2001). However, we believe that the capability for innovation should also be assessed at the team level, given the dynamic and collaborative nature of innovation processes within the team.

Even though we found previous research used the term “team innovation capacity”, for example in Romani-Torres and Norena-Chavez (2023) and “team innovation capability” in Akhavan and Mahdi-Hosseini (2016), we found that the definition used was focused on the organisational level. Therefore, from our findings, we conceptualize team innovation capability as a novel construct that extends the literature on innovation capability that focuses on the micro perspective on team-level innovation. We modify the definition conceptualized by Tikas (2023) and provide a new conceptualization of team innovation capability as a team-level ability to generate, integrate, and transform collective ideas and knowledge from individual team members into new processes, products, or services, which add value to the organization, through team social networks, team collective intelligence, and team integration. Our definition does not exclusively prioritize the end result but rather emphasizes the collaborative process of each individual team member in generating innovation.

Moreover, unlike Tikas (2023), we employed different viewpoints when discussing team innovation capability. Particularly when examining the impact of gender diversity on improving innovation performance through team innovation capability. Tikas (2023) conceptualizes team innovation capability through its consequences, proposing three different dimensions measuring team innovation capability: value appropriation, value co-creation, and value demonstration, highlighting its focus on the result of product innovation. Through inductive process from our data, we conceptualize team innovation through team social network, team collective intelligence, and team integration, which we categorized as

antecedent factors that contribute to and develop team innovation capability through gender diversity.

When gender-diverse teams can fully utilize their potential to use their collective network, integrate knowledge, and develop collective intelligence to collaborate in creating value, it fosters innovation performance. When this capability is not effectively cultivated, even though the start-up team has gender diversity, it is difficult to enhance their innovation performance. For example, Case 3 and Case 4 had a gender-balance team composition but failed to optimize their potential to achieve team integration.

5.4.1 Team Social Network (TSN)

Following Li, H. and Wang (2021), we found that gender diversity could improve innovation performance through team member's network. The role of network in the entrepreneurial process has been acknowledged for more than decades as it is considered important in obtaining knowledge, information, and resources (Birley, 1985). External networks are vital for entrepreneurs to seek opportunities, test ideas, and obtain resources for the construction of entrepreneurial teams and it was proven that could improve new venture's innovation capability (Chen, M.-H. and Wang, 2008). Moreover, research has shown that external networks can enable teams to access diverse knowledge, leading to greater creativity, innovation, and overall productivity (Reagans and McEvily, 2003). For example, most of our cases (Case 1, Case 3, Case 4, Case 5) used their network to get access to talent required for innovation processes through referral hiring. To exemplify, The CEO of Case 5 argues it is more effective, *"When developing the team, it mostly comes from the recommendation because when we did open recruitment, it didn't feel right,"* as she illustrates the effectiveness of getting new talent through the recommendation of their internal team.

Recruitment through recommendations is effective because it ensures a better cultural fit, as current team members refer candidates they believe will have integration and fit with the position. Consequently, it often results in higher-quality hires and improved retention rates, as new hires are more likely to integrate quickly and comfortably. Additionally, it is also cost-effective as it reduces the need for extensive advertising and is time-efficient as the process is less complex. Moreover, it would enhance collaboration and communication, particularly when the candidates have pre-existing relationships within the team, leading to more effective teamwork, which is important during the innovation process. As the CEO of Case 5 mentioned *"So the point is, because you can know their track record. I feel that they [new reference] will*

have integrity; for example, the chance of them not performing well or committing fraud is minimized when they know their friends' reputations are at stake.” she highlights the benefit of referral hiring.

Gender diversity in teams will enhance team social networks. As team social networks refer to the connections and relationships that a team establishes with individuals and entities outside of its immediate organisational boundaries, having a gender-diverse team also means having a diverse external network (Hanson and Blake, 2009). Our analysis found that men and women tend to approach and develop their networks differently. For example, the marketing leader of Case 3 said, *“These female agents, [...] they tend to approach cooperatives that they know well or have personal ties to, like family connections.”* she explained how women try to approach new potential clients. It aligns with Watson (2012), who argues that men and women tend to have different network characteristics, for instance, men tend to have a more formal network (i.e. bank, accountants, lawyers, etc.) while women tend to have a more informal network (i.e. family, friends, previous employer, etc.).

In summary, as previously mentioned in 4.3.4, we found that start-ups typically access external resources from their own personal network, from recruitment of early joiners to selection of potential partners, investors, clients, and suppliers. It is important to utilize valuable external knowledge, especially from different networks. The diverse network allows a start-up team to access diverse external resources. These external sources are important for innovation. As Nafi (Case 3) mentioned, *“Through networking, we actually have an entrepreneurship community where we take time to share ideas. In the end, there are always a lot of great ideas”*. Our research provided empirical evidence to complement Zhang, X. (2023), who proposed that team social networks lead to effective knowledge integration. Our study extends this line of research in the start-up context and provides evidence that team social networks are also beneficial to accessing external resources, including accessing potential talent needed to improve team knowledge integration. Therefore, our finding contributes to the literature by answering a call to address the question of how gender diverse team’s social network influences start-up development and how it contributes to innovation capability (Hanson and Blake, 2009).

5.4.2 Team Collective Intelligence (TCI)

Team collective intelligence (TCI) refers to team’s general ability to work together across a wide range of tasks (Woolley, A.W. et al., 2023). We adopted the definition by Janssens et al.

(2022), who define TCI as “*unfolding process of collective behaviours, originating in coordinated inter-individual behavioural acts, in with the environment in which the team operates and focused on the achievement of joint objectives (p.02)*”. Following Woolley, A.W. et al. (2023), our findings discover the role of having gender diversity in a team in increasing team collective intelligence.

We found supportive evidence that men and women tend to have different cognitive styles, which, in turn, results in cognitive diversity. Cognitive diversity is diversity in the way that team members encode, organize, and process information (Aggarwal et al., 2019). It contributes positively towards TCI and helps start-up teams in various activities during innovation processes, such as decision-making, problem-solving, and risk balancing.

Innovation processes are strongly related to the decision-making process and problem-solving. Women are noted to have strong information-processing abilities that allow them to integrate dispersed knowledge (Dai et al., 2019), more sensitive to nonverbal cues (Gulabovska and Leeson, 2014). On the other hand, men shape their decisions based on data as they are inclined to use their logic more than emotional thinking. Subject to supportive conditions, this cognitive diversity has a good potential to develop TCI that will enhance decision-making and problem-solving processes.

For example, Linda (Case 2) said, “*We still really need men because they tend to be more logical and excel in analysis. That’s not to say female analysts aren’t good—they are. But sometimes, women rely more on their instincts or hunches rather than being strictly data-oriented*” as she indicates that both are needed during the innovation process. Another example, Hima (Case 1) provided an example of when cognitive diversity during the discussion could converge into one distinctive idea, “Men and women bring their own unique perspectives, which often leads to new ideas emerging spontaneously”.

Furthermore, it is interesting to find that men and women tend to have different risk orientations where men are more willing to take risks and women are more cautious when facing risks. Different risk orientations can influence collective decision-making processes. For example, it was explicitly stated by Jazli, a COO of Case 1, when comparing his colleague in the team as he stated, “*One of my male partners is a natural risk-taker who doesn’t need to think much before taking action. Miss Jane, however, approaches things differently. She is extremely detail-oriented and carefully calculates all kinds of risks. She’s actually not risk averse either, but she is very detailed in calculating all kinds of risks*”. Incorporating different risk

orientations of both men and women offers a balanced perspective on risk that enables the team to identify potential risks more effectively while maintaining a prudent approach without becoming risk averse. It will enhance data analysis for informed decision-making.

In larger corporations, prior research suggests that firms with a diverse gender composition on their boards exhibit lower expected risk and achieve superior financial success compared to those with less gender diversity (Rodriguez et al., 2023). Our findings extend this line of topic by highlighting the impact of having gender diversity in smaller firms, such as start-ups, on their risk orientation, which we argue contributes to TCI. It is important as start-up faces more uncertainty compared to larger corporations (Freeman and Engel, 2007).

To conclude, our findings contribute to the literature by providing additional insight into the role of gender diversity in improving team collective intelligence. To the best of our understanding, there is a scarcity of research that employs a gender perspective while examining collective intelligence on the team level, particularly in tech-based start-up teams. Woolley, A.W. et al. (2023) argue that TCI was influenced by the gender composition of the team as well as the team's hierarchical structure. They found that hierarchical structure influences team culture, such as interruptions and speaking turns. It underscores the necessity of an inclusive organisational culture in a start-up environment to successfully cultivate TCI. Extending her research in start-ups context, we elaborate on how gender diversity within team contribute to TCI.

Therefore, our research answers a call from Janssens et al. (2022) to gain a deeper understanding of the interaction within the team as a mechanism in resulting TCI (through enhanced decision-making, communication, problem-solving, and risk-balancing.). Our findings support the argument that the proportion of women will be positively associated with collective intelligence (Kim et al., 2017) due to different cognitive styles among different genders. In the following section, we also highlight that TCI is positively related to team integration (Aggarwal et al., 2019).

5.4.3 Team Integration (TI)

Team innovation capability will be developed if gender diverse team enable to contribute to the sense-making process of external knowledge from diverse perspective and combining different set of skills and distinctive capability those men and women have. We refer this process as team integration. We define team integration as the process of combining and coordinating different individuals that involves aligning goals, roles, and responsibilities,

ensuring that all members work towards common objectives. While team collective intelligence focuses on the diverse perspectives due to different cognitive styles between genders, team integration focuses on different sets of skills, preferences, and capabilities of men and women within the team. Due to these differences, team members will complement each other characteristics in a collaborative effort to achieve team integration.

We support Marks et al. (2001), who argue that the success of a team does not solely depend on the potential and talent of each individual within the team but also on the team process where team members interact. We highlight that gender diversity within the team has a great potential to enhance team innovation capability through team integration. Start-up teams can be considered to have achieved strong team integration when they effectively engage in cross-functional collaboration across genders.

However, collaboration is not likely to happen if there is a communication issue among team members. This is where women's involvement in the team contributes to effective communication within the gender-diverse team. As has been stated by Jane, “*The first six guys before I came, they weren't going anywhere, they really didn't have any communication, they had too many personal communication issues (Jane, CEO Case 1)*”. We found that having gender diversity in a team improves the team’s communication, as women tend to break down silos. As stated by a team member in Case 1, “*the girls' team actually prefers to make a group together; they can break the circle boundary compared to boys. It's not like boys, boys, they already like playing this game in their circle (Jira, HR Case 1)*”. Therefore, we supported the argument that gender diversity can enhance team communication by bringing different communication styles and potentially leads to innovative ideas (Nielsen et al., 2018).

When communication is improved, collaboration across different gender would likely to occur. For example, Nafi said, “When it comes to product development, we have a female who works as a designer, so we pair her with someone really good at research, who happens to be male. The combination of people with different skill sets working together is important and helps us create better products.” Combining both sets of skills proves highly advantageous in collaborative efforts, especially in product development. He also indicates that women tend to focus on aesthetic features while men are more focused on technical functions. Both skills were essential for successful product innovation.

Another example, Jaiz in Case 2, elaborates on how her female team members usually propose ideas but have difficulty in elaborating them in a technical aspect. He said, “*Usually, Mrs.Linda*

is in charge regarding the idea, but she often has difficulties elaborating the idea and executing it, so usually she explains it to me, and I'm the one who translates them into, for example, a graphic design. So, I will deliver them to the developer (Labib, Case 2)''. It indicates how both collaborate to convert the idea into a development phase during the innovation process.

As expressed by the CEO of Case 5, *“Men build a house, women make it a home”*. It highlights the contribution of both gender, if it was successfully integrated, could improve team innovation capability through cross-functional collaboration. Our findings align with prior research that found team gender composition would enhance collaboration. The presence of women in teams can enhance team collaboration, leading to improved team performance (Gartzia et al., 2022). Another research found that women team members fundamentally change team functioning through the way they interact (Love et al., 2022). We also support that the presence of women in the team increases collaborative learning within the team (Curşeu et al., 2018).

Turning to another aspect, in addition to collaboration across genders, gender diversity in tech-based start-up teams facilitates market knowledge acquisition through knowledge integration mechanisms. This diversity enhances the team's innovation capability by enabling a comprehensive understanding of market needs, which encompass both genders. Women on the team provide insights into the preferences and requirements of female customers, while men offer an understanding of male customer demands.

Our findings extend findings on how knowledge base, market knowledge, and internal knowledge sharing affect innovation (Zhou, K.Z. and Li, 2012; De Luca and Atuahene-Gima, 2007) as we found the role of gender diversity in a team. Zhou, K.Z. and Li (2012) argue that the roles of knowledge breadth and depth critically depend on external and internal knowledge integration mechanisms. We, on the other hand, explain this mechanism in more detail by highlighting how gender plays essential roles in knowledge acquisition.

For example, apart from representing different target markets, women tend to have empathy and are more sensitive toward invisible cues. Therefore, women were seen as more prudent entrepreneurs (Lapiente and Suzuki, 2020), which makes women's involvement in the team beneficial to understanding market needs. As has been describes by the CEO of Case 2 in 4.1.2.5, women are often recognized for their intuitive capabilities, while men are noted for their strength in data-driven analysis. Likewise, Nira (CFO case 3) illustrates, *“When it comes to product development, empathy is crucial. Women often tend to have higher levels of*

empathy, which makes them valuable in the product division. Meanwhile, some divisions require more logical thinking, a trait often associated with men. That's why diversity is important; it brings together different perspectives and strengths that contribute to a well-rounded team," as she highlights the need for empathy when developing a product innovation.

Therefore, our findings support Amoroso and Audretsch (2022), who indicate different strategies for acquiring external knowledge across different genders. We contribute additional evidence showing that men tend to rely on data-driven analysis, while women often acquire knowledge through intuition and empathy toward customers. Consequently, the complementary strategies used by men and women can synergize, enhancing product innovation through team integration.

5.5 Innovation Performance

We recognize that prior research has used varied indicators to measure innovation performance. In Chapter 2.3.3, we discussed that in start-ups, traditional metrics such as patents and financial indicators are not applicable due to their limited resources. Moreover, in prior research, we found that the social impact of innovation was not included in innovation performance. Therefore, we proposed a novel construct that integrates as the newness such as technology newness and market newness, as well as social impact as a comprehensive measurement of innovation performance. We used this measurement as supportive evidence for our case study investigation.

5.5.1 Market Newness and Technology Newness

We argue that market newness and technology newness are considered relevant to be used to measure innovation performance, particularly in the start-up context, where the primary objectives often include technology advancement and market acquisition. As we employed the measurement used in Talke et al. (2011) using a questionnaire, we do have a general illustration of innovation performance in tech-based start-ups. We presented the results of the measurements of all of our investigated start-ups in Table 26 Digital Innovation Performance across Cases

When we used this self-reported questionnaire to compare innovation performance from one start-up to another start-up, we noticed there is a possibility of different perceptions among each team member about how to assess their own product. In a team member that has high expectations about their product, a start-up team member may see their product as less

innovative. For example, as can be seen in Table 26, In Case 1, the technology newness was rated at 3 on a 5-point scale, even though the product used advanced technologies such as IoT and machine learning. This shows that new technology does not always equate to high perceived value. On the other hand, team members who haven't focused heavily on their product's technological aspect may still perceive it as having high value, as seen in **Case 2**. The technology newness value in **Case 2** was 2.17 out of 5, only slightly lower than **Case 1**, even though they only use a simple technology such as an online form. This indicates that team members who do not emphasize technological advancement might still perceive their product as highly valuable, suggesting that perceived value can be influenced by factors beyond the technology itself.

Therefore, we argue that there is no perfect instrument when comparing innovation performance among different start-ups for several reasons. First, since innovation is firm-specific, comparing innovation performance might not be able to fully capture the nuances and complexities of each firm. Hence, it is difficult to quantify accurately, especially when each start-up is still developing its product/service. For example, while the product/service innovation of Case 1 has been sold to customers, Case 4 was still developing its product/service based on market validation. Comparing their innovation at this stage might not be relevant.

Second, since the measurement used a self-reported survey, it might depend on the perceived value of newness on each start-up team. As has been mentioned previously where Case 2 only has a slightly lower value of technology newness while their technology advancement was significantly advanced compared to other cases.

Our research contributes to the existing literature on innovation performance by providing intricacies of measuring innovation performance in a new venture such as a technology-based start-up. Therefore, our research complements Figueiredo et al. (2021) who examine the complexity of measuring innovation performance in larger firms. We argue that, unlike larger firms, measuring innovation performance in start-ups is more difficult due to their ongoing product development.

5.5.2 Social Impact

On the other hand, while measuring market newness and technology newness are clearly beneficial for a firm to evaluate their innovation performance, relying only on one aspect of innovation performance is considered not comprehensive, especially in a gender-diverse team where women are more engaged in social sustainability initiatives (Apesteguia et al., 2012). In

this study, in addition to market newness and technology newness, the social impact of the innovation was also considered.

A comprehensive measurement that considers both environmental and social aspects, in addition to market and technology newness, could provide a clearer understanding of the question raised by prior research which indicated that the involvement of women in teams did not have a substantial impact on innovation performance. The focus of those studies was mostly on the economic perspective, neglecting the intricate contributions of women that go beyond simple economic measurements. For example, Oware and Appiah (2022) found that women's involvement decreases innovation. Likewise, Chu and Oldford (2023) and Loukil et al. (2020) found that women's participation was adversely affecting innovation. Unfortunately, they did not consider social impact to be part of innovation performance. As a result, the social impact of innovation, an aspect to which we found women usually contribute, was not seen as relevant, leading to the insignificant role of women during the innovation process (Pecis, 2016).

Our findings revealed a significant social impact of our investigated start-up as we can see in Chapter 4 (Table 27 Digital Innovation Performance on Sustainability), especially for Case 1 and 2. From the interview, we could also discover that female team member are the one that often prioritise impact. *"The idea [to make impact division] is from me. (Jane, Female CEO)"*.

The lack of attention to the social and environmental implications of innovation may explain situations where women's contributions to innovation are invisible (Belghiti-Mahut et al., 2016), especially when their influence on social aspects is undervalued. Following Lindberg et al. (2014), we argue that the conceptualization of innovation performance need to be revisited in order to prevent gender-bias definitions of innovation and more acknowledge women's contribution to social aspect of innovation (Lindberg et al., 2016).

According to social role theory (Eagly, 2013), men are generally perceived to be more agentic, exhibiting traits such as competence, assertiveness, and decisiveness. In contrast, women are often seen as having more communal traits, such as benevolence, trustworthiness, and morality, which contribute to a greater social orientation. Therefore, it is important to consider both economic and social performance to provide a more balanced and comprehensive measurement of innovation performance. This approach helps prevent a gender-biased definition of innovation, acknowledging the diverse contributions of distinctive traits that each gender brings during the innovation process.

Our research contributes novel empirical evidence to the discourse surrounding gender-diversity innovation frameworks. Through Table 27, we highlight the significance of integrating social dimensions into traditional measurements that focus on economic perspective. As shown in Table 26, only looking at the gender composition of the start-up team and its innovation performance without investigating its internal dynamic would lead to a biased conclusion. From Table 26, we can see that even though start-up team members have a gender balance composition of the team, it does not lead to a greater innovation performance (such as in Case 3 and Case 4). It is only by integrating these results with their internal dynamics that we can observe start-ups committed to gender diversity and strong internal cohesion consistently demonstrate superior innovation performance. In contrast, start-ups that achieve gender diversity incidentally, rather than through intentional efforts, do not exhibit the same level of innovation performance.

5.6 Summary

The purpose of this chapter is to present a comprehensive discussion of our research findings derived from the case study results outlined in Chapter 4. Through an in-depth analysis of these findings, we aim to elucidate our contribution toward a greater understanding of gender diversity within technology-based start-up teams, employing the conceptual lens provided by institutional theory, as expounded in Chapter 2. By integrating empirical insights with theoretical frameworks, we elaborate on the mechanisms through which gender diversity and innovation performance manifest within start-up teams, thereby enriching the broader discourse on gender diversity in entrepreneurial contexts, particularly within developing country such as Indonesia.

In general, the key finding of our study is that technology-based start-ups can utilise gender diversity within their teams to enhance innovation performance subject to some conditions. By effectively addressing and managing the complex interactions between internal dynamics and external pressures, the gender-diverse team could develop their team innovation capability to improve innovation performance. Our findings provide a deeper understanding on the relationship between gender diversity and innovation performance. We found team innovation capability as a missing linkage that provide a more proximal relationship between gender diversity and innovation performance. We summarized our findings in Table 28 by comparing our findings with prior studies, highlighting the position of our study among previous literature.

In the subsequent chapter, we will revisit our research questions and provide comprehensive answers to each question while also elucidating the implications of our findings for theory, practice, and future research.

Table 28 Summary

Concepts	Previous Research	Our Findings	Evidence From Cases	Summary of Comparison	Theoretical Implication
Institutional Pressures	Institutional pressures are sets of taken-for-granted rules that coerce organizations to behave according to the pressures leading to isomorphism within the industry. (DiMaggio and Powell, 1983)	External pressures do not always result in isomorphism, as the responses of individual start-ups might vary significantly even when operating within the same institutional context. It depends on: 1. Sources of pressures 2. Internal motivation 3. Internal dynamics capability	Case 1 proactively responded to external pressures, whereas Case 2 decided to passively comply with them. On the other hand, Case 3, Case 4, and Case 5 reactively responded to external pressures.	Contradictory	There is a dynamic interplay between external pressures and internal dynamics. These dynamics interplay depends on the strength of the pressures, perceived by each start-up.
	Moser et al. (2020) categorize organisational responses into three major types – passive, reactive, and proactive.			Support and complementary	
	There is a gap in understanding the specific mechanisms and processes to effect institutional transformations, particularly in diverse and evolving contexts (Urbano et al., 2019; Bruton et al., 2010)	We found that start-ups could become the instigators of change and accelerate overcoming gender-specific bias in the entrepreneurship ecosystem.	Case 1 is an example of a start-up that has the capability to challenge existing gender norms in the aquaculture industry. This capability was observed in only one out of five cases, which indicates that not all start-ups have the same ability to act as institutional entrepreneurs.	Answer a research gap	Start-ups could be important actors in transforming institutions and acting as institutional entrepreneurs, contributing to the persistent problem of gender imbalance in some specific industries.

Internal Dynamic	Organisational culture is essential as innovation among female employees was suppressed by unfavorable organisational climates (Cropley and Cropley, 2017)	Building inclusive organisational culture is important, but our research reveals that men also experience similar feelings. An inclusive organisational culture should equally address both genders' needs, thereby reflecting a more comprehensive approach to gender equality.	In case 4, the male participant got negative feedback, which caused him to feel a low sense of belonging and limited his motivation to express ideas or provide criticism. Case 1 involved all team members in designing the office layout, creating a breastfeeding room for women and a bedroom for men.	Complementary	Gender diversity was not a guaranteed formula to achieve innovation performance, organization should develop strong internal dynamic to respond to external pressures including inclusive organisational culture, effective leadership, and gender-responsive HR policies and practices.
	There is a notable absence of a dynamic and all-encompassing theory regarding the interaction between team diversity and team leadership (Homan, A.C et al., 2020).	We found two prominent leadership roles in leading gender diversity in a team. First, leaders are responsible for raising awareness and commitment to gender diversity. Second, leaders could actively play a role model in signaling the value of gender diversity to the external ecosystem.	Case 1 provides an example of how the leader translates her commitment to gender diversity into practice.	Answer a research gap.	
	External pressures drive internal dynamics including the increase of gender diversity on board (Knippen et al., 2019)	The internal dynamic needs to be adjusted to align with external pressures; however, it also plays a critical role in signaling the value of gender diversity to external institutions.	Despite unfavorable external environments, Case 1 sent a female field assistant and promoted gender diversity values by making a community hub and advocating for farmers	Complementary	
	Gender-focused policies and practices might create a backlash that might negatively affected performance (Kidder et al., 2004)	The involvement of both genders in building gender-focused policies and practices, coupled with the principle of equality, would create a supportive environment for gender-diverse team.	The majority of team members in case 1 agree that gender diversity brings values to the team. Case 1 provides equal facilities, opportunities for training and promotion, etc.	Contradictory	

Gender Diversity	There is a minimum number of women on board in order to make gender diversity work for innovation (Prencipe et al., 2023; García-Sánchez et al., 2023; Moreno-Ureba et al., 2022)	We discovered that relying solely on gender composition is inadequate for mitigating token pressures. Both men and women should have the equal power in decision-making and involve in the innovation process.	Case 3 and Case 4 had a perfect gender-balance team composition but failed to foster innovation.	Complementary	Gender diversity should be conceptualized not solely in terms of numerical representation between men and women in an organization, but also in terms of equitable access to opportunities and influence within the innovation process.
Team Innovation Capability	Previous research often focuses on the organisational level of innovation capability (Tikas, 2023), Research on innovation capability should consider the contingent effect that macro variables have on the relationship between antecedents/consequences and a firm's Innovation capability (Mendoza-Silva, 2021)	We focus on the team level and three aspects that contribute to team innovation capabilities, such as team social network, team collective intelligence, and team integration. We found internal dynamics as antecedent factors and innovation performance as a consequence of having team innovation capability	Gender diversity provides advantages by providing diverse networks (Case 1,2,4) and diverse perspectives (Case 1,2,3,4,5) and improving team integration (1)	Answer a research gap	Team innovation capability is the missing linkage that mediate the relationship between gender diversity and innovation performance.
Innovation Performance	Gender diversity in top management teams does not have an impact on SDG reporting (Weerasinghe et al., 2023)	We found that start-ups that have successfully leveraged gender diversity could enhance their social impact based on SDG.	All of our investigated start-ups demonstrated contribution to SDG, particularly Cases 1, which contributes in many aspects.	Contradictory	Innovation performance is a complex construct that should also include social impact as an additional measurement beyond economic measurement.

Chapter 6

CONCLUSION

This chapter outlines the key findings related to each research question. We also elaborate on contributions provided through the advancement of the theoretical framework. Subsequently, we analyse the implications of our findings, limitations, and potential directions for future research.

6.1 Research Summary and theoretical framework

Despite abundant research on the topic of gender diversity and its impact on innovation performance (See Appendix 1), knowledge about the mechanism through which tech-based start-ups utilize gender diversity within their teams and the impacts on innovation performance are not fully understood (Dai, Y et al., 2019). Particularly in analyzing both internal and external pressures. Our research addressed this complexity by answering several research questions:

Sub Question 1 : How do external pressures influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?

We found that external pressures are significant factors that influence start-up behaviour toward gender diversity. Some of these pressures emerge as enablers that encourage start-ups to adopt gender diversity in the team, while others serve as inhibitors that provide barriers and challenges to having a gender-diverse team. For instance, investor required Case 1 to put gender composition as an integral part of their organisational culture, forcing them to have gender diversity in their team. On the other hand, patriarchal culture, coming from social and cultural norms, created unsupportive environments for a gender-diverse team to achieve its maximum potential in collaboration during the innovation process (as can be seen in Case 3). Therefore, how start-ups respond to these pressures influences their attitudes towards gender diversity. It also determines how tech-based start-ups could leverage gender diversity to achieve innovation.

Prior research has mostly examined formal regulation as a significant component of coercive pressures (i.e. Attah-Boakye, R. et al., 2020; Arun et al., 2020). Interestingly, in the context of a country that does not have a specific regulation that encourages businesses to have a gender

quota on their board, such as Indonesia, religious pressures and stakeholder pressures emerge as significant coercive pressures.

First, we found that the investor has the power to force tech-based start-ups to pay attention to gender composition in their team. It can help start-up teams prioritize gender diversity. Our results provide new empirical evidence of the role of investor, complementing previous research (Perrault, 2015; Marquardt and Wiedman, 2016; Rastad and Dobson, 2022) that overlooked the critical role of investors in emerging firms such as start-ups in developing countries. Unfortunately, we found that most of our investigated investors in Indonesia do not prioritize gender diversity. Most investors, particularly local ones, focus primarily on product quality and profitability, often overlooking the importance of gender diversity in their investment decisions which also adds empirical evidence to previous research regarding the role of gender in investment decisions (Hohl et al., 2021).

One investor mentioned that he have conducted his own research regarding the impact of gender on innovation and the results suggested that gender is not significant to innovation while other investor did not mention any reason why they did not include gender diversity as a criterion during due diligence process. My data suggests lower awareness from local investors related to the importance of gender diversity in a team. Contrast to global investor who understand the value of gender diversity within the team when the investor give higher valuation to firms who had gender diversity in their workforce (Daniels et al., 2025). It implies that potential investors consider teams that are mixed in terms of gender more promising and are more willing to support their businesses.(Vogel et al., 2014). The failure of investors in seeing the importance of gender diversity within the team might be explained by previous literature that found how gender bias drive decision making during due diligence among investors/venture capital (Balachandra, 2020; Boerner et al., 2025).

Second, surprisingly, religious pressures emerge as one significant coercive pressure to a start-up that demonstrated religiosity in their start-up, as we can see in case 2. Even though we need to be cautious in interpreting this finding as it was only found significantly in one case, it raises an important issue that requires further investigation. In Indonesia, a country with a strong religious value, how start-up teams interpret and implement religious values in their start-ups influences how this start-up utilises gender diversity to achieve innovation. For example, to prevent *ikhtilat* (gender mixing), male and female team members have limited daily interaction, if it is not adjusted through certain mechanisms, it might impede how gender-diverse teams

undertake collaborative efforts, which is important during the innovation process. Therefore, our research provides new empirical evidence and contributes to previous research that explores the role of religiosity in entrepreneurial activities (Miao et al., 2022) who argued that religiosity may act as a substitute for formal structures in the presence of a weak government.

Despite ongoing research, there remains a fundamental gap in understanding the specific effects of religiosity on entrepreneurial decisions and actions (Smith et al., 2019). Our study addresses this gap by examining how particularly religiosity, interact with internal dynamics within tech-based start-ups. We explore how these beliefs shape both business orientation and the interactions among team members during the innovation process. For example, as the majority of the population in Indonesia was Muslim (institutional context), Case 2 emphasized the social impact of their business and provided a strict procedure on how they provide breastfeeding services to their customers (business orientation). To ensure that they act according to religious rules, Case 2 also embedded religious values into their internal dynamics including organisational culture and HR policies and practices (business practices). These findings underscore the pivotal yet often overlooked role of religiosity in influencing entrepreneurial activities, highlighting its potential impact on how start-up teams leverage gender diversity to achieve innovation performance.

Turning to mimetic pressures, as our investigated start-up did not have any social networks with other firms that put gender diversity as a priority, we did not find any mimetic behaviour leading to the adoption of gender diversity within the team. Instead, we found that they unconsciously tend to mimic other successful firms that did not put gender diversity as a priority. In this case, we highlight the lack of aspiring firms in promoting gender diversity values to foster innovation.

We found that studies relating to how firms engage in mimetic behaviour related and the adoption of gender diversity are rare, thus we extend the research by Mateos de Cabo et al. (2024) and Mawdsley et al. (2023) about the role of social networks of firms in giving mimetic pressures to adopt gender diversity. Our study, on the other hand, provides additional empirical evidence that when start-ups do not perceive successful stories of other firms adopting gender diversity to drive innovation, they are more likely to also not adopt gender diversity as a priority. Our research indicates that the lack of best practices demonstrated by other firms hinders gender diversity adoption, in spite of the work of some consultancies to promote it.

Apart from other firms, consultants, and incubators have a critical role in signaling gender diversity value. As most start-up founders have minimum experience in building a team, incubator plays critical role in providing guidance for them. Directors of DigitalX intentionally always put at least one women as a mentor during the workshop to motivate and encourage more women to be involved in the founding team. However, since the intention was not made explicit, some start-ups teams fails to see this intention as Case 5 mentioned that gender issues never been mentioned during the workshop, as a result they did not see why gender is one important criteria in building a start-up team.

Tech-based start-ups in their early development stage mostly relied on mimicking other companies or taken-for-granted advice from their mentor and consultants to face uncertainty. We emphasized that start-ups tend to have limited partners and network relations, thus, incubators play significant roles in exposing role-model companies that have successfully leveraged gender diversity in their teams to foster innovation. Without this, start-ups only relied on famous success stories such as Apple and Amazon (mentioned in Case 4). While other start-ups relied on their peer's start-up founder (mentioned in Case 5). Unfortunately, the incubator service provider that we found, also did not see gender diversity as a significant issue to achieve innovation performance. Our findings provide novel empirical evidence that supports the notion that incubation programs often reflect a gendered phenomenon (Maxheimer and Nicholls-Nixon, 2022) where the issue of inclusivity was not a concern.

Turning to normative pressures. We found that it provides conflicting roles. On one hand, we found some positive normative pressures that encourage start-ups to have gender-diverse teams such as the slogan “*Bhinneka Tunggal Ika*” (*Unity in Diversity*) in local culture (mentioned in Case 1) and family values (mentioned in Case 1 and 4). On the other hand, we found some normative pressures, particularly rooted in society such as gender norms in the global tech industry; influence how tech-based start-up team members utilize gender diversity in their team. The persistent problem of gender imbalance in the IT sector results in low participation of women in this sector (Corneliussen, 2023). It creates difficulties for tech-based start-ups in recruiting more women in their teams (mentioned in Case 1 and Case 3). Moreover, gender stereotypes and the prevailing patriarchal culture within external environments significantly shape team dynamics (Pecis, 2016), potentially impeding collaborative efforts to foster innovation (mentioned in Case 1, Case 3, and Case 4).

Among three types of pressures, as an enabler, we found that coercive pressures provided a stronger pressure for start-up teams to adopt gender diversity, as can be seen in Case 1, where their investor challenged Case 1 to incorporate gender lens in their culture (i.e., gender composition of the team). On the other hand, normative pressures related to gender norms and stereotypes served as inhibitor factors that create challenges for gender-diverse teams to achieve innovation. As can be seen in most of the cases (Case 1, Case 3, and Case 4) where some women are more susceptible to being underestimated.

Our research offers a novel contribution by elucidating the role of external pressures in shaping how tech-based start-ups leverage gender diversity within their teams to enhance innovation performance. Notably, we identify the significant influence of religiosity, family values, and incubators as key institutional actors, factors that have been largely underexplored in previous studies. This underscores a gap in institutional theory, offering new insights into the complexities of gender diversity and innovation in entrepreneurial settings.

Moreover, even though coercive, mimetic, and normative pressures often lead to isomorphism within organizations (DiMaggio and Powell, 1983), our findings emphasize that start-ups vary in responding to unfavourable external institutional pressures and navigating these pressures. While there is a start-up that proactively initiates institutional transformation to support gender diversity such as in Case 1, others decide to passively, comply with any perceived institutional pressures to obtain legitimacy and trust from external stakeholders, such as in Case 2. Unexpectedly, some start-ups such as in Cases 3, 4 and 5, demonstrated reactive response by ignoring some pressures and compromising to other pressures related to gender diversity. Align with Moser et al. (2020), even though working under the same institutional context, some start-ups demonstrated different behaviour in responding to institutional pressures.

We found that the different behaviours of each case in responding to institutional pressures depend on several things. First, it depends on the level of dependency of the case to the source of pressure. As the sources of pressures perceived by Case 1 come from its investor, it gave a stronger pressure as Case 1 has a high interdependency with its investor in the long run. The pressures to adopt gender diversity in Cases 3, 4, and 5 came from external stakeholders who did not have a direct influence on the start-up (e.g. mentor, workshop, potential investor). Therefore, the pressures to adopt gender diversity were deemed feeble.

Second, the decision to respond to pressure depends on motivation within the internal dynamics. If the start-up already has an internal motivation to adopt gender diversity, it would

be easier to conform to external pressures, as can be seen in Case 1, where the leader already had a personal belief in the value of gender diversity. Therefore, it would be easier to adopt the external pressures and adjust their internal dynamics to align with such pressures. In other cases, there was no necessity-driven motivation to adopt gender diversity, therefore, it would be easier to ignore any perceived pressures.

Third, each case demonstrated a different capability in navigating its internal dynamics to adjust to external pressures. Case 1 understood the challenges that might occur when they have a gender-diverse team, therefore, Case 1 deliberately developed various strategic actions such as building social conduct, training, and consulting with external consultants to cultivate a gender-diverse team. Other cases, especially Case 5, struggled with their own survival during the pandemic, causing the attention to focus on product development rather than team development. We address a call by Box and Larsson (2018) who invite more research to explore the role of and the distribution/possession of power that new ventures have against gender stereotypes.

For a start-up that proactively responds to institutional pressures, the response was characterised by a period of contestation between internal dynamics to have gender diverse team and external pressures that posed challenges and barriers to achieve this objective. It is important to note that such contestations were only observed in tech-based start-ups that attempt to challenge unfavourable external pressures. Conversely, tech-based start-ups that do not prioritize gender diversity internally may not perceive significant external pressures. This occurs because many external factors often act as inhibitors rather than enablers, thereby creating some challenges faced by start-ups that attempt to achieve gender diversity and utilize it to achieve innovation.

Therefore, instead of showing a unidirectional relationship between external pressures and internal dynamics, our research demonstrated that the relationship could be complex and dynamic depending on the capability of each start-up to respond to external pressures. Institutional pressures could influence start-ups to behave in a certain way to gain legitimacy. However, start-ups could also have the capability to initiate institutional transformation by developing strong internal dynamics. For instance, when a start-up prioritizes gender diversity internally, it inevitably encounters external pressures by unfavourable conditions that challenge start-ups in achieving gender diversity. In response, start-ups may navigate these challenges by formulating internal strategies and seeking support from external stakeholders who align with

their objectives. It can be seen in Case 1, where they sought advice from consultants to face farmers who had a prejudice against women field assistants and ended up with strategies in advocating for farmers about the role of women in the aquaculture industry. This approach not only assists start-ups in overcoming unfavourable external pressures but also serves as a proactive initiative for institutional transformation. Thus, it is important to acknowledge that the relationship between internal dynamics and institutional pressures is not always unidirectional, but rather characterized by a dynamic interplay

Our findings contribute to the existing research on factors influencing the strength of institutional pressures on organizations. Previous studies have shown that the impact of these pressures is shaped by organisational culture, particularly its orientation toward flexibility and control (Zhou, M. et al., 2024), as well as by high-performance work systems (HPWSs) and organisational inertia (Feng et al., 2024). Additionally, the strength of institutional pressures is affected by managerial cognition (Julian et al., 2008) and organisational identity (Martin et al., 2011). In contrast, our research identifies financial dependency, internal motivation in response to existing pressures, and internal dynamic capabilities as key factors that influence how organizations experience and respond to institutional pressures. Differences in these aspects lead to variations in how start-ups respond to institutional pressures.

In summary, although not observed in all cases, our research reveals the potential for a dynamic interplay between external pressures and internal dynamics. This finding shifts the perspective from viewing start-ups as vulnerable and passive entities merely responding to institutional pressures to enhance their legitimacy to recognize them as active agents capable of initiating institutional transformation. This nuanced understanding complements previous research by offering deeper insights into how organizations respond to institutional pressures and navigate their internal dynamics (Pache and Santos, 2013).

Sub-question 2 : How do internal dynamic influence tech-based start-ups to leverage gender diversity in their team to achieve innovation performance?

According to Social role theory, men and women will behave according to social expectations about their role in society (Eagly et al., 2000). Our findings found that most of the case experienced a gender imbalance in the candidate pools during recruitment process in a male-dominated position, it reflects this theory where women do not feel fit to work in a male dominated sector. Social expectation related to gender role might affect the beliefs, behaviours,

and experiences of people within an organization, creating internal dynamics within organizations. In our study, we found that internal dynamics play to prevent the detrimental impact of gender diversity in a team, such as the potential for conflict (Der Foo et al., 2005; Chowdhury, 2005) or communication and coordination failure (Chen, J. and Lin, 2024).

Previously, Cropley and Cropley (2017) proposed the critical role of organisational culture in gender-diverse teams to achieve innovation performance, while other research indicated the critical role of leadership in leading gender-diverse teams (Muchiri and Ayoko, 2013; Rowold, 2011; Stewart and Johnson, 2009; Homan, A.C et al., 2020). On the other hand, some research introduces the role of HR policies and practices (Pandit and Paul, 2023; Mastracci and Herring, 2010; Ali, M., 2016). However, we found that previous research tends to overlook the characteristic of the start-up context and tends to oversimplify the contributions of internal dynamics by focusing narrowly on single aspects of internal dynamics and overlooking their complex interlinkages.

We argue that these three aspects (organisational culture, leadership, and HR policies and practices) are part of internal dynamics that are intercorrelated to each other. Therefore, examining one aspect could not describe the whole provisioning condition in supporting gender-diverse teams to achieve innovation performance. For example, in start-ups, their organisational culture may still be in the embryonic stage. Therefore, leadership plays a pivotal role in shaping and evolving that culture. For example, in Case 1, the HR department noted that the founder's vision heavily influenced the initial organisational culture. Therefore, when their CEO highlighted the importance of gender diversity, it reframed their organisational culture and HR policies and practices to support gender-diverse teams. She even recognized the limitations of existing organisational culture and sought the assistance of consultants to evaluate and refine their culture to better accommodate a gender-diverse team.

In other cases, such as in Case 3, the leader argues that he values gender diversity and believes that it would enhance innovation performance. However, the leader failed to internalize his values to all team members. This indicates that the leader alone was insufficient in shaping organisational culture. Moreover, without translating the value of gender diversity within HR policies and practices, it would be difficult to cultivate a gender-diverse team to achieve innovation performance, especially when institutional pressures provide challenges in achieving gender diversity. Although organisational culture and leadership is important, it is the HR policies and practices that render this culture into concrete and consistent actions within

the workplace. They reflect a start-up's commitment to gender diversity by addressing and bridging any potential issues that might occur in gender-diverse teams, such as inequality, bias, stereotypes, or potential for conflicts. Thus, integrating organisational culture, leadership, and HR policies and practices is extremely important to ensure that they are aligned to support gender-diverse teams.

Moreover, our analysis underscores the strategic role of navigating internal dynamics in responding to institutional pressures. Internal dynamics serve as a critical factor in leveraging gender diversity to achieve innovation performance. Start-ups that effectively cultivate supportive internal dynamics, such as strong leadership, inclusive organisational culture, and gender-aware human resource management (HR) policies and practices, are more likely to develop team innovation capability. Team innovation capability plays a pivotal role in enhancing innovation performance. By prioritizing and nurturing these internal dynamics, start-ups can harness the full potential of gender diversity to foster innovation performance. Thus, our findings contribute to previous research by explaining the complex interlinkages between internal dynamics within tech-based start-up teams, addressing a call to understand the internal provisioning condition of tech-based start-up teams to develop their team innovation capability (Mendoza-Silva, 2021).

The Role of Leadership

Prior research often overlooks the role of key actors in effectively managing the complex interplay between external and internal pressures that shape the gender composition of teams. While there is considerable focus on the influence of external pressures and the significance of internal strategies in promoting gender diversity as a catalyst for innovation, the importance of these key actors was often neglected. Even though previous research has acknowledged the role of leadership in leading diversity (Muchiri and Ayoko, 2013; Homan, A.C et al., 2020), it does not specifically address the complexity of addressing gender-diverse teams in a tech-based start-up context, where its leadership is often characterized as less structured (Lee, S., 2022). Moreover, the dynamic interaction between leadership and gender diversity within the team was also overlooked (Homan, A.C et al., 2020). Therefore, our research fills in the gap by elaborating the role of leadership in managing gender diversity within the team, particularly in the context of tech-based start-ups.

We found two main roles of leadership in leading gender diversity in a team. First role of the leadership is raising awareness about the value of gender diversity within the team. The second

role of leadership is to actively play as a role model in signaling gender diversity value to the broader ecosystem. By raising awareness and commitment in having gender diversity within the team, the leader would intentionally put priority on hr policies and practices and cultivate an inclusive organisational culture to support a gender diverse team to enhance innovation performance. By signalling the value of gender diversity to the broader entrepreneurial ecosystem, the leader could communicate with other stakeholders to support them in cultivating gender diversity within the team to enhance innovation performance. As has been done by the leader in Case 1 that successfully leverage the potential of gender diverse team to enhance innovation performance. Our findings aligned with the definition of leadership defined by Northouse (2018) which mention that leadership is a process whereby an individual influences a group of individuals to achieve a common goal. In this case, the leaders behavior in raising awareness and signaling value of gender diversity influence how the team leverage gender diversity to improve innovation performance.

While leadership is widely acknowledged as crucial, we found that not all leaders prioritize gender diversity, and even among those who do, many struggle to translate this priority into strategic actions that effectively leverage gender diversity to foster innovation. From our investigated start-ups, only one case out of five cases demonstrated the strong commitment of the leader toward gender diversity and successfully translated them into strategic actions. Having an awareness of gender diversity values within the leadership without commitment to internalize the value to all team members was insufficient. It is important to translate this value into strategic action that could create a supportive internal dynamic to cultivate gender diversity, particularly to achieve innovation.

In addition to the discourse surrounding effective leadership for leading gender diversity within start-up teams, we also revealed that initiatives aimed at fostering innovation through gender diversity within tech-based start-ups frequently come from female entrepreneurs' leadership. While Berg and Miller (2023) could only provide an analysis of the role of women through the female leader's narrative, we on the other hand, provided specific evidence on the role of women leaders in advancing gender diversity within the team. They act as both a role model and motivation for other women, while also sending a signal to the broader ecosystem by breaking the glass ceiling phenomenon. Thus, it is important to empower women entrepreneurs to actively deconstruct gender stereotypes within society, making it possible to increase women's participation in the digital industry.

The Role of Organisational Culture

Our research fills in the knowledge gap by bringing social and organisational context within start-up teams, which addresses a call from Schneid et al. (2015) to bring more closer look into organisational culture. Previous studies suggest that the impact of gender diversity on promoting innovation is contingent upon the level of support provided by the organisational (Cropley and Cropley, 2017; Dwyer et al., 2003). Aligned with these findings, we also found that organisational culture plays a critical role in supporting gender-diverse teams in tech-based start-ups. We found a set of values that allow start-up teams to benefit from gender-diverse teams such as openness, respect, equality, and togetherness.

Exploring this phenomenon, Cropley and Cropley (2017) suggested that women's potential for innovation might be hindered by unsupportive environments. However, in our case, notably, in Case 4, it was observed that men were also susceptible to unfavorable organisational cultures. It creates difficulties for him to voice his ideas and criticisms, resulting in a low sense of belonging. This suggests that an inclusive organisational culture should not be narrowly focused on accommodating the needs of one particular gender. Instead, it should equally address both gender's needs, thereby reflecting a more comprehensive approach to gender equality. This comprehensive approach is crucial in creating an inclusive organisational culture that supports all team members, regardless of gender, to truly foster an environment conducive to innovation and collective success. Our findings might explain why Krook (2015) found that gender diversity initiatives in more mature firms create a backlash from existing team members.

To prevent this, Case 1 deliberately involved all team members in designing their new office layout, which accommodates all team members' needs. As a result, apart from a breastfeeding room that facilitates women's return from maternity leave, similar rooms were also provided for men who might need to take a brief rest in the office. This is an example of how Case 1 developed its inclusive organisational culture. When an inclusive organisational culture has been developed, and all team members internalize shared values, particularly those related to diversity and inclusion, it creates an environment where everyone feels respected, valued, and empowered to contribute their unique perspectives. By fostering an inclusive organisational culture where diversity is embraced and valued, gender-diverse teams can contribute to improving innovation performance through their collective efforts and diverse perspectives.

Our findings contribute to the empirical evidence on the critical role of organisational culture as a component of internal dynamics in supporting gender-diverse teams to achieve innovation performance. Interestingly, contrasting to Dwyer et al. (2003) found that organisational cultures implementing a clan structure (e.g. emphasizes internal focus and collaboration over competition) were conducive to fostering innovation, our research presents a contrasting perspective. In cases where gender diversity has been successfully utilized for innovation, we observed that intergroup competition played a significant role. Uniquely, instead of creating conflict, this intergroup competition could improve the productivity of team members. It is important to note that this only occurs in Case 1 where all team members understand the value of diversity.

The Role of HR Policies and Practices

One successful case that leverages gender diversity to foster innovation demonstrated comprehensive gender-responsive HR policies and practices. Gender-aware practices include equal opportunities in training and promotion, ensuring welfare, health, and well-being, and providing supportive facilities with the principle of equality. Gender-responsive policies include inclusive recruitment practices, gender-responsive regulation, fair payment, and social codes that provide a safe environment for men and women to work conveniently in the team.

We also found that proper diversity training is equally crucial for internalizing these values and embedding them into routine practices to facilitate collaboration among all team members, including regular sharing and discussions. For example, Jaiz, VP from Case 1, mentioned “gender education” as he aims to increase awareness of their member about gender differences. He highlights that common understanding to embrace and value differences is important. Therefore, all team members need to develop gender intelligence (Zemsky, 2001) to increase the understanding and appreciation of natural differences between men and women, as well as acknowledge human achievement that contributes to an institution's mission regardless of gender. Tools and mechanisms are essential in this process and serve as frameworks for accommodating different perspectives and diverse ideas across genders. Design thinking is an example of a mechanism that effectively accommodates different cognitive processing styles typically exhibited by different genders.

Our study criticises Kidder et al. (2004) who argue that gender-focused policies and practices might create a backlash that might negatively affect performance, in Case 1, we provided an example that gender-focused policies and practices, when involving both genders in the

development of such policies and practices, it would create a better environment for gender-diverse teams. Unlike other cases, Case 1 were able to develop comprehensive HR policies and practices to prevent a backlash because they were assisted by a professional consultant during the process.

It is crucial to acknowledge that start-ups have limited resources and experiences. As a result, in majority of cases (Case 3, Case 4, and Case 5), most of their HR policies and practices are more experimental in nature rather than consciously developed. Thus, the role of a consultant and incubation service provider is crucial in influencing the knowledge of start-ups regarding the significance of HR policies and practices. Like organisational culture, start-ups must recognize the importance of continuously reassessing HR policies and procedures as the number of team members increases.

In summary, gender-focused HR policies and practices have been found to increase the overall performance of individuals and organizations (Pandit and Paul, 2023; Ali, M., 2016; Mastracci and Herring, 2010). Gender-sensitive HR policies and practices are essential to ensure that all team members, regardless of gender, feel accepted and respected. This sense of inclusion contributes to better team collaboration, which is critical for enhancing innovation performance. For example, in Case 4, the absence of gender-focused HR policies and practices led one male team member to feel a lack of sense of belonging. As a result, he was hesitant to provide constructive criticism, a key element of effective teamwork and innovative problem-solving.

Nevertheless, there is a lack of empirical evidence demonstrating the impact of gender-focused HR policies and practices on the ability of gender-diverse teams to promote innovation. Therefore, our research fills in the gap by pinpointing specific HR policies and practices in helping gender-diverse teams foster innovation, specifically in tech-based start-ups, which have limited skills and resources, an area that has been overlooked in prior research.

A key distinction in HR policies and practices within tech-based start-ups lies in their inherent flexibility and responsiveness. Different from established firms with rigid and mature HR frameworks, as most tech-based start-ups in the early stage do not have mature HR frameworks, they often need to adapt their policies and practices to meet emerging conditions. This flexibility allows start-ups to respond effectively to rapid changes and evolving needs of their team members. As a result, HR policies and practices in these environments tend to be more

dynamic and require a comprehensive understanding of the needs of their gender-diverse team members.

Overarching question: How do tech-based start-ups perceive and leverage gender diversity within their team to enhance innovation performance?

Throughout the analysis, we found that tech-based start-ups that successfully enhance innovation performance through gender diverse teams perceive gender diversity as strategic advantage to develop team innovation capability. However, the potential to develop team innovation capability depends on their perception and responds towards institutional pressures, it also subject to how team members manage their internal dynamics

We can also conclude that the effect of gender diversity in a team on innovation performance is not a stand-alone phenomenon. Therefore, it is impractical to examine the direct relationship between gender diversity and innovation performance without considering external and internal factors, which are the main reasons why previous research provides incomplete understanding. For example, although Dai, Y et al. (2019) reported a positive relationship between gender diversity and innovation performance of a start-up team, they failed to explain why some start-ups were unable to achieve innovation performance. On the other hand, Biga-Diambeidou et al. (2021) found that gender composition does not have any significant impact on innovation performance.

These inconclusive findings of previous research were subject to unforeseen contextual factors, which were neglected in previous research. For example Biga-Diambeidou et al. (2021) did not investigate a team in a real-world context as they did an experiment with business students in the classroom, missing the complexities of a real-world phenomenon. Likewise, Dai, Y et al. (2019) overlooked internal organisational context when investigating their cases.

We provided evidence that having gender diversity among start-up team members does not automatically lead to better innovation performance, as can be seen in Case 3 and Case 4, who had difficulty achieving innovation despite having a gender-balanced composition in their team. Therefore, our findings highlight the urgency of revisiting the definition of gender diversity. While numerical equality is significant, the substantive empowerment and influence of both men and women within the tech-based start-ups is the true driver of innovation performance. We found that for diversity to be effective, it must function as a relational practice of power (Carver, 2003). It is not enough for women to only be included in the tech-based start-up, they must possess the political mobility (Clarsen et al., 2014) to navigate and influence the

decision-making hierarchy without being constrained by the traditional social mapping of gender roles (Gheaus, 2015). Achieving gender diversity is not merely about achieving a certain number of male/female team members and treating gender diversity as a score-card (Collins et al., 2000), but is also about ensuring that all start-up team members, regardless of their gender, are respected, involved, and have a meaningful impact on decision-making processes.

Therefore, we criticize previous research that only emphasizes the importance of achieving certain compositions (Prencipe et al., 2023; Moreno-Ureba et al., 2022) without further explaining the provisioning internal condition by which gender diversity could enhance innovation performance. Regarding this, we found that the outcome is contingent upon certain factors beyond achieving equal number of men and women in the team composition, particularly on how start-up teams manage their internal dynamic in response to unfavorable conditions from external pressures. By optimizing internal dynamics and developing team innovation capability, gender diversity could help tech-based start-ups to improve innovation performance. By having gender-diverse team which supported by inclusive organisational culture, gender-aware HR policies and practices, and leadership in leading gender-diverse team, tech-based start-up could optimize the potential of having gender-diverse team such as improving team social network to access different network pools, developing team collective intelligence, and improve team integration. These three dimension are important in developing team innovation capability, which could lead to improve innovation performance.

Moreover, similar to established firms, we found evidence that start-ups are also embedded in their environment, which makes it difficult for them to detach from their institutional context (Terjesen et al., 2015). This is why considering internal dynamics and institutional context when investigating the impact of gender diversity on innovation performance is essential (Carrasco, 2014).

We found that subject to certain conditions discussed above (e.g. institutional pressures and internal dynamics), gender diversity helps tech-based start-ups improve their innovation performance through team innovation capability. Gender diversity advanced team innovation capability through three potential benefits: team social networks, team collective intelligence, and team integration. As team innovation capability increases, innovation performance will follow.

First, as men and women naturally have different characteristics of networks and different approaches to networking (Watson, 2012), by having a gender-diverse team, start-up teams could gain access to diverse network pools for acquiring new talents (Case 1, 2, 3, 4, 5), collaborative partners (Case 2), and potential clients or customers (Case 3). This finding aligned with Li, H. and Wang (2021) who argue that gender diversity enhances collaborative networks, which will increase innovation performance.

Second, men and women tend to have different cognitive styles (Eagly, 2013), thus, having a gender-diverse team also means having cognitive diversity, which is highly correlated to innovation performance (Kanchanabha and Badir, 2021). As can be seen in several cases, diverse perspectives, different risk orientations, and problem-solving approaches lead to the improvement of team collective intelligence. For example, in Case 2, men tend to prioritise data, while women tend to be more sensitive to subtle cues or intuition. Combining these two different approaches can enhance information processing and stimulate idea generation, both of which are crucial for fostering innovation. While idea generation is a fundamental part of the innovation process, the advantages of gender-diverse teams extend beyond this stage. Although this study does not delve into the specific stages of innovation due to the unique, complex, and iterative nature of each start-up's process, our findings highlight how diverse perspectives influence innovation holistically. For instance, in Case 1, male team members concentrated on technical robustness, whereas female members emphasized branding and aesthetics features, such as designing a mascot to increase product memorability. Similarly, in Case 4, men and women contributed different family-related viewpoints, leading to the creation of a webinar topic that appealed to a wider audience, including both fathers and mothers. This depicted that the contribution of gender-diverse team might vary in different cases.

Third, we found that women's presence in the team could enhance communication among team members, which is a key aspect to enable collaboration. Moreover, as men and women tend to have different sets of skills and capabilities, having a gender-diverse team could lead to better collaboration. As can be seen in Case 1, Case 2, Case 3, and Case 5. For example, Case 2 mentioned how his female CEO could have a good idea, but he was the one who had the capability to break down the idea into a visual design that could be communicated to the developer. As a result, gender diversity in teams can enhance team collaboration leading to improved team performance (Gartzia et al., 2022).

Turning to another aspect, we found that reflecting on the Sustainable Development Goals (SDGs) as a benchmark, our research reveals that gender-diverse teams prioritize impact as a key consideration during the innovation process. Consequently, innovations stemming from gender-diverse teams demonstrate a higher level of social impact (Molecke and Pache, 2019; Ramani et al., 2017). Surprisingly, while the value of market and technology novelty may not be as significant, the focus of gender-diverse teams on addressing societal problems leads to high levels of innovation performance. This finding underscores the importance of non-financial metrics in assessing innovation performance, a dimension that is often overlooked by traditional output-driven innovation literature, providing an explanation of why sometimes women's roles were invincible in the innovation outcomes (Pecis, 2016).

In conclusion, our study underscores the crucial role of gender diversity in the innovation process. In our cases we found that having gender-diverse also emphasizes the importance of addressing societal challenges and fostering positive societal impact. In Case 1, their product innovation not only help improving small farmer's welfare but also improve the sustainable practices in the aquaculture industry. In Case 2, their product and service not only helping and educating mother in breastfeeding but also help educating society in adopting healthy lifestyle. So does in Case 3, 4, and 5 where most of the impact initiatives was triggered by female team members. By recognizing and leveraging the diverse perspectives and priorities brought by gender-diverse teams, tech-based start-ups can enhance their innovation efforts and make meaningful contributions toward achieving sustainable development goals.

6.2 Research Contribution

The main theoretical contribution of our study is the framework (Figure 18), which advances a conceptual framework linking institutional pressures and internal dynamics to innovation performance. This framework represents a significant theoretical contribution to gender diversity using social role theory and its relationship to innovation performance. It enhances understanding of how institutional pressures impact internal dynamics and how these dynamics, in turn, affect gender diversity and its capacity to generate team innovation capabilities and performance advantages. Therefore, our framework provides several contributions to the literature.

First, our research, to the best of our knowledge, is among the first that explores the dynamic interplay between internal and external pressures as a significant factor affecting gender-

diverse teams to foster innovation performance in tech-based start-ups. The existence of dynamic interplay between internal and external pressure could have been unnoticed if the analysis had solely concentrated on macro-level perspectives or the examination of internal structures only, rather than exploring the mechanism in which they are intertwined. We combined macro and micro perspectives to analyse the phenomenon by highlighting the internal dynamics as an interrelated concept between organisational culture, leadership, HR policies and practices, and its dynamic interplay with institutional pressures (see 1st red box in the figure 18).

Attah-Boakye, R. et al. (2020) indicate that the effect of gender diversity on innovation is moderated by institutional context. However, how start-up teams within the same institutional context respond to the challenges differently was not clearly understood. Our study shed light on how a start-up could have the capability to initiate institutional transformation. Our study found that instead of waiting for the transformation to increase its survival (Box and Larsson, 2018), a start-up could also act as an actor who initiates the transformation itself, creating a dynamic interplay between external pressures and internal dynamics. Therefore, our research contributes to the existing literature on institutional entrepreneurship by providing empirical evidence in tech-based start-ups, an area where it was underexplored in institutional change literature (Dacin et al., 2002).

Institutional theory is a well-established framework. Our study addresses a call to apply new and enriched insights to enhance its use and relevance (Bruton et al., 2010), especially in areas neglected in traditional institutional theory literature such as entrepreneurship (Urbano et al., 2019). Our research responds to the call for studies that integrate institutional theory with the entrepreneurial ecosystem (Urbano et al., 2019). Specifically, it explores how internal dynamics (specifically organisational culture, leadership, and HR policies and practices) within tech-based start-ups influence their ability to leverage gender diversity for enhancing innovation performance, which have been overlooked in the previous studies.

We also advanced the theory by depicting dynamic interplay between institutional pressures and internal dynamic within tech-based start-up (double-direction arrow in the framework in figure 16). It not only providing empirical evidence on how tech-based start-up was influenced by institutional pressures but also on how they could contribute to initiate institutional transformation. We did not only answered a conflicting result from previous study about the relationship between gender diversity and innovation performance but also bring under-

represented perspective from individual team members about their experience in gender-diverse team.

Second, we also contribute to social role theory by advancing our understanding of how societal roles and expectations influence how team members perceive the benefits and challenges of having gender diversity in a team and how to leverage it to enhance innovation performance. Our study also links social role theory and institutional theory, where we highlight how institutions have an important role in changing gender role beliefs or even amplifying them. Social role theory needs to be considered during the incubation program by developing training programs that raise awareness of implicit biases and encourage flexible role expectations when tech-based start-up wants to build gender-diverse team and leverage its potential to enhance innovation performance (see red arrows in the figure 18).

.Third, our study contributes to the existing gap by advancing the framework and conceptualizing team innovation capability as the missing linkage that mediates the relationship between gender diversity and innovation performance. Team innovation capability is a team-level ability to generate, integrate, and transform collective ideas and knowledge from individual team members into new processes, products, or services that add value to the organization. Dai, Y et al. (2019) found that gender diversity in new venture teams could increase innovation performance. However, they fail to provide empirical evidence on how gender diversity could increase innovation performance and explain why some organizations fail to benefit from gender-diverse teams (Chu and Oldford, 2023). Our findings explain that gender diversity could enhance team social networks to gain access to external resources needed for innovation, such as talent, potential collaborative networks, partners, clients, and customers. This is because men and women tend to have different characteristics of network pools (Watson, 2012). We also found that gender diversity could increase team integration and team collective intelligence resulting from diverse cognitive processing styles from different genders (Eagly and Wood, 1999). These three aspects were interrelated as one component might work to support another component. For example, without team integration, it is difficult to achieve team collective intelligence. Thus, our findings respond to a call to move beyond narrowly focusing on proving the direct link between gender diversity and innovation performance, as such approaches tend to oversimplify the complex relationships between team diversity and performance (Huang, S. et al., 2023). (see 2nd red box in the figure 18).

Fourth, by using market newness, technology newness, and social impact, we proposed new multidimensional measurement of innovation performance in the start-up context. Market newness and technology newness are more effectively captures how innovative a tech-based start-up based on its ability to create or disrupt market and technology. Moreover, our measurements moved beyond financial implication by adding social impact in measuring innovation performance. Social impact is an important aspect that should not be overlooked as it reflects the broader consequences of innovation on solving societal and environmental problems. It reflects how innovation could contribute in addressing global challenges as outlined in SDGs (see 3rd box in the figure 18).

Last but not least, It is important to note that we do not believe our results accurately reflect a whole start-up in general. However, our findings make an empirical contribution to extend prior research in an emerging country context such as Indonesia, highlighting cultural context and demographic characteristics that provide new insights for gender and innovation studies, particularly in the entrepreneurship ecosystem. As a result, we found distinctive institutional pressures, unique societal norms and source of external pressures (e.g., religious pressures and family values, which play a significant role in shaping gender diversity within the tech-based start-ups. We revealed the factors that are less emphasized in Western-centric or secular research contexts and highlights a country-level cultural context which is often overlooked in previous studies that only focused on formal regulation (Labelle et al., 2015), national culture (Attah-Boakye, R. et al., 2020), and support on women (Carrasco, 2014).

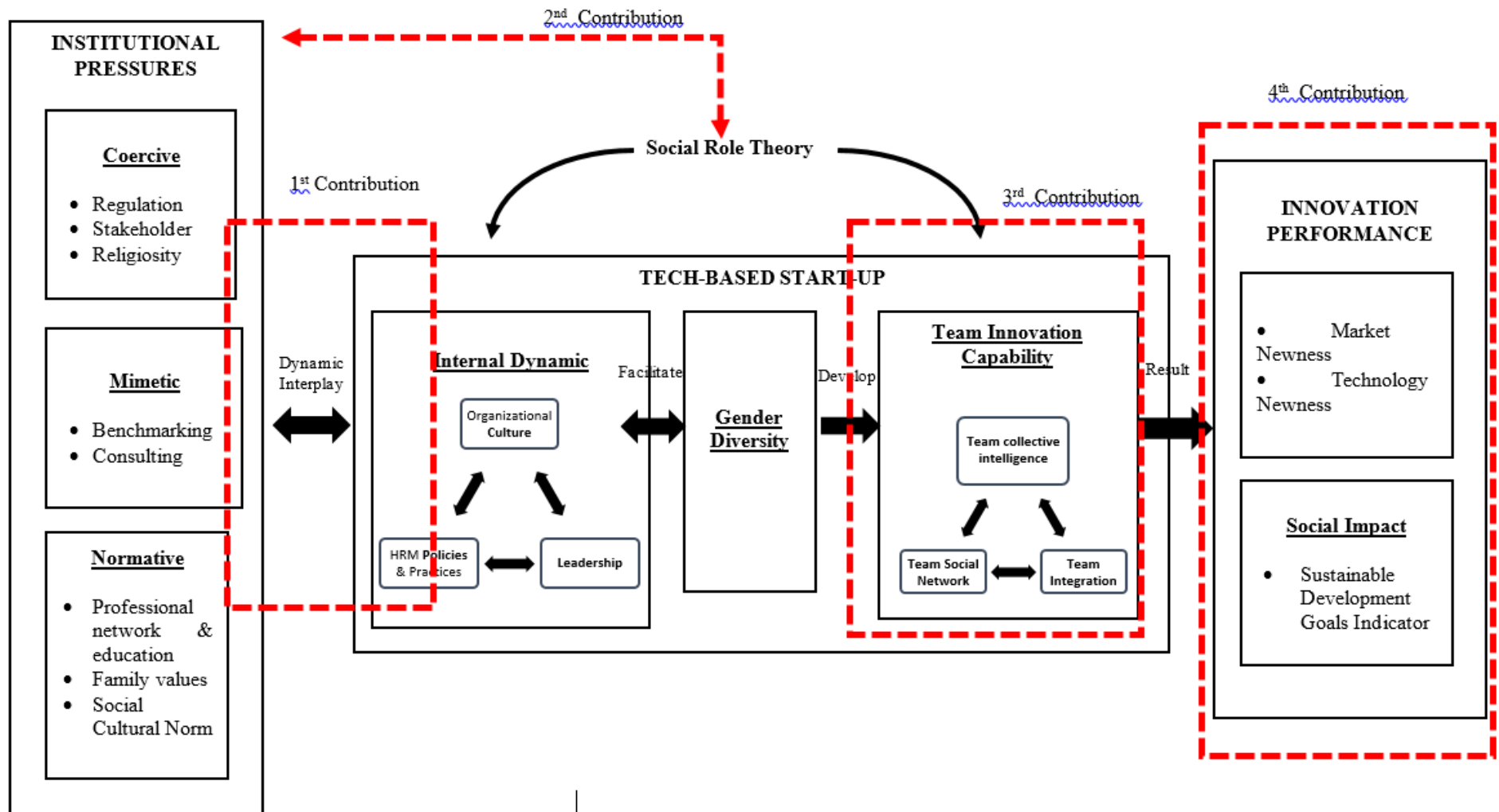


Figure 18 Proposed Framework

6.3 Practical Implication

In addition to theoretical contribution, our study also has several practical implications. Our study advances the understanding of the importance of having gender diversity in tech-based start-ups to enhance innovation performance.

Our study serves as a catalyst for governmental interventions aimed at fostering economic growth through the revitalization of start-up development policies. As we found that none of our investigated start-ups perceived any regulation related to the adoption of gender diversity, there was a lack of awareness related to the significance of having gender diversity within the team. We believe that such a regulation could help the industry raise awareness of the issue of gender diversity. By offering a compelling rationale for the strategic reinvention of such policies, particularly in technology-based start-ups, could lead to institutional transformation that prioritises gender diversity within start-up teams. To advocate gender equality in a broader social context, it is vital that start-ups should be encouraged to have gender diversity in their workplace (Eagly and Sczesny, 2019).

In addition to that, our study highlights that such a policy was not a standalone solution for advocating gender diversity within start-up teams. It should be followed by collaborative actions from all parties involved in the entrepreneurial ecosystem, such as incubators, consultants, and investors, to sustain the progress towards gender equality in technology entrepreneurship. Our findings underscore the potential of government-initiated incubation programs as pivotal instruments in effecting this transformation. By leveraging these programs to foster a supportive environment that promotes gender-inclusive entrepreneurship, policymakers can contribute to solving the persistent problem of gender imbalance within the IT industry.

It can be achieved by adopting several strategic actions. First, the incubation service provider could design an intervening program that aims to increase women's participation in start-up development. Second, during the incubation program, the incubation service provider should provide start-ups with a set of capabilities to leverage gender diversity to improve innovation performance. It should include gender intelligence training, a training program that aims to equip start-ups with skills to not only understand gender differences but embrace those differences and transform them into team innovation capability. Third, venture capitalists might put gender diversity as one criterion in their due diligence when assessing start-up portfolios

for investment. By having these examples practices, it would create a good ecosystem for start-ups in leveraging gender diversity to improve their innovation performance.

Our study also pinpointed barriers and challenges that hinder the enhancement of innovation performance within gender-diverse teams. Barriers such as gender-specific bias and gender imbalance in candidate pools require a more inclusive recruitment policy. Challenges such as overcoming social-cultural norms and developing gender intelligence require the manager to adopt strong internal dynamics such as developing effective leadership, inclusive organisational culture, and gender-responsive policies and practices. By understanding these barriers and challenges, managers could help cultivate gender diversity to achieve innovation performance.

6.4 Research Limitation and Future Research

Although we have made careful and thorough efforts in conducting rigorous research, we admit that there are significant limitations due to restricted time and resources.

First, as we adopted a qualitative approach to gain deep insight into the phenomenon of gender diversity in tech-based start-ups, our research might be very context-specific and have limitations in providing general conclusions across different contexts. To further increase the generalisability of our findings, future research could increase the number of cases investigated or validate and advance our advanced framework using quantitative methods to be able to understand the possibility of generalization across different contexts.

Second, as we only consider one type of diversity, multiple combinations of different types of diversity might be worth investigating. Dai, Y et al. (2019) found that gender diversity might have a complementary effect on other types of diversity as it could unlock a firm potential to adopt other types of diversity such as functional diversity. Therefore, future research might explore how gender diversity could also help firms to be more adaptable to other types of diversity. It will help gain an understanding of how organizations could develop a culture of diversity and inclusion while at the same time, achieving innovation performance.

Third, we also invite future research to investigate the effect of different timeframes. As we found that team composition is very dynamic due to frequent changing personnel resulting in dynamic team gender composition, coupled with long-term innovation outcomes, we suggest that future research should consider a longitudinal study that investigates the dynamic within tech-based start-ups in a longer period of the data collection method. By doing this, we could

understand the long-term impacts of having gender diversity on innovation performance. Moreover, we could capture how shifts in gender diversity that might occur influence innovation performance.

During the analysis, we found interesting findings related to the role of religious pressures as part of coercive pressures that influence the development of Islamic entrepreneurship within start-ups. It not only guides but also shapes start-up business orientation and its internal dynamic. Moreover, we also found that family values also play a critical role in shaping leadership values about gender diversity. Further research might want to gather deep insight into this phenomenon. For example, how religious moderation will influence start-up perception towards gender diversity.

Finally, as our research is country-specific and focused on Indonesia, a comparison across different nations, which have different cultures and gender gap index, might offer different nuances on the phenomenon of gender diversity and its implication on innovation performance. Moreover, it is important as we were faced with the fact that the concept of gender has become more complex, and in some countries where non-binary gender was recognized, it might influence how firms define gender diversity and leverage it to foster innovation.

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Appendix

Appendix 1 Summary of Literature Review

Summary of Literature Review on Gender Diversity and Innovation Performance

No	Source	Method & Sample	Construct	The relationship between gender diversity and innovation performance			Notes
				Pos itive	Negative	Not found	
1	Attah-Boakye, R., Adams, K., Kimani, D., & Ullah, S. (2020). The impact of board gender diversity and national culture on corporate innovation: A multi-country analysis of multinational corporations operating in emerging economies. Technological Forecasting and Social Change, 161, 120247.	Quantitative 472 multinationals in 21 emerging economies, covering nine years (2009–2018).	Firm-specific variables R&D Spending (RDSALES) Gender Diversity (GD) Board size (BSIZE) Non-executive directors (NED) Single largest shareholder (SBO) Leverage (LEV) Return on equity (ROE) Return on assets (ROA) Market-to-book value (MTBV) Hofstede's National Culture aspects Individualism Versus Collectivism (IDV) Masculinity Versus Femininity (MAS) Uncertainty Avoidance Index (UAI) Long- Versus Short-Term Orientation (LTO) Indulgence Versus Restraint	V			gender diversity is positively associated with corporate innovation. national norms, cultural values, and country-level institutional quality influence boardroom influence gender diversity, level of investment in research and development (R&D), and corporate innovation is considered (Attah-Boakye, Rexford et al., 2020)

			(IVR) Country-level Institutional factors Regulation quality (REGQUA) Strength of investor protection index (SIPI) Rule of law (RULEOFLAW) Government effectiveness (GOVEFFECT) Control for corruption (CTRFORCORR)				
2	Wikhamn, W., & Wikhamn, B. R. (2020). Gender diversity and innovation performance: evidence from R&D workforce in Sweden. International Journal of Innovation Management, 24(07), 2050061.	Quantitative Swedish firms from CIS Survey	R&D unit's size (males and females) Subsidiary or stand alone(binary) Type(service, manufacturing) Engagement in extramural R&D	V			relationship with employee innovation-related productivity, supporting the value-in-diversity perspective (Wikhamn and Wikhamn, 2020)
3	Nadeem, M., Bahadar, S., Gull, A. A., & Iqbal, U. (2020). Are women eco-friendly? Board gender diversity and environmental innovation. Business Strategy and the Environment, 29(8), 3146-3161.	Quantitative 10,334 firm-year observations of U.S. listed firms	Self Reported Indicators: process innovation (PRC_INNV) and product innovation (PRD_INNV) adopted from (Arena et al., 2018) Gender Diversity(Blau Index)	V			Board Gender Diversity has a significant positive association with environmental innovation(Nadeem et al., 2020)
4	Xie, L., Zhou, J., Zong, Q., & Lu, Q. (2020). Gender diversity in R&D teams and innovation efficiency: Role of the innovation	Quantitative Annual Census of Industrial Enterprises	Innovation performance(% of the firms' new product sales out of the	V			-gender diversity in R&D teams is significantly and positively related to innovation efficiency -gender diversity leads to

	context. Research Policy, 49(1), 103885.	2009–2013 of a coastal province in China	total sales) Gender Diversity (Blau Index) Moderating: Task intensity, task complexity, market competition, market uncertainty				greater innovation efficiency for firms with higher task intensity -gender diversity and innovation efficiency is positive and significant -market uncertainty enhances the positive effect of R&D team gender diversity on innovation efficiency (Xie, L. et al., 2020).
5	He, X., & Jiang, S. (2019). Does gender diversity matter for green innovation?. Business Strategy and the Environment, 28(7), 1341-1356.	Quantitative 1,585 listed firms of China's manufacturing over the period from 2010 to 2015	Gender Diversity (Blau Index) Green Innovation (Patents)	V			occurrence of green innovation at the firm-level is systematically related to female board representation(He, X. and Jiang, 2019)
6	Rejeb, W. B., Berraies, S., & Talbi, D. (2019). The contribution of board of directors' roles to ambidextrous innovation. European Journal of Innovation Management.	Quantitative 81 Tunisian-listed firm	7 type innovation adopted from Board independence (the proportion of independent directors compared to the board's total size) Gender diversity (the proportion of women directors in the board compared to its size)	V			ambidextrous innovation is negatively linked to board's control role. Ambidextrous innovation is positively associated with board's service role and that the gender diversity moderates positively this link (Ben Rejeb et al., 2019).
7	Dai, Y., Byun, G., & Ding, F. (2019). The direct and indirect impact of gender diversity in new venture teams on innovation performance. Entrepreneurship Theory and Practice, 43(3), 505-528.	Quantitative Three large, government-sponsored, high-tech industrial parks in China. 132 firms	Innovation Performance (self reported likert) Gender Diversity (Blau Index) Female employee presence	V			Gender diversity of a new venture team is positively associated with the venture's innovation performance(Dai, Y et al., 2019)

			New venture team functional diversity (Blau Index)				
8	Horbach, J., & Jacob, J. (2018). The relevance of personal characteristics and gender diversity for (eco-) innovation activities at the firm-level: Results from a linked employer–employee database in Germany. <i>Business Strategy and the Environment</i> , 27(7), 924-934.	Quantitative 2413 firms in German	Gender Diversity (Binary variable : 0 if non mixed gender and 1 if mixed gender) Innovation (Binary variable: 1 if there is innovation and 0 if there is no innovation)	V			Having a large proportion of highly qualified women and a mixed-gender management board are positively correlated with innovation activities in the environmental sector(Horbach and Jacob, 2018)
9	González-Moreno, Á., Díaz-García, C., & Sáez-Martínez, F. J. (2018). R&D team composition and product innovation: Gender diversity makes a difference. <i>European Journal of International Management</i> , 12(4), 423-446.	Quantitative 3540 manufacturing firms,	Product innovation (a dummy variable taking the value of 1 if the firm has carried out innovations in its products in the last three years and 0 otherwise)	V	V		gender diversity fosters innovation only to a certain level. That is, moderate levels of gender diversity are more likely to be related to innovation, whereas lower or higher levels of gender diversity lead to less optimal results (González-Moreno, A. et al., 2018).
10	Teruel, M., & Segarra, A. (2017). The link between gender diversity and innovation: What is the role of firm size?'. <i>International Review of Entrepreneurship</i> , 15(3), 319-340.	Quantitative 26,956 observations from 5,383 firms in Spanish during the period 2007–2012	Gender composition (Blau Index) Innovation type (Process,product, marketing, organization) Innovation Investment (External & Internal R&D investment per employee, Training	V	V	V	small firms have greater difficulties in capturing the advantages of gender diversity during the innovation process as compared to large firms. the impact of gender diversity on innovation outcomes differs depends on the innovation type.

			investment per employee, R&D cooperation (dummy)				Gender diversity has a statistically significant positive impact on the probability of introducing process, marketing, and organisational innovations. the impact is non-significant on the probability of introducing product innovations. gender diversity exerts a larger impact on the probability of introducing non-technological (marketing and organization) innovations than technological (product and process) innovations (Teruel and Segarra, 2017)
11	Ruiz-Jiménez, J. M., del Mar Fuentes-Fuentes, M., & Ruiz-Arroyo, M. (2016). Knowledge combination capability and innovation: The effects of gender diversity on top management teams in technology-based firms. Journal of business ethics, 135(3), 503-515	Quantitative 205 small- and medium-sized enterprises (SMEs) belonging to the sector of Spanish technology based firms (TBFs).	Innovation Capabilities (self reported) (1) “The degree of newness of our firm’s new products/services;” (2) “The use of the latest technological innovations in our new products/services;” (3) “The speed of development of new products/services;” and (4) “The number of new products/services that our firm has introduced on the market Gender Diversity (Blau)	V			gender diversity positively moderates the relationship between knowledge combination capability and innovation performance (Ruiz-Jiménez, J. M. et al., 2016).

12	Ruiz-Jiménez, J. M., & del Mar Fuentes-Fuentes, M. (2016). Management capabilities, innovation, and gender diversity in the top management team: An empirical analysis in technology-based SMEs. <i>BRQ Business Research Quarterly</i> , 19(2), 107-121.	Quantitative 205 Spanish SMEs from technology sectors	Innovation Performance (to level of originality, use of latest technological advances, number of innovations, and speed of innovation)-Prajogo and Sohal (2006) Gender Diversity (Blau) Management Capabilities (degree to which the company attracts and retains highly qualified and competent managers and the ability to resolve conflicting opinions, improve effective coordination and collaboration among top managers, generate enthusiasm, and motivate the management team to achieve better performance)	V			management capabilities have a greater influence on both product and process innovation when the management team is more balanced in number of men and women. gender diversity in the top management team positively moderates the relationship between management capabilities and product and process innovation performance (Ruiz-Jiménez, J.M and Fuentes-Fuentes, 2016)
13	Díaz-García, C., González-Moreno, A., & Jose Saez-Martinez, F. (2013). Gender diversity within R&D teams: Its impact on radicalness of innovation. <i>Innovation</i> , 15(2), 149-160.	Quantitative Innovation Panel (PITEC), which is a statistical instrument for studying the innovation activities of Spanish firms over time	Gender composition (Blau Index) Radical Innovation (new for the market-binary) Incremental Innovation (new for the firm-binary) Technology intensity of the environment: for industry:	V			Gender diversity is positively related to radical innovation. However it does not promote incremental innovation in the same way. The positive relation occurs under particular conditions of the task (a higher degree of novelty), as the two types of innovation might require different skills for their effective performance (Díaz-García et al., 2013)

			high-tech, medium-high, medium-low, and low-tech industry. And two categories for services: knowledge-intensive business and low knowledge-intensive business services.				
	González-Moreno, Á., Díaz-García, C., & Sáez-Martínez, F. J. (2018). R&D team composition and product innovation: Gender diversity makes a difference. <i>European Journal of International Management</i> , 12(4), 423-446.	Quantitative 3540 manufacturing firm	Product innovation (a dummy variable taking the value of 1 if the firm has carried out innovations in its products in the last three years and 0 otherwise)	V	V		Gender diversity fosters innovation only to a certain level. That is, moderate levels of gender diversity are more likely to be related to innovation, whereas lower or higher levels of gender diversity lead to less optimal results (González-Moreno, A. et al., 2018).
14	Cropley, D., & Cropley, A. (2017). Innovation capacity, organisational culture and gender. <i>European Journal of Innovation Management</i> .	Quantitative Australian Firms	the proportion of female employees Innovation Phase Assessment Instrument (a 168-item survey instrument designed to assess an organization's alignment to six dimensions of human capital innovation inputs): - overall innovation capacity (OIC) - attitudes towards innovation (ATI)		V		Initial results suggest a negative relationship between the proportion of females in functional areas and capacity for innovation. Further analysis suggests that capacity for innovation among female employees was suppressed by an unfavorable organisational climate (OC) (Cropley and Cropley, 2017).

			- organisational climate (OC) - CP				
15	Fila, N. D., & Purzer, S. (2014). The relationship between team gender diversity, idea variety, and potential for design innovation. The International journal of engineering education, 30(6), 1405-1418.	Quantitative 148 engineering students working in 37 team	Innovation Potential Gender Diversity (Binary variable, 0 for non-gender diverse team and 1 for gender diverse team)			V	The results indicated that gender-balanced teams were no more innovative than all-male teams, nor were there any significant differences in the variety of alternative solutions between the two groups. Gender-balanced teams, however, did demonstrate a strong positive correlation between variety and innovation potential. Results suggest that diversity, defined by gender alone, may not increase the innovation potential of student design teams but may support innovation in the presence of other factors (Fila and Purzer, 2014)
16	Biga-Diambeidou, M., Bruna, M. G., Dang, R., & Houanti, L. H. (2019). Does gender diversity among new venture team matter for R&D intensity in technology-based new ventures? Evidence from a field experiment. Small Business Economics, 1-16.	183 master business school students who played the role of the top management teams in the 61 new ventures	R&D intensity is measured as the ratio of RD-to-sales Blau Index			V	There is no gender difference within the new venture team and there is no significant impact of gender diversity on R&D intensity in high tech new ventures (Biga-Diambeidou et al., 2021)
17	Schneid, M., Isidor, R., Li, C., & Kabst, R. (2015). The influence of cultural context	Quantitative Meta-analysis from 68 studies in different countries	Gender Diversity (Blau Index) Task Performance		V		Gender diversity is associated with poor performance in a highly collectivistic society (Schneid et al., 2015)

	on the relationship between gender diversity and team performance: A meta-analysis. <i>The International Journal of Human Resource Management</i> , 26(6), 733-756.		Contextual Performance				
18	Roh, J., & Koo, J. (2019). The impacts of diversity on team innovation and the moderating effects of cooperative team culture. <i>International Review of Public Administration</i> , 24(4), 246-263.	Quantitative 226 teams in 25 districts offices in Seoul	Gender Diversity (Blau Index) Team Innovation (Self-reported scale) Cooperative team culture(self-reported scale)		V		The effects of gender and value diversity turn from negative to positive as the level of cooperative team culture increase (Roh and Koo, 2019)

Appendix 2 Measurement Indicator

Measurement Indicator of Market Newness and Technology Newness adopted from Talke et al. (2011)

Market Newness of the New Product Portfolio

In our firm's product portfolio, the majority of innovations . . .

. . . serve new customer needs – customer needs we had not served before.

. . . require changes in established attitude and behavioural patterns from customers.

. . . require major learning efforts by mainstream customers.

. . . take us up against new competitors – competitors we have never faced before.

Technology Newness of the New Product Portfolio

In our firm's product portfolio, the majority of innovations . . .

. . . are based on substantially different core technology never used in our industry before.

. . . involve peripheral technologies that are new to our industry.

. . . combine different technologies in a new way.

. . . use technologies that have an impact on or cause significant changes in the whole industry.

Appendix 3 Interview Guide

GUIDED QUESTION FOR INTERVIEW

1. Question around the issue of institutional pressures
 - a. General question: How do you follow regulation or rules (if any) based on government or other organization and adopt it in your organization?
 - b. About Coercive pressures:
 - i. How do you follow regulation or rules (if any) based on government or other organization and adopt it in your organization?
 - ii. How do you follow tradition or social norm (if any) based on cultural expectation and adopt it in your organization?
 - c. About Mimetic Pressures:
 - i. Do you have any other stakeholder where you get your inspiration from when shaping your organization?
 - d. About Normative Pressures:
 - i. Is there any association where your organization is associated with?
 - ii. How do you usually involve in training ?
2. Question around the issue of organisational cultures
 - a. General Question: How do you experience working in this firm? What are the challenge or barrier?
 - b. About organisational symbols: What are special terms here that only insiders understand?
 - c. About organisational heroes: What kinds of people are most likely to advance quickly in their careers here? Whom do you consider as particularly meaningful persons for this organization?
 - d. About organisational rituals: In what periodic meetings do you participate? How do people behave during these meetings? Which events are celebrated in this organization?
 - e. About organisational values: What things do people very much like to see happening here? What is the biggest mistake one can make? What work problems can keep you awake at night?

LIST OF ADDITIONAL RESOURCES

Name	Description
Websites	Website or portal that provides background information about the start-up
Company Profile	Any documents that provide thick description and/or history about the start-up
Social media	Any social media of each start-up (i.e. Instagram, facebook, twitter) that provide information/description/report about the start-up
Other relevant documents	Any other documents that helps with the analysis (i.e. company reports, reading material, rules, etc)

Appendix 4 Ethic Approval

Ethics Approval

Nita Yalina

From: Rachel Prinn
Sent: 23 February 2022 08:50
To: Nita Yalina
Cc: ResearchEthics
Subject: AREA 21-060 -Study Approval February 2022

Dear Nita

AREA 21-060 – Gender Diversity in a New Venture Team and Its Impact on Digital Innovation Performance

NB: All approvals/comments are subject to compliance with current University of Leeds and UK Government advice regarding the Covid-19 pandemic.

I am pleased to inform you that the above research ethics application has been reviewed by the School of Business, Environment and Social Services (AREA) Committee and on behalf of the Chair, I can confirm a favourable ethical opinion based on the documentation received at date of this email.

Please retain this email as evidence of approval in your study file.

Please notify the committee if you intend to make any amendments to the original research as submitted and approved to date. This includes recruitment methodology; all changes must receive ethical approval prior to implementation. Please see <https://ris.leeds.ac.uk/research-ethics-and-integrity/applying-for-an-amendment/> or contact the Research Ethics Administrator for further information researchethics@leeds.ac.uk if required.

Ethics approval does not infer you have the right of access to any member of staff or student or documents and the premises of the University of Leeds. Nor does it imply any right of access to the premises of any other organisation, including clinical areas. The committee takes no responsibility for you gaining access to staff, students and/or premises prior to, during or following your research activities.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, risk assessments and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

I hope the study goes well.

Best wishes

Rachel Prinn
On behalf of Dr. Matthew Davis, CHAIR, AREA

For further information please contact the Research Ethics Administrator, The Secretariat, University of Leeds, LS2 9NL, r.prinn@leeds.ac.uk

Rachel Prinn, Research Ethics Administrator, The Secretariat, University of Leeds, LS2 9NL,
r.prinn@leeds.ac.uk

Please note my current working days are Tuesday, Wednesday, Thursday am.

Appendix 5 Participant Information Sheet

Dear Sir/madam,

Thank you for your time to respond to my request. You are humbly invited to participate in my PhD project as a respondent. Your familiarity is considered valuable. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Please find the detailed information below

The title of the research project

Diversity in a New Venture Team and Its Impact On Digital Innovation Performance

What is the purpose of the project?

As many organizations fail to reach their human resource potential to improve innovation performance, I would like to assess how organisational cultures and institutional pressure influence how diversity in a new venture team has an impact on digital innovation performance. I believe the proximity will be advantageous in helping organizations to improve innovation performance by acknowledging a potential from a diverse team.

What are the possible benefits of taking part?

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will help organizations to better understand their potential to improve digital innovation performance.

What will happen to my personal information?

All the contact information that we collect about you during the course of the research will be kept strictly confidential and will be stored separately from the research data. We will take steps wherever possible to anonymise the research data so that you will not be identified in any reports or publications.

However, if during the investigation, something that discloses an intention to harm themselves or others or potential harm or abuse or other situations that require reporting, then it may not be possible to guarantee the anonymity of the data for the reporting. Moreover, in a focus group discussion, full anonymity cannot be guaranteed on behalf of the other focus group participants.

1. Personal Data: I will have it anonymised/pseudonymised and password protected when required.
2. Interview data: Interview transcripts, recording from camera or voice recorder, and codification will be stored temporarily in hard drives before being transferred to University drive or cloud drive.
3. Audio-visual data: Data will be compressed and password-protected. If the related respondents wish to review it, permission will be given anytime without compromising access to other respondents' privacy.
4. Data sharing: people from the University of Leeds including supervisors and tutors may obtain access to some or all processed data during the thesis consultation process.

What will be taking part in the study involve?

1. Interview process through an online platform or offline with questions regarding organisational cultures, external environment factors and innovation performance
2. Focus Group Discussion (FGD) with other member of the new venture team in the same organization. It will consist of a discussion around the topic of assessing your organization's innovation performance and how to improve its financial and social impact.

Will I be recorded, and how will the recorded media be used?

The audio and/or video recordings of your activities made during this research will be used only for analysis. For illustration in published article, conference presentations or lectures, no video and audio will be presented, direct quotation from the transcription should only be used if it is considered important. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings. All the quotation that might be published will be anonymised

Are there any risks?

During online interview, risk may be minimal due to more confidentiality and privacy. Your risk probably will be present at disclosing materials that may be sensitive to other parties. Please rest assured that your personal data will be highly classified. However, this study will not attempt to involve vulnerable people or expose the vulnerability of the respondents.

What rights to do you have?

The participants will have the access to their responses respectively during the research. They may also withdraw from the research or change the responses should they feel necessary to do so in a specific time maximum a month after the interview. Agreed by both the researcher and the participant. Upon commencing final writing process of the dissertation, the respondents cannot change the responses or withdraw their participation.

Thank you for taking the time. If you have any questions, please feel free to contact me.

Contact for further information

Nita Yalina

Phone Number: +447887684730 (WhatsApp number)

Email: bnnny@leeds.ac.uk

Appendix 6 Participant Consent Form

Consent to take part in the research on Diversity in a New Venture Team	Add your initials next to the statement if you agree
I confirm that I have read and understand the information sheet/ letter explaining the above research project and I have had the opportunity to ask questions about the project.	
I understand that my participation is voluntary and that I am free to withdraw without giving any reason maximum a month after interviews is conducted and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. Further consent can be communicated through: Email : bnnny@leeds.ac.uk Phone Number: +447887684730 (whatsapp number) If the decision is to withdraw from the research before the date, the data will be destroyed and won't be used for further analysis.	
I understand that members of the research team may have access to my anonymised responses. I understand that my anonymised response might be used for illustrative purposes in any published articles/conferences/lectures. I understand that my name will not be linked with the research materials, and I	

will not be identified or identifiable in the report or reports that result from the research. I understand that my responses will be kept strictly confidential.	
I understand that the data collected from me may be stored and used in relevant future research or I understand that the data I provide may be archived at University of Leeds Data Storage.	
I understand that relevant sections of the data collected during the study, may be looked at by individuals from the University of Leeds or from regulatory authorities where it is relevant to my taking part in this research.	
I agree to take part in the above research project and will inform the lead researcher should my contact details change.	

Name of participant	
Participant's signature	
Date	
Name of lead researcher	Nita Yalina
Signature	
Date*	

*To be signed and dated in the presence of the participant.

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/ pre-written script/ information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be kept with the project's main documents which must be kept in a secure location.

Appendix 7 Nvivo Coding Process

File	Home	Import	Create	Explore	Share	Modules
Clipboard	Item	Organize	Query	Visualize	Code	Autocode
					Range	Un
					Code	
Version 4						
Name	Files	References				
1.External to Internal	0	0				
1.1 Coercive	15	52				
1.1.1 Shareholder Pressure	7	20				
1.1.2 Religious Pressures	8	32				
religious logic categorisati	0	0				
1.2 Mimetic	8	19				
1.2.1 engaging with consul	4	5				
1.2.2 benchmarking with o	4	7				
capture ideas	1	1				
market	1	1				
Org culture	2	3				
recruitment	1	2				
1.3 Normative	16	75				
1.3.1 Normative Influences	13	28				
1.3.2 Informational Influen	14	47				
Based on sources	0	0				

File	Home	Import	Create	Explore	Share	Modules
Clipboard	Item	Organize	Query	Visualize	Code	Autocode
					Range	Un
					Code	
Version 4						
Name	Files	References				
1.3.2 Informational Influen	14	47				
Based on sources	0	0				
2.Internal to External	0	0				
2.1 Leadership for Gender Dive	15	35				
2.1.1 Awareness & Commit	12	27				
2.1.2 Role Model	6	8				
Others	0	0				
2.2 Inclusive Organizational Cul	24	148				
2.2.1 Routine and Mechani	16	38				
2.2.2 values & beliefs	23	110				
2.3 Gender Aware Policies & Pr	17	62				
2.3.1 Gender-Aware Practic	13	29				
2.3.2 Gender-Responsive P	13	31				
the importance of HR	1	2				