

Diversity as a Driving Force of Innovation of SMEs: A Case Study from Quebec (Canada)

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ABSTRACT

Globalization and openness of markets have created a business ecosystem where firms from different markets with diverse cultural backgrounds compete and collaborate. Cultural diversity and administrative, economic, and legal differences affect multiple aspects of business transactions among the collaborating and competing parties in terms of negotiation, collaboration, and market diversity. Cultural diversity is considered a barrier to achieving organizational goals. This paper explores how cultural differences can influence innovation in high-tech SME firms. Our research design is based on a single case study in Quebec (Canada). Our findings show that well-managed cultural diversity can promote innovation and lead to the competitiveness of high-tech SMEs. This study implies that managers must carefully manage cultural diversity and create a win-win situation by fostering creativity and innovation.

1. INTRODUCTION

Given the growing globalization and interconnectedness of markets, firms should view the world as their potential market and assess their competitiveness. In 2022, Canada's exports of goods totalled \$717.6 billion, of which 40.8% was attributable to SMEs. This generates fierce competition for Quebec SMEs that must conquer external markets because it constitutes leverage for further development (Canada, 2024; Jiang & Sekkel, 2024). Indeed, globalization is necessary to make Quebec more productive, entrepreneurial, and prosperous (Desjardins Études Économiques, 2014; Guerrero et al., 2024) , as the local market is relatively small. On the other hand, their competitiveness is related to their capacity to innovate and the novelty of their innovations (Garzella et al., 2021). Yet, innovation is highly linked to diversity within firms. Multicultural teams have shown enhanced performance due to heightened creativity and a greater capacity for innovation (Wang et al., 2019). It is one of the reasons that influences the building of multicultural teams (Gibson and al., 2014; Hajroet and al., 2017; Lisak and al., 2016, quoted (Wang et al., 2019) which is accompanied by the growing interest in the Global Mindset (GM) (Entezarkheir & Moshiri, 2023).

Global Mindset (GM) is a set of individual attributes that enable the global executive to succeed in influencing those from different parts of the world to work together to achieve corporate objectives (Correia & Pereira, 2023; Hitt et al., 2007). That's why SMEs from Quebec must develop a global mindset to explore global business opportunities and position it as the main driver of success in global markets (Felício et al., 2012). Quebec enterprises are less present in international markets than others from other provinces (Desjardins Études Économiques, 2014). To stay competitive, Quebec SMEs have to tackle external markets. Michel Leblanc (2017), CEO of The Chamber of Commerce of Metropolitan Montreal, explains, *"In general, our SMEs are slow to internationalize and don't necessarily see the risk taken if they don't."* It is to assure their perennity that SMEs are compelled to go global since internationalization of markets is a reality imposed on more firms (LesAffaires, 2017). Similarly, Carl Viel (2017), CEO of Québec International, an agency supporting the Québec City region's economic development globally, insists that SMEs must look internationally to ensure their growth, find new clients, diversify their markets, and create value. Particularly because SMEs from Quebec are faced with the limited demographic and economic growth that Quebec offers (Desjardins Études Économiques, 2014), developing a global mindset

is essential to succeed in those international activities. In addition to reaching new markets, internationalization strategies enable companies to innovate more. Indeed, they can share knowledge and access the latest technological developments in their sector. Moreover, since they have to distinguish themselves from fierce competition, firms active internationally are generally more innovative and productive than those that are not (Desjardins Études Économiques, 2014).

All these reasons explain why Quebec SMEs should be looking to develop internationally. However, while the clock is ticking for Quebec, which has caused a major delay on the international scene, numerous challenges have arisen. SECOR-KPMG (2013) formulated several hypotheses to explain the international delay in Quebec SMEs' full potential. Among these are a few related to culture: language barriers, a small presence of cultural development heritage, and less developed intercultural awareness. It is, therefore, necessary for Quebec SMEs to raise awareness among their managers about the benefits of internationalization and improve their global training to be open to the idea and well prepared to implement it afterward (Desjardins Études Économiques, 2014). When they think about their planning, SMEs can succeed overseas well (LesAffaires, 2017). Thus, it is a challenge for companies to provide this international training that is lacking in Quebec SMEs to develop a global mindset. To improve their international training, orientation, knowledge, and abilities, it is essential to nurture a global mindset to understand global opportunities better. It highlighted the link between the global mindset and the success of internationalization strategies. Moreover, it is developing a long-term competitive advantage in the global marketplace (Hitt et al., 2007; Levy et al., 2007).

SMEs must simultaneously develop diversity politics to foster a multicultural environment where innovations can flourish, in order to cultivate a global mindset. Diversity includes more than just cultural background; it includes age, genre, and education (Pruthi & Mitra, 2023). Thus, Quebec SMEs must develop their diversity, especially their global mindset, in their organizations. This will enable them to ensure their success with international activities and, thus, their prosperity. Other research has also established the relationship between diversity and innovation. In this research, we want to show how diversity, a driving source of innovations, can enable Quebec SMEs to ensure their growth. Findings will be useful for SME managers who want to ensure their firm's longevity, be more competitive, and contribute to economic growth. The Quebec region will shine more on

the international stage and improve its productivity. Thus, we will try to answer this question: How can diversity be a source of innovation for Quebec SMEs involved in international business and management?

This research aims to highlight the importance of diversity as a source of innovation that enables Quebec SMEs to succeed in an international context and ensure their growth.

To attain this general goal, the following specific goals will be pursued:

- Identify the factors influencing SMEs to internationalize
- Emphasize the importance of developing a global mindset in the organization
- Understand the impacts of diversity on innovation

We will structure our research as follows: first, we will conduct a literature review; second, we will construct our conceptual framework; third, we will develop our methodology; then, we will show our findings and make an analysis. Finally, we will conclude by stating limits and giving leads for future research.

2. LITERATURE REVIEW

This literature review is structured in three parts. First, we will identify the factors influencing SMEs to go global. Then, we will understand why companies try to develop a global mindset. Finally, we will analyze the link between diversity and innovation.

2.1 Factors influencing SMEs to internationalize

The internationalization of small and medium-sized enterprises (SMEs) is primarily influenced by their entrepreneurial spirit and their inclination to invest in developing their workers' human resources (Sehgal & Nanda, 2023). Growing competition has influenced the internationalization of SMEs, reducing their ability to control their development paths. Globalization pushes many firms to change their growth prospects drastically to ensure sustainability (Parrilli & Zabala-Iturriagoitia, 2014). Indeed, we are currently witnessing an international situation in which new emerging countries are challenging the old global equilibrium that the Western countries are leading. In addition to the driving forces of globalization influencing SMEs' internationalization,

they have also reduced barriers (Nummela et al., 2004). The growth of born-global enterprises may be attributed to a combination of interconnected causes, including evolving market circumstances, advancements in technology across many sectors, and the enhanced skills of individuals. Companies allocate significant resources to research and development (R&D) and innovation endeavours in order to sustain their market dominance, expand into untapped areas, and create novel goods and processes (Calheiros-Lobo et al., 2023). Those innovation activities are considered a priority for upgrading their competitiveness. To maximize these factors, global innovation strategies are closely related to global innovation networks (GINs), since they do not only occur through internal R&D activities. Indeed, cooperation, joint research, and other agents, such as complementary partners, are increasingly conducting R&D activities (Parrilli & Zabala-Iturriagoitia, 2014). This is particularly important for Quebec SMEs since Quebec is a booming place for innovations in the high-tech sector, particularly Montréal, a renowned global hub in artificial intelligence. However, internationalizing innovations is difficult for companies working with foreign partners. In order to deal with it, a global mindset is key. Some have even argued that the Global Mindset is a prerequisite for early internationalization. In the following section, we will focus on the concept of a global mind.

2.2 The development of a global mindset to succeed in cross-cultural environments

First, although the Global Mindset (GM) idea is gaining popularity, definitions differ throughout the literature. GM may be studied from a variety of perspectives, including cultural, strategic, and multidimensional (Wang et al., 2024). Additionally, various levels of analysis—both individual and collective—are applied to GM. The former focuses on the competencies associated with the leadership role, personal dimension, and global mindset of managers. Conversely, the latter approaches GM through an organisational lens, conducting an analysis of the company's knowledge, predecessors, and past experiences. Individual-level analysis is one way in which it is defined: as an openness and cognizance of the markets and the various cultures in the world (Balhico et al., 2023; Gupta & Govindarajan, 2002; Levy et al., 2007). However, researchers characterized the GM as having the ability to articulate cultural and strategic realities on both global and local levels. More recently, researchers defined it as the capacity to function effectively within cross-cultural environments characterized by high strategic business complexity. This definition is more multidimensional; it considers the ability to comprehend multiple cultures and the firm's strategic level (Yari, 2024). GM is a combination of individual attributes that empower the global

executive to effectively influence individuals from diverse regions to collaborate towards achieving corporate goals. This definition includes the aspect of influencing others beyond understanding other cultures. On the other hand, it can be a collective scheme of thought that brings some actors together but also sets others apart (Garcia et al., 2023).

Overall, GM is seen as an advantage for companies working in cross-cultural environments. With increasing exchanges and international work collaboration, it is not surprising that companies want to develop GM. Indeed, it has become a key competency for successful international activities (Levy et al., 2015) and a long-term competitive advantage. Approaches to studying GM are numerous; in this research, we will focus more on the cultural aspect of it. It corresponds to cultural diversity and distance associated with worldwide operations and markets (Levy et al., 2007). Indeed, we try to understand how diversity is leveraged for innovations for Quebec SMEs that work tightly with foreign partners. Thus, we want to understand how developing a global mindset can represent a source of advantage within global innovation networks (GINs) which brings us to the last section on the link between diversity and innovation.

2.3 Understanding the impacts of diversity on innovation

Since we focus our research on the cultural perspective of GM, which corresponds to cultural diversity and cultural distance associated with worldwide operations and markets, let's tackle what we call diversity. In 1980, Hofstede defined culture as the collective programming of the mind that distinguishes the members of one human group from another. First, there are two levels of team diversity: surface and deep-level (Kim et al., 2023; Wang et al., 2019; Zouaghi et al., 2020). On the one hand, deep-level diversity corresponds to the differences between team members' psychological features (cognitive talent, thoughts, values, expertise...). On the other hand, (Jansen & Searle, 2021; Stahl et al., 2010; Zouaghi et al., 2020). Moreover, according to Wang, Cheng, Chen, and Leung (2019), surface-level diversity in culturally diverse teams is not related to team creativity/innovation, while deep-level diversity is. When we talk about culturally diverse teams, we mean teams in which members come from different countries and ethnic groups with differences in mental models, modes of perception, and approaches to problems (Stahl et al., 2010).

Multicultural teams have access to a broader territory of information, networks, and perspectives. They also have enhanced problem-solving, creativity, innovation, and adaptability

(Figura et al., 2024; Stahl et al., 2010; Wang et al., 2019; Zouaghi et al., 2020). Indeed, since cultural differences are associated with differences in mental models, modes of perception, and approaches to problems, they are thus more likely to provide strong inputs for creativity and make teamwork more satisfying (Stahl et al., 2010). Diversity variables such as gender, skills, and education are positively associated with product and process innovation (Zouaghi et al., 2020). However, we should be careful about cultural diversity's drawbacks, often called a “double-edged sword” for its trade-off between losses and gains. Overall, diverse teams are essential for innovation, especially for High-Tech Quebec SMEs whose prosperity relies on them. However, they often lack the necessary resources and skills, so the GM is relevant in looking for unexpected trends and opportunities (Niemczyk & Sus, 2020).

2.4 Conceptual framework

As for our conceptual framework, as we explained earlier, the perennity and competitiveness of Quebec SMEs rely on innovations. To make the most of globalization that suppresses barriers between countries, Quebec SMEs can have access to the latest technological developments and the capabilities of people abroad. This is relevant for Quebec SMEs looking for complementary skills to improve their ability to provide innovations. The growing cooperation of R&D activities through Global Innovation Networks (GINs) steers firms to develop a global mindset. Indeed, developing a global mindset is an advantage for firms working in cross-cultural environments. To develop a global mindset, it is important to develop diversity strategies in the firm since they have been shown to impact the emergence of innovations, as shown in Figure 1.

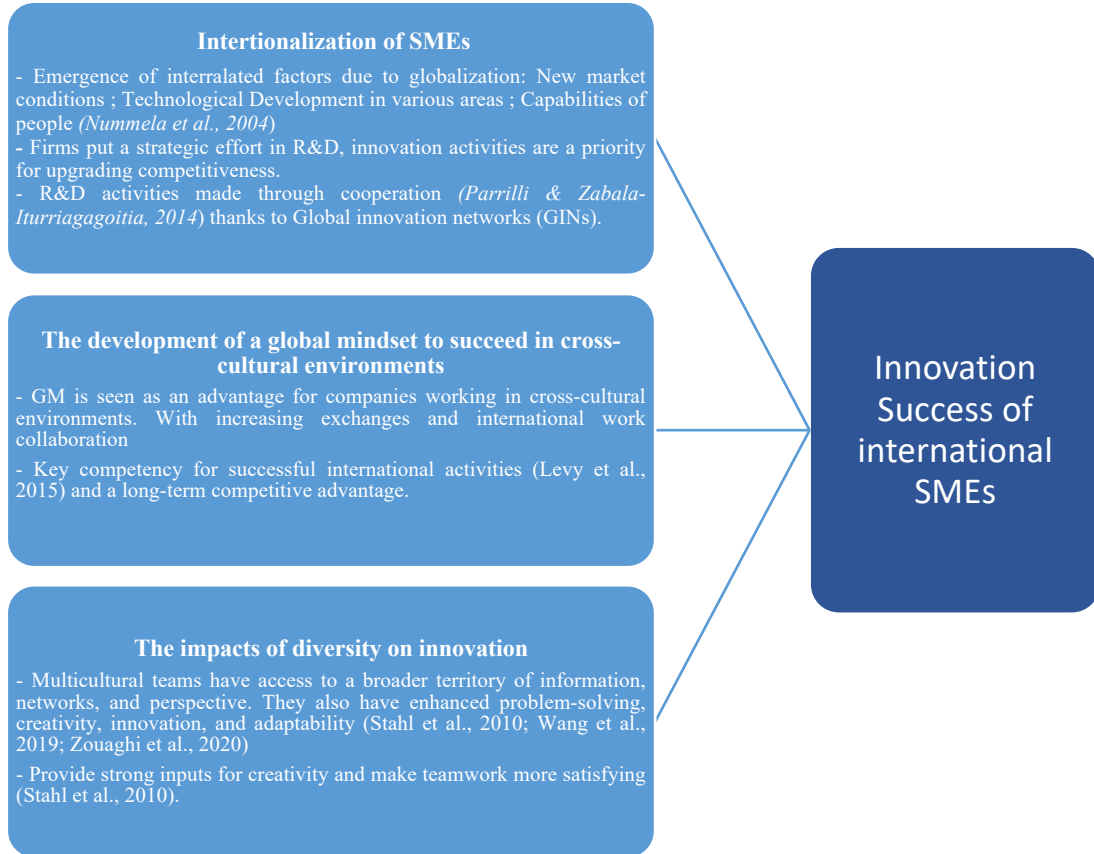


Figure 1: Conceptual framework of the factors influencing the innovation success of international SMEs.

3. METHODOLOGY

3.1 Study design

The researchers used a qualitative technique since our major purpose is to illustrate the relevance of diversity as a source of innovation for Quebec SMEs to succeed internationally. More particularly, we chose to conduct a single-case study. Indeed, we try to identify how internationalization, the development of a global mindset, and diversity can impact innovation and, hence, its sustainability and growth. Yin (2009) states Single cases are advantageous for a few reasons. Researchers can understand complex organizational phenomena from different perspectives, including multiple variables of interest such as diversity, GINs, and global mindset. They also allow researchers to take advantage of unusual access to a phenomenon that is usually difficult to observe. A single-case study is relevant because it is a representative case where the

objective is to capture the circumstances and conditions of the everyday and commonplace. The lessons learned are informative about the experiences of an average person, and the investigator has the opportunity to observe and analyze the phenomenon from the inside (Yin, 2009). In this research, we explore a new topic, which makes it an exploratory case study. Indeed, we will have access to global innovation networks for collaborative R&D. Since the SME under study has ten employees, there are no subunits or departments; the hierarchy is also flat, which is why we will use an embedded case design and not a holistic one. Indeed, we will study the global nature of the organization, which will allow us to test our theory that developing a global mindset impacts innovation development and helps international collaborative activities. Let's now define our case study.

3.2 Case definition

To maintain the confidentiality of our case company, we will use the pseudonym of the firm; we name it Quebec AI Inc. It was founded in 2005 by Mr. Jean. It is an SME that provides services and develops solutions based on cloud and artificial intelligence technologies, as well as machine learning algorithms. It is based in Quebec City (Canada) and has ten employees, although it varies throughout the year. The company describes itself as a place where diversity is at its core, whether related to its services and solutions or the profiles of its collaborators. Moreover, they continuously make important efforts to maintain a highly diversified workforce. Since its inception, the firm has undergone multiple transitions. Initially, it was a one-person company that provided consulting services in business intelligence and digital transformation. Only in 2016, when it entered the IA market, did it start to develop its workforce and experience rapid growth. Innovation is essential for an SME specializing in AI; it is a survival skill in a fast-paced environment of technological change. An AI solution typically has a life cycle of 6 to 12 months. Indeed, each wave of digitalization washes away a part of what companies have already built. They provided a variety of services, ranging from strategic support (ethics, governance and strategy, technologies, and training) to technical support and collaborative research and innovation. However, because of the COVID-19 pandemic, they focused most of their activities on their collaborative research and innovation activities, which now represent 70% of their turnover.

3.3 Field access and Choice of key informants

This research conducts the case study from the perspective of an insider. As part of the MITACS program's Business Strategy Internship, we will assist an organization in adapting its

business operations to the economic reality in a COVID-19 pandemic-affected environment. This will enable us to access real-life context since we will collaborate closely with the CEO, the Chief Strategy and Partnerships Officer, and the other employees. The key informants comprise the whole organization's members; since it is an SME with a few employees, everyone participates in the collaborative R&D projects. Afterward, we will also have access to various points of view for comparison. This is particularly relevant in the case of diversity since everyone comes from different backgrounds. To be more precise, the tenure consists of providing support to develop a new activity and the commercialization strategy of the chosen project. We will also participate in the reflective and brainstorming activities.

3.4 Data Collection

A single-case study typically requires a large amount of data because justifying one case often necessitates unusual access to a level of granular detail not permitted by multiple cases (Ozcan et al., 2017). So, we will collect qualitative data through (1) semi-structured interviews, (2) passive observations, and finally (3) active observations. In addition, if we can access the company's documents, we will also use them.

(1) Interviews

Interviews are one of the most important data sources for case research (Yin, 2009) and should always be used if possible (Ozcan et al., 2017). A semi-structured interview implies that there are specific topics that we should cover and also gives us the power to ask further questions to explore the views expressed by the participants (Bell et al., 2018). We will focus our questions on the topics relevant to this research: diversity as a leverage for innovation, the global mindset, and how they are both useful while interacting with international partners in Global Innovation Networks. The interview guide will thus be based on our research objectives and the literature review. To avoid informant biases, if necessary, we will interview multiple informants, such as the CEO, the Chief Strategy and Project Manager, and some chosen collaborators. Given the COVID-19 pandemic context, everyone works remotely from home. The semi-structured interviews will take place online through videoconferencing (Teams, Zoom, Google Meet), which we will record upon getting the informant's consent. The interviews will last 40 minutes to 1 hour and constitute part of our database.

(2) Direct observations (passive)

Observations are another important data source because they allow researchers to observe complex social and behavioural processes unfolding in real-time (Ozcan et al., 2017; Yin, 2009). Passive observations will take place in multiple settings, such as meetings, work interactions, events, etc. However, field visits and even the condition of the building or the organisation of the workspace will indicate something about the climate of an organisation (Yin, 2009). The database will consist of notes taken over four months which is the duration of the internship.

(3) Participant-Observations (active)

Another type of observation is participative, which gives insight into interpersonal behaviour and motives ((Yin, 2009). It can be used in everyday settings, such as informal small groups, and is really similar to the previous one.

3.5 Data Analysis

First, as we stated before, our database consists of thorough field notes and recordings of semi-structured interviews. Having multiple data sources is one of the principles of data collection. It also enables the coverage of a broader range of views and issues. In addition, it facilitates the triangulation of sources to reveal as much depth as possible while enhancing validity (Gaya & Smith, 2016). After constructing this database, we selected relevant information for this research that we will classify into three categories. Since we analyze multiple variables of interest, we decided to rely on one of the four main strategies for data analysis developed, which is based on theoretical propositions. Indeed, the three categories are based on our conceptual framework. First is the internationalization of SMEs, specifically in the context of collaborative R&D through GINs. Second is the global mindset, and finally, diversity data. We then interpret and analyze this data to discover possible connections between those variables and the emergence of innovations. Indeed, this strategy helps us organize the entire case study and find alternative explanations to examine (Yin, 2009).

4. RESULTS AND ANALYSIS

After collecting our data, to conduct our analysis, we will sort our data into tables based on three categories. Those categories will follow our conceptual framework:

- The factors influencing Quebec SMEs to internationalize are significant.
- The development of a global mindset in cross-cultural environments
- Understanding the influence of diversity on innovation

We will try to explain the different concepts we studied in the literature review while also providing insights from the perspective of an SME. In Table 1, we will present some bullet points that we will analyse more thoroughly after.

4.1 Factors influencing Quebec SMEs to internationalize

Table 1: The internationalization of SMEs

The impact of globalization on AI	Reasons to go global	The impact of AI on the internationalization of SMEs
<p>Globalization enables SMEs to carry out more intensive technology watch</p> <p>Competition is global as well as clients.</p> <p>Teams are scattered in the world</p>	<p>Canada, especially Quebec has a competitive advantage in AI</p> <p>For most Quebec SMEs, their first success is abroad instead of locally</p> <p>Market limitations in Quebec that slow down the growth</p> <p>Quebec companies are conservative towards new firms and SMEs</p> <p>Access new skills, markets, human resources etc.</p>	<p>During the COVID-19 pandemic, AI facilitated and accelerated the internationalization of SMEs</p> <p>Virtual collaboration erases the physical barriers</p>

To begin with, the numerous trade agreements enable Quebec-based SMEs to target new markets. However, it is important to recall that it is a bilateral agreement; thus, companies from other countries can also target the Canadian market. That’s why it is even more dangerous for Quebec SMEs that are lagging in terms of internationalization. Indeed, the risks associated with foreign markets have portrayed Quebec SMEs as late adopters of globalization. However, if they do not, they will have to face even fiercer competition in their market from both foreign and

domestic firms. However, this portrayal of SMEs in the high technology industry is not entirely accurate; the risks associated with globalization and the growing competition from emerging countries have long dissipated. The fear associated with the growing trade between countries, starting with China becoming the “*world’s factory*,” has faded. Indeed, according to our key informant, who worked in the field for more than 20 years, this fear was dominant during the 2000s, alongside the apparition of the internet and digital transformation.

We are now in the third wave of globalization, and when Quebec AI Inc. made its transition as an AI company in 2017, globalization was already far advanced. Hence, globalization was not the main challenge that it had to overcome. Developing in this third wave of globalization, the company sees globalization as a means to access expertise, human resources, and new technologies scattered around the globe. Nummela (2004) already studied the reduction of barriers; companies called “born global” are now common due to these interrelated factors (new market conditions, technological development in various areas, and the capabilities of people). Therefore, they are not afraid of foreign markets and are more willing to go global early for the opportunities they represent regarding innovations. Indeed, if we look at the case, the diminishing barriers enable Quebec AI Inc. to conduct a global technology watch. This is an opportunity for them to see what is trending and emerging in more advanced AI countries, such as Taiwan, Singapore, Germany, and the USA. Furthermore, Canada, particularly Quebec, has a competitive advantage in the AI industry, so they do not feel as threatened by emerging countries as the manufacturing industry. However, even if firms are more eager to go global because they are aware of the overseas opportunities, from clients to knowledge, they still face fierce competition. Indeed, if they face competition in their domestic market, the same goes for foreign markets. Felício (2012) stated that companies that internationalize their operations are subject to strong competition from domestic firms and multinationals. Quebec SMEs must compete with one another and other SMEs from other countries, which may be a step ahead in AI.

Despite the challenges that they have to overcome, the gains seem more important. Indeed, Quebec cannot reach its full potential for expansion due to the market's saturation. Our interviews revealed that Quebec enterprises are still conservative towards new and small businesses, preventing them from finalizing partnerships. Quebec SMEs also consider one another's competitors, which does not create an environment where collaborative R&D can thrive. This is particularly detrimental to the growth of the company, which specialises in collaborative R&D. That’s why they decided to

look abroad after many failed attempts to build partnerships with domestic players to surmount this deadlock. The outcome was positive, as foreign partners were much more open to developing partnerships. Quebec AI Inc. is no exception; the growth of many Quebec SMEs has reached a threshold, and their first success has happened overseas rather than locally. Canada is indeed a place where innovations are booming, especially in Quebec, a hub for AI; however, few firms have reached the commercialization phase.

Furthermore, it is difficult to ignore the COVID-19 pandemic, which has impacted not only Quebec SMEs but everyone. Unlike many firms, Quebec AI Inc.'s economic growth is still positive in this context. It is actually the case for many companies in the field of information and communication technologies (ICT). We analyzed how globalization has not impacted the AI industry significantly. However, AI is still greatly impacting globalization, specifically the internationalization of Quebec SMEs. Indeed, international collaboration has accelerated since the pandemic started. We can extend this to SMEs in Quebec and across the globe. Diminishing barriers between countries became even more significant; virtual collaboration is booming, eliminating the main challenge for SMEs: physical barriers. The pandemic drastically changed how people work, and AI technologies such as the cloud have enabled the development and multiplication of virtual collaboration. Companies that could see the opportunity behind it can benefit from it and experience exponential growth.

Those technologies already existed, and Quebec AI Inc. was already working remotely even before the pandemic, so this drastic change did not impact the company at the organizational level. On the other hand, the potential behind virtual collaborative platforms was not fully reached since they were less extensively used than they are now. Many SMEs needed to see the potential of internationalization behind it. Nevertheless, the pandemic compelled them to adapt and innovate to survive, and the use of digital platforms has become the norm. For Quebec AI Inc., many opportunities emerged because it became much easier to internationalize when every company uses the same platforms they already use. Virtual meetings with potential investors, clients, partners, etc., became much faster and easier to organize, which is beneficial in this fast-paced industry and allows them to be more efficient. Organizing a stakeholder meeting takes less than a few days instead of weeks, eliminating the need for business trip planning, and offering financial benefits, particularly for SMEs with limited financial resources. We have yet to see the impact of the pandemic on Quebec SMEs' economic growth. Still, it is optimistic that companies such as Quebec

AI Inc. that could take advantage of the opportunities there will experience major economic growth. Indeed, the economic spinoffs from the multiplication of contracts and partnerships with foreign partners during these years will show in the future. The multiplication of partnerships with foreign partners contributes to developing global innovation networks (GINs). The company's integration into these GINs is also essential to the internationalization of innovations, as presented in Table 2, which we will tackle in the following part.

Table 2: Global Innovation Networks

The development of the network	Benefits from being a stakeholder in a GIN
<ul style="list-style-type: none"> • Participation to global events to develop ties, technology watch and discover the latest technologies • Partners such as the CNRC, professors from multiple institutions (INRS, Laval University, McGill University...), students through different MITACS programs 	<p>Being surrounded by different cultures, resources, skills</p> <p>Having access to complementary expertise</p> <p>In the high-tech industry: expertise is not clustered in one country and is disseminated</p> <p>Research is borderless to innovate</p>

Nowadays, teams are scattered worldwide, and it is tough to know where software or an application has been developed. Parrilli and Zabala-Iturriagoitia (2014) noted in the literature review that cooperation primarily drives R&D activities. Global Innovation Networks (GINs) are used when companies collaborate with other stakeholders, such as companies, universities, and research institutes, who join hands to develop and diffuse innovation. This is necessary for Quebec AI Inc., which focuses on collaborative R&D, as well as Quebec SMEs. Prioritizing R&D and innovation activities ensures competitiveness and sustainability, particularly during the pandemic. This perfectly illustrates what happened at Quebec AI Inc., originally a company that specialised in services and, throughout its development, started to diversify its activities. The pandemic compelled the firm to transition to its R&D and innovation activities. Indeed, what we call the BX Lab now represents 70% of its total activity, whereas only two years ago, it was a minor activity within the SME. For the same reasons mentioned by Parrilli & Zabala-Iturriagoitia (2014), it was not to lose market shares, reach new markets, or develop new products and processes. That's

why the company centred its strategic effort on the BX Lab. This transition to R&D and innovation activities had already happened before the pandemic; through their diversified activities, collaborators realized that R&D activities had a lot more impact on the SME's growth. However, the pandemic accelerated this transition, which happened a lot sooner than it would have been without the pandemic. This transition was made easier since Quebec AI Inc. was already included in these global innovation networks thanks to their past collaborations. With their history, they collaborate with numerous partners, such as the National Research Council Canada (NRCC), professors specialized in the domain of the project from the Institut National de la Recherche Scientifique (INRS), Laval University, McGill University, students through different MITACS programmes, and foreign SMEs. The company's development of this international innovation network is critical. To develop it and make it more integrated into different GINs, collaborators will participate in multiple events that will gather participants worldwide. Those events of an international scope enable the SME to nurture and develop new partnerships with foreign partners, which, as we tackled in the previous part, were at a deadlock with Canadian corporations. Many opportunities came from those events. For example, the company was working on a project with drones. However, they did not have all the required expertise, and at an event, they met a connection who knew an English SME who was specialized in it, and a partnership was made. This is not just one-way; many SMEs are also working on projects for which they do not have all the knowledge required, and many find a complementary SME that is willing to work with them. This is because high-tech SMEs acknowledge that research is borderless to innovation and expertise is not clustered in one country only. Global Innovation Networks are a way to access complementary expertise distributed all over the world. This is even more relevant for R&D activities in AI since the applications are numerous and you are able to tackle many different sectors, from aerospace to agriculture, health to cybersecurity, and so on. Therefore, it is inconceivable for one SME to be an expert in every domain. That's why you have to involve external resources.

This is what we can call Open Innovation, which was developed by Chesbrough and relies on networks and collaboration. Indeed, one of the main principles he studied is that experts are not always within an enterprise, and collaborative research has many benefits for the company:

- Exposition to new ideas, mental models, experiences, and concepts
- Improvement of the innovation process
- The innovation cycle is reduced

- Accessibility to better equipment and technologies
- Leverage for funding
- Benefits from the value that represents the external R&D and research done by another partner

Long-term, GINs facilitate the development of strong ties between SMEs and various organizations and key individuals, foster trust, and promote repeatable collaborations. On the other hand, global innovation networks are not well documented, even though they are a key component of the internationalization of SMEs in high technology to foster innovation. The primary reason for this lack of documentation is the difficulty in obtaining relevant data. They are not accessible and require specific documentation. Indeed, networking plays a major role in their creation, and projects remain confidential, particularly in highly regulated sectors like cybersecurity or health, where an outsider cannot access data. Moreover, the diversity of the stakeholders is essential to nurturing innovation, especially third-party gatekeepers. Universities, associations, or consultants are important since they participate in knowledge sharing and diffusion and have a strong economic interest. While collaborating with other SMEs, there are still risks, and every company tries to make the most of the situation and has its own motives. Those power games, as well as different mental models and cultural differences, might raise tensions between partners. Cross-cultural collaboration is challenging, and that's why it is essential to develop a global mindset for Quebec SMEs such as Quebec AI Inc. working with foreign partners. According to Andresen & Bergdolt (2021), it is the capacity to function effectively within cross-cultural environments characterised by high strategic business complexity. This definition can be completed by Hitt (2007), who stated that the global mindset is a set of individual attributes that enable the global executive to succeed in influencing those from different parts of the world to work together to achieve corporate objectives. However, Felício (2012) stated that SMEs often lack the resources, experience, skills, and knowledge to operate in the international market, which puts them at a disadvantage compared to large companies. In many cases, the focus on SMEs internationalization is a result of GM development. That's why, in the next part, we will focus on developing the global mindset of Quebec AI Inc.

4.2 The development of a Global Mindset in cross-cultural environments

Table 3: The importance of the Global Mindset in cross-cultural environments

The Global Mindset

Immigrant people are more inclined to go global:

- They have access to a global network where they are from
- Familiarity with foreign markets and also culturally
- More willing to internationalize, openness to the world
- Being multilingual

Consensus: world has many facets, not one uniform way interpretation.

Carefulness needed in the way to formulate things since poor interpretation can lead to conflicts

Cultural aspect is more and more important, especially with growing diversity in teams

Intrinsic open-mindedness: more than ethnicities and culture, also age, education, social class put a base from a very young age so there have less psychological barriers, less *a priori*

Having the role of the mediator, cultural translator

As stated above, the focus on internationalizing SMEs results from GM development and represents an advantage within GINs. Quebec AI Inc. must work closely with foreign partners as the world becomes a common cultural market area.

As a SME, Quebec AI Inc. has to overcome a lack of resources and skills. The global mindset is a way to look for unexpected trends and opportunities (Niemczyk & Sus, 2020) to ensure their growth. However, the global mindset does not appear out of nowhere; indeed, it is a skill trained and nurtured through experience to be useful. Our research revealed that immigrants often have a greater inclination towards globalization for various reasons.

First, as an immigrant, you become more familiar with foreign markets, particularly those that are culturally close to your origins. Growing up surrounded by multiple cultures and speaking and learning different languages develops your global mindset without even knowing it. Indeed, during the interviews, our informants were asked if they knew what a global mindset was; even though they already acted with a global mindset, they needed to learn the concept itself. The CEO, as well as other collaborators, have a strong interest in conducting business abroad, are open to new ideas and knowledge, and want to take advantage of international opportunities, which are the stems of the definition of a global mindset developed by Felício (2012). They demonstrated the

development of their global mindset from a very young age, emphasizing the importance of cultivating an intrinsic open mind. To go further than ethnicities and culture, you also consider age, social class, and education, which play a role in developing a global mindset. Indeed, the informants are immigrants who grew up in cross-cultural environments, where they experienced many cultures. They also lived, studied, and travelled to different countries. Exposure to diverse cultures throughout your life enhances your awareness. They tend to have fewer biases or psychological barriers towards people of other cultures.

People who grow up in a specific context find it easy to adopt an ethnocentric approach to culture. They tend to apply their cultural values in another country, thinking it is the only “right” way. In extreme cases, they may even resort to cultural imperialism, attempting to impose their own culture on others. However, doing that suppresses the advantages of cultural diversity. Therefore, a global mindset is not just a skill that you learn; it is a trait that you develop with your own experiences. In addition to personal background and experiences, developing a global mindset is also linked to professional experiences. Indeed, a global mindset is explained by decision style, childhood, valuation of international experience, international background, technical expertise, international experience, the firm's global orientation, the entrepreneur's global orientation, firm characteristics, and firm activities in the global market (Felicio et al., 2012).

The collaborators’ own professional experiences also helped sharpen their global mindset, with concentrated contacts, using language skills, and transitioning from different jobs. After joining Quebec AI Inc., employees developed their global mindset even more, as we tackled earlier, through their global innovation networks, participating in global events, working with foreign partners from different cultures, etc. Combining that with their global networks and connections in their respective countries explains why they are more willing to internationalize. Thanks to their sharpened global mindset, they are more open to the world and acknowledge overseas opportunities. Especially in the sector where Quebec AI Inc. is developing, technologies are mostly immaterial, and there is no border. This is illustrated by the fact that the technologies developed by Quebec AI Inc. do not have any cultural specifications and are available in multiple languages so that they can reach more people and do not target one market specifically.

On the other hand, working with many foreign stakeholders comes with great challenges, even if you have developed a global mindset. Indeed, in addition to managerial tensions that can happen,

such as different leadership styles, points of view, or objectives, cultural aspects add another challenge. Miscommunication or misunderstanding, in particular, can be the source of great tension and can even lead to the end of a collaboration. The Hofstede Model of Cultural Dimensions is a good illustration of cultural differences, which can be a source of tension. “Culture is the collective programming of the mind that distinguishes the members of one group or category of people from others.” The model is composed of six cultural dimensions that vary in every country:

- Power Distance → related to the different solutions to the basic problem of human inequality.
- Uncertainty Avoidance → related to the stress level in a society in the face of an unknown future.
- Individualism versus Collectivism → related to the integration of individuals into primary groups.
- Masculinity versus Femininity → related to the division of emotional roles between women and men.
- Long-Term versus Short-Term Orientation → related to the choice of focus for people's efforts: the future or the present and past.
- Indulgence versus Restraint → related to the gratification versus control of basic human desires related to enjoying life.

Considering these different cultural differences from which tensions can emerge, you also have to consider sub-cultures within cultures, individual personalities and values, and so on. Thus, there is no "one size fits all" or magic formula to deal with different cultures. From our experience at Quebec AI Inc., a consensus emerged that the world has multiple facets and there is not one uniform way of interpreting it. That's why developing a global mindset is a challenge and represents a competitive advantage; cultural aspects are becoming increasingly important as borders disappear and the whole world becomes a culturally common market area. Moving from country to country is becoming easier; therefore, the diversity of teams is growing. As companies are also implementing new diversity policies, formulating things is key since poor interpretation can lead to conflicts. With a global mindset, one can be a mediator and translator to prevent conflicts because they understand and are open to cultural differences. One can benefit from it by bringing out the positive outcomes of diversity and innovation. This brings us to our last part on the impact of diversity on innovation.

4.3 Understanding the impact of diversity on innovation

Table 4: The link between diversity and innovation

Diversity and Creativity
Positioning in the 4.0 Industry requires diversity, new ways of working, agility, and creativity
In this sector: Creativity > productivity, coming with ideas that don't exist
Diversity fosters innovation and opens market development
Diversity of education, social, formation, ethnicities, experiences, networks
In collaborative R&D: necessary to tackle the problems from different angles
Creativity can also lead to a loss of focus, tackles a sector superficially and then move on
If too focus-oriented, planned, then there is no place left for creativity
Challenge to overcome → find balance with experience mostly

Quebec AI Inc. is an SME with a startup model whose goal is to find its star project to commercialize and capitalize on it. To find this star project, you need creativity. Multicultural teams are known to enhance problem-solving, creativity, innovation, and adaptability. Especially in collaborative R&D, in which Quebec AI Inc. is evolving, it is necessary to tackle the problem from different angles.

Indeed, diversified teams are beneficial in product conception because they bring multiple opinions. According to our informants, multicultural teams create an environment in which innovations can foster and open market developments. Stahl et al. (2010) emphasized that cultural differences, associated with differences in mental models, modes of perception, and approaches to problems, are likely to provide strong inputs for creativity. Furthermore, they have the ability to access their diverse networks, both personal and GINs, as well as a wider range of information. This database of information is nurtured by their knowledge, experiences, networks, and the documentation they read. Indeed, being multilingual enables the collaborators to access multiple sources of news and papers available in certain languages. On the other hand, in addition to cultural diversity, in order to enhance creativity, the company also values recruiting people with different

skills and education. The company combines technical skills with social sciences backgrounds, fostering positive associations with product and process innovation (Zouaghi et al., 2020).

However, the company's main challenge to overcome is finding balance. On the one hand, too much creativity can lead to a loss of focus, as illustrated earlier by wanting to tackle too many sectors simultaneously, but overall, all are tackled superficially. On the other hand, if it is too focused and planned, there is no place left for creativity. That's why the main challenge for the CEO who brings the vision is to find the perfect balance; according to him, it is done with experience and a trial-and-error method. The goal is to spread intrapreneurship in the firms, where the collaborators are more committed, so that innovations and ideas can be fostered. Combining intrapreneurship and open innovation enables the company to access multiple sources of innovation.

5. CONCLUSION AND LIMITS

This study examined how Quebec SMEs that collaborate closely with foreign partners leverage diversity for innovation. Multiple variables of interest were studied, particularly the role of developing a global mindset, a source of competitive advantage for better integration in global innovation networks. Our research method and study design were based on the case study of the Quebec SME, Quebec AI Inc., growing in the artificial intelligence industry. This methodology was relevant for our research since it allowed us to go deep within the organisation to examine interactions among the actors and the specific tools involved in strategy-making (Ozcan et al., 2017). Based on the conducted literature review, we uncovered the complexity of our research in a natural context for theory testing, extension, and generation.

Our research revealed that, like many Quebec SMEs, Quebec AI Inc. had to internationalize due to many limitations in the Canadian market regarding economic prospects, developing partnerships, access to complementary expertise, a lack of human resources, etc., which impacted its growth. Internationalizing enabled the company to integrate multiple GINs, giving them the opportunity to work on high-tech projects with multiple foreign partners. Each partner contributes their own expertise to the project's success. Collaborating with many partners scattered across every continent came with challenges, cultural differences, different management styles, and everyone's

interest in collaborative research. However, the company did not deal with many tensions, which ended the collaboration. This can be explained by the fact that the global mindset within the company is particularly advanced. Collaborators experienced cross-cultural environments from a very young age, which developed their openness to foreign markets and their awareness of different cultures. Indeed, this ability is useful when working with foreign partners since they are mediators who prevent misinterpretation and cause tensions in cross-cultural collaboration. Employers fostered this global mindset by hiring employees from diverse backgrounds, including many immigrants. In addition to people from different cultural backgrounds, they also recruit people from different educational backgrounds, ages, genders, etc. When asked how to describe the SME, the CEO used the word diversity; it represents a strength since it encourages creativity and innovation and opens new market prospects. However, we must acknowledge that diversity has both positive and negative aspects. On the one hand, it can be a source of innovation and enhance creativity. On the other hand, it can, on the contrary, stop creativity and be the cause of a loss of focus. Moreover, the similarity attraction theory suggests that it can also lead to ostracization, as people tend to gravitate towards individuals who share similar values, beliefs, and attitudes. This impedes the benefits of cultural diversity in cross-cultural environments. Therefore, the primary challenge lies in striking a balance to leverage the benefits of diversity, thereby enhancing the company's professional standing and stimulating innovation. This concludes the findings of this single case study on Quebec AI Inc. To go even further, we will state the limits of our research and discuss them for future research.

First, we can find many limits, even though using a single case study as a research design and methodology enables us to explore complex phenomena that are hard for many researchers to access. On one hand, the use of different data collection methods can easily overload the database. The interviews lasted more than an hour, and the transcription ended with hundreds of pages. While searching the database to select relevant and useful information, you can overlook some concepts that appear only once. Indeed, data triangulation can be very challenging because one tries to sort and make links with the data gathered while focusing on concepts that appear multiple times. Moreover, you could be biased while conducting the study. As an intern in the company, my key informants were aware of the theme of my research study, even though they did not know precisely the different variables of interest that I studied. In addition, it isn't easy to make theories based on

one single case study; we cannot compare our theories in other Quebec SMEs, and what might be true in this specific context might not be true in another one. Indeed, the research targets Quebec SMEs; however, to be considered SMEs, employees should range from 1 to 499. This definition is broad; conducting our research in a SME of 10 employees, where the CEO carries the enterprise's vision, facilitates easy communication, and expedites decision-making, is different. However, in an SME of 300 employees, this is another story; there could be clusters and divisions that are very different. That's why it isn't easy to generalise the concepts and phenomena we studied to every Quebec SME. Especially since Quebec AI Inc. is an SME but has the model of a startup, the boundary between the two is blurry.

Finally, for future research, we could consider how to capitalise on diversity. Indeed, we saw the competitive advantage it brings. However, contrary to intellectual property, you cannot monetarily measure diversity and its impacts. The same goes for the global mindset; it is a skill you develop, but unlike technical skills, it isn't easy to assert.

REFERENCES

- Balhico, A., Pereira, R., & Jarrar, H. (2023). Cross-cultural examination of successful entrepreneurial small and medium-sized enterprises. *European Business Review*.
- Bell, E., Bryman, A., & Harley, B. (2018). *Business research methods*. Oxford university press.
- Calheiros-Lobo, N., Vasconcelos Ferreira, J., & Au-Yong-Oliveira, M. (2023). SME internationalization and export performance: A systematic review with bibliometric analysis. *Sustainability*, 15(11), 8473.
- Canada, G. o. (2024). *Key Small Business Statistics 2023*. <https://ised-isde.canada.ca/site/sme-research-statistics/en/key-small-business-statistics/key-small-business-statistics-2023>
- Correia, A. M. S. S., & Pereira, Y. V. (2023). International entrepreneurship and global mindset: a theoretical discussion: UNA DISCUSIÓN TEÓRICA. *Internext*, 18(2).
- économiques, D. É. (2014). *L'internationalisation des PME québécoises*. <https://www.desjardins.com/ressources/pdf/pv141016f.pdf?resVer=1413464616000>
- Entezarkheir, M., & Moshiri, S. (2023). Innovation Effects of Information and Communication Technologies: Evidence from Canadian Firms July 2023.
- Felício, J. A., Caldeirinha, V. R., & Rodrigues, R. (2012). Global mindset and the internationalization of small firms: The importance of the characteristics of entrepreneurs. *International Entrepreneurship and Management Journal*, 8(4), 467-485. <https://doi.org/http://dx.doi.org/10.1007/s11365-012-0232-5>
- Figura, M., Arcadi, P., Vellone, E., Pucciarelli, G., Simeone, S., Piervisani, L., & Alvaro, R. (2024). Living in a multicultural context: Health and integration from the perspective of undocumented Mediterranean migrants, residents, and stakeholders in Italy. A qualitative-multimethod study. *Journal of Advanced Nursing*.
- Garcia, F., Smith, S. R., Burger, A., & Helms, M. (2023). Increasing global mindset through collaborative online international learning (COIL): internationalizing the undergraduate international business class. *Journal of International Education in Business*, 16(2), 184-203.
- Garzella, S., Fiorentino, R., Caputo, A., & Lardo, A. (2021). Business model innovation in SMEs: the role of boundaries in the digital era. *Technology Analysis & Strategic Management*, 33(1), 31-43. <https://doi.org/10.1080/09537325.2020.1787374>

- Gaya, H. J., & Smith, E. E. (2016). Developing a qualitative single case study in the strategic management realm: An appropriate research design. *International Journal of Business Management and Economic Research*, 7(2), 529-538.
- Guerrero, S., Oiry, E., & Ollier-Malaterre, A. (2024). Canada: La Vie en Rose: Globalization Challenges for Human Resources Management in a Canadian Lingerie Leader. In *The Global Human Resource Management Casebook* (pp. 259-268). Routledge.
- Gupta, A. K., & Govindarajan, V. (2002). Cultivating a global mindset. *The Academy of Management Executive*, 16(1), 116-126.
<https://doi.org/http://dx.doi.org/10.5465/ame.2002.6640211>
- Hitt, M. A., Javidan, M., & Steers, R. M. (2007). The Global Mindset: An Introduction. In M. Javidan, R. M. Steers, & M. A. Hitt (Eds.), *The Global Mindset* (Vol. 19, pp. 1-10). Emerald Group Publishing Limited. [https://doi.org/10.1016/S1571-5027\(07\)19001-X](https://doi.org/10.1016/S1571-5027(07)19001-X)
- Jansen, A. E., & Searle, B. J. (2021). Diverse effects of team diversity: a review and framework of surface and deep-level diversity. *Personnel Review*, 50(9), 1838-1853.
- Jiang, K., & Sekkel, J. (2024). Characteristics of SME exporters in Canada.
- Kim, H., Hwang, S.-J., & Yoon, W. (2023). Industry cluster, organizational diversity, and innovation. *International Journal of Innovation Studies*, 7(3), 187-195.
- LesAffaires. (2017, September 11th 2017). Passeport PME : un tremplin vers l'international pour nos entreprises. *LesAffaires*. <https://www.lesaffaires.com/dossiers-partenaires/propulser-les-pme-quebecoises-a-l-international/passeport-pme--un-tremplin-vers-l-international-pour-nos-entreprises/596948>
- Levy, O., Beechler, S., Taylor, S., & Boyacigiller, N. (2015). Global Mindset. In. <https://doi.org/10.1002/9781118785317.weom060094>
- Levy, O., Beechler, S., Taylor, S., & Boyacigiller, N. A. (2007). What we talk about when we talk about 'global mindset': Managerial cognition in multinational corporations. *Journal of International Business Studies*, 38(2), 231-258.
<https://doi.org/10.1057/palgrave.jibs.8400265>
- Niemczyk, J., & Sus, A. (2020). The Concept of Global Competencies of Corporations in the Context of a Global Mindset. *European Research Studies*, 23(2), 30-39.

- Nummela, N., Saarenketo, S., & Puumalainen, K. (2004). A Global Mindset--A Prerequisite for Successful Internationalization? *Revue Canadienne des Sciences de l'Administrative Canadian Journal of Administrative Sciences*, 21(1), 51-64.
- Ozcan, P., Han, S., & Graebner, M. (2017). Single Cases. In (pp. 92-112). <https://doi.org/10.4324/9781315686103-7>
- Parrilli, M. D., & Zabala-Iturriagagoitia, J. M. (2014). Interrelated Diversification and Internationalisation: Critical Drives of Global Industries. *Revue d'Économie Industrielle*, 145(145), 63-93.
- Pruthi, S., & Mitra, J. (2023). *Global Entrepreneurship & Innovation*. SAGE.
- Sehgal, M. G., & Nanda, A. (2023). Factors Influencing Smes' Internationalisation And Their Effect On Performance. *Journal of Namibian Studies: History Politics Culture*, 33, 3189-3204.
- Stahl, G., Maznevski, M., Voigt, A., & Jonsen, K. (2010). Unraveling the effects of cultural diversity in teams: A meta-analysis of research on multicultural work groups. *Journal of International Business Studies*, 41, 690-709. <https://doi.org/10.1057/jibs.2009.85>
- Wang, D., Donohue, R., Guo, F., Yang, M., & Luu, T. (2024). A paradox theory lens for developing cross-cultural competence: Mindset, behavior, and work design. *Journal of Business Research*, 177, 114645.
- Wang, J., Grand H-, L. C., Chen, T., & Leung, K. (2019). Team creativity/innovation in culturally diverse teams: A meta-analysis. *Journal of Organizational Behavior*, 40(6), 693-708. <https://doi.org/http://dx.doi.org/10.1002/job.2362>
- Yari, N. (2024). Cross-Cultural Competencies and Diversity in International Teams: A Comprehensive Exploration. *Doctoral dissertations at University of Agder*.
- Yin, R. K. (2009). *Case Study Research: Design and Methods*. SAGE Publications. <https://books.google.ca/books?id=FzawIAdilHkC>
- Zouaghi, F., Garcia-Marco, T., & Martinez, M. G. (2020). The link between R&D team diversity and innovative performance: A mediated moderation model. *Technological Forecasting and Social Change*, 161, 120325. <https://doi.org/https://doi.org/10.1016/j.techfore.2020.120325>