

Gender Diversity and Innovation: Navigating Challenges in Indonesian Tech Start-ups

Abstract:

This paper introduces the initial phase of research aimed at unravelling challenges of gender diversity within technology start-up teams. It delves into the barriers hindering gender diversity, the challenges in gender-diverse team, and elucidates strategies employed to foster innovation. Drawing upon case study findings derived from 20 interviews conducted with team members across five technology start-ups in Indonesia, this study investigates a unique cultural context in a developing country. By exploring diverse viewpoints within the same institutional context, the research addresses a crucial gap in understanding how start-ups navigate the challenges of fostering gender-diverse teams for innovation. The study highlights two strategies used by particular start-ups to improve gender diversity and enhance innovation performance: establishing effective diversity management practices and developing strong internal dynamics. The preliminary findings underscore practical and theoretical implications for strengthening start-ups' capacity to drive innovation through gender-diverse teams. It also highlight the critical need for proactive measures to address the persistent gender imbalance within the IT sector. By advocating for gender equality, these efforts align with broader sustainable development goals, amplifying the importance of inclusive practices within entrepreneurial ecosystems such as start-up.

Keywords: Gender Diversity, Start-ups, Innovation

Track: Gender in Management Track

1. Introduction

Gender has long been a question of great interest in various fields, including in innovation studies. There are at least three main reasons why considering gender is paramount: demographic argument, economic argument, and equality argument. While equality arguments focus on social justice that suggests men and women should get the same opportunities in all sectors, demographic arguments focus on the distribution of the workforce. It has been argued that the failure to involve women in the innovation process could be perceived as an unacceptable waste of human resources (Abels, 2012). Nevertheless, statistics show that women are still underrepresented in the organization, specifically in Information Technology (IT), R&D, or business process management profession (Gorbacheva et al., 2015), which is highly related to the innovation process.

On the other hand, solving gender imbalance in the innovation process is essential to improve innovation performance. Venkatesh and Morris (2000) provided evidence that men and women had different perceptions when they used digital innovation products. In other words, involving women during the innovation process might improve its possibility to get better acceptance. Nonetheless, having gender diversity in a team does not necessarily mean having a high innovation performance. It can be seen from considerable literature that provided inconsistent findings on the impact of having a gender-diverse team on innovation performance, with some studies reporting positive effects (Dai, Y. et al., 2019; Ritter-Hayashi et al., 2019), negative (Cropley and Cropley, 2017; Schneid et al., 2015) and even an insignificant impact (Biga-Diambeidou et al., 2021; Roh and Koo, 2019).

It is highly possible that the inconsistent findings occur because many organizations have difficulties optimizing the potential of having gender diversity in their team (Yalina et al., 2023). Surprisingly, there is a lack of scholarly research exploring challenges and strategies of having gender diversity within tech-based start-ups to foster innovation.

To fill in this gap, the research question of this study is “What are the barriers and challenges of having gender diversity in Indonesian tech-based start-up teams? And how do start-up teams develop strategies to tackle those challenges?” To address these questions, we interviewed 20 team members from five start-ups. These start-ups were purposefully selected to capture different gender compositions. Through these interviews, we were able to identify the barriers and challenges of having a gender-diverse team, as well as the strategies to overcome those issues.

This study is considered important as it sheds light on gender diversity issues in the entrepreneurial landscape. Gender diversity within start-ups is not merely a matter of equity but also contributes to innovation potential, economic growth, and women empowerment. By delving into the intricacies of navigating challenges related to gender diversity, this research sheds light on crucial areas that demand attention and action. Understanding and addressing these challenges are imperative for fostering innovation. Furthermore, this study's findings have far-reaching implications that will help start-ups to address such challenges. Thus, by grappling with the complexities of gender diversity in start-ups, this research paves the way for transformative change advising gender equality, which aligned with global sustainable development goals.

In the forthcoming section, we elaborate on a comprehensive exploration of the pertinent topic, aiming to discuss the subject matter relevant to this study. Subsequently, we delineate the methodology employed to conduct the research, providing transparency into the approach utilized for data collection and analysis, as well as detailing the research setting in which the study was conducted. Furthermore, we present the findings derived from our rigorous analysis in the results section, followed by an in-depth discussion and interpretation of these findings. Lastly, we draw upon the synthesis of key points and their implications to conclude,

emphasizing the profound significance of this study within the broader context of gender diversity in start-ups and its implications for fostering innovation.

2. Literature Review

According to social role theory, gender is an important factor mediating human behaviours (Eagly et al., 2000). Gender-diverse teams will allow combinations of knowledge from individuals with different socialization histories (Ruiz-Jiménez et al., 2014). Drawing 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). Women's involvement in the team will also increase the level of social sensitivity (Woolley et al., 2010). Machokoto et al. (2023) indicate that efforts aimed at enhancing gender diversity within manager-owner teams have the capacity to address the social and structural obstacles that hinder innovation in developing economies. 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).

Several studies (Dai, Ye et al., 2019; Marinova et al., 2015; Ritter-Hayashi et al., 2019; Ruiz-Jiménez and Fuentes-Fuentes, 2016; Ruiz-Jiménez et al., 2014) have provided evidence indicating a noteworthy and positive influence of gender diversity on the performance of innovation. Nevertheless, alternative studies have put forth a counterargument, asserting that gender diversity does not have a substantial influence on innovation performance (Biga-Diambeidou et al., 2021; Roh and Koo, 2019). On the other hand, even though men and women show no differences in their innovativeness (Steyn and de Bruin, 2020; Nählinder et al., 2015), Cropley and Cropley (2017) and Schneid et al. (2015) found a significant negative impact of gender diversity on innovation performance. Moreover, Fernández (2015) indicates that R&D employees' gender diversity contributes to innovation in different ways (i.e., product, service, and process innovation).

The lack of consistency observed in prior research necessitates additional investigation into the challenges that start-ups might experience related to having gender diversity in a team to foster innovation. Moreover, how they develop strategies to tackle those emerging challenges is also essential. Organizations that do not prioritize having a diverse workforce may face impediments in their ability to innovate and risk falling behind their competitors (Ly-Le, 2022).

Moreover, start-ups are pertinent within the context of this study as the start-up ecosystem is more challenging due to the uncertain market and rapidly changing technology development. In addition, Start-ups have less capital, fewer scientists and engineers, less legitimacy, brand presence, fewer strategic alliances, evolving organizational 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.

Despite the extensive body of research examining and confirming gender differences in behavior, there is a lack of studies that explore the dynamics within professional settings and their mechanisms for maximizing the potential impact on innovation within tech-based start-ups, which are predominantly male-dominated. Women's involvement in entrepreneurship has significantly increased in recent decades. However, there is a lack of scholarly research regarding women's participation in new ventures, particularly in those that focus on technology initiatives (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 as it 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). By understanding the challenges that start-up teams experience within the tech industry, this study also contributes to breaking down 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 diversity and inclusivity within the IT sector worldwide.

3. Methodology

We have used a qualitative approach using multiple case studies to investigate our main research question. Multiple-case study research is appropriate as the nature of the research question is used to explore new topic areas that have not been extensively studied in the real-world context (Eisenhardt, 1989; Yin, 2018). It is pertinent to address a research topic that requires a thorough and comprehensive examination of a phenomenon (Yin, 2018).

3.1. Case selection

Five cases investigated in this study were chosen using purposive sampling. Case 1 was selected deliberately due to its distinctive digital innovation, as well as its uncommon characteristic of being predominantly female-led in a start-up within an emerging country setting. Case 2 was selected due to its revolutionary digital innovation and its unique characteristic of being headed by a female CEO in a predominantly male-dominated sector. Three further cases (Case 3 to 5) were selected due to their various gender composition within different industry characteristics.

3.2. Data Collection

In-depth interviews were conducted using a semi-structured approach to gather rich and nuanced insights into the phenomenon under investigation. An interview guide was crafted with open-ended questions to encourage participants to offer perspectives and insights that might not have been initially considered, thereby mitigating potential biases. In total, 20 interviews were conducted, lasting about 45 minutes to an hour.

3.3. Data Analysis

The data analysis unfolded in two distinct stages. Initially, a within-case analysis was undertaken for each case, drawing from thematic analysis as outlined by Braun and Clarke (2022). This entailed a structured progression through six key steps: familiarization with the data, generation of initial codes, identification of overarching themes, iterative review of these themes, refinement of definitions and labels, and the culmination in the production of a comprehensive report. The analysis process was facilitated by NVivo 12, enabling efficient organization and exploration of the data within each case.

Subsequently, the focus shifted to a cross-case analysis, wherein narratives across the five cases were compared. Tables were used to facilitate this comparison, elucidating patterns and variations among the cases. This holistic approach illuminated a nuanced understanding of the barriers and challenges encountered by start-ups and the strategies devised to navigate these obstacles. By integrating insights from multiple cases, this phase of analysis offered valuable insights into the broader landscape of gender diversity within technology start-ups, ultimately enriching our understanding of this complex phenomenon.

3.4. Research Setting

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 in which the research was conducted.

This research was conducted in Indonesia. Indonesia presents a distinct socio-cultural context. Notably, Indonesia exhibits a higher level of power distance, signifying a societal acceptance of unequal power distribution within organizations (Hofstede et al., 2010). Additionally, Indonesia embraces a collectivistic culture, wherein individuals are expected to adhere to societal norms and the values of their respective in-groups.

Within this cultural framework, gender diversity within the IT sector faces notable challenges, given the patriarchal structure prevalent in Indonesia. Despite this, intriguingly, women are significantly involved in entrepreneurship activities, with a substantial portion of micro, small, and medium-sized firms being women-owned (Agussani, 2020). This apparent contradiction highlights the complexity of gender dynamics in the Indonesian context, warranting further exploration into the underlying process influencing gender diversity.

4. Results

In the results section, we described evidence derived from the investigation. This offers a glimpse into the key points identified through initial coding and transcript interpretations, providing a snapshot of the salient findings observed during the analysis.

4.1. Case Description

Case 1 – Pink Start-up

Pink Start-up is a start-up with female-dominated team members. Pink Start-up developed a mobile application that facilitated breastmilk donors and recipients and helped them with the distribution of human milk. As a foundation-based start-up whose primary income was through donations, the app also functioned as a crowdfunding platform that enabled members to give donations. However, following the resignation of a team member who focused on IT development, Pink Start-up had difficulties with its technology advancement and decided to use more basic technology. To survive, they modify their business model and add additional services such as providing a charity class and several activities to generate additional revenue.

Initially, Pink Start-up started with a male-dominated team of five men and one woman. However, following a previous team member's resignation, the CEO recruited more women, arguing that they represented their target market. The evolution from a male-dominated team to a female-dominated one reflects a strategic shift driven by the CEO's recognition of the importance of aligning team composition with their target market and customer base. With most of their customers being female, the CEO's decision to recruit more women reflects an understanding of their customers and aims to enhance public trust and credibility. This deliberate effort to mirror the demographics of their target market can be seen as a perceptive business strategy, intentionally leading to greater resonance with customers and increased market share. Moreover, the requirement for only women to come to the office daily adds a unique layer to their approach, raising questions about collaboration efforts across genders to foster innovation.

Case 2 – Blue Start-up

Blue Start-up demonstrates a multifaceted approach to both business development and social impact. Primarily focused on developing an integrated application and device to support farmers in enhancing crop yields and promoting sustainable farming practices, they have diversified their revenue streams beyond product sales to include services such as cultivation assistance, post-production support, and shrimp trading. Notably, Blue Start-up goes beyond profit-oriented activities and actively promotes gender diversity in aquaculture through initiatives such as adopting the Gender Active Learning System (GALS), which is aimed at increasing women's participation in the sector.

Despite starting with a predominantly male team composition, Blue Start-up has made significant efforts to improve gender diversity through effective diversity management practices. Over the course of two years, they have increased women's representation by up to 37%, reflecting a proactive approach to fostering inclusivity within their organization. Furthermore, Blue Start-up's commitment to supporting gender diversity is evident in developing robust policies and ongoing efforts to cultivate an inclusive corporate culture. By prioritizing the creation of an environment where all team members feel valued and supported, Blue Start-up sets a positive example for other organizations in the industry. Overall, their integrated approach to business and social impact underscores their commitment to driving positive change in both the agricultural sector and society in a broader context.

Case 3 – Yellow Start-up

Yellow start-up focused on developing Enterprise Resource Planning (ERP) systems to help cooperatives digitize their business operations. Yellow start-up were assisting a cooperative in connecting with a larger cooperative ecosystem to strengthen their network and enhance their business. Yellow start-up has a close partnership with the Ministry of Cooperatives and SMEs of the Republic of Indonesia, sharing the common goal of digitalizing Indonesian cooperatives. Over the past three years, they have assisted in the digitalization of 700 cooperatives spanning 12 provinces. They strive to enhance cooperative management by increasing efficiency, transparency, and accountability.

The yellow start-up was founded by a group of five individuals, comprising one female and four males. Following the seed grant, they expanded their team and reached 19 gender-balanced team members. The CEO recognized gender diversity potential and was able to elaborate on some advantages of having a gender-diverse team. However, he acknowledged that the existing composition is organic and that gender diversity was not explicitly included in their business strategy.

Case 4 – Green Start-up

The green start-up was established through a university incubation program. It specializes in providing a comprehensive individual and family psychology platform. This platform serves as a hub for consultations, educational resources, and discussions on various topics related to family, children, and self-development, which professional psychologists facilitated. For such services, Love. co-designed and developed a website that integrated AI features. Additionally, they were creating a prototype of a mobile application that will be launched in the near future. Their primary method of engagement with their user communities has been through social media platforms.

Green start-up was initiated by a team of four individuals, consisting of two female and two male members. Following their success in competition and securing several grants, they decided to expand their team composition by recruiting additional team members. Notably, the team's size has exhibited considerable variability following new joiners and turnover between team members in a short period of time. During the primary data collection phase, the team comprised five individuals, with two males and three females.

In the case of Green Start-up, achieving gender balance in their team was not a deliberate priority; rather, it occurred naturally. What sets them apart is the significant representation of female team members in C-level positions and strategic decision-making roles. This unique aspect of their organizational structure highlights Green Start-up's commitment to promoting women in leadership positions. However, this decision was not without any challenge, as all male team members felt an insignificant sense of belonging. The green start-up was good evidence that the power distribution among team members was important to achieving a good collaboration and fostering innovation.

Case 5 – Red Start-up

Red start-up developed an e-commerce platform facilitating on-demand services for skilled tailors specializing in personalized garments. Customers can upload garment images and specifications online, allowing tailors to autonomously enroll and operate as independent freelancers. As a mediator, Red start-up also provides training and supplies to standardize quality, empowering tailors to work remotely and flexibly manage their schedules without the need for physical boutiques. Thus, the platform reduces expenses and facilitates independent business for low- to middle-income tailors.

In its early stages, Red Start-up comprised three females and three males. However, the team composition frequently changed due to high turnover and unforeseen circumstances, such as the death of a key IT developer during the pandemic. Faced with a difficult decision between disposing of their underdeveloped platform and redesigning their business model, gender diversity was not a primary concern for the CEO, but the benefits of such diversity were recognized. Nonetheless, the CEO acknowledged the challenges of managing a gender-diverse team.

4.2. Barriers & Challenges

The analysis found that while gender diversity may be prioritized in certain circumstances within start-up teams, attaining it is another challenge. Start-ups often encounter barriers that hinder the consistent achievement of gender diversity. Even when gender diversity is achieved, it introduces its own set of challenges that must be overcome to effectively foster innovation within the team. Table 1 summarises our findings on barriers and challenges perceived by the investigated case.

Each of the five start-ups exhibits distinct attitudes towards gender diversity. While nearly all participants recognize the benefits of gender diversity in fostering innovation, only Blue Start-up prioritizes gender diversity as one of the core elements of their business strategy. Notably, Blue Start-up even integrates gender diversity into the firm's performance indicators, signaling a robust commitment to promoting gender diversity. Consequently, although all start-ups strive to optimize their teams, only Blue Start-up demonstrates a comprehensive strategy to address and overcome the barriers and challenges associated with achieving gender diversity within their teams.

Table 1 Summary of Findings on Perceived Barriers and Challenges

Aggregate Dimension	Emerging Themes	Open Code	Example Quotes	Case 1	Case 2	Case 3	Case 4	Case 5
Perceived Barriers & Challenges	Unconscious bias & Stereotype	Unconscious bias from external	<i>Someone said to me you should hire Ex VC for a fundraising because your face doesn't sell so why is that? I want to prove to everyone who said that, that we can raise the fund even though our valuation smaller than the male founders</i>	X	X	X	X	X
		Unconscious bias in hiring decision	<i>sometimes gender does matter. For operational, we prefer woman because we are in women's sector. Because they are the ones that know best about it.</i>	X				X
		Gender Stereotype	<i>At first she was hired to be a secretary, so most people felt it she seems like she's usually just administration like that so she was given administrative work</i>	X	X	X	X	
	Social, cultural, & gender norm	Patriarchal culture	<i>when I was promoted, one of my staff worked longer hours than me, and that was a problem with him... But if I think about it, wow, that's normal because there is often patriarchy in Indonesia</i>		X	X		
		Social cultural norm	<i>Mothers still want their daughter not far from their homes there are a number of issues which in the end because, especially Javanese people, like to use feelings like that</i>	X	X	X	X	X
	Gender intelligence	Managing differences	<i>so what I also think is important is usually gender education. We sometimes don't realize that it comes from a different approach. So it feels like one person is right. Now, when we understand, each one has its own way and technical approach, so acceptance becomes easier.</i>	X	X	X	X	
		Managing engagement & belonging	<i>But in here you know, some people come and some people go, so I cannot really become who I really am</i>	X	X		X	

	Dynamic team composition	Gender imbalance applicant	<i>it's quite rare for girls to be in the field, so for example when we hire in the end, the one that are capable of or the one who wants to go around is male, so that's it, but we still want to add girls to the team, okay? what happen is, when there is an admin vacancies, in the end it's girl who became an admin like that, it's more like that because from the pool of the candidates, girls are the one who applied, it's very rare that girls tend to feel like doing such jobs</i>		X	X	X	
		Turn-over	<i>the team was like had a very high turn over. So apart from these 4 people, they come and go, come and go like that</i>	X	X	X	X	X

4.3. Strategies

Thus, while recognizing the importance of gender diversity, start-ups must navigate those challenges to fully leverage their potential for fostering innovation. Summarizing from all cases, two main strategies to effectively optimize gender diversity to foster innovation are implementing diversity management practices and developing strong internal dynamics. Diversity management practices consist of training and education to increase individual awareness of challenges working in a gender-diverse team while developing internal dynamics consisting of building a supportive organizational culture, developing effective leadership in leading gender diversity, and implementing gender-responsive human resource management practices.

Gender Diversity Management Practices (GDMP)

Training & Education

One participant from Blue Start-up finally found a mechanism to bridge the difference between men and women and to ensure that everyone was able to speak. He mentioned the challenge of having diverse ideas from diverse perspectives, which usually come from different genders. Hence, proper training and education for all team members was a good practical step to prevent conflict caused by the different perspectives that men and women usually have. He stated:

*It's related to readiness. So it's like, facing differences and facing arguments like that, right, because we often come with a different approach. So, we need to be prepared for that. So when there are differences, they are ready and know how to react to it like that because that's the case; for example, Ms. L and I sometimes like to come from different approaches. Even though we may have the same goals and objectives. Now, aligning this different approach so that we can agree on that, sometimes it really takes a process, and it takes time, and you need a method, okay, so we can talk about one problem in the same context or frame even though it comes from a different perspective. ...so what I also think is important is usually **gender education**. So yeah, what's it called? Yes, we sometimes don't realize that it comes from a different approach.*

Monitoring Gender Diversity

As discussed above, start-up team compositions often experience a tendency toward high turnover rates. Therefore, it is important to track and monitor gender composition in a team, especially when the team's number is continuously changed. Blue start-ups have a specific division called the “impact division” that is responsible for tracking the start-up's impact. One of the indicators they monitor is the gender composition of the team. *“I'll track it periodically, too. Now it's 36%. The proportion is women.”*

Develop a roadmap

One important thing in GDMP is to ensure that everyone has the same opportunity and fair treatment in all aspects in the workplace, including training opportunities and promotions. *“Yes, don't let the girl just to fulfill the quota. That's killing the purpose; we're not just trying to make women and men are on the same proportion.”* Hence, developing a roadmap is

important to ensure all team members, regardless of gender, have the same opportunity to develop their careers.

“We pay attention to all employees from the time they joined until they left. How was their career development like? So far, for example, those who want to take part in training need to consult me first ... we will arrange the curriculum and continue the development of each person, monitoring it, because I also have to know how it's progressing from start to finish, so I'll help monitor it there too.”

Managing internal Dynamics

Apart from GDMP, other factors were also found to have an important role in optimizing gender diversity in start-up teams. Internal dynamics, which consist of leadership, organizational culture, and gender-responsive HRM practices, need to be aligned with supporting gender diversity within the start-up team.

Leadership

The CEO of Blue start-up demonstrates a strong commitment towards gender diversity as she explicitly stated, *“That's what I said first, step by step, I said to the team, I need a girl 20%, it begins from one to 6, yes, the more it develops, the more it should become 5 to 1, 5 to one. I need it 4 to 1 and then finish it later when it's 4 to 1, I need 3 to 2, so I always press HR. That's how I started from gender...”*

Leadership commitment towards gender diversity was imperative to ensure that this approach was explicitly seen as a strategic step. This commitment not only raises awareness of the importance of gender diversity within teams but also shapes a supportive organizational culture aligned with human resource management practices. Effective leaders play a pivotal role in ensuring that gender diversity is not merely a motto but a driving force for innovation.

Organizational Culture

Blue Start-up demonstrated efforts in building a robust organizational culture, which was perceived as imperative, recognizing its potential to optimize team performance. Their commitment is evident through collaborations with external consultants and third parties to develop their organizational culture, which is still in its early stages of development. This proactive approach underscores Blue Start-up's dedication to fostering a supportive and conducive work environment that nurtures individual and collective potential within the team.

“we finally asked for help from this or the facilitator from HR consultants because we mean ourselves from our existing HR no one has ever made values and passed them down to our own culture, so to make it more effective, we ask for help from HR consultants to help us create a value so we can finally turn it into a culture. So far, what we have found are some descriptions related to the values that have finally been agreed upon by the founders”

Gender-Responsive HRM Practices

Gender-responsive policies and regulations are imperative to ensure that all team members' needs in the workplace are fulfilled, thereby protecting individual well-being. For instance, Blue Start-up implements specific measures such as providing a breastfeeding room and bunk

beds to accommodate diverse gender needs. Additionally, they offer flexible working arrangements, maternity and paternity leave, and fair performance appraisals, demonstrating a commitment to fostering inclusivity and supporting the holistic well-being of their team members.

5. Discussion

First, we found that gender-specific bias and stereotypes become major challenges in leveraging gender diversity within start-up teams. It supports previous research indicating that when women encounter underappreciation and limited opportunities to engage in decision-making, their performance improvement capacity may be neglected (Cropley and Cropley, 2017). However, in Case 4, we found that men also had similar experience when he did not feel accepted within the team. It highlights that an inclusive organizational culture should equally address both genders' needs, thereby reflecting a more comprehensive approach to gender equality. Overcoming gender-specific bias in the workplace can be challenging, but it is important to ensure that the firm can utilize the resources provided by all team members and realize the benefit of having a gender-diverse team (Gurtler and Gurtler, 2019)

Second, we found that social, cultural, & gender norm was perceived as both barriers to achieving gender-diverse teams and challenges in optimizing the effectiveness of gender-diverse teams. In 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. The gender norm surrounding the tech industry has resulted in a male-dominated sector, creating barriers and reducing women's motivation to participate in this field. Moreover, patriarchal culture creates another challenge in breaking the glass ceiling phenomenon.

Third, we highlight the importance of gender intelligence, as we define it as the ability to acknowledge and embrace differences across different genders. We found that having gender diversity within teams requires team readiness to experience differences that might cause conflict, which can reduce team cohesiveness and a sense of belonging within the team. Our finding is supported by Georgeac and Rattan (2023), who provided empirical evidence that fostering a sense of belonging is essential, particularly if an organization intends to avoid the potential negative consequences of a lack of commitment to diversity and inclusion. When team members experience a lack of a sense of belonging, they tend to display reduced levels of engagement, achievement, and, subsequently, performance (Cohen and Garcia, 2008).

Lastly, there is a challenge related to dynamic team composition. Women experience some specific challenges working in the IT sector, as outlined by Ahuja (2002) and updated by Armstrong et al. (2018) a few years later. These two research studies from two different points of view underscore a persistent problem women have in pursuing careers within the IT sector. Our findings underscore the significance of start-ups' continuous effort to consistently maintain gender composition, given that women often leave their careers later. Moreover, our findings also suggest that measuring gender diversity at one point at a time might not be accurate in illustrating start-up commitment toward gender diversity.

Based on the challenges experienced by these start-ups, we suggest that practicing gender diversity management practices (GDMP) is paramount to overcoming some challenges. Kalev et al. (2006) identified three different practices of DM, including the need to establish a structure of responsibility, reduce bias through education and feedback, and prevent social isolation through networking and mentoring. Likewise, Turner and Merriman (2022) also

emphasize the importance of management commitment to developing DM practices and policies to support diversity in the organization.

Moreover, the analysis also reveals the important role of managing internal dynamics to optimize gender diversity in a team to foster innovation. Those internal dynamics are organizational culture, leadership, and HRM practices. Aligned with previous studies, we found the critical role of the leader (Zuraik et al., 2020; Ng and Sears, 2020; Homan et al., 2020), management capabilities (Ruiz-Jiménez and Fuentes-Fuentes, 2016), and management practices (Guillaume et al., 2013; Fernández, 2015). However, contradict to (Kidder et al., 2004) who argue that gender-focused policies and practices might create a backlash that might negatively affect performance, we found in Case 2 that 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 and prevent a backlash from existing member.

We acknowledge the limitation of our study, as it only focused on a single country, Indonesia, which might limit the generalizability of the findings. However, we found that even though they operated within the same institutional context, further research should recognize start-up agencies that lead to different behavior, influencing how they leverage gender diversity to achieve innovation. This finding calls for a new perspective on this phenomenon within the institutional theory framework.

6. Conclusions

This article unravels barriers and challenges perceived by technology-based start-ups in Indonesia. This article also pinpoints some strategies based on best practices implemented by start-ups that exhibit a high commitment towards gender diversity and demonstrates how those practices could contribute to their innovation. It is evident that demonstrating best practices to the organization is crucial since having a gender-diverse team does not automatically improve innovation performance. This article does not mean to be prescriptive, but it offers valuable insight to anticipate and navigate challenges for start-ups in practicing gender diversity, hence giving a practical implication.

This article also integrates gender, innovation, and entrepreneurship literature, shedding light on implementing gender and innovation theory in the context of entrepreneurial ecosystems such as start-ups. However, this research limits its investigation to internal team members; future research must also investigate a larger entrepreneurial ecosystem to understand the external perspectives on gender diversity and innovation. It might help us better understand external factors that contribute to the effectiveness of gender diversity in a team to foster innovation.

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