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**Abstract**

The purpose of this thesis was to explore the impact of digitalization on the internationalization capabilities of manufacturing firms. In exploring these concepts, the thesis examined the factors that influence manufacturing companies to embrace innovative technologies as they venture into foreign markets and the internationalization process. The case study applied in this project is Haier Group, one of the Chinese companies with a high level of success in applying innovative technologies and the internationalization process. Haier's success story formed a critical basis for examining how manufacturing firms can internationalize by implementing innovative technologies into a multinational corporation that enjoys a significant market share in the global market.

The thesis relied on secondary data obtained from online databases and published documents such as Google Scholar, company websites, and e-libraries. The major search terms applied were digitalization, internalization, manufacturing firms, and foreign market entry strategies. A case study design was applied, and the company was chosen using the purposive sampling technique. The case study provided a better understanding of the practical application of innovation and adaptations that a manufacturing company makes to improve its internationalization success.

The findings suggested that digitalization is critical for manufacturing companies that expand their operations into global markets. Various factors influence firms' digitalization processes, and they relate to organizational culture, structure, and the integration of technologies. In manufacturing firms, findings indicate that digitalization helps optimize resources to enhance efficiency while also improving the productivity of employees. Through its network-based model, Haier has overcome significant challenges to successfully internationalize through the aggressive use of innovative technologies, enabling the firm to diversify its brands of smart home living. Therefore, the research concludes that digitalization is the central key to successful internationalization by enhancing a firm's global competitiveness.

The findings of the research are consistent with the theoretical framework. For manufacturing firms, digitalization is essential for their successful internationalization, which ultimately leads to an improvement in their global competitiveness.

<b>Keywords</b>	Internationalization; Digitalization; Haier Group; Manufacturing firms; Foreign market entry strategies
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**UNIVERSITY  
OF TURKU**

Turku School of  
Economics

**THE IMPACT OF DIGITALIZATION ON THE IN-  
TERNATIONALIZATION CAPABILITIES OF  
MANUFACTURING FIRMS**

Master's Thesis  
in International Business

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20.04.2023  
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The originality of this thesis has been checked in accordance with the University of Turku quality assurance system using the Turnitin Originality Check service.

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## 1 INTRODUCTION

Digitalization has been identified as one of the major trends changing society and business. In particular, digital technologies and platforms have been created to reach new markets, serving to resize the economics of cross border business, notably by reducing costs, shortening transactions, and increasing market knowledge through greater interactions. In other words, digitalization is changing who is participating, how business is done across borders, how rapidly competition moves, and where the economic benefits are flowing. (Manyika et al. 2016, 1-2).

The emergence and development of powerful digital technologies have caused significant changes within organizations and corporations in the past decade, leading to the innovation of models, marketing strategies, and product offerings (Tekic & Koroteev 2019, 1-2). Manufacturing firms are evolving to support global supply chains with the help of the new capabilities offered by digital technologies (Jardim-Goncalves, Romero, and Grilo 2017, 1). Hence, the implementation and utilization of digital technologies have greatly impacted business operations and influenced the overall results of firms, including their international performance.

Several studies (Vadana et al 2019; Neubert 2018; Dethine et al 2020; Kuivalainen et al 2021) have explored the impact of digitalization on the internationalization of firms. It has been found that companies that use internet hardware infrastructure and web and mobile software technologies are better equipped to leverage their foreign assets, resulting in a higher proportion of foreign sales with limited foreign assets (Vadana et al. 2019). Digitalization enables lean global start-ups to develop knowledge and networks at a faster pace, improving the efficiency of decision-making processes and accelerating internationalization (Neubert, 2018). Furthermore, digitalization promotes the internationalization of SMEs by impacting their organizational strategies and facilitating the emergence of market opportunities (Dethine et al. 2020). Moreover, digitalization of value chain activities can aid born-digital companies in solving challenges, innovating solutions, and creating opportunities for international growth by recombining and reusing available resources (Kuivalainen et al. 2021).

Most of these studies (Grant 2016; Alarcón-del-Amo et al. 2018; Kim et al. 2018; Dethine et al. 2020) tend to focus on the factors and motives that prompt businesses to offshore their manufacturing activities and the connection they have with how businesses are structured globally. They fall short in illustrating how digitalization im-

pacts organizations' internationalization capabilities. In this light, this study aims to bridge this gap by exploring the impact of digitalization on manufacturing companies' internationalization capabilities. Therefore, this study proposes the following research questions and aims to answer them:

Main research question: How does digitalization impact the internationalization capabilities of manufacturing firms?

Sub research questions:

- 1) What are the internationalization capabilities of manufacturing firms?
- 2) How does digitalization impact these capabilities?

To address these questions , this study develops and evaluates a theoretical framework for the impact of digitalization on manufacturing firms' internationalization capabilities.

Following the introduction, the remainder of the paper is organized as follows. First, the literature is reviewed, followed by the method employed for the research, and after that, the case studies are reviewed. Finally, an analysis is conducted, and conclusions are drawn.

## 2 INTERNATIONALIZATION AND DIGITALIZATION

The chapter reviews previous studies that have been conducted on the internalization of manufacturing firms, organizational capabilities that determine a firm's internationalization proclivity, and the digitalization of manufacturing firms.

### 2.1 Internationalization

The concept of internationalization has over the years attracted much discourse. For centuries, the term has been used in political science circles and government relations (Kuivalainen et al. 2021). Its popularity and application in the business environment have only recently soared as organizations seek ways to globalize their operations. According to Gankema et al. (2019, 188), the discussion involving the term "internationalization" centred around global inclusion, multicultural integration, and comparative activities. Today, new sets of related terms are emerging and being used in conjunction with internationalization, including borderless, cross-border, and transnational participation.

In the contemporary business environment characterized by unprecedented growth and rapidly evolving technological know-how, the term "internationalization" is used for the disappearance of territorial borders that were inherent to business engagement (Neuburt 2018). As the world moves to a "global village" where people can leverage technology to transact businesses with little or no regard to the geographic borders, the territorial limitation is increasingly rendered inconsequential or of little effect (Altaf et al. 2015, 77). However, this definition only manages to re-emphasize the importance of borders, particularly when referring to the regulatory responsibilities that come with cross-border business engagement, such as quality assurance and accreditation (Alarcón-del-Amo et al. 2018). This creates a need to redefine the concept of "internationalization" and provide its understanding in light of modern technological changes and challenges.

A new understanding of the term "internationalization" requires a definition that encompasses its meaning at both national and sectoral levels as well as the dynamic relationship between them (Schwerizer 2010, 341). The challenge in accurately defining the terms is in their application to a wider context, including countries and cultures. Providing a befitting definition involves ensuring that the definition is suitable for a broad range of contexts and countries across the globe while at the same time minimiz-

ing its universal application (Vahlne and Johanson 2017, 145) argue that t. This implies that the provided definition should not specify the rationales, benefits, activities, actors, or subsequent outcomes, since these elements tend to vary across countries and contexts (Vahlne and Johanson 2013, 190). With this in mind, a working definition of "internationalization" is that at the national sector and institutional level, the concept implies the process of assimilating international, intercultural, and global elements into a specific purpose and delivery of business initiatives (Altaf et al. 2015, 78).

Internationalization is defined as a process to imply that is an ongoing activity that requires continuous effort. The term is often used in conjunction with inter-cultural and global dimensions to indicate a sense of association among and between countries, different cultures, and people (Goulard 2020, 58). In a business environment, internationalization refers to the strategic commitment of organizations to expand their operations in foreign markets. It is defined as a process through which firms increase their participation in international operations (Patrucco et al. 2016, 173). This definition springs from the work of the Uppsala School (U model), proposed by Vahlne and Johanson (1977), who argued that the concept refers to building an organizational commitment in the host nation. According to the duo, the gradual acquisition, integration, and utilization of knowledge relating to the host-country context help minimize market uncertainty, leading to increased market commitment. This incremental process allows organizations to learn from their daily experiences, which they acquire as they operate in the country. The experiential knowledge gained contributes to minimizing any uncertainty they may consider in subsequent market expansion in the region.

Internationalization is a fundamental strategy for a company's growth. Its goals include increasing market reach, gaining new clients, achieving economies of scale and scope, improving capabilities and flexibility, reducing risks, accessing new knowledge, capabilities, and technologies, and avoiding fierce domestic competition (Elango 2004, 434). The literature on internationalization frequently takes internationalization into account, from upstream manufacturing to downstream markets (Rask 2014, 156). It is frequently looked at from two different perspectives, one focusing on a firm's market sphere and the other on its production sphere. The process of imaginatively identifying and seizing opportunities that exist outside of a firm's indigenous markets in the quest for competitive advantage is the major emphasis of the market sphere of internationalization (Gankema et al. 2019, 184). Global sourcing and allocation methods are frequently seen in the internationalization of production.

Given the varying perspectives on the concept of internationalization, the study adopts a synthesized approach which conceives it as a process of organizational commitment to global markets outside their countries of origin. This definition conceives the concept of internationalization as the conduct of business organizations to manage operations of its value chain new market with the primary goal of expanding their global impact and increasing the market share (Dethine et al. 2020, 19). Thus, the adoption of this definition will help capture the desired scope of the study as it explores the proclivity of manufacturing organizations to venture into international markets.

In recent international business literature, the concept of internationalization has gained increased popularity. Researchers, including Nussbaumer (2013), Zhang et al. (2016), and Schweizer (2010, 345), consider it to be crossing national boundaries to achieve business growth. The increased involvement in international initiatives is noted as a strategic organizational response to the ever-changing dynamics of the global business environment (Dethine et al. 2020, 19). Regardless of whether institutions are participating directly or indirectly in international activities, the general business environment is rapidly scaling to the global scope (Hudzik 2014). Like any other change, organizations that resist the need to transcend national territorial limitations are facing the risk of losing business in the globalized economy.

The compelling pressure for organizations to internationalize, given the instantaneity of rapid technological advances and communication, has created the need for international and intercultural understanding in modern workspaces. Raymond et al. (2014) observe that international literacy is increasingly becoming a core component in enhancing an organization's cultural, economic, as well as political health. Organizational management must appreciate the inevitable intercultural diversity that is being accelerated by an open world characterized by permeable borders. Internationalization has become a generalized necessity for modern corporate culture, and it's no longer an option for societal elites that have international business interests. Hewardine and Welch (2013, 467) argue that it is increasingly becoming a necessity for organizations of all sizes, particularly manufacturing firms, to transform themselves to operate effectively and efficiently in a world that is characterized by closely-knit and multi-faceted relationships. Unlike in the past, organizational success is defined by both domestic and regional growth. With internationalization, organizations must strive to establish their footprints in global markets and acquire international market share to remain competitive in the world's open economy.

Overall, it is clear that knowledge acquisition and exploitation are core components of organizations' internationalization strategies. Rask (2014, 157) argues that organizational learning is fundamental for realizing a sustainable competitive advantage in the contemporary dynamic and turbulent global markets. The organization's investment in new knowledge is said to form a strong basis for innovation. According to Chiva et al. (2014, 693) within the internationalization literature, innovation, considered both as an individual and collective learning process, plays a crucial role in ensuring that the organization establishes new and better ways to address emerging problems in the host country. Innovation helps firms learn, develop, distribute, and utilize new knowledge. Thus, internationalization has a positive relationship with innovation, as the latter confers market power and facilitates internationalization (Zahra et al. 2002). The next section discusses internationalization performance of manufacturing firms.

## **2.2 Internationalization Performance of Manufacturing Firms**

The rapid rise of globalization has contributed to the significant growth of trade among nations around the globe. A study by Ortiz-Ospina and Beltekian (2018) shows that globalization has materialized into more than 40 times growth in trade between nations. This extraordinary growth in international trade is attributed to the increased internationalization of business entities across the globe. As businesses become globalized beyond their nation's borders, most of the major corporations with economies of scale tend to expand their operations into the international market either proactively or passively (Gankema et al 2019, 187). This process has made internationalization a growing trend in firms' development goals and global economies, especially among manufacturing companies considering the production costs. According to the arguments by Vahlne and Johanson (2017, 145), companies' internationalization is driven by their capabilities to engage in global trade and competitive forces in the markets. Hence, companies that have advanced internationalization abilities tend to gain trust and reputation in foreign markets. As Schmeisser (2013, 395) observes, the transfer of production or supply chains to foreign locations is becoming a major trend in the manufacturing industry and an area of interest among scholars in international business and operations management.

### 2.2.1 The Internationalization Process Theory

The concept of internationalization of manufacturing firms can also be explained by the evolutionary steps of global business growth, which can be traced back to the Uppsala model (Coviello et al. 2017, 1152). The Uppsala model, developed by Johanson and Vahlne from Uppsala University, illustrates the internationalization of firms by taking into account the direction and methods applied by the firms when entering the international market (Vahlne & Johanson 2017, 1088). The Uppsala model, also known as the "internationalization process" theory, focuses on how the features of a firm's involvement in global business influence the pattern and pace of internationalization of firms (Vahlne 2017, 1090; Coviello et al. 2017, 1155). Subsequently, the model regards an organizational gradual acquisition, integration and utilization of foreign market knowledge and expertise as essential in attaining internationalization success (Vahlne and Johanson 2013, 191). In particular, the model helps in understanding the increasing involvement and development of a manufacturing firm in the individual identified country of interest.

While some firms tend to offshore their production activities, some scholars (Barbieri et al. 2020, 131; Goulard 2020, 59) have challenged this argument. The Uppsala Model has provided extensive understanding of the internationalization process, but it has certain significant limitations. For instance, the model fails to provide any consideration to the role organizational management incentive and its implications on decision making (Johanson & Vahlne, 2009). Additionally, it ignores certain market entry models such as franchising which are difficult to categorize in the model's scale (Ruzzier et al, 2006). Furthermore, evidence indicates that companies can pursue various forms of internationalization strategies and that they can also overcome some steps in the process (Burgelman and Rosenbusch 2014, 661-675). However, firms must also consider disruptions in foreign markets caused by macro-economic shifts, contingencies, and the country's trade policies (Vahlne and Johanson 2017, 146). For instance, events such as Brexit in the European Union, the United States "America First" political agenda, China's access to World Trade Organization, and the recent COVID-19 pandemic (Coviello et al. 2017, 1159) have all affected global business conditions. Therefore, firms must evaluate these conditions before shifting their manufacturing activities to foreign markets.

On the other hand, the internationalization of production processes has potential risks and challenges. Potential problems with foreign manufacturing can be traced to the early 1980s when flaws were identified in the offshore strategies that were applied by US firms, such as variations in exchange rates and flexibility losses (Bostock and Geoffrey 2020, 92). Moving to more recent contributions, Podrecca (2021, 347) identifies factors such as intellectual property rights violations in production, quality standards problems, and the habit of underestimating the costs of offshore production activities. These issues pose significant challenges to manufacturing firms operating in foreign markets. Thus, it can be observed that as many companies expand their production in foreign markets, they continuously realize the complexity of their global portfolio, and this often subjects them to these potential risks and inefficiencies (Vahlne & Johanson 2017, 1088). These hidden negative effects can drive the manufacturing costs upwards, which might offset the companies' gains, hence leading to the failure to attain the expected value in international manufacturing. The following section will explain the factors that drive the internationalization of manufacturing firms.

### 2.2.2 Factors Driving Manufacturing Internationalization

Many studies have shed light on the different factors that contribute to manufacturing internationalization, among them being motivations, drivers, and potential outcomes (Blomqvist and Virpi 2019, 137; Coviello et al. 2017, 1154; Vahlne and Johanson 2017, 145). The expansion of the World Trade Organization (WTO) in the 1990s and a greater part of the early 2000s contributed to a greater increase in offshore manufacturing and operations among several companies across the globe, with the primary motivation being the cost advantages that firms obtain when they transfer production to foreign markets. This transfer of production has been prevalent in high-labour industries or in sectors that have experienced high price-based competition (Schmeisser 2013, 396). However, as Patrucco et al. (2016, 174) note, this process further exposes manufacturing companies to unforeseen costs and associated operational risks in the international markets. Therefore, considering various factors in the internationalization of their production services, companies have been forced to reconsider their choices, including rightshoring, to maximize returns in international markets (Vahlne 2017, 1089).

A wide set of international business studies (Gardó et al. 2015; Hewerdine and Welch 2013; Zhang et al. 2016) have majorly focused on the location choices that companies consider in manufacturing internationalization. Most of these studies tend to

highlight the drivers and motivations that instigate companies to offshore their manufacturing activities and the link that they have with the configuration of companies' operations abroad (Lin 2020, 730). While many motivational factors are identified by various studies such as Vahlne and Johanson (2017, 123) and Gankema et al. (2019, 189), Blomqvist and Virpi (2019, 138) argue that the drivers are related to the benefits that accrue to the companies when they shift their production processes abroad, and these can be traced back to two major categories: transaction cost economics and resource-based views. Some of these location-based benefits include manufacturing cost reductions, higher levels of innovation in the foreign market, organizational flexibility, and easy access to global knowledge and skills (Patrucco et al. 2016, 177). Therefore, it is critical for manufacturing firms operating in international markets to have a global sourcing strategy that would enable them to capitalize on innovation and cost-savings to enhance their performance in the global market space. The next section discusses the relationship between internationalization and business performance.

### 2.2.3 Internationalization and Business Performance

Internationalization and the associated efficiency of corporations have been a concept of great concern around the world in the international business scene for several decades. Extending production and operations to global markets presents companies with significant opportunities and challenges that are critical to their growth while also giving them opportunities to acquire knowledge from foreign markets (Abdi and Preet 2018, 844). Even though various empirical studies (Podrecca 2021, 349; Abdi and Preet 2018, 842; Vahlne and Johanson 2017, 148) have explored the association between internationalization and organizational performance, there is insufficient information on the role that digitalization plays on a firm's internationalization capabilities.

Internationalization is argued to be a complex process that has several impacts on the performance of firms operating in these foreign markets, and several conclusions have been drawn on this relationship (Altaf and Farooq 2015, 77). Expanding production into international markets can enable companies to accrue significant benefits from operating in a global business environment, such as improved competitiveness by gaining practical experience, thereby enhancing the firm's performance (Blomqvist et al. 2019, 144). Moreover, it can be argued that adopting an internationalization strategy for manufacturing firms can be an essential tool that helps them explore various opportuni-

ties in the global markets that help improve their financial performance (Abdi et al. 2018, 844).

Various theoretical and empirical studies have confirmed a positive relationship between internationalization and business performance. For instance, in a study by Zhou (2018, 22) the findings affirmed a positive association with firms' performance. In addition, different theoretical models such as the internalization advantage (Banalieva and Dhanaraj 2019, 1374), the monopolistic advantage (Kano and Verbeke 2019, 118), and transaction costs (Rao 2002, 89) theories further explain that the international expansion of corporations in foreign markets to explore production opportunities results in a positive association with the firm's performance. Based on the views of these models, it is argued that operating in international markets enables firms to gain global experience that provides opportunities to exploit local strategic assets and enables them to access cheaper and more affordable foreign production resources compared to the domestic markets. However, studies such as Altaf and Farooq (2015, 79) have also affirmed an inverse association with firm performance. Since these companies are entering into foreign markets, they are prone to incurring liability associated with foreignness, such as costs involved in establishing their legitimacy in the foreign markets and the prices incurred in acquiring foreign market knowledge and skills.

Moreover, the success of these firms is dependent on their understanding of the market's cultural features to make product innovations suitable for foreign markets (Podrecca (2021, 350; Abdi and Preet 2018, 847). According to the findings by Brida et al. (2016, 75), there is an inverted U-shaped association between internationalization and firm performance whereby the geographical expansion of firms into foreign markets can significantly enhance their performance up to a "threshold," but as they incur costs of foreign markets and complexities of the legal processes, the companies' returns start to deteriorate. Therefore, before they effectively penetrate the international markets, the firms may experience non-linear associations owing to the burden of entry costs. The next section will focus on the internationalization capabilities of manufacturing firms.

## **2.3 Internationalization Capabilities of Manufacturing Firms**

### **2.3.1 Managerial Capabilities**

As companies strive to reach their global consumers, an important issue underlies the organizational strategic capabilities to enable their internationalization investments. The

internationalization capability of these firms determines their export performance. Many studies (Deng 2018, 412; Casillas and Acedo 2013, 16) have studied the internationalization capabilities of firms and how they influence their performance in foreign markets. The common institutional capabilities that enable companies to venture into international markets include management attitude and profile; network; available knowledge and experience; competitive advantage; and resources.

The role of business and institutional international networks in the rapid internationalization of Spanish manufacturing firms has been examined. It is suggested that organizations that have adopted an accelerated internationalization process often demonstrate greater international orientation and greater integration in the foreign market. The organizational management team has an indispensable role to play in the internationalization process. According to the researcher, companies that are managed by international managers with vast international experience, superior academic degrees, and knowledge of languages tend to have an accelerated internationalization process. (Belso-Martínez 2006, 208)

It has been revealed that managerial capabilities such as entrepreneurial orientation, strategic orientation, and networking capabilities positively influence the internationalization of firms. The argument is that entrepreneurial orientation is essential in identifying and exploiting opportunities in foreign markets, while strategic orientation enables firms to align their resources and capabilities with the demands of foreign markets. Networking capabilities also facilitate the acquisition of knowledge and resources necessary for internationalization. (Zahra et al. 2000)

Similarly, the role of managerial capabilities in the internationalization of Chinese firms has been investigated as well. The result indicates that managerial capabilities such as market knowledge, strategic flexibility, and risk-taking propensity significantly influenced the internationalization of firms. Firms with strong market knowledge are better able to understand the demands of foreign markets, while strategic flexibility enables firms to adapt to changes in foreign markets. Risk-taking propensity also enables firms to take calculated risks in foreign markets, leading to successful internationalization. (Lu and Beamish 2001)

The impact of managerial capabilities on the internationalization of firms from emerging economies has been examined. It is found that managerial capabilities such as strategic planning, resource allocation, and market orientation positively influence the internationalization of firms. It is argued that strategic planning enables firms to develop

a clear vision and strategy for internationalization, while resource allocation enables firms to allocate resources effectively to support internationalization. Market orientation also enables firms to understand the needs and preferences of foreign customers, leading to successful internationalization. (Hitt et al. 2002)

Furthermore, the role of managerial capabilities in the internationalization of small and medium-sized enterprises (SMEs) has also been analysed. It was found that managerial capabilities such as international experience, innovation, and learning orientation significantly influenced the internationalization of SMEs. International experience enables SMEs to understand the challenges of internationalization, while innovation enables SMEs to develop products and services that meet the demands of foreign markets. Learning orientation also enables SMEs to continuously learn and adapt to changes in foreign markets, leading to successful internationalization. (Cuervo-Cazurra and Genc 2008)

Most of these organizations are involved in international production and activities mainly because their managers regard foreign markets as key targets in their business strategy. Unlike in the past when internationalization required companies to acquire people with specific experience, the training levels and expert knowledge of other cultures in the present environment make it less challenging for organizations to get a pool of highly qualified personnel to start on international activity. (Jankowska 2011, 51) This international orientation results in a proactive attitude in organizational managers, which is an essential and dynamic element that helps minimize some of the traditional barriers to internationalization (Pinho and Prange 2016, 395). Greater education, which characterizes the modern industrial environment, has led to greater international openness and experience. Organizational initiatives also plays an important role in the internationalization capabilities of manufacturing firms, it will be discussed in the next section.

### 2.3.2 Organizational Initiatives

Organizational initiatives in internationalization can take different forms, including the development of international strategies, the establishment of dedicated international business units, and the use of international partnerships and alliances. The development of international strategies is a key organizational initiative that has been found to be positively related to the internationalization process of firms. (Liu et al 2010, 265-277) Firms that had a clearly defined international strategy were more successful in achieving

their internationalization goals compared to firms that did not have such a strategy (Gaur et al. 2011). Similarly, in a study of Portuguese firms, Ferreira et al. (2018) found that firms that developed international strategies were more likely to engage in international activities and had higher levels of export performance.

Institutional collaboration is increasingly becoming a common practice among manufacturing companies. The collaborations can range from informal relationships that companies have with each other to more formalized structures such as joint ventures or mergers (Srivastava and Tyll 2020, 27). Various terminologies are used to describe these collaborations, including networks, clusters, virtual corporations, and production nets. Manufacturing firms use these collaborations or networks to gain access to international resources, learn new skills, improve their strategic position in the global market, and gain legitimacy in foreign markets. As a result, studies on new international ventures and internationalization processes review the role that these networks play in enhancing the firm's internationalization capabilities (Musteen et al. 2010, 199; Jie 2021, 11). Organizations with higher levels of networking with international suppliers, clients, competitors, and other companies often have an accelerated internationalization process (Zhang et al. 2016, 526). The companies' business relationships form a crucial part of the international context in which they operate. The firm's international capacity and subsequent success are dependent on the relationships it has with the actors of the business networks, including customers, suppliers, distributors, competitors, and the local government (Cavusgil and Knight 2015, 12; Velez-Ocampo and Gonzalez-Perez, 2021).

Xia et al. (2003, 444) examined the impact of Singaporean firms' competitiveness on their internationalization performance. The study revealed a positive relationship between organizational competitive advantage and internationalization initiatives. Competitive advantages such as technological resources, top managerial competence and capabilities, employees' professional knowledge and skills, and the organization's internal and external skills are critical in influencing the firm's export decisions. The underlying assumption is that a firm's resources and capabilities determine its internationalization strategy and pattern (Kenny and Fahy 2011). This implies that companies that own and control superior resources and capabilities across national territorial boundaries are strategically positioned to explore foreign markets. These multinational firms attain a high level of superiority in their specific industries by evading existing natural and structural market imperfections that exist across various markets (Liu et al. 2021, 36). They organize their knowledge and resources in a way that is far superior and

unique in its competitive advantage. This product's uniqueness and superior knowledge determine the organizational readiness and capacity to export to international markets (Zou and Ghauri 2010, Constanza et al. 2017). The next section will discuss about organizational culture.

### 2.3.3 Organizational Culture

Organizational culture plays a crucial role in the internationalization of firms. The development of an appropriate organizational culture that aligns with the strategic objectives of the firm is necessary for the success of the internationalization process (Barakat & Wu, 2019). Studies have shown that the development of a culture of innovation, risk-taking, and adaptability is essential for firms seeking to expand into foreign markets (Li et al., 2016).

An organizational culture of being proactive, risk-taking, and innovative is often seen in firms with successful internationalization (Dimitratos and Emmanuella 2003, 203). In an internationalization context, risk-taking refers to the probability of a firm undertaking risky ventures in foreign markets. Organizational innovativeness implies a firm's capability to generate new ideas, products, and services for foreign markets and its determination to develop creative solutions to meet challenges (Bai et al. 2016, 661; Kahiya 2020, 111). Proactiveness reflects a firm's probability to take initiatives, anticipate and pursue new opportunities, and participate in foreign markets and its active involvement in pursuing market opportunities.

The role of organizational culture in influencing the internationalization of new ventures has also been examined. According to Kumar et al. (2018, 27), organizational cultures such as continuous learning, creativity, innovation, customer-centric, collaboration, and sharing have a positive significant implication on the organization's internationalization proclivity. A culture of collaboration and resource sharing, for instance, would help combat the resource limitation challenges. It also augments opportunity discovery in the international market (Westerlund 2020; Schweizer 2010, 349).

Adaptability is also critical in the internationalization process. Firms that are able to adapt to the changing demands of foreign markets are more likely to succeed. Organizational culture plays a crucial role in promoting adaptability. Firms that have a culture of continuous learning, flexibility, and openness to change are better able to respond to the challenges and opportunities presented by foreign markets (Molina et al., 2016). This points to the fundamental role that organizational culture plays as a compa-

ny's valued capability in determining internationalization and subsequent success in the international market. Technological capability is also a key role of internationalization capabilities, it will be discussed in the next section.

#### 2.3.4 Technological Capability

Technological capability refers to the ability of firms to develop, acquire, and leverage technological knowledge and resources. This capability includes a range of activities, such as R&D, technology transfer, and the use of advanced manufacturing processes. In the context of internationalization, technological capability is a critical driver of competitive advantage, as it enables firms to adapt to the unique challenges and opportunities presented by foreign markets. (Wang et al. 2006, 27-52)

According to a systematic literature review (Guerra et al. 2016, 51) exploring the contribution of technological capability to company internationalization, the ever-changing business environment creates the need for organizations to respond quickly to the swiftly changing market demands if they are to survive in settings of intense competition. Technological competency can support firm internationalization as it permits the creation of strategic relationships, investment in R&D, resource sharing, knowledge transfer, and economies of scale.

Business around the world is undergoing significant and multiple transformation. Today, organizations are forced to operate within broader and highly sophisticated economic systems. This has created the need for these entities to understand more concretely the various elements of dynamic interactions that are at play to ensure their continued efficiency and success (Bai et al. 2016, 667). The advent of digital technologies has created a novel social paradigm that is transforming not only the organizational management and operation levels but also the manufacturing status. Digitalization radically changes organizational systems and processes and manages the available resources, including the workforce. The accelerated convergence of emerging technologies such as big data and artificial intelligence is transforming how organizations conduct business and relate with each other on the international scene. Digitalization is increasingly taking center stage in the growth and expansion of companies to global markets. After exploring on the internationalization capabilities, next section will seek what digitalization of manufacturing firms have been explored in previous studies.

## 2.4 Digitalization

Digitalization is one of the most important factors shaping the evolution of the business world. Stolterman and Fors (2004, 688) define the concept as the transformations brought about by the integration of digital technology into every facet of human society. In an organizational setup, digitalization is the adoption of emerging technologies in the company's inbound and outgoing activities. As a result, the organization implements fundamental adjustments in the way it conducts its businesses and extracts value (Joakim 2020, 21). Thus, in this study, the concept of digitalization will be defined as the increased generation, analysis, and use of data for the purposes of improving internal firm efficiency and expanding the business to enhance consumer value by switching from analogue to digital formats (Zhou 2018, 74). The concept implies leveraging emerging digital technologies and digitized data to enhance business performance and efficiency while minimizing operational costs.

Organizations adopt digitalization in three phases. The first phase entails the automation of repetitive tasks through the use of innovative information and communication technology (ICT) systems. The second phase uses emerging technologies to fundamentally alter and reimagine value enablement and co-creation through improved internal and external interaction among all stakeholders (Legner et al. 2017, 303). This help in capturing value and enhancing its delivery. The third phase of digitalization is currently underway, and it places a strong emphasis on the Internet of Things, big data, robotic systems, additive manufacturing, and the immense power embodied in computer processing and storage capabilities (Zhou 2018, 76).

### 2.4.1 The Digitalization of Manufacturing Firms

The manufacturing industry has undergone significant transformation over the last three decades, with the industry moving from designing production lines to integrating computer simulations into manufacturing processes (Velez-Ocampo and Gonzalez-Perez, 2021, 54). Digitalization in manufacturing was not well developed before the 1980s when Japan gained significant market share in the automobile industry by applying robots in their production processes (Luz Martín-Peña, Sánchez-López and Díaz-Garrido 2018, 94). This approach instigated the American automobile industry to also integrate robots into their manufacturing, but since they lacked sufficient planning software and a

trained workforce, their robots failed to efficiently enhance manufacturing (Zangiacomi et al. 2020, 148).

Over the years, with advancements in technology, the digitalization of manufacturing firms has improved, leading to the creation of CAD design of production processes and 3D production environments (Khosravani and Reinicke 2020, 100689). As argued by Björkdahl (2020, 23), digitalization in manufacturing involves the integration of digital technologies into production processes and products to enhance manufacturing efficiency and the quality of their outputs. Therefore, based on this line of thought, it can be deduced that manufacturing digitalization focuses on improving the operational efficiency of firms in the industry and minimizing production expenses, and this results in higher product quality, a safer working environment, and limited work-related stress. The next section will discuss about the features of digitalization in manufacturing firms.

#### 2.4.2 Features of digitalization in Manufacturing Firms

Manufacturing companies often face a plethora of challenges in their activities. Some of the major challenges that these companies face include constantly rising operational costs; inefficiencies in their production processes; and relatively shortened product release cycles (Lerch and Gotsch 2015, 46). To overcome these many challenges, manufacturers around the world are turning to digitalization, whereby integrating technologies into their operations, they alter their business models and offer new value-addition opportunities (Chen 2020, 10298).

The concept of digitalization of manufacturing firms has advanced over the years on several fronts and is being stimulated by different motivating factors. Some of the factors are the desire and need to enhance organizational productivity and overall performance; improve decision-making processes; minimise operational risks; and the need to help firms comply with prevailing and future industry regulations (Buer et al. 2020, 631). To achieve these organizational objectives, digitalization has led to the innovation of technologies such as the Cloud, Advanced Analytics, and the Internet of Things (IoT) that significantly impact modern manufacturing companies. Digitalization technologies form part of the digital transformation journey of the manufacturing industry around the world, famously known as "Industry 4.0." These three technologies have been the tipping point of the digitization of manufacturing companies, and they have enabled most companies to overcome the pressure for operational efficiency (Tolkachev et al. 2020, 47).

The concept of Industry 4.0 is altering the production automation processes of companies. This novel idea seeks to incorporate data and automation technologies, establishing an intelligent network of goods and services famously referred to as the "internet of things (IoT)." The primary feature of these concepts is the high interconnectivity between all hierarchical levels of the automation pyramid, as argued by the ISA-95 model (Buer et al. 2020, 636; Lerch and Gotsch 2015, 52). The ISA-95 model, as provided by Mendes et al. (2020, 101), does not define how a company should develop its digitalization process, but rather highlights the terminologies and the functional requirements that should be applied to help in guaranteeing a transparent and flexible production interface between the different levels of manufacturing management (Tolkachev et al. 2020, 48; Xu (2012, 75). As technology advances in the modern era, giving rise to new device updates and manufacturing ideas, there is a significant increase in technical updates and the development of more novel ideas to standardize the new era of manufacturing digitalization.

The cloud is another technology that has had a significant impact on the digitalization of manufacturing firms. This form of computing has been introduced in manufacturing digitalization since it has a virtual infrastructure that creates an opportunity for firms to use various software systems in operations, digital platforms, and associated services without the need for a physical server (Ooi et al. 2018, 382). As argued by Xu (2012, 77), most manufacturing firms have integrated cloud computing into their business models to help solve operational problems such as expenses associated with software updates, access to data, having limited storage for company data; and avoiding challenges of backup recovery.

Cloud technologies, together with IoT working in collaborative environments, are major technological trends that are shaping the production and operational dynamics of manufacturing companies (Lerch and Gotsch 2015, 56). In cloud computing, data is kept on virtual servers. It offers the benefit of allowing remote data access at any time and from any location in the world. Another benefit is that it eliminates the need to install big programs on actual hard drives (Wang et al. 2015, 5). As Rymaszewska et al. (2017, 96) claim, data can be stored and processed on the cloud, including the distribution of papers and the creation of 3D models. Due to the significant rise in data flow in cloud computing, complex algorithms must be developed to organize and intelligently transform this information (Rymaszewska et al. 2017, 96). As observed by Geor-

gakopoulos et al. 2016, (69), big data analysis is the definition of data saved in cloud computing.

A manufacturing-specific variant of cloud computing, cloud manufacturing was inspired by cloud computing and was made possible by gathering distributed manufacturing resources, extracting them, and virtualizing them as services (Ooi et al. 2018, 387). The main technical foundation for CM is provided by cloud computing, which also makes it possible to implement cutting-edge manufacturing concepts like networked and virtual manufacturing (Fisher et al. 2018, 61). Force, temperature, and other manufacturing-related data are uploaded to the cloud via the Internet, where they are stored, analyzed, and used as the foundation for data and information exchange.

The original processes used in the manufacturing life cycle, including product design, production, condition, process monitoring, maintenance decision-making, and inventory management, are leveraged by such sharing via networked manufacturing resources (Hsiao et al. 2021,143). By comparing the outcomes of a condition monitoring study to an existing knowledge base using strategies like crowdsourcing, for instance, maintenance decision-making can gain from the shared knowledge and experience. Additionally, manufacturing processes can be separated and virtualized as standalone services that are provided by service brokers rather than the manufacturers themselves (Hsiao et al. 2021, 146; Moghadam et al. 2018, 217). This virtualization is enabled by Internet of Things (IoT) technologies such as MT Connect, high-performance computing, and cloud storage. Following features of digitalization of manufacturing firms, benefits of digitalization will be discussed.

#### 2.4.3 Benefits of Digitalization to Manufacturing Firms

Digitalization of manufacturing firms fundamentally changes their business practices, enhances their capabilities, and, through this, accrues various benefits to the companies. It has the potential to make manufacturing firms' product development more efficient (Moghadam et al. 2018, 217). Digitalization of product development reduces the need for physical artefacts and prototypes. Through various sophisticated and interactive digital design and visualization software, the process of making product design becomes much easier since digitalization provides credible data that can be used in the management of the production process (Fisher et al. 2018, 67). This digitalization of the product development process thus minimizes the steps required in the process, reduces lead time and consequently enhances efficiency in manufacturing. Meanwhile, digital technolo-

gies are also making products more complex (Joakim 2020, 19-20). Manufacturing firms are enabled to conduct complicated testing using models in computer-aided environments with both internal and external interfaces to check product performance and functionality more quickly and efficiently.

Digitalization enables firms to conduct mechanization, standardization, and automation in their work processes to achieve resource usage reduction, thereby increasing productivity (Fulford and Standing 2014, 65). Digitalization can enhance the integration of knowledge by increasing the individual's reach and simplifying the knowledge transfer across the organization. Using digital communication tools allows manufacturing firms to create a platform that facilitates contact between the people seeking new knowledge and those who possess the knowledge (Lerch and Matthias 2015, 47). Digitalization fundamentally changes the working methods in manufacturing firms by increasing information flow and coordination and integrating separate units and individuals (Karlsen and Blindheim 2018, 101).

Virtual interfirm integration via advanced IT has been increasingly adopted as an effective coordination mechanism in supplier-buyer relationships, especially in international business. Digitalization allows manufacturing firms to conduct virtual interfirm integration through technology-based coordination and collaboration channel activities (Kim, Jean and Sinkovics 2018, 498). Manufacturing firms with a greater extent of virtual inter-firm integration with their customers can enhance information processing capabilities and reduce cross-border coordination costs, which ultimately improve the connectivity with their customers.

One important development of digitalization is the creation of online platforms and exchanges involving economic and social transactions that can help firms identify sales opportunities in new foreign markets efficiently (Coviello et al. 2017, 77). As argued by Björkdahl (2020, 32), digitalization changes the processes of manufacturing businesses and makes them much more standardized. It enhances the internal and external communication and coordination of manufacturing firms. Costs of customer relationship management can be lowered because of automated software, facilitated coordination of purchase and delivery logistics because of automated ordering systems; and facilitated governance and control mechanisms through digital online accounting (Bunduchi, 2005, 121).

Future cost savings for the manufacturing company are made possible by technology. By transforming processes and digitizing records, the incorporation of digital

technology leads to overall process optimization. A decrease in labour expenses can be anticipated because of cutting out wasteful spending. Digitization also makes it possible for companies to analyze and anticipate costs much more precisely, ensuring that budgets stay on track (Lerch and Matthias 2015, 49). Additionally, it replaces and eliminates ineffective tasks from processes, greatly enhancing their effectiveness. Time savings from this efficiency translate into a significantly more cost-effective production process.

The digital transformation of manufacturing enables businesses to oversee manufacturing remotely, enabling uninterrupted output. Digitalized firms haven't always had to stop or even slow down production, such as with COVID-19 (Vahlne and Johanson 2017, 147). These systems have considerably longer uninterrupted working times than any employee. Mendes 2020, (101), further emphasizes that device connectivity in smart products enables connections and communication between them (M2M). Decision-making can be decentralized thanks to this interconnectedness. Many tasks no longer call for an employee to be there physically (Mendes 2020, 101). Therefore, it is argued that new production and manufacturing techniques reduce tedious, dangerous tasks while boosting precision, effectiveness, and responsiveness.

Making smarter judgments based on current data is a key component of digital business transformation. Because of the decreased frequency and automation, training, adjustments, and repairs are no longer problems (Lalic 2020, 265). With the help of new digital technologies, previously unprofitable goods and services may now be produced, opening new revenue opportunities (Legner 2017, 306). Additionally, new services (innovation or reorientation) are introduced much more quickly. Using big data and AI can be used by businesses to experiment, identify trends, and make future advancement predictions (Liu et al. 2022, 102458). These technologies can aid businesses in producing items that are less harmful to the environment and more environmentally friendly.

## **2.5 Synthesis**

The internationalization capability of manufacturing firms is crucial in determining their internationalization performance. The ability of a company to reach its global consumers depends on its organizational strategic capabilities to enable its internationalization investments. Studies show that companies with superior managerial capabilities, including an international management team, market knowledge, strategic flexibility, risk-taking propensity, and a learning orientation, are more likely to achieve successful internationalization (Belso-Martínez 2006, 208; Zahra et al. 2000; Lu and Beamish 2001;

Hitt et al. 2002; Li et al, 2016). Organizational initiatives, such as the development of international strategies and institutional collaborations, also positively influence the internationalization process of firms (Srivastava and Tyll 2020, 27; Zhang et al. 2016, 526; Xia et al. 2003, 444). Manufacturing companies use these collaborations to gain access to international resources, learn new skills, improve their strategic position in the global market, and gain legitimacy in foreign markets (Cavusgil and Knight 2015, 12; Velez - Ocampo and Gonzalez - Perez, 2021).

The digitalization of manufacturing companies brings about fundamental changes in their business practices, leading to various benefits. Digitalization makes product development more efficient by reducing the need for physical prototypes and minimizing the steps required in the process (Moghadam et al. 2018, 217). It also enables firms to conduct mechanization, standardization, and automation in their work processes, enhancing productivity and knowledge integration (Fulford and Standing 2014, 65; Lerch and Matthias 2015, 47). Digitalization also enables virtual inter-firm integration, reducing cross-border coordination costs, and improving connectivity with customers (Kim, Jean and Sinkovics 2018, 498). It leads to cost savings through overall process optimization, more precise cost analysis, and the elimination of ineffective tasks (Bunduchi, 2005, 121). Digital transformation also enables businesses to oversee manufacturing remotely, boosting precision, effectiveness, and responsiveness. With the help of new digital technologies, previously unprofitable goods and services may now be produced, opening new sales opportunities in foreign markets efficiently (Coviello et al. 2017, 77). Finally, businesses can use big data and AI to experiment, identify trends, and make future advancement predictions for international market (Lerch and Matthias 2015, 49).

Taking these findings together, digitalisation has great potential to enhance the internationalisation capabilities of manufacturing firms. However, whether digitalization brings only positive impacts to internationalization capabilities is still unclear. Further exploration is needed to better understand the impact of digitalisation on the internationalisation capabilities of manufacturing firms.

### 3 RESEARCH METHODS

The methodology highlights the approaches that were adopted by the researcher in answering the research questions of this thesis. The research methods that were used in the project are presented, along with the strategies that were applied in executing them and the rationale for choosing methods. The chapter captures the research approach, the preferred research design, data collection approaches, and data analysis and lastly, it concludes by evaluating the overall study.

#### 3.1 Research Approach

Research approaches are the procedures that are selected by the researcher for collecting, analyzing, and interpreting data to answer a research question. Considering the nature and objective of the present project, the most preferred research approach is qualitative, following an interpretive research paradigm. As argued by Aspers and Corte (2019, 144), qualitative research entails the collection, analysis, and interpretation of comprehensive narrative information or visual data materials to gain critical insights into a particular research question that is of interest to the researcher (Hammarberg et al. 2016, 499). In most cases, this research approach is considered an attempt to study subjects or items in their natural environment as they exist. In concluding a specific phenomenon, qualitative research employs the concepts of inductive reasoning.

Based on the chosen research approach, this thesis employed an interpretive research paradigm. The interpretive research paradigm is often associated with qualitative research. According to the arguments posited by Rehman and Alharthi (2016, 53), the interpretive research paradigm works on the assumption that social reality cannot be understood objectively but through shared human experiences and social contexts. Because interpretive researchers believe that social reality is embedded in and cannot be abstracted from social settings, they tend to interpret their findings of reality by making sense of the phenomenon rather than by testing hypotheses (Davies and Fisher 2018, 22; Antwi and Hamza 2015, 219). Dammak (2015, 2) notes that the choice of a research paradigm reflects the views of a researcher about the surrounding environment in which they wish to remain and is often comprised of principles and conceptions that tend to shape their research process. These principles also explain the behavior of the researchers and how they interpret their findings within this arena (Alharahsheh and Pius 2020,

40). In this thesis, a research paradigm emphasizes the fundamental principles and ideas that influence a researcher's perspective, conduct, and decisions throughout the study.

An interpretive paradigm works on the premise that the concepts of truth and knowledge are subjective, taking into consideration the variations in individual culture and life experiences. Advocates of the interpretive paradigm believed that social reality, shared consciousness, and language variations are important concepts that allow interpretive researchers to invent facts during the research process (Yanow 2017; Pulla and Carter 2018). In finding solutions to the formulated research questions for this study, the researcher restructured the questions in a manner that helps in understanding how and why a phenomenon occurs (Silverman 2020). In this case, the approach helped in understanding how manufacturing firms apply the concepts of digitalization and why digitalization is critical in their internationalization process. Therefore, in applying interpretive research, the interpretations of this study follow the philosophical arguments of idealism as posited by Thanh and Thanh (2015), and this position holds that the meaning of social reality exists independently.

Therefore, based on this research approach, interpretive researchers operate as social participants to have a better understanding of the differences between human beings. Interpretations by researchers under this school of thought consider their subjective ideologies and beliefs since interpretive researchers work on the idea that the meanings of social reality and the world can be understood through qualitative exploration (Malterud 2016; O'Donoghue 2018). Therefore, applying this paradigm in the present thesis helps in highlighting the research question being explored, why the phenomenon is interpreted, and how it was interpreted to examine the importance of digitalization in enhancing the capabilities of manufacturing firms during internationalization process.

Using inductive reasoning, interpretive approach was applied to explore how the incorporation of digitalization in manufacturing firms impacts their internationalization capabilities, which helps them explore new market opportunities (Antwi and Hamza 2015, 221.; Kelly, Dowling, and Millar 2018). By reviewing various literature, the researcher in this thesis argued that to interpret the research findings and answer the research questions, it is critical to explore beyond what can be perceived by looking through past empirical data to identify individual subjective opinions, values, and concepts that cannot be explained quantitatively (Alharahsheh and Pius 2020, 41). Therefore, an interpretive paradigm was best suited to this project to explore the complex and

multifaceted social processes that exist in manufacturing firms regarding digitalization and its influence on the firm's internationalization process. It helped explain firm digitalization strategies and relationships for which quantitative research would have been inaccurate in providing evidence.

### **3.2 Research Design**

A research design is argued to be a framework that illustrates the techniques preferred by a researcher in conducting a research process. As a result, the research design can be thought of as a road map that guides the researcher in addressing the research questions. The chosen research design for the study thus helped the researcher identify suitable methods that would help achieve the study objectives. According to Sileyew (2019, 6), the primary goal of a research design in a study is to ensure that the evidence obtained from research findings assists a researcher in answering the research questions as effectively and clearly as possible. Therefore, in this research project, the research design helped in specifying the nature of the data required and the procedures required to accurately explore and analyze the concept of digitalization and its impacts on the internationalization of Chinese manufacturing firms. This thesis applied the qualitative research design, specifically the case study design, to answer the exploratory research question of the project.

Case studies are regarded as one of the most preferred qualitative research designs that are used in examining an individual, a community, or an organization that is of interest to a project. As Schoch (2020, 247) notes, in most cases, researchers apply the concepts of a bounded theory that confines the case study to its space. Thus, a qualitative case study is argued to be a research approach that facilitates the exploration of a given phenomenon of interest within its natural context by examining a variety of data sources, taking into account that the context creates a significant difference. This approach to the research process ensures that a particular issue of investigation is explored through different lenses as opposed to one, thereby allowing for multiple aspects of the research questions to be discovered and well understood (Hancock, Algozzine, and Lim 2021, 26). According to Wright et al. (2016, 97), the selection of a research design to be used in a research project ensures that the study's objectives are effectively answered.

The present thesis chose the interpretive paradigm using inductive reasoning, which enabled the model analysis of the digitalization strategies applied by the chosen Chinese manufacturing firm, a thematic understanding of the importance of incorporat-

ing modern technologies in their manufacturing processes, and the derived lessons on how digitalization contributes to enhancing the company's internationalization capabilities. Based on this framework, the researcher investigated the concepts and theories that underpin digitalization approaches in manufacturing firms, and inductive reasoning was used to contextualize the subjective human experiences of digitalization and the firm's internationalization capabilities. The objectives of the project guided the researcher in evaluating relevant data sources and systematically analyzing the findings.

Case study design involves a detailed investigation of a phenomenon through empirical research that is conducted over a period of time on a particular case. This investigation often comes from a well-defined case that focuses on offering a critical analysis of the context of research and associated processes. A case study approach was preferred in the study since the phenomenon under investigation is not isolated from its context, hence making it feasible to apply interpretive research (Gammelgaard 2017, 911). A case study approach was deemed suitable for the thesis since the research focused on answering the "how" and "why" questions; specifically, it explored the digitalization strategies that manufacturing companies incorporate into their business models and how digitalization impacts their internationalization capabilities. In this context, a qualitative case study was chosen since the case under investigation was the digitalization of manufacturing firms, but the case could not be explored without the context of the manufacturing firms, particularly the experiences in the firms. Based on the nature of the research, it would not have been feasible to get a true picture of the impact of digitalization without taking into account the context of the firms in which it occurred. Therefore, the case study approach helped the researcher to apply logic as one of the possibilities in obtaining validity and also in analyzing patterns between theories related to the problem and the chosen case. The study used the case of Haier considering its size, scope and its digitalization process.

Haier was selected for this study base on its background, outcomes, communication, conclusions and its contribution in informing research. With regards to the background, the case should contain sufficient history that can offer adequate information on how manufacturing firms apply the concepts of digitalization in their pursuit for internationalization. Outcomes relates to the ability of the chosen case to clearly address the research problem, specifically whether the information from Haier is sufficient enough to explain how digitalization impact the internationalization capabilities of manufacturing firms (Tetnowski 2015, 40). The case should effectively communicate evidence

relating to the research problem and the case should effectively articulate conclusions drawn from the analysis on how digitalization impact internationalization (Houghton, Casey and Symyth 2017, 37). Finally, the chosen case should be able to offer insights, lessons and best practices that would be valuable in improving internationalization process of manufacturing firms.

Haier is a world leading home appliance producer and distributor headquartered in Qingdao, China. The company was founded in 1984. The company applies disruptive innovation in its production to help in designing and producing of smart appliances, thereby leading in creating smart living. Moreover, Haier applies the win-win model in its management structure which helps in aligning the company goals with the needs of its workers. The innovation approaches applied by Haier have contributed in advancing its internationalization process, increasing its global market share.

### **3.3 Data Collection**

The thesis was primarily depended on secondary data to answer the research questions, and various sources were used to obtain data that helped conclude the study. There are two components that informed the use of secondary data in this study. First, there is very little chance for students to contact Haier Group's top executives, and it is also challenging to set up interviews with some senior executives and staff members. Second, it is difficult to deliver questionnaires to the company employees due to the limit of author's network and resources. The secondary was obtained by conducting an extensive review of literature by conducting an online search on various publications and databases and exploring literature on digitalization, internationalization process, and innovation strategies in manufacturing companies. The review was conducted from multiple digital sources such as the company website, Google Scholar, online publications, and peer-reviewed articles containing information relevant to the investigation.

The key search terms that were used to explore online databases and digital libraries included "digitalization", "internationalization", "manufacturing firms/companies", and "foreign market entry strategies." A literature review was also conducted on the case study firm, focusing on previous studies and case studies exploring similar research questions.

The study used inclusion and exclusion criteria in conducting a systematic literature review. The inclusion criteria included information with particular characteristics that are important to the research problem. The inclusion criteria helped select the most

preferred case company to be used for data collection. Moreover, it was critical to identify information and relevant studies related to digitalization and internationalization processes in manufacturing companies. The inclusion criteria factors that applied were; the companies in the manufacturing industry, firms that use innovative technologies, and they should be operating or having plans to venture into foreign markets. The chosen company should also be operating in the Chinese market. The exclusion criteria are those factors that make a particular target population ineligible for the study; hence such characteristics are considered confounders to the outcome. The primary exclusion criteria were companies that are not in the manufacturing industry and those that do not apply digital technologies and are not operating in foreign markets. Based on this inclusion criteria, the researcher identified possible companies digitally to select the preferred manufacturing company used as the case study in the Chinese market. Therefore, the case company was chosen based on its application of innovative technologies, internationalization process, and ability to provide the best information to help achieve the study objectives.

The researcher further explored and reviewed the literature on digitalization, internationalization, and related theories, which ensured the trustworthiness of the materials consulted in the search (Alam 2020, 17). Since there is a significant amount of information relating to research questions on search engines, the researcher took caution in ensuring the reliability and validity of the data sources. In addition, answering the research questions further required a situational analysis of the company to have a better understanding of the environment in which Haier Group operates both internally and externally.

### **3.4 Data Analysis**

Qualitative data is analyzed using different phases that are used concurrently. The process involves data condensation, display of the findings, and finally concluding the results, which are then verified if they answer the research questions investigated. In the first phase of data condensation, the collected data from the case company and publications were selected and transformed into meaningful materials about the research questions of the study (Lowe et al. 2018, 197). Data display involves the process of data presentation by compressing the information obtained from secondary sources for further analysis. After analysis, conclusions were drawn and verified by the researcher.

In this thesis, the researcher aligned the secondary sources with the literature to ensure the research questions and study objectives were answered. This comparison helped the researcher limit the possible unnecessary data that could have been obtained. The qualitative data was then analyzed using a descriptive qualitative thematic analysis approach. Thematic analysis, according to Castleberry and Nolen (2018, 809), involves the analysis of qualitative data by identifying, describing, interpreting, and reporting data patterns constructed as themes. In the present interpretive paradigm, the descriptive thematic analysis focused on exploring the structural contexts that influenced the individual firm's experiences, thus enabling the researcher to develop knowledge of the digitalization strategies of manufacturing companies and their internationalization capabilities (Vaismoradi et al. 2016, 104). Based on the objectives of the present thesis, thematic analysis was deemed feasible since it helped the researcher identify meanings and develop knowledge of the concepts of the study that are socially constructed through interactions with research subjects. Moreover, this approach to analysis helped the researcher develop a better understanding of the experiences of manufacturing companies that apply innovative technologies as they explore new foreign market opportunities.

Data obtained from the literature search were analyzed descriptively by conducting a review under each of the themes that were developed from the study's objectives and research questions. The researcher applied a logical sequence of evidence during the analysis, a process that made it possible to accurately conclude the data that followed the objectives of the study. Some of the main themes that formed the core of the descriptive analysis were the firm's digitalization strategies, the underlying reasons for the application of innovative technologies, the associated importance of digitalization in the company's business model, and factors contributing to the expansion and opportunities in the international markets (Kim, Sefcik, and Bradway 2017, 33). The data analyzed encompassed notable innovation concepts that manufacturing companies need to be aware of before internationalization or when they want to expand their global presence. This approach to analysis was chosen to help the reader easily understand and follow the research process. The findings from the analysis was cross compared with extant literature and other relevant information to identify possible differences and similarities with other previous studies or companies (Thorne 2016, 56).

### 3.5 Evaluation of Study

The evaluation process of the study involved the judgment of the actions and activities during the research process about the values, criteria, and overall standards. Given the character of the research issue being studied, it can be argued that the selected research methods were appropriate for addressing the research questions and achieving the desired goals. The research questions were adequately addressed, and sufficient knowledge was provided to bridge the research gap. In addition, the identification of the data sources followed the required criteria based on the chosen sampling technique, which ensured that the study subjects contained the features that were of interest to the thesis and were well suited to offer adequate information relating to the research questions. Moreover, the research design also guided the study process by ensuring that the methodologies applied in answering the research questions were justified and relevant rationales for their applicability were provided.

Furthermore, the structure of the thesis, the organization of the literature, and the exploration of the study concepts met the threshold required for academia, and the researcher upheld a high level of integrity throughout the process, thereby guaranteeing the credibility of the findings. The choice of the case study company was also dependent on the objectives of the research, its use of innovative technologies, and its operations in international markets. Based on the approach adopted, the process and findings of the thesis adequately answered the research questions and achieved the desired objectives.

Since only a single case study was used as the basis of analysis in the research, concerns arose over the reliability of the findings and the conclusions that were drawn. The researcher addressed these concerns by focusing the analysis on the uniqueness of the case and research questions being explored and developing a deeper understanding of the complexity of the context of the research (Lemon and Hayes 2020, 608). In addition, the researcher enhanced the internal validity of the case by understanding the digitalization strategies of manufacturing firms and by using multiple data sources, including company reports, credible databases, and relevant peer-reviewed articles. On the other hand, the validity of the research was ascertained by comparing the theoretical implications of the findings with the existing literature, and this improved the reliability of the conclusion (Guenther and Falk 2019, 1018). The overall reliability of the thesis was improved by ensuring that research questions and objectives that have high theoret-

ical relevance to the research questions were used and that the questions covered all the critical contexts of the study.

One of the study's strengths is that the design enabled an intensive exploration of the subject of investigation. The case study helped the researcher explore the concepts of digitalization and internationalization deeply, which provided an in-depth understanding of the research problem by focusing the analysis on a particular company that contained sufficient information to answer the research questions. Moreover, the study's findings provide foundation information that forms the basis of new research to examine the importance of innovative technologies in companies. Since the findings are based on a detailed exploration of a particular case, it provides a better understanding of the research problem, which can be used in conducting new studies to learn better the impacts of digitalization in other industries (Vannest and Ninci 2015, 405). The weakness of the study was that the study was based on a particular company, it can be subject to researcher's subjective interpretation of the data, which may affect the validity and reliability of the findings. Additionally, as a single case study it may miss important contextual factors that can influence the outcome.

## 4 THE DIGITALIZATION AND INTERNATIONALIZATION OF HAIER GROUP

### 4.1 The Case Study - Haier Group

Haier Group is a world-leading home appliance company founded in 1984. The company, headquartered in Qingdao, China, primarily manufactures and distributes household appliances, which include refrigerators, washing machines, air conditioners, microwaves, electrical water heaters, and gas stoves (Haier 2023). The company also owns some of the world's most prestigious brands, including Haier, Casarte, AQUA, Fisher & Paykel, and Fisher & Paykel. Haier operates under three business segments, which are the China smart home business, overseas home appliances, and the smart home business (Haier 2023). The company is recognized as the world's leading company that provides solutions geared toward a better life and that promotes digital transformation (Frynas, Mol, and Mellahi 2018, 75). Over the years, Haier Group has transformed itself through the spirit of innovation and entrepreneurship from a collectively owned factory into one of the world's leading home appliance brands.

Haier is well known for its use of disruptive innovation to develop smart appliances to revolutionize the home appliance industry and be the leader in the industry. The company's ten R&D centers, deployed all around the world, have forged partnerships with the world's first-class suppliers, 71 research institutions, 33 industrial parks, over 133 manufacturing centers, and other sales networks to help create an innovative ecosystem (Haier 2023). It is argued that the company develops a commercial ecosystem that is based on an interactive platform and a virtual delivery platform. Through its innovative initiatives, Haier can thus leverage its synergy of marketing, virtual logistics, and other service networks to create an exceptional user experience by being able to offer delivery and installation services within 24 hours (Jiang, Hu, and Wang 2019, 3108). This business model thus gives the company a competitive advantage and enhances the efficiency of Haier's distribution channel, which attracts both domestic and global brands.

Regarding its management, Haier Group applies the concept of the win-win model. The win-win model, famously known as *rendanheyi*, tends to align the goals of the employees with the needs of the user as a way of injecting vitality and creativity into the company, and this process enables the employees of the firm to create individual

values that align with those of the end-users (Frynas, Mol and Mellahi 2018, 75). Over the years, the company has transformed its management structure from a pyramid form into an inverted pyramid, then further flattened the structure as an approach to becoming a more dynamic network-based firm that is primarily composed of innovative self-management units, famously referred to as Zi Zhu Jing Ying Ti (ZZJYT) (Frynas, Mol, and Mellahi 2018, 79). Under this approach to organizational structure, every node in the network is driven by the users and not the organization's leaders, and this has enabled the company to meet the continuously changing needs of the customers.

As noted by Huang (2022, 113), this innovative model of management is argued to be the solution to numerous management challenges facing companies in this technological age, and due to its efficiency at Haier, it has attracted the attention of famous business schools. Based on the approach to its business model, it is evident that innovation is central to Haier's sustainability and business health, and this has contributed to the significant growth of its revenue, reaching a global value of USD 50.3 billion in 2022 with a corresponding brand value of USD 68.1 billion (Haier 2023). Following the company's mission of creating useful innovation to meet customer needs and putting technology near consumers, Haier focuses on the development of smart home living and industrial internet sectors to customize a personalized smart living experience for all its users. Through technological innovation, the company further contributes to enabling corporate clients to achieve their digital transformation objectives while also promoting high-quality and sustainable development.

## **4.2 Haier's Digitalization Strategies**

The rapid digital transformation has had a significant impact on the manufacturing industry in today's business world. Various technological innovation concepts, such as smart manufacturing, industry 4.0, and industrial internet have led to the digital transformation of several companies (Ghobakhloo and Iranmanesh, 2021, 1539). As argued by Björkdahl (2020, 34), one of the major changes that digital transformation has brought to the manufacturing industry has been the alteration of companies' business models. For Haier Group, digitalization is a key aspect of its business model and such a change in business model is its creation of a smart manufacturing system by making the concept of "interconnected factories" the core of the company's smart manufacturing processes (Lewin, Välikangas, and Chen 2017, 11). The company often partners with users to establish network-based production models that significantly differ from the

original order-based models that are usually company-controlled. This network-based model focused on giving users with limited technical knowledge and suppliers who have no understanding of consumer needs the opportunity to collaborate on the shared design platform offered by Haier (H3C Technologies Co., Ltd. 2019), thereby enabling the company to achieve personalized order production for the users. This allows the company to achieve a highly personalized experience for its customers. As Soluk et al. (2021, 871) note, this model is only feasible owing to the Haier Group's commitment to invest in the emerging technological innovations that power its model. Thus, digitalization plays a significant role in the company's business model. With the rapid advancement of technology, manufacturing companies must adopt business models that focus on consumer demand. With a large manufacturing capacity, such as Haier, the company gains competitive advantage with more customers by incorporating digital transformation into its business models to improve the consumer experience.

Additionally, Haier broke from its traditional corporate structures and embraced the concept of open innovation as a central component of its business strategy. As argued by Ye et al. (2015, 24), it is not feasible to exclusively depend on internal company resources for innovation in a rapidly evolving and highly competitive global market. Based on this argument, Haier has realized the importance of its human workforce in creating value and has invested resources in building and strengthening a culture of entrepreneurship and innovation among its employees.

The management at Haier encourages its workers to be inventors, and those with entrepreneurial motivation are offered guidance to develop new businesses based on the ever-evolving needs of the clients (Ye et al. 2015, 26). To achieve this objective, the company developed various open innovation platforms, such as Haier Electronics and Qingdao Haier (Ruimin, 2018), to give the employees an environment where they could bring new ideas and resources that would help in creating new products. This process contributes to creating a free talent market. Therefore, by developing self-managed micro-enterprises within its organization, Haier has strategically positioned itself as a giant business incubator, making it able to generate a stream of disruptive new technologies, which are then converted into commercial products that meet the dynamic needs of customers.

### **4.3 Factors Driving Application of Innovative Technologies in Manufacturing Firms**

The modern manufacturing industry is characterized by a high level of automation and is technology-driven. Most companies around the globe are applying advanced technology and associated systems that are geared towards altering the face of manufacturing in manners that were not anticipated several decades ago. As noted by Leviäkangas, Paik, and Moon (2017, 36), the digitalization of manufacturing has significantly advanced with the rise in technology that is being referred to as "Industry 4.0," which represents the fourth industrial revolution that is primarily driven by data, cyber systems, and connectivity. In the modern business environment, Haier has significantly embraced innovative technologies in its production processes. Haier has actively over the years evolved its business models to gain competitive advantage in the global market in its efforts to create smart home living (Horváth and Szabó 2019, 122). As manufacturers continue to embrace disruptive technologies such as the Internet of Things (IoT) and cloud computing, the focus has shifted to the data that powers these new technologies and how that data is transformed into valuable information that drives organizational success. Various factors influence organizations' digitalization processes, and they relate to culture, structure, and the characteristics, selection, and integration of digital technologies.

Regarding organizational culture, a company embracing digitization analyzes the behavioral characteristics of its workforce. These manufacturing companies examine the internal leadership dynamics of the company, the mode of communication between the management and the team, and the overall attitude of the employees towards innovation (Kroll, Horvat, and Jäger 2018, 5). On this basis, Haier Group usually examines its level of preparedness for the implementation of innovative technologies before it incorporates any new production ideas into its business model. The company management evaluates whether it has the necessary infrastructure to integrate innovation into its business model. These include the preparedness to implement such technologies as production optimization, automation, and IoT networking since these determine the company's readiness towards digitalization.

Additionally, evidence suggests that organizational structure also influences a company's application of digital technologies. According to arguments posited by Ulas (2019, 664), organizational structure relates to a manufacturing company's behavioral

patterns and management issues and aims at evaluating managerial methods employed in directing operations within its business model. The structure further examines the motivation of the workers towards technology, their autonomy, flexibility, and team skills in the event of a change process, and the collaboration of the members throughout the value chain (Vuksanović Herceg et al. 2020, 4208). Therefore, in its digitalization process, Haier Group management structure have high degree of openness to innovation. The company further has good management of innovation, which contributes significantly in driving their smart manufacturing networks.

Furthermore, when manufacturing firms implement digital technologies into their business models, they take into account the approaches employed in integrating the technologies into their transformation process. Under this process, organizational management ensures that data relating to innovative technologies is traceable from start to finish within the structure. This helps in minimizing waste while enhancing operation productivity and facilitating maintenance (Vogelsang et al. 2018, 127). At Haier, smart manufacturing has been widely implemented in the company's business model by integrating such concepts as Artificial Intelligence (AI), Big Data and cloud computing to support the company's smart manufacturing.

This process employed by Haier has improved the efficiency and competitiveness of the company, thus enhancing the user experience. In addition, Osmundsen, Iden, and Bygstad (2018, 37) argue that manufacturing companies also consider the ease of use of the technology and its perceived usefulness in the decision to implement the technology. In manufacturing firms such as Haier, digitalization increases their competitiveness and improves their productivity; hence, achieving this success requires creative thinking to provide cost-optimized products that meet the prevailing customer demands (Litvinenko 2020, 1532). These companies thus consider and examine the importance of all organizational factors, including production, service processes, quality control, and logistics.

#### **4.4 The Associated Importance of Digitalization in Haier's Business Model**

Digital technologies have the potential of optimizing the available resources to enhance organizational efficiency. Rachinger et al. (2018, 1148) observe that the integration of innovative solutions at different stages in the organization's supply chain helps minimize possible redundancies and waste. As a result, the overall efficiency of the organization is improved, leading to increased performance and productivity.

Digitalization of organizational processes enhances Haier's employees' productivity. Soluk et al. (2021, 876) argue that digital transformation leads to increased employee engagement by empowering them to use innovative solutions to make informed decisions. At Haier Group, the use of innovative technologies inspires a collaborative work environment that enables its employees to share innovative ideas and this has contributed in significant boost business growth over the years. Given the high expectations sought by consumers, the company continuously accelerate its digital transformation to improve productivity through streamlined business operations that address specific customer needs.

Innovative digital solutions provide Haier Group with a competitive edge in the market to reinvent profitable methods and promote efficiency and consistency. According to Linde et al. (2020, 44), the need for a personalized customer experience is rapidly overtaking product and price as key brand differentiators. Unlike in the past, customers today are more demanding and have fluctuating preferences. They expect to get what they want, when they want it, with supreme value and experience. This implies that digitalization is a critical component for Haier to gain a competitive advantage in the modern business environment.

Digitalization entails the use of modern innovative technologies to transform the existing organizational business model to improve revenue as well as value-added prospects. According to Rachinger et al. (2018, 1152), the process comprises adapting the business model to new technologies and embracing their inherent potential of gathering data, and identifying and analyzing the patterns to improve organizational decision-making. This allows companies to transform their business operations and improve overall productivity and revenue.

#### **4.5 Innovation and Internationalization of Haier Group**

A decision by a manufacturing company to expand into international markets is usually complex, with a variety of factors that must be taken into consideration before making the decision. In the period of internationalization of manufacturing firms, the mode of entry that is preferred to penetrate the new global market highly depends on different features based on the prevailing conditions of the destination country, market, or industry (Teruel et al. 2022, 823). Some of the factors that drive Haier to internationalization are shared consumer needs and government factors, especially those relating to international trade regulations. Others are competitive drivers, for instance, the potential of

making significant gains in foreign markets; and finally, cost drivers when the firms perceive the potential of making significant gains through economies of scale (Velinov et al. 2020, 9506). However, the driving factors towards internationalization often vary across companies and industries. Companies need to carry out a careful assessment of the market trends to ensure the business model is feasible in terms of gaining market share and enhancing product branding.

The international market is perceived as a highly volatile environment, and this requires manufacturing firms that are expanding into global markets to alter their business models to ensure that they are innovative. As argued by Rana, Saikia, and Barai (2018, 169), the rapid rise of globalization in the business environment has been one of the significant driving factors for manufacturing firms' innovative business models. Based on this, Haier Group has embraced innovative technologies in its business model to gain a competitive advantage in the global market and adapt to the changes in consumer demands in the context of international markets.

For manufacturing firms like Haier, innovation is critical to ensuring long-term sustainability and international competitiveness. Evidence suggests that companies undergo internationalization to achieve value proposition, value creation, and value capture in the global markets, and this influences the phases of the companies' adaptation process in the markets. According to the arguments by Johansson and Abrahamsson (2014, 37), firms use innovative business models to navigate through their value chains and achieve global success. Therefore, to succeed in internationalization, manufacturing firms must ensure that their business models are competitive by continuously adapting to market changes and taking advantage of the changes in the global environment. Haier's approach to internationalization has been focused on uniquely customizing its production to a specific market and at a particular time. This internationalization strategy is aimed at attaining competitive-oriented foreign market entry, and the company works on the premise that it can only survive in the global market by actively taking part in international competition (Nunes and Steinbruch 2019, 212). Over the years, the company has invested significantly in innovative technologies to enhance the customer experience through its products and become a globally competitive brand.

To cultivate this international brand, quality is central to Haier's production, and it has integrated domestic demand to ensure that the needs of the local market are met before internationalization. Among the company's products that have significantly improved its global competitiveness is the energy-saving fluorine-free refrigerator, which

is believed to have achieved the environmental conditions for sustainability in the international community while also winning the interests of many consumers worldwide (Yan and Guanli 2011). By achieving an energy savings target of 50%, Haier's fluorine-free refrigerators performed well in the domestic market and internationally, thereby improving the company's competitiveness (Goua and Zhou 2021, 97). Through innovation, Haier is focused on making its brand famous and competitive in the international market.

Overall, it is evident that Haier's innovative business model focuses on tailoring its products to the demands of the market. As a result, when a company determines that customers require a specific brand of product, it streamlines its production to meet those needs. Haier thus innovates to react to market forces (Goua and Zhou 2021, 98). Moreover, in its innovation process, the company has significantly reorganized its internal structure, whether in management or marketing, to remain updated with changing market dynamics. Haier manages Strategic Business Units (SBUs) and actively applies B2B and B2C concepts in the fast-paced world of e-commerce, which is highly preferred by modern customer segments. It further implements Business Process Reengineering (BPR) to enhance the efficiency of production, ordering, and delivery (Steiber 2022, 44). These innovative technologies have played important roles in enhancing Haier's internationalization and making the brand more competitive among the world's giants like LG.

## 5 CONCLUSIONS

### 5.1 Theoretical contribution

The thesis attempted to answer the research questions and draw a conclusion by analyzing the digitalization and internationalization capabilities of manufacturing using facts from the Haier Group. Finally, recommendations are provided to the company focusing on its innovative technologies and internationalization strategies, as well as to future research exploring similar research questions. The rise of globalization in the business world has brought about stiff competition in both domestic and international markets while also creating significant opportunities for companies. Therefore, due to globalization, manufacturing firms are increasingly exploiting foreign markets by implementing innovative technologies aimed at gaining a competitive advantage in these markets. Since globalization creates an environment for internationalization and opportunities for mutual co-existence with other companies, multinational corporations like Haier can take advantage of the benefits brought by globalization and enhance their global competitiveness.

Haier Group is one of the Chinese MNCs that have a significant global presence, being one of the leading firms in smart home appliances. Through the implementation of innovative management strategies over the years, Haier has overcome its business challenges and improved the quality of its products and product innovation, thereby enhancing its internationalization success. By analyzing the internationalization process of Haier, evidence in the thesis shows that the company continuously adapts to changes in market dynamics and consumer demands. Through digitalization, evidence indicates that Haier diversifies its products and continuously applies technology to enhance productivity and efficiency, which gives the company the capabilities of internationalization and strategies to expand its market share.

In the pursuit of internationalization, competition is perceived as the primary driving force to venture into foreign markets and compete for market share. To enhance its competitiveness, Haier's innovative business model is often tailored to consumer needs, and through management strategies such as Strategic Business Unit (SBU), the company focuses on being organic, dynamic, and highly innovative. Moreover, the findings indicate that the company is highly innovative in its product designs, which helps the company create a particular market segment. Such innovation has enabled Haier to

build a strong competitive advantage in the global market, making its products one of the leading brands in smart home living. In addition, the company has established various research centers as part of its strategy of transferring innovative technologies from other developed countries and using the knowledge gained to improve their production efficiency.

Based on these research centers, it can be argued that Haier is well-positioned to learn from other developed nations, which gives them the confidence to innovate and the bravery to take risks. These opportunities provided by Haier provide an opportunity for other manufacturing companies to learn and improve their business models in their pursuit of internationalization.

As evidenced by the research and consequent analysis, the case of Haier illustrates the importance of taking advantage of innovation. Considering the success of Haier in the international market, a high level of innovation and a strong market orientation are critical in penetrating highly competitive foreign markets. As noted from the analysis, Haier maximizes the use of its resources and invests in exploring additional opportunities and capabilities that are instrumental in the development of the company's internationalization strategies.

## **5.2 Managerial implications**

Haier Group can be perceived as a successful case of a manufacturing company applying digitalization to the global market. It is important to note that by investigating the concepts of digitalization and internationalization capabilities of manufacturing companies, as well as the facts from Haier, the company should continue to invest in strengthening its brand in the global market. Despite having gained significant market share, the level of competition in home appliances and smart home living is still very high as consumer preferences become highly dynamic with advancements in technology. As a result, Haier should focus more on publicizing its customized brands, as this will make customers recognize and appreciate Haier as their brand. Regarding the company's management and leadership style, it is critical for Haier to explore the opportunities that exist in European, American, and Chinese cultures to have a better understanding of customer needs in their markets to aid in tailoring production. In the Chinese market, the company needs to expand its innovation strategies at the same speed as in international markets, since this is regarded as a competitive advantage over the approaches adopted by other Chinese firms.

Even though Haier has been significantly successful in its internationalization, it is not prone to challenges. With its huge R&D investments, as it explores foreign markets, the company has the potential to experience challenges associated with increased operation costs, quality, and service. Therefore, to overcome these challenges and remain competitive, Haier should enhance the efficiency of its T-Model to promote the classification of its workforce, thereby increasing the company's value of human capital. Haier's internationalization strategy is still a work in progress; hence, the company should continue exploring feasible management and leadership ideas that can be essential in executing its orders in foreign markets to be more successful in the highly competitive market that has been dominated by giants like LG and Samsung.

The study findings can further be instrumental for other company stakeholders and decision-makers. Since the study has identified how Haier Group applies digitalization in its business model and the impact the process has had on its internationalization processes, other stakeholders can apply this knowledge to inform their business strategies to expand their global presence amidst competition. Moreover, this knowledge can also be instrumental for the shareholders in evaluating the ability of the company to adapt to the changing market dynamics and how their business models respond to market conditions and customer needs.

### **5.3 Limitations and future research suggestions**

Some limitations have been identified while developing and writing this thesis. First, the study primarily relied on secondary data, which limited the extent to which the researcher could explore the implications of digitalization and internationalization in manufacturing companies. The researcher relied on already-published documentation and factors on how the case study company applies the concepts of innovative technologies in the internationalization process. However, a more interactive approach like using interviews would have provided more accurate and immediate information on the subjective human experiences of digitalization and the firm's internationalization capabilities. Future studies should therefore consider incorporating primary data to provide a better understanding of the concepts of investigation as experienced by management. In addition, the thesis was based on only one case study company, and this limited the generalization of the findings to other manufacturing companies that might be applying different innovative technologies in their pursuit of internationalization. More compa-

nies should be included in future studies to enhance the accuracy and generalizability of study findings.

Concerning future studies, some aspects of the digitalization and internationalization of manufacturing companies should be explored further. This thesis was limited to the internalization process of the firms and their innovative strategies when operating globally, using Haier as the case study. Future research should be broadened to explore the management styles of these companies and determine how the management approaches employed contribute to global development. The management structure of Haier has been discussed only to a limited extent in this thesis; hence, it does not provide a true picture of its influence in determining the internalization capabilities of manufacturing firms.

## 6 SUMMARY

The aim of this thesis was to investigate the impact of digitalization on the internationalization capabilities of manufacturing firms. To achieve this, the study analyzed the factors that influence manufacturing firms to adopt innovative technologies when entering foreign markets and the internationalization process. The Haier Group was selected as a case study due to its significant success in implementing innovative technologies and internationalizing. By examining Haier's success story, the thesis aimed to understand how manufacturing firms can internationalize by integrating innovative technologies into a multinational corporation with a substantial market share in the global market.

The study used secondary data obtained from various sources such as online databases, company websites, and e-libraries, using keywords such as digitalization, internationalization, manufacturing firms, and foreign market entry strategies. A case study design was adopted, and the purposive sampling technique was used to select the company.

The findings of the study suggest that digitalization plays a critical role in the internationalization of manufacturing firms. The digitalization process is influenced by various factors such as organizational culture, structure, and technology integration. The research also found that digitalization helps manufacturing firms optimize their resources, improve efficiency, and increase employee productivity. Haier's success in internationalizing was largely attributed to the aggressive implementation of innovative technologies through its network-based model, enabling the firm to diversify its brands of smart home living.

The research findings align with the theoretical framework of the thesis, indicating that digitalization is crucial to the successful internationalization of manufacturing firms, enhancing their global competitiveness.

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