Challenges and Opportunities for Chinese
Manufacturing SMEs and Danish
Mechanical Engineering Servicing SMEs
in the Time of COVID-19

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#### **Abstract**

**Purpose:** To investigate the impact of COVID-19 to the internationalizing process of Chinese manufacturing SMEs and Danish mechanical engineering service SMEs and identify the respective challenges and opportunities in two industries coming from the impact of COVID-19, ending with strategic implications for diminish the challenges and augmenting the opportunities in two respective industries in COVID-19

**Design/ Methodology/ approach:** 2 Chinese manufacturing SMEs in Shenzhen and 1 Danish mechanical engineering service SME in Skanderborg are observed and analyzed in a case-by-case manner by utilizing qualitative approach.

**Findings:** The decoding and interpretation to the collected empirical data underlined the common challenges (barriers in transportation of goods, the rising costs and the fluctuating demands from the impact of COVID-19, along with unique opportunities in specific industries arising from the impact of COVID-19, i.e., the strategic shift of production line in terms of printing papers from Southeast Asian countries to China, Danish manufacturing firms have a strong desire to optimize the efficiency of their production machines and purchase the robotics to replace the manual production.

**Practical implications:** The findings contribute to reveal the empirical connotation in mechanical engineering consulting SME internationalization in Danish context in COVID-19, together with the empirical hint in Chinese manufacturing SME internationalization in Chinese context in COVID-19 about mitigating the challenges and increase the opportunities.

Contribution & Value Added: This study observes SME internationalization in regional Chinese context (i.e., Shenzhen) and regional Danish context (i.e., Skanderborg) in the time of COVID-19 that are limitedly researched in existing literatures. Moreover, the comparison between Chinese market and Danish market provides an insight for international players at bi-national level in COVID-19. Besides, three selected internationalization theories are combined, that are the networking theory, the Uppsala model or as known as the stage theory and the perspective of resource-based view and within specifically manufacturing and mechanical engineering service sector.

**Keywords:** SMEs, Manufacturing SMEs, Mechanical engineering service SMEs, Chinese SMEs, Danish SMEs, COVID-19, Challenges, Barriers, Obstacles, Opportunities, Chinese context, Danish context, Shenzhen context, Skanderborg context, Networking theory, Uppsala model, Resource-based view, Strategic approaches.

#### 1. Introduction

In recent decades, there are various investigations on the born global internationalization path (e.g., Rialp, & Knight, 2015). The firms that go this pa is called "International New Venture" (INV), which is described by Oviatt and McDougall (1994) as enterprises born seek to achieve the competitive advantage from employing resources and selling of outputs in diverse nations. In terms of born globals, they are not international from birth in most cases but they start to enter foreign markets in short future after starting up (Knight &Cavusgil, 2005). Thus, in a more appropriate manner, the "born-globals" are the firms that from the beginning of, or close to inception, seek to acquire considerable revenues by selling goods or services in multinational markets (Knight &Cavusgil, 2004). Although expansion in foreign markets raises huge risk, companies succeed to expand into international market could massively add up total opportunity available to a company (Lee et al., 2012; K. London, 2010). SMEs are paid less attention by researchers in terms of internationalization processes while MNCs have been highly studied (Hohenthal, 2001). Compared to multinational corporations, the fierce challenges are faced by SMEs to reach resources, knowledge of foreign markets, cross-national contacts, business opportunity, as well as the organizational feasibility for the development of foreign business (Zaheer, 1995; Zahra, 2005). SMEs have realized the significance of internationalization since it can promote their growth for long-term period, profitability and possibility of surviving (Morgan and Katsikeas, 1997).

In a macro dimension, when it comes to the manufacturing SMEs, the rise of exports can have favorable impacts on economic growth and levels of employment, while in micro perspective exporting helps companies to seek for growth opportunities, diversify business risks and enlarge revenues (Leonidou and Katsikeas, 1996; Ramaseshan and Soutar, 1996). Amidst SMEs exporting as the initial stage in the process of internationalization, is regarded as the most common entry mode into foreign markets with the involvements of reducing business risks, *less commitment of resources*, *higher flexibility than joint ventures or foreign direct investments* (FDI) (Antoldi & Cerrato & Depperu, 2011).

Comparing to the internationalization of manufacturing firms which has been widely practiced on vast researches, there are greatly fewer studies towards establishing and testing internationalizing theories on service companies and in a very late start, that initially appeared in the 1980s (Javalgi and Martin 2007).

In the early stage, the internationalizing theories developed on manufacturing firms were spontaneously applied to service firms (Boddewynet al, 1986). However, the finds have manifested that the patterns of service internationalization are different from those in manufacturing (Lowendahl, 1993).

Additionally, research also suggests that service firms seem to internationalize also in a different way given that there are heterogeneous types in service sector (Andersson, 2006). Thus, it becomes necessary to develop new theories and integrate multiple theoretical perceptions for explaining and predicting the behavior of service firms, especially in the economy that emerges new services (Javalgi and Martin, 2007).

Since the end of 2019, the appearance of COVID-19 pandemic has become a huge global matter. The worldwide spread of coronavirus has changed our life forever. Notably, it is greatly knotty to handle this particular virus as it could cause severe acute respiratory syndrome, while everyone has the risks to be infected with strong transmissibility, as well as difficulty in being identified (WHO,2021). By virtue of the nature of this virus, it has pushed large parts of the governments to adopt some rigorous enforcement actions of controlling infection, e.g., social distancing (Glass el al., 2006), locking down and more, however, a few countries walk the opposite way given that e.g., Sweden adopts let go policy without containing Coronavirus. With these dynamic shifts of environment in economies and politics, the present epidemic has been unsurprisingly regarded as a temporal black swan event (Winston,2020), that is demonstrated as literally three words *unknown*, *extreme and extremely* impossible by Taleb (2010).

Under the devastation of this critical crisis COVID-19, tons of bunches of companies have been facing the fatal challenges have never seen before, significantly SMEs, which accounts for 99% of all businesses in EU (European Commission, 2021). Similarly, like the financial crisis, the ongoing black swan event i.e., COVID-19 also influences negatively in exporting sector. The massive locking down worldwide has shut down most of the markets, so that leads to the substantial drop in demand for not only the manufacturing firms but also service firms, include in transportation, in airline industry, tourism, hospitality, etc.

Ever since the emergence of this very crisis of COVID-19, there are a lot of publications reveal the impacts if COVID-19 in different periods. For example, George Tesar (2021) pointed out that one of the key challenges for firms to survive in COVID-19 comes from the interruption from government actions. Within this epidemic, governments tend to give directives for firms to work from home, give higher priority to production with essential purposes, and sometimes the international transactions are even blocked including the associated logistical assistance. The deployment of emergency directives from governments (such as the close of borders, declaration of national state of emergency, or even the close of entire economy) results in a systematic discontinuities and unexpected phenomenon, which is unprepared by firms nationally and internationally. Another challenge for SMEs identified by George Tesar (2021) would be the weakness in financial ability (e.g., cash reserves, borrowing) that is used to survive in this difficult times. Additionally, human resources also get challenged when key staff resigns, fired, or owing to health issue, on top of that,

foreign workers in all kinds of professions might be limited or denied entry by hosting governments. For manufacturing SMEs, the challenge also results from the nature of COVID-19. The inconsistency and unpredictability make international activities even harder to carried out. Furthermore, the distribution channels are shut down temporarily for a weak demand in consumer product. Besides, the suppliers cannot ship the goods to targets countries due to the shutdown. Many authors (e.g., Egger and Kesina, 2014; Coulibaly et al, 2011)) have argued that exporters with weaker financial ability have been witnessed in bigger drops about sales, revenues and ratios when experiencing a crisis. As manufacturing SMEs are more vulnerable financially than large manufacturing firms, which suggests weak financial ability could also be a big challenges for manufacturing SMEs to survive in the time of COVID-19. On the other hand, some weak business could get financial support from the government as an opportunity, whilst some well-developed peers could only defend by themselves financially (Müller, 2021). The shift towards online learning has enhanced opportunities to knowledge assimilation and transformation, and maximized the value of human capital for companies, whereas inclusive Talent Management generates an opportunity to more efficiently manage talents to reach more resilience in organization. (Latukba, 2021).

Notably, these authors look into the impacts of COVID-19 in different contexts, e.g., Tesar's paper focuses mainly on the impacts of COVID-19 in the United States. The research focus of this thesis will be on the manufacturing SMEs originating from China and the service SMEs, specifically mechanical engineering service SMEs originating from Denmark. Within the period of COVID-19, firms have strong financial supports from government in Denmark, e.g., a crisis-hit firm which has planned to dismiss 30% or over 50 employees, are eligible to receive salary compensation from Danish government in order to retain their employees on the labor market, the government covers 75% of salaries if the employees are paid fixedly in a month or 90% if the employees are paid by the hour while the respective monthly up limits are 23000 DKK and 26000 DKK (pwc Danmark, 2020). However, the financial supports to SMEs in China are not as strong as in Denmark and differs from province and province, and even cities. For example, in ShangDong Province the local government covers 30% of SMEs renting fess for maximum 3 month and maximum half a million yuan (xueqiu, 2020) whereas in the city of Shanghai offers SMEs 5% discount of electricity fees and 15% of internet fees (sina, 2020) and so on small level of financial assistance. According to Marinov and Marinova (2021)'s book, the role of national state has become stronger and stronger which absolutely affects the way of SME internationalization. This study is conducted to gain the insights on how to augment opportunities and deal successfully with challenges for Manufacturing SMEs in China and mechanical engineering service SMEs in Denmark within the crisis of COVID-19: comparison in the context of internationalization, as well as the contrast between the governmental roles of two different economies China and Denmark regarding

helping SME internationalization in COVID-19. For one reason why I have chosen two different national contexts mainly because of accessibility and knowledge to these two specific nations given that I personally stem from China and Denmark is the country where I have studied almost 6 years. For another reason, I eager for studying the distinctions between China and Denmark at national level in order for bridging the potential connectivity between Chinese enterprises and Danish enterprises. When it comes to the selection of two specific industrial sectors (i.e., manufacturing and mechanical engineering service sectors), it also mainly results from the accessibility and knowledge, as well as my own interests.

This thesis has utilized exploratory and descriptive questions to interpret chosen research problem: What are the impacts of COVID-19 on the internationalization process of SMEs?

Considering the context of COVID-19 on the internationalizing level this thesis puts forward three research questions:

- 1. How are the key challenges that COVID-19 sets in the process of internationalization of manufacturing SMEs in China and service industry, specifically mechanical engineering service industry in Denmark respectively?
- 2. Are there any opportunities that are available in manufacturing industry in China, and service industry, specifically mechanical engineering service industry in Denmark respectively?
- 3. How to develop Chinese manufacturing and Danish mechanical engineering servicing SMEs' strategic approaches towards their respective international activities in order to deal with the impact from COVID-19?

In terms of the first research question, this thesis investigates the internationalizing process of Chinese manufacturing SMEs and Danish mechanical engineering servicing SMEs in the context of very crisis of COVID-19, such as the changes in international logistics, costs of materials, political matters, demands etc. and identifies the obstacles and barriers from these changes that affects their internationalizing activities fundamentally, which will help to answer the COVID-19 crucial challenges to internationalization for Chinese manufacturing SMEs and Danish mechanical engineering servicing SMEs to be specific. In addition, there will be contrast and similarities between contextual specificities namely Chinese market context and Danish market context, such as the differences in overall market situations, the changes of governmental policies to SMEs within the ongoing development of COVID-19 etc.

When it comes to the second research question, this thesis attempts to explore the unique and potential opportunities in specific Chinese manufacturing industries and Danish mechanical engineering servicing industries that emerges because of COVID-19, which will help to answer the COVID-19 special

opportunities to internationalization for Chinese manufacturing SMEs and Danish mechanical engineering servicing SMEs to be specific. Also, there will be contextual comparisons, showing the differences and similarities in bi-national level, i.e., Chinese market context and Danish market context in relation to the emerging opportunities to SMEs within the ongoing development of COVID-19.

As far as the third research question, based on the fact that the first and second research questions have provided the insight of specific key challenges and unique opportunities in three case companies' internationalizing process, that comes from COVID-19 within the specific Chinese manufacturing industries and Danish mechanical engineering servicing industries, there will be respective implications of strategic adjustments with the purpose of eliminating the key challenges and seizing the potential opportunities in the context of COVID-19 for their specific internationalizing activities, which will help to answer how to deal with the impact of COVID-19 in strategic level concerning COVID-19 challenges and opportunities to internationalization of respective business areas as a result. Similarly, as answering the first and second research questions, there will also be distinctions and similarities between strategic implications bi-nationally owing to the differences in contextual specificities as well.

This thesis conducts a qualitative study, specifically case study to investigate three specific small and medium-sized case companies from Denmark and China in the area of manufacturing and service by contrast in terms of how they deal with the challenges and perceive the opportunities caused by the impact of COVID-19 in their process of internationalization. It also involves investigation of the difference between governmental roles of affecting SME internationalization in COVID-19 within bilateral-country level. In addition, the implications will be drawn concerning SME strategic internationalizing adjustments towards the impact of COVID-19 and the roles of national states on firm level. The investigation of these three case companies will be conducted by multiple in-depth English-speaking interviews back and forth. While the theoretical focus will be on three specific elements, i.e., networking, the Uppsala model (or stage theory) and resource-based view of looking into SME internationalization.

This thesis has been organized by six sections i.e., introduction, literature review and conceptual framework, methodology, data analysis, findings and conclusion. The first introduction part illustrates the brief description of the research interest of topic, research problem, research target group, corresponding research questions and methodology. The second research background part would compendiously introduce the background of three chosen theoretical elements to firm internationalization.

In the section of literature reviews and conceptual framework, there will be presentation of definitions and discussions of major terms of research interest, i.e., SMEs, manufacturing SMEs, service SMEs, mechanical

engineering service SMEs, internationalization, Chinese market context, Danish market context, COVID-19 etc., meanwhile the comprehensive literature reviews will be interpreted regarding the three selected theories: the network theory, Uppsala model or as known as stage theory and the resource-based view to the firm internationalization. Furthermore, this part will be formed with conceptual framework by the summarization of this involvement. In terms of the methodology section, the portrayal will be put forward concerning research approach, data collection method, as well as limitations. Further on, the data analysis is going to be demonstrated based upon the empirical data, namely interviews of case companies, Ending with findings and summarized conclusion of the research problem.

### 2. Literature Reviews and Conceptual Framework

The literature reviews of this thesis comprise three main theoretical approaches in terms of the way that companies internationalize their businesses, which are

- (1) The networking theory
- (2) The Uppsala model or as known as stage theory
- (3) The resource-based view

The selection of these three specific theories comes from the fact that I find them most interesting and the limitation in time drives me to decide the number of theories into three. Seeing that RBV helps companies to understand and employ resources for achieving the competitive advantages that are sustainable (Makadok, 2001). Furthermore, the Uppsala model indicates that experiential market knowledge contributes to firm internationalization in an incremental way, in which this process is also sluggish and time consuming. It has been widely applied in manufacturing sector in terms of internationalization. However, unlike the soft services (catering, cleaning, hoteling, tourism etc.), the behaviors of hard services companies (engineering, software and so on) are more like manufacturing companies, which in our case is mechanical engineering service company (Brouthers and Brouthers, 2003). Although Coviello and Martin (1999) represented that the stage theory (or the Uppsala model) is not highly suitable for explaining the behaviors of engineering consulting firms, from the interviews with the founder of case company I have found out that they also at some point need to open up other subsidiaries, workshop for production and assembly, and other premises that are established to better serve its customers or more conveniently serve its customers. Thus, I would argue that in this specific case the stage theory still gives a prospective insight of strategic guidance into several stages, despite of the fact that the stage theory will not imply the specific timing of moving from one stage to another stage. Plus, the third theory namely networking theory would also be combined which refers to intangible resources within RBV. On one hand, the networking theory could accelerate the process of

stage model given that networking helps firms to fast approach to foreign business actors. On the other hand, networking becomes more significant in the era of COVID-19 considering that firms would obtain resilience to survive while networking with firms dealing with the negative impacts of CIVID-19 (such as the firms that develop online communication tools, medical equipment manufacturers, new tech firms that research and develop the products that replace human work etc.)

The first two theories are approaches that are more linked to human behaviors (Coviello and

McAuley, 1999; O'Farrell et al., 1998) whereas the last one is "interdisciplinary in that it was developed within the disciplines of economics, ethics, law, management, marketing, supply chain management and general business" (Hunt, 2013).

## The networking theory:

It is worth noting to get aware of the different definitions of network, e.g., Johanson and Vahlne (2003, p. 92) described the network in a business context as "sets of international business relationships, in which each exchange relation is between business firms conceptualized as collective actors". Taken another explanation by Chetty and Holm (2000), he claimed that the network in the business context is connected by group of at least two companies and form the direct or indirect relationships, these companies are the actors within the network system, including competitors, providers, consumers, distributors and the government (Amal & Filho, 2009).

Networking or cooperative strategies are popularly leveraged to develop firms' export potential (Antoldi & Cerrato & Depperu, 2011). In a concise sense, Johanson and Vahlne (1990) have delineated internationalization as the process of networks development of business relationships in other nations.

In recent academic studies about firm internationalization, a lot of them have emphasized the great importance of looking at it in the perspective of networking, especially for small business and start-ups (Andersson & Wictor, 2003). It is frequently recognized by them (e.g., Blankenburg and Johanson 1992; Cunningham and Culligan 1991; Johanson and Mattsson 1988,1992) that company specific advantages are not the only key factor contributing to developing the foreign markets, but also requires the networking and alliances with other players, such as foreign suppliers, customers, governments, sometimes even competitors and so on, since these social capital and networking competences ((Cavusgil & Knight, 2009; Coviello, 2006) help new entries massively to overcome the liabilities of foreignness and outsidership, as well as the acquirement of the competitive advantages (Freeman, Edwards, & Schroder, 2006). As a consequence, the networking activities benefit the management of the firm from externally accessing the new resources,

experience, knowledge and information (Naudé, Zaefarian, Tavani, Neghabi, & Zaefarian, 2014), including both tangible and intangible resources (Villa & Pla-Barber, 2018). Moreover, the alliances between networks are regarded as strategic resources that would not only affect companies' future capabilities, but also leverage companies' ability to penetrate the foreign markets and reach the considerable economic growth (Welch, Welch, Young, & Wilkinson, 1998; Villa & Pla-Barber, 2018). O' Donnel, Gilmore, Cummins and Carsen (2001) summarized their networking research into two main categories: inter-organizational networks and the personal networks or formal and informal networks. Hence, Lejpras (2009) pointed out that *externalization instead of internalization of international markets and/or functions occur*.

The networks could be developed by exchanging relationships that incorporate the direct relationships of a company, such as individuals, business units, public agencies, and noncommercial organizations (Leipras, 2009), as well as its indirect relationships to actors that this company have direct linkages, for instance, company A cooperate with company B, while company C also have connections with company A, so that makes company B and company C indirectly related. In other words, the networks have no bounds and can be infinite, yet they are not transparent (Blankenburg and Johanson 1992; Johanson and Vahlne 1990, 1992). Through networking, the involvers could take advantage of supplementary abilities and competences that would eventually create synergies in business and facilitate the achievements of mutual benefits noting that their objectives do not have to be identical (Lejpras, 2009). In addition, it is also rather significant to broaden the knowledge regarding the function of networking in promotion of internationalization of small companies (Coviello and Cox, 2006; Loane and Bell, 2006; Oviatt and McDougall, 2005; Sharma and Blomstermo, 2003). Move over, it also requires SMEs to develop the capabilities of networking as f et al. (1999) concluded in their research that a high level of capabilities contributing to a high quality of networking linkages in offering necessary resources and assistance. It is hinted by Gulati (2007), the networking concept enlarge the extent of RBV (namely resource-based view) to the resources that used for connecting external linkages.

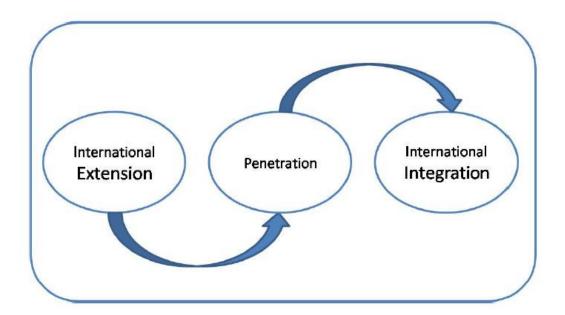
Networking has been considered with impacts in contributing SMEs to eliminate the resource restraints and insulation and facilitate the internationalization speed from the beginning or during early time of start-up (Coviello and Munro, 1995; Madsen and Servais, 1997; Oviatt and McDougall, 1994; Sharma and Blomstermo, 2003). With the networks from business relationships, the inter firms could offer each other with resources and capabilities (Coviello2006; Elango and Pattnaik 2007; Hadley and Wilson 2003). From Jan and Vahlne (2003)'s comment that the utilization of networking models highly contributes to the growth of small enterprises that run activities in international markets. Furthermore, it is widely implemented

particularly by small companies, in order to alleviate the constraints stem from size of smallness or scarcity of experience (Bell 1995; Zou and Stan, 1998). Many studies assess the exporting performance of SMEs by applying network theory, seeing that the relational networks help firms to approach to resources, reinforce the strategic positions, to lower transactional costs, to understand new technologies, and other changes that would appear in the business process (Alvarez and Barney, 2001; Bonaccorsi, 1992; Hitt and

Ireland, 2000; Gulati, 1995). However, networking may also hamper instead of facilitating the business development of a firm, given that if a company embedded exorbitantly within its networking system and hence could be ineffectively extend the network horizons. As a consequence, it may reach a failure of capturing the underlining business opportunities while beyond its close ties (Chetty and Campbell-Hunt, 2003; Gulati et al., 2000; Locke, 1999; Witt, 2004). In order to maintain the long-term relationships with existing networking system to nurture commitment and loyalty with each other, it would be also of necessity to explore new relationships and reactively crease the unproductive relationships when companies set up business in international markets. Tang (2011) also argued that networks are the product (outcomes) of a company's efforts and investments. Yet, due to the fact that networking is resource-demanding, which could have a negative effect as well (O'Donnell, 2004; Dubini and Aldrich, 1991). In order to drive effective networks, it needs large amount of time in connection with necessary resources, plus the proper skills and attitudes (Tang, 2011). In the initial time of SMEs when entering the new markets, they start with lacking sources and huge limitations. Hence, it becomes quite vital to network foreign actors effectively in that market to obtain values for the sake of internationalization (Coviello and Munro, 1995; Johanson and Vahlne, 2003; Mort and Weerawardena, 2006). Notably, when SMEs initially enter the foreign markets, they have difficulty in getting recognition and trust of potential networking allies (Forsgren and Johanson, 1992; Stuart et al., 1999; Zahra, 2005)

Welch and Welch (1996) also stressed the importance of developing networking skills internally in order to capture the business opportunities of expansion in foreign markets and suggested to include the planning and development of network into strategic management process. Furthermore, networking contributes to removing the liabilities of foreignness and newness, as well as the continuous development of networking (Tang, 2011). Also, good reputations referred by networking partners would help companies to earn credibility and trustworthiness of the company to better accepted by potential or new partners (Gulati, 2007; Larson and Starr, 1993; Lechner and Dowling, 2003; Stuart, 1998). In the knowledge creation and learning perspective of seeing networking, the inter-connected organizations could boost the process by cooperating with partners who accumulate high level of experience (Inkpen and Tsang, 2005; Zahra et al., 2003; Zhou et al., 2007).

Mitgwe (2006) specifically highlighted that the modern high-technology companies strongly depend on networking for accessing resources and to reach a rapid internationalization. Moreover, Johanson & Mattsson (1988) depicted that all the companies in a market are involved at least one connection to customers, subcontractors, suppliers and other market actors. Many studies have been researched about the exporting performance of SMEs, These scholars outlined that the networking of inter-connection drives them to control their transaction costs, to reinforce their strategic position, to better reach the information about changes and tendencies in the involved business, to attain resources, to learn new technologies and techniques and such (Alvarez and Barney, 2001; Bonaccorsi, 1992; Hitt and Ireland, 2000; Gulati, 1995).



**Figure 1**. Johanson and Mattsson (1988)'s network approach to internationalization, summarized and produced by Masum & Fernandez (2008)

Referred from the figure above, proposed by Johanson and Mattsson (1988) and visualized by Masum & Fernandez (2008), there will be three steps in the processes of firm internationalization.

#### 1. International extension

For the purpose of internationalization, it is necessary to initially understand the optimum market to enter, along with the contextual information and companies' relationships (Madsen & Servais, 1997). Johanson and Mattsson (1988) debated that the rise of the amount and quality of relationships in the networking would positively result in a good prospect of international extension.

#### 2. Penetration

Within the involvement of networking in foreign markets, the companies obtain the trust, commitment and loyalty, consequently they achieve the penetration of foreign market (Masum & Fernandez, 2008)

#### 3. International integration

After the penetration of foreign market from step 2, the companies reach the international integration through its established networks and linked with numerous companies across nations (Masum & Fernandez, 2008)

When looking at the specific types of companies that involve in the networking process, Johanson and Mattsson (1988, p. 212) summarized companies into four categories, namely *the early starter, the lonely international, the late starter and the international among others*.

The early starter, literally meaning that the companies just enter the chosen market and they are extremely limited in resources, market knowledge and relationships. So, most of the times they tend to network with agents to absorb the knowledge from their experience.

The lonely international means that they are companies firmly internationalized but only focuses on the chosen foreign market, who have already considerable knowledge and experience of that market. In other words, they have strong ability to facilitate the process of internationalization and gain success.

The late starter are the companies have already internationalized its business in that foreign market, they have some indirect relationship within its networks, but they are weaker than its competitors as they have less knowledge and experience to learn from the existing networks.

The international among others meaning the high level of internationalization is covered by both the market and the companies. They have least difficulty in establishing subsidiaries since they have abundant knowledge and experience. They have stronger power to capture the potential business opportunities through networking in that foreign market.

#### The Uppsala model or as known as stage theory:

Another one of most well-known models of business internationalization is called the Uppsala model, which is proposed by Johanson and Vahlne (1977). They describe internationalization as a process of accumulating knowledge and commitment to foreign operations(Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1997). Noticeably, as a main theory of internationalization which is in favor of firms deal with physical products and have commitment of capital assets (Oviatt and McDougall, 1994; Oviatt and McDougall, 2005), yet incompatible to enterprises that offer all purposes of services and intangible products

(Knight & Cavusgil, 2004; Knight & Cavusgil, 2005; Oviatt and McDougall, 1994). Anersson (2004) debates that experiential knowledge (the Uppsala model) is the main factor for companies to diminish uncertainty in expanding the foreign markets.

It is one of most popular approaches for scholars to research the hypothetical development stage of foreign market expansion in the process of internationalization (Lejpras, 2009), which was inaugurated by Johanson and Wiedersheim-Paul (1975) and continuously developed by Johanson and Vahlne (1977, 1990),

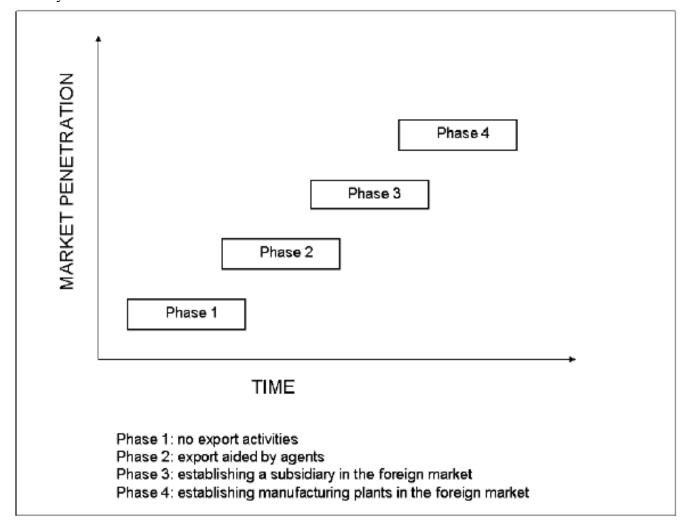
Many authors treated Uppsala model as more dynamic than other international paradigm and it does not concentrate on FDI (i.e., foreign direct investments) but instead, on the process of exporting (e.g., Andersen 1993; Turnbull 1987; Young 1987). The Uppsala model indicates that the internationalization of a company develops in stages by low-risk, indirect exporting methods and it is an accumulative and progressive process given to the fact that company lacks experience, market knowledge, as well as the uncertain exists in foreign contexts (Lejpras, 2009). In which this model recommends companies to internationalize their business starting from the geographically close markets since the neighbor countries are tightly similar from domestic market in most of the cases, where the cultures, market situations, even sometimes languages are in great similarity. Indeed, despite of the fact that the market situations of neighbor nations will certainly have differences, comparing to the countries which are geographically far away, the gaps of which are much smaller. Gradually, firms could manage to expand the extent of internationalization into a more distant market and a more distant market in a positive circle. The general logic of Uppsala model reveals that "market knowledge and market affect both market commitment decisions and the way current decisions are made—and these, in turn, influence market knowledge and commitment" (Johanson and Vahlne 1977, 1990; Johanson and Wiedersheim-Paul 1975). However, reid (1983) reckoned that Uppsala model won't be suitable for all types of firms to apply solid procedures, the concept of which is too fixed and the situation might differ when referring to diverse types of firms regardless of the industry sector (e.g., Bell 1995; Clark and Mallory 1997; Crick, Chaudhry and Batstone 2001; Lautanen, 2000). Apart from, the inflexibility of stage model seems hardly to interpret foreign market specificities, requirements of entry modes, as well as company strategic (re)orientation (For example, combining various modes of foreign market servicing in one country or withdrawing from a foreign market altogether) (Leipras, 2009). In addition, the Uppsala model have been criticized by various studies owing to beneath three main causes (Paunović and Prebežac, 2010):

1. This model was empirically concluded based upon Scandinavian nations, which is widely lacking validation of other markets.

- 2. This model does not suggest and anticipate the right timing to jump from one stage to another, it solely based on management's strategic decision. There might be potential risks when moving to next stage if they turn out to be not ready after all in real life practices.
- 3. This model does not show clear interpretations for the right timing and situation to move to next stage or proving guidance to the internationalization of multiple markets at the same time.

Paunović and Prebežac (2010) explicated the Uppsala model as using the existing knowledge about foreign markets to determine the entry mode and also influence the current business activities. If the company follows the track of Uppsala, it bears the process of internationalization from one stage to next stage step by step while accumulating the knowledge in each period of stage. In which the equipment of specific knowledge is the key factor that directly affects the companies' decision of whether to move to next stage. It means that the companies will not move to next stage of modelling until they have accumulated the required knowledge and commitment, it undoubtedly needs much of time before reaching the saturation point. However, a rising number of scholars have debated that the Uppsala model does not fully explain distinct timing and conditions for firms to move to following stage (e.g., Andersson, Gabrielsson, & Wictor, 2004, p.23; Forsgren, 2002; Kuivalainen, Sundqvist, Saarenketo, & McNaughton, 2012). Nevertheless, in current study, the Uppsala model has been empirically validated to be beneficial for the early period of

2004, p.23; Forsgren, 2002; Kuivalainen, Sundqvist, Saarenketo, & McNaughton, 2012). Nevertheless, in current study, the Uppsala model has been empirically validated to be beneficial for the early period of internationalization despite of the continuous fierce arguments by large number of researchers, it is still one of the most applied and useful theory for companies to proceed their internationalization in international markets (Coviello & McAuley, 1999).



**Figure 2**. Theory of internationalization according to the Uppsala model Source: (Szabo,2002, pp. 9).

When it comes to the entry mode for internationalization of foreign markets, exporting is the best choice in most of the cases as it is the cheapest, fastest and simplest (Leonidou & Katsikeas & Coudoundaris, 2010; Majocchi & Bacchiocchi & Mayrhofer, 2005). Obviously, the Uppsala could give guidance for enterprises to export and further expansion of foreign markets. By referring to the figure above, produced by Szbo (2002). There will be four stages of firm internationalization in the time horizon when applying the Uppsala model, which are:

#### Phase 1: no export activities

In this stage, the companies solely focus on the domestic market. They might have received limited number of orders directly from foreign countries, but they have not decided to export the products in that very market yet or *else exports may be irregular and of limited quantity* (Paunović and Prebežac, 2010).

When the number of orders that reaches to the point that the companies could make considerable revenues after minus transportation fees and agent commission fees and so on involved costs. As long as the management of the companies perceives the satisfying prospects of exporting to this very market. Then they consequently determine to exporting their products starting by the assistance of agents as at this stage they have not accessed enough knowledge about the market, reaching to agents is the fastest way to enter a foreign market in this case.

# Phase 3: establishing a subsidiary in the foreign market

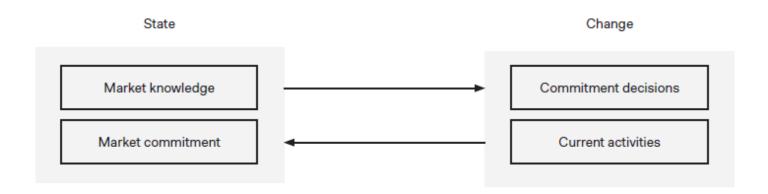
When the companies accumulate the foreign market related knowledge over time, until the management of the companies consider the condition is satisfied enough (i.e., they think that they have acquired foreign market knowledge) to open up a subsidiary for further expansion of business and eventually get rid of agents to save some commission fees.

#### Phase 4: establishing manufacturing plants

When the situation continuously maintains to be favorable and the management of the companies is eager for expanding their business to a higher level, in the meantime they have projected that there will be greater economic growth after establishing the manufacturing infrastructures, then this stage will be spontaneously initiated. However, the apparent drawback of applying Uppsala model refers to the fact that throughout all the four stage, it does not clearly contribute to show guidance of the decision making to the management of the companies, which indirectly stress the importance of the capabilities and perceptions of decision making by managers for the whole processes of internationalization in foreign markets (Johanson & Vahlne, 1977, p. 23). On top of that, Rialp,Rialp, & Knight (2005) pointed out that the characteristics of firm management have firm effects on the decision making and the level of internationalization, particularly in small enterprises.

Within the process of learning the knowledge of foreign markets, it helps firms to remove the barrier in the term of "psychic distance" introduced by Melin (1992), in other words, in foreign market they are differences in languages, cultures, business practices, level of education, and level of industrial development (Johanson & Wiedersheim-Paul, 1975, p. 309; Johanson & Vahlne, 1977). Thus, it becomes necessary to accumulate the knowledge arise from these differences, by studying from practical experience, in which this is the process to overcome the liabilities of foreignness and newness so that the companies could manege to nurture the specific organizational advantages (Johanson & Vahlne, 2009, p. 1412). Otherwise stated, the

experience and knowledge drive the companies to achieve the gradual growth of commitment all the way goes through sequent stages (Chetty & Campbell-Hunt, 2004). What is more, such accumulation of knowledge and experience contributes to mitigate the uncertainties and ultimately lead to the market commitment (Johanson & Vahlne, 1977).



**Figure 3**. The basic mechanisms of internationalization: state and change aspects. Source: Johanson and Vahlne, 1977, p. 27.

Besides, the Uppsala model also distinguishes from *state and change* aspects, in the phase of which state aspects cover market knowledge and market commitment whereas change aspects are *the decisions to* commit resources to a foreign market (Malene, 2017). "First, firms change by learning from their experience of operations, current activities, in foreign markets. Second, they change through the commitment decisions that they make to strengthen their position in the foreign market" (Johanson & Vahlne, 2009, p. 1412).

Put simple terms, the knowledge results from the experience, and decision concerning the degree of commitment is influenced by the knowledge (Malene, 2017), where Johanson & Vahlne (2009, p. 1412). described the commitment as "the product of the size of the investment times its degree of inflexibility"

More importantly, the Uppsala model could potentially be combined with networking theory. As Johanson & Vahlne (2009) re-explain the model after taking networking into consideration, emphasis is made regarding the new interpretation of business environment, they described as "web of relationships, a network,"

rather than as a neoclassical market with many independent suppliers and customers" (Johanson & Vahlne, 2009, p. 1411). Which means that they believe networking with multiple involvers in that foreign market is more significant than companies; challenges and opportunities when considering the country specificities (Johanson & Vahlne, 2009, p. 1426).

### Firm Internationalization in the Perspective of Resource-based View:

Resource-based view as one of the most used concept is widely discussed in rising number of studies, Barney (1991) pointed out that a company possess a competitive advantage will scarcely be emulated and the uniqueness regards from attaining resources or capabilities, while such advantage in the domestic market would also be taken to international markets to reach the economic growth (Bartlett & Ghoshal, 2002).

Put differently, Link (1996) depicted as the main competences of a firm results from the uniqueness and the process employment of all the resources, that might potentially become the key factor to succeed in foreign markets. After all, internationalization is a process that companies explore the resources that have not exploited yet and at the same time they sense the potential opportunities and as a result generate the new resources (Casado-Belmonte, María Marín-Carrillo, Terán-Yépez & Capobianco-Uriarte, 2019). What is more, the new resources could be obtained through networking, strategic alliances, together with acquisitions (Das & Teng, 1998). It is worth noting that the smalless of SMEs make its development of internationalization obstructed due to the fact that the core limitations to gaining potential business opportunities come from the scarcity of skills and capabilities that are required to enter a new market (Cavusgil & Knight, 2009; Oviatt & McDougall, 1994). When looking at this issue specifically in the perspective of human resources, the companies' characteristics hampers any kind of the internationalization, in which these characteristics arise from lacking experience, *knowledge of international business*, *risk perception* and *management* (Paul & Rosado-Serrano, 2019). Only if the attained resources and knowledge could help companies reach a competitive advantage, will they decide to proceed the decisive internationalization (Fernandez & Nieto, 2005).

Noticeably, the resource-based model was empirically tested by Ekeledo and Sivakumar (2004), they highlighted that service firms tend to require a stronger control of foreign business than manufacturing ones. In addition, a great number of scholars recommend that to combine the utilization of both resource-based model and network theory (e.g., Freeman and Cavusgil, 2007; Tolstoy and Agndal, 2010; Wong

2011), which shows that successful ways and pace of internationalizing business. Furthermore, the stage theory as known as the Uppsala model could also be combined with resource-based model to interpret the process of internationalization, commented by Wolff and Pett (2000, p. 45) that "the resource base to circumvent, compress or leapfrog stages".

When looking into SME internationalization in a resource-based view, it is *the process of mobilizing*, *accumulating and developing resources stocks for international activities* (Ruzzier et al, 2006, p. 479). In short terms, it involves collecting all sorts of sources that could generate competitive advantages (Wernerfelt,

1984) in which these resources encompass tangible, intangible and knowledge-based forms (Antoldi & Cerrato & Depperu, 2011). The tangible resources incorporate those that related to production or activity, tangible resources are strategies for the development for internationalizing activities, whereas the knowledge-based resources cover knowledge of foreign market (Antoldi & Cerrato & Depperu, 2011). Referring to resource-based view (RBV) developed by Barney (1991), it is very difficult to describe a firm's capabilities, some other authors (Grant, 1991; Soto-Acosta and Merono-Cerdan, 2008, 2009) tried to explain capabilities as equipped and formed by unique way of employment and coordination of not only internal resources but also external resources, the trajectory of doing so is hardly mimicked by other competitors.

Falahata & Ramayahb & Soto-Acostad & Lee (2020) summarized capabilities as "capabilities can be source of competitive advantage when they are durable, not transparent, not transferable and difficult to replicate".

Zou et al. (2003) found out that pricing capabilities do not positively relate to export financial performance whilst the capabilities of distribution, communication and product development are firmly associated.

In the perspective of internal aspects based upon the resource-based model, Barney (1991) treated the employee specific competences of SMEs as one of the main drivers to reach strategic goals, from which help them to have direct interaction and intimate relationships with their customers. For remaining and obtaining such resources (i.e., employee specific competences), these companies must "implement specific human resource management practices that include recruitment, performance evaluation, staff mobilization and remuneration, among others" (Barrette et al. 2002). One of most of important reasons to train the capacities of human resources comes from the fact that it can breed the development of innovation, along with the marketing abilities (Chen et al. 2004), while these capabilities will add up positive values on companies' social and intellectual capital (Chen et al. 2004), that also means an enhancement of employees' knowledge (Carson et al. 2004). Logically, the more knowledge that firm's employees are equipped, the better they understand the customer needs and eventually obtain customers' loyalty.

What is more, the utilization resource-based model is also emphasized by some scholars (Alvarez and Barney 2000; Hsu and Pereira, 2008) to concentrate on developing the entrepreneurial capabilities which could be also another core factor that contributes to firm specific advantages. Raymond and St-Pierre (2014) further described the resource-based model in an extended manner, seeing that "it relies both on the assertion of resource heterogeneity (resources and capabilities possessed by SMEs may differ) and of resource immobility (these differences may endure over time)".

In a clearer sense of seeing the capabilities within the concept of resource-based model, (Camisón and Villar 2009). categorized them into three specific types which are helpful to the performance of SMEs in the international market, namely, *human resource development capabilities*, *product/service development capabilities* and market development capabilities. Significantly, the resource-based view could also be jointly applied with networking theory, given that the good capability of SMEs can contribute to a better position of cooperating with other partners and somehow it recompenses for their dearth of resources and capabilities from internal side (Mohnnak 2007; Xiaobao et al. 2013).

When looking at the traditional international companies, the general cases come to the fact that the strongly tangible resources (i.e., *plant, property, and equipment*) are considered as the most significant resources or refers to another situation where financial and human resources are highly involved (Knight & Cavusgil, 2005). On the contrary, according to these two authors' research, the resources used by born globals are normally intangible given that such resources incorporate unique knowledge of strategic methods, international business, together with unique managerial skills and internationalizing experience (Knight & Cavusgil, 2005).

Additionally, Penrose (1959) and Barney (1991) produced two very specific core assumptions, which are

- 1) Firms within any given industry are heterogeneous with regard to the resources they control
- 2) Resources are not perfectly mobile across firms and hence, heterogeneity tends to be long-lasting

Ray, Barney and Muhanna (2004) regarded processes are period of time that companies strive to generate companies' specific and competitive advantages by exploiting companies' resources. Olejnik (2014) summarized the processes of internationalization in the insight of resource-based view into three stages, which are:

#### Stage 1: Scanning processes

In which a stage of implementation of accumulation of knowledge regarding foreign markets and customers (Knight and Liesch 2002).

## Stage 2: Planning processes

In which this stage comes from the intention of navigating the activities of the company and generating the mindset of making adaption (Martinez and Jarillo 1991; Miller and Cardinal 1994).

# Stage 3: The implementation processes

In which this stage companies *systematically explore*, *analyze*, *and plan international activities*, this stage is not only a significant mission for management, but also a fundamental enabler leading to success (McGee and Sawyerr, 2003).

All of these resources are taken advantaged to generate the capabilities that are not replicated (Amit and Schoemaker, 1993; Barney, 1991). However, not all of the resources are helpful to the firm internationalization and create the competitive advantages, it is companies' responsible to find out these resources would provide a source related competences that are required in that specific business context (Antoldi, 2011). What is more, reference from Dhanaraj and Beamish (2003)'s study about firm exporting performance in the perspective of resource-based view, they greatly emphasize the importance of the technology, all of those that contributing to a predictive export strategy so that as a result positively affect performance of exporting. Antoldi (2011) concluded that the companies employed with low level of technologies would have the tendencies to foreign markets with less demands or otherwise domestic and local market.

#### **SME**

It is worth noting that the definition of small and medium-sized enterprises varies from country to country in terms of turnover, size or the number of employees. According to OECD's description, SMEs (small, medium and micro enterprises) are *non-subsidiary, independent firms* which has fewer than certain number of employees (OECD, 2021). While the number is quite different across countries, 250 is the up limit in European Union, whereas it varies from 20 to 2000 in China depends on what industries. There are several entry modes that SMEs could achieve their international growth from overseas markets, which includes exports, contractual agreements, joint ventures, foreign direct investment (FDI) or a mix of such. Based on these entry modes, more and more internationalizing strategies have been developed as recognition (De Massis et al, 2018). To study the internationalization of SMEs helps to gain a better understandably insight of patterns in small businesses (Braunerhjelm & Halldin, 2019).

Country	Company category	Staff headcount	Turnover	or	Balance sheet total
Denmark	Medium-sized	< 250	≤€ 50 m		≤€ 43 m
	Small	< 50	≤€ 10 m		≤€ 10 m

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	Micro	< 10		≤€ 2 m	≤€ 2 m
China	Medium-sized	≥ 300; < 1000	and	≥¥ 20 m; < ¥ 400	
C111114	1120320111 51200			m	
	Small	≥ 20; < 300	and	≥¥3 m; < ¥20 m	
	Micro	< 20	or	<¥3 m	

**Table 1.** Comparison of Manufacturing SMEs between Denmark and China Source: combined from European Commission and Baidu baike (European Commission, 2021; Baidu baike, 2021)

#### Internationalization

The definition of the terminology "internationalization" is equivocal and differs from the specific phenomenon they describe (Masum & Fernandez, 2008). In line with Welch and Luostarinen (1988), internationalization is "the process in which firms increase their involvements in international operations". At a late time, it was recounted by Calof and Beamish (1995, p. 116) that internationalization is "the process of adapting firms' operations (strategy, structure, resource, etc.) to international environments".

Diverse motivations are attracted by companies for entering foreign markets and expanding their businesses by plenty of internationalizing activities. On one hand, according to Dunning (1980), entering the foreign markets when multitudinous opportunities are available to be beneficial from internationalization and unique locations of selected countries so that companies could eventually exploit their firm-specific advantages. One the other hand, the very obvious reason to explore international markets is to reach potentially large growth from additional markets. Apart from, two general motivations had been summarized by Cuervo-Cazurra, Narula and Un (2015). For one side, it aims for the economic growth by exploitation or obtaining access to the resources abroad. For another side, it involves the emotional appeals that concerns increasing revenues and improving domestic operations by resources and capabilities available from cross nations. Subsequently, they further classified the motivations into four more detailed aspects in terms of involvements of international markets, i.e.,

- 1. Selling more: companies take advantage of existing resources to have a better outputs in foreign markets
- 2. Buying more: companies' liabilities from home countries are evaded by taking advantaging of existing resources

- 3. Upgrading: companies take advantage of new resources from cross-border nations in order to improve the efficiency of local operations
- 4. Escaping: companies' liabilities from home countries are evaded by taking advantaging of new resources in foreign countries

Once the management of companies decide to enter foreign market for operating internationalization activities, Hill (2007) stressed that there are three essential elements need to be taken into account, that are beneath:

- 1. Which market: choose the most attractive one or ones, getting a balance between benefits, costs and risk.
- 2. When to enter foreign markets (or timing of entry): could be categorized as pioneers and followers. pioneers are those companies that firstly enter that international market before anyone involves this business or industry. Followers are those companies that enter the foreign markets when pioneers are already exists there. However, both pioneers and followers have merits and drawbacks. Since pioneers are first and only players on that markets, they are dominant and all the niche customers go for them but the costs for exploring these markets would be considered as high. For example, the company launches a new product (or service) that have never existed in that market, they might need to do some marketing activities to demonstrate and promote the product (or service) to potential customers. Whilst followers are literally late comers that follow pioneers' steps, they imitate or copy pioneers and sell (or offer) similar product (or service), the late comers can avoid unnecessary risk-taking as they can learn from pioneers' patterns of internationalization in that specific markets, as well as less costs are experienced by them. Thus, late comers possess more competences in the chosen markets.
- 3. The scale: a company can enter the foreign markets either in a big scale or in a small scale, it depends on how much commitment the company is willing to involve. If the company decides to enter the chosen market in a big scale, they will enter swiftly and spend a lot of money for utilizing resources of involvement. On the contrary, if they intend to enter the selected markets at a small scale, they make themselves less exposed, in the meantime learning knowledge little by little from that markets.

#### **SME Internationalization**

Ghobadian & Gallear (1996) mentioned that SMEs has a flat and unhierarchy organization structure that makes them more easily to develop a close relationship with employees. In addition, three specific characteristics of SMEs were concluded by Hollensen (2001), which are:

- **1. Organization**: the staff of SMEs tend to have compact relationships with its boss, leader, manager etc., in which factor is very influential
- 2. **Risk taking**: can happen when any situations that affect its survival, or competitors are applying aggressive strategy to their activities, as well as any kinds of decision-making taken from management when they have limited knowledge and experience on foreign markets.
- **3. Flexibility**: the communications between employers and employees are flexible (flat and unhierarchy organization structure) and rapid reactions could be taken from customer relationship management and they are more flexible to meet customer's niche needs.

Being small is normally regarded as a disadvantage for SMEs to compete in international markets since SMEs tend to be short of resources needed for expansion in cross-border markets (Jansson, 2007; Meyer & Skak, 2002). A number of SMEs also go international aim for gaining access to know-how and development of technologies so that they could maintain their competitiveness (Masum & Fernandez, 2008). When SMEs initiate their internationalizing activities, the actions that facilitate the exchange of knowledge and technologies come from for example investments in international markets, partner up with foreign corporations and networking with all possible actors from multiple nations (Masum & Fernandez, 2008).

According to Melitz (2003)'s research in a number of models concerning difference in organizational productivity, he concluded that firms with higher productivity tend to have higher likelihood to cover the sunk costs that are needed to maintain operations in foreign markets. A firm's productivity can be highly related to performance, competitiveness and internationalization (Costa, et al., 2017). In Bernard and Jensen (1995)'s empirical study, it indicates that exporters are more productive than non-exporters in American manufacturing area. When operating international business activities, foreign markets entry costs as one of typical impediments, which are hardly handled by less productive firms (Castellani et al, 2010). At the early stage of internationalization, exporters enter foreign markets through learning-by export hypothesis, in other words, they get the foreign market knowledge from cross-border .customers and competitors so that they could improve their performance at the post entry stage (Altomonte and Be'ke's, 2010).

When comparing to MNE internationalization, SMEs have different structures and behaviors, particularly in terms of their strategies, competences and behaviors of market (Knight & Liesch, 2016). The similarity lies for both MNEs and SMEs in the obstacles that hamper to implement their strategies about internationalization, that are the limitations in accessibilities to information (e.g., cultures, languages and so forth) and the discriminations come from many local actors, for instance, government, suppliers, customers... (Hymer, 1976). However, the SMEs have a worse position taking into account that they carry the liabilities

of foreignness and newness during their early stage of internationalization through FDI (foreign direct investment) (Zaheer, 1995)

Characterized as *lack of standardization, and the prevalence of loose and informal working relationships* (Ghobadian & Gallear, 1996), SMEs tend to be organization as organic. Levy & Powel (1998)'s research showed that comparing to MNEs, SMEs are strongly more flexible to changes from external context, meaning they are easier to adapt to changes than large firms that are heavily hierarchy. What is more, it is hard for SMEs to approach to innovative technologies and have strategic alliances and cooperation with not only suppliers bus also customers, which mainly owing to their limited capabilities and *market presences* (Galdeano-Gómez & Pérez-Mesa & Aznar-Sánchez, 2016). Literatures have recounted the MNEs as the enormous global *monoliths* and SMEs as a *niche specialists* with high isolations (Borgho &Welge, 2001) by virtue of the fact that SMEs have fewer resources, less experience in internationalization process and fewer opportunities and else limitations.

# **Manufacturing SME Internationalization**

Exporting is the main channel for manufacturing SMEs to explore the business opportunities in crossnational markets, in which strategy has been mostly used for involvement of international markets due to the shortage of resources (Dalli, 1995), as well as lack of knowledge and experience of foreign markets (Root,

1994). It is the cheapest, simplest, rapidest mode of entry to international market (Leonidou et al., 2010; Majocchi, et al., 2005).

It was outlined by Hill (2007, p. 487) in terms of benefits and drawbacks if companies decide to export. In the first place, one of the benefits is that the costs of manufacturing can be highly reduced if companies choose to manufacture products in foreign countries where the manufacturing costs are cheaper, for instance, cheaper labors costs, cheaper premises renting costs and so on. However, it also could be a disadvantage for companies if the costs of manufacturing costs are more expensive in host countries. There will be a significantly large revenues generated by manufacturing products in domestic nations and exporting to host countries when it comes to the situation that the manufacturing costs are cheaper in domestic nations than in host countries. If the situation is opposite way around, then companies would better manufacture products in host countries and import products back to local market.

Additionally, the accumulations of market knowledge and experience would be seen when choosing to export products to host market. Meantime, the drawbacks of export also follow, such as the additional costs of transportation that comes from exporting to targeted countries despite of the low manufacturing costs in that

host countries (Hill 2007, p. 487). Noticeably, some countries are protectionist that in order to product home market they increase the tariff to which foreign companies export, for instance, America and China, they engage to trade war with each other when Donald Trump was president of U.S. and started adding rather high tariff to Chinese exporters and the Chinese government responded back the same around with respective rise of tariff to American exporters.

Moreover, it plays a key role in *balancing governments' books*, *lifting productivity*, *creating employment* when it comes to the global economy recovers from recent and ongoing financial recession (Griffith and Czinkota, 2012). It is important to get aware of these barriers from the point view of exporting as these barriers could offer a guiding prospect from which to achieve the stimulation of exporting actions (Crick, 2007) and these exporting barriers contribute to a negative influence on the performance of exporting activities in most of the cases (Bianchi and Wickramasekera, 2013; Kahiya and Dean, 2014; Mavrogiannis et al., 2008; Moini, 1997). In a general perspective, there are two main barriers categorized for exporting namely external (market-based) barriers and internal (firm-based) barriers (Antoldi et al, 2011; Pinho and Martins, 2010; Tesfom and Lutz, 2006). Later on, Kahiya and Dean (2015) summarized further in terms of external and internal barriers, in total eight barriers for exporting.

#### Export barriers from internal dimensions:

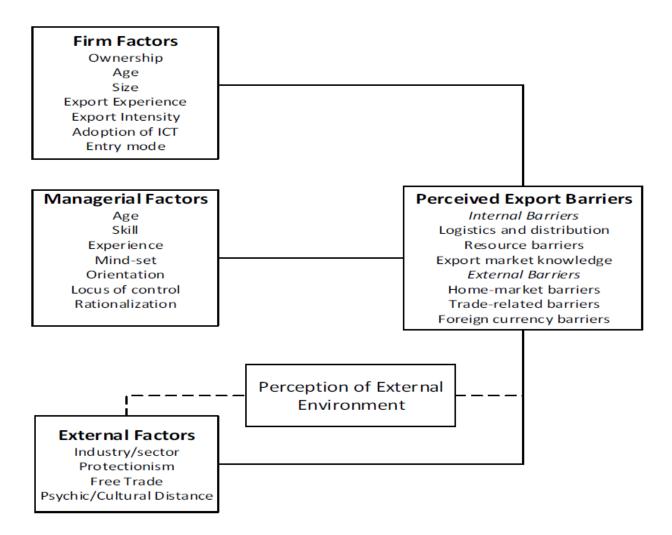
- 1. managerial inadequacies: (e.g., focus on domestic market, lack of aspirations, lack of management time and lack of export commitment)
- 2. export market knowledge: (for instance, inability to identify foreign market opportunities, knowledge of foreign business practices and knowledge of how to market overseas)
- 3. internal resource constraints: (such as insufficient productive capacity, lack of skilled and flexible workforce and working capital financing for exports)
- 4. adaptation factors: (e.g., need to adapt products, product usage differences and pricing and promotion in foreign markets)

#### Export barriers from external dimensions:

- 5. logistics and distribution factors: (for instance, shipping and distribution overseas, locating distributors, handling documentation and knowing export procedures)
- 6. trade-related barriers: (for instance, foreign tariff barriers, foreign non-tariff barriers and foreign restrictions and regulations)
- 7. home market factors: (such as lack of government support, inconsistent government export policy and inflation and interest rates)

8. currency and payment obstacles: (e.g., dealing with a strong domestic currency, minimizing foreign exchange risk and collecting and transferring funds)

In quite recent studies, Kahiya and Dean (2015) summarized further based on numerous researches into three specific types of exporting barriers, which are the barriers arise from the environment context (or in another words, external barriers), those that relate to firm and managerial (or as known as internal barriers).



**Figure 4**. Drivers of exporting barriers

A large number of studies have displayed that the exporting barriers are connected with drivers like firm size, age, industry, ownership, export experience, export intensity, adoption of information technology and choice of entry mode (Crick, 2007; Crick and Chaudhry, 1997; Da Silva and Da Rocha, 2001; Hornby et al., 2002; Karelakis et al., 2008; Katsikeas and Morgan, 1994; Kwon and Hu, 1996; Leonidou, 2000; Mahone and

Choudhury, 1995; Peel and Eckart, 1996; Shaw and Darroch, 2004). Notably, Crick (2007) pointed out that it will be more problematic if the firms decide to implement over one entry mode comparing to those only use single entry mode. Kwon and Hu (1996) identified that there will be exporting barriers result from the environment given the examples of *the risk of expropriation and nationalization*, and this happen mostly because of the intense implementation of commitment of entry modes. What is more, Bennett (1997) emphasized the role of ICT plays in the different situation in the exporting process between digital user and non-digital user. Furthermore, many scholars stressed the significance of firm ownership, for instance, Crick and Chaudry (1997) disclosed that there are differences between *indigenous and ethnic-owned ventures* especially about the *availability of assistance, information and financing*. Some literatures hint that there will be distinctions between the management which applies aggressive and proactive adoptions ((Campbell, 1996; Leonidou, 2000). Lastly, the external factors also have a influence on the exporting barriers, it contains industry/sector, extent of similarity between domestic and foreign market, trade agreements and protectionism (Campbell, 1996; Da Silva and Da Rocha, 2001; Leonidou, 2000; Korneliussen and Blasius, 2008; Mahone and Choudhury, 1995; Shaw and Darroch, 2004). Shoham and Albaum (1995) depicted that there are great varieties of cultural distances across different countries.

Global values chains have been boomingly developed in recent decades, while the economic activity increases fragmented and at the same time with the decrease of vertically integrated companies (Kano et al, 2020). In Europe, partially on account of expensive labor costs and strict regulations, the flexibility of global value chains and SMEs' ability of reorganization for optimizing efficiency both main challenged (Juergensen et al, 2020).

Juergensen et al (2020) rendered that the ability of innovation is one of the key factors that make manufacturing SMEs to be competitive, which also could be an opportunity for all SMEs to come up with innovative adaptations for the impacts of COVID-19. When looking at the small size of SMEs, *their tendency to be privately owned*, and their comparatively simple and flat hierarchical structures, plus everything that is beneficial for the survival in a critical event results tin the flexibility and more ease of adaptation than large firms (Juergensen et al, 2020). Furthermore, another competitiveness that manufacturing SMEs could capture, derives from the development of innovative and unique products, which emphasizes the importance of product innovation capability. In order to satisfy customers' needs and wants, it is significant for international participants to possess the ability to develop, modify, innovate the product range (Pham et al., 2017; Weerawardena, 2003; Zou et al., 2003), in the context of COVID-19, some companies worldwide even switch their manufacturing focus to masks while they are from other industries, e.g., Chinese air conditioner firm GREE, garment firm Luis Viton etc., just in order to meet the soaring

demands at a global level, that might be opportunities for manufacturing SMEs to save many lives and at the same time make revenues.

Another opportunity for manufacturing SMEs by exporting, on one hand, ICT (*Information, Communication and Technology*) helps to achieve better exporting performance through reducing cost of exporting seeing that the embeddedness of ICT contributes to internationalization as rapid and more extensive (Aspelund & Moen, 2005; Borges & Hoppen, 2009). On the other hand, based on the knowledge-based view, the novel ICT would be developed to collect information concerning customers, specific markets and competitors (Borges & Hoppen, 2009).

Noticeably, most of the time SMEs implement the strategy to internationalization in a reactive way or unplanned response to the changes of external environment, for example *the saturation of home market in the latest crisis* (Villar & Pla-Barber, 2018). Furthermore, for manufacturing companies, uncertainties coming from investment such as *environmental uncertainty and propensity of risk* determine the market mode (Brouthers & Brouthers, 2003). In addition, the large range of implementation of new concept of marketing 4.0 (that involves interacted digital technologies) in European regions brings about a new opportunities for local manufacturing SMEs (Bellandi et al. 2019). However, referred from the 2008 financial crisis, it showed the drastic decreasing demand of manufacturing SMEs (OECD 2009; Wymenga et al. 2011). In the prevalent time of COVID-19, it makes the role of manufacturing SMEs rather significant to be considered in the way of recovering from this pandemic.

#### **Service SME Internationalization**

Back in over twenty years ago, there was nearly consensus that internationalization theories of manufacturing companies can be naturally applied or adapted by modifying simply to service companies and it was unnecessary to develop new theories for service firms to internationalizing their activities in foreign markets (Boddewyn et al., 1986). Afterwards, more and more scholars have found out that it was inappropriate to directly use the internationalization theories from manufacturing sector as the patterns of internationalization are quite different. For example, Javalgi and Martin (2007) have pointed out that in order to understand and predict service firms' behaviors, especially in the emerging service-oriented economies, it is still of necessity to develop exclusive theories that integrate the vast theoretical parts despite of theories with rich theoretical context from manufacturing firms' internationalization. The special characteristics of internationalization in service sector make a distinction from the manufacturing sector, given that servicing firms deliver services that are generally intangible, perishable, intransportable, as well as the compact customer relationship would add a highly positive effects in foreign markets (Dunning (1993) and O'Farrell, Wood, and Zheng (1995)).

When looking at the intangibility of service companies, it assumes *the form of an action or a way to perform various tasks* (Lovelock and Gummesson 2004). In simple terms, the service companies provide the services with customization that follows their customers' needs , wants, preferences (Panesar et al. 2008).

Furthermore, other numerous scholars have mutually supported the claim that even with the sector of servicing industries, the clear differences occur in the process of internationalizing entry strategies (e.g., Erramilli (1990) and Blomstermo and Sharma (2006)). Noticeably, comparing the behaviors of manufacturing firms, they are similar to hard services (e.g., engineering, software etc.), yet, rather different to soft services.

International strategies and foreign entry modes are two most studied forms of internationalization in service sector (Grönroos, 1999) whereas the rest of forms are less interested to scholars (Björkman and Kock, 1997). During early study of Brouthers and Brouthers (2003) in international patterns of service firms, it was elucidated by the nature of service, namely hard and soft services, whereas Nicoulaud (1989) explained by product services and service products. Because of the vast varieties of services, it is obviously not enough to interpret service firms by these simple classifications and more elaborate distinguishments have been raised attention for better understand the different types of services (Ball et al., 2008). The continuous concern on service MNCs has been proceeded and (Kundu and Merchant, 2008). Notably, small and medium-sized companies occupy the major proportion of total firms in various countries, i.e., 99.7% in Denmark (European Commission, 2018) whilst over 90% in China (Textor, 2021), which also means SMEs are the main power to develop the service sector for future growth (Thomas et al, 2011). As for the SMEs in the service sector, not only the formal relationships but also the informal relationships are of great importance in offering market contracts, gaining the accessibility to potential markets and any kinds of assistance for the firms themselves (Coviello, Ghauri, & Martin, 1998).

In accordance with the previous studies, for example, Deprey et al. (2012) and Wheeler et al. (2008) rendered that firms' *global mindset* as one of the most fundamental factors that achieve success in the process of internationalization, which was regarded by Javalgi and Martinas (2007) as also the significant affecting factor in the internationalization of service. Which the term *global mindset* contains two factor regarding the management, which are summarized by Levy et al. (2007) as:

- (1) *The cultural awareness*, namely relating to openness and the understanding of cultures that are associated with the chosen market to internationalize business.
- (2) Capacities of the management to handle the sophisticated cross-national operations.

In the latest researches about servicing SME internationalization, many authors (Dichtl et al. 1984, 1990; Holzmüller and Kasper 1990, 1991). further emphasized the importance of equipment of foreign knowledge, for instance, foreign languages, laws, policies etc. and suggested to understand the knowledge by education or experimental learning.

Moreover, comparing to manufacturing companies, the servicing companies have lower entry obstacles in terms of the capital requirements due to the fact that they have less needs from financial part, for instance, service companies only need to set up an office whereas manufacturing companies need to build the factories which is comparatively very expensive (Bell, 1995; Erramilli and Rao, 1993; Roberts, 1999). Owing to the distinct nature between manufacturing companies and service companies, the latter involve more interactions with client-producer than the former as the standardization of products are easily achieved regardless of what the countries are (Lejpras, 2009). When knowledge-based service companies involve in the process of internationalization, authors (e.g., Bell ,1995; Knight ,1999; O'Farrell et al. ,1998; O'Farrell and Wood, 1999) regarded them as collaborative nature in line with the networking theory.

A great number of researchers (e.g., Zeithaml, Parasuraman and Berry 1985) have summarized four specific characteristics to make distinctions between manufacturing firms and service firms, which are:

- (1) Manufacturing firms are tangible whereas service firms are intangible seeing that they cannot be transport and stored.
- (2) Manufacturing firms have *inseparability* given that their production and consumption of materials happen spontaneously while service firms do not have such constraints.
- (3) Manufacturing firms deliver the products which are long lasting whilst service firms have *perishability* since service firms deliver the services at the same time they are consumed and cannot be saved.
- (4) Manufacturing firms produce standardized products whereas service firms have *heterogeneity* and their delivered services have uniqueness and can hardly be standardized.

Raymond and St-Pierre (2014) identifies six specific dimensions that differing service companies from manufacturing companies, which are:

- (1) The employees of service companies are highly educated and as a result they deliver a high level of workforce.
- (2) It strongly reflects their employee skills and competences.
- (3) Service companies are closely attached to the market.
- (4) The services that they provide, have uniqueness and are customized each time.

- (5) The customers of service companies participate actively in the development of the engaging servicing industry.
- (6) Service counterparts should develop the ability to follow the trending demands of new services. rapidly and efficiently

# **Impacts of COVID-19**

The year of 2020 has been unimaginably influencing the global community (Kraus et al., 2020). The unexpected contemporary black swan event i.e., COVID-19 has a destructive impacts on the economies at full level. For slowing down the spread of COVID-19, the business activities are highly interrupted in a global scale, many of them regulate the restrictions for social distancing, which have brought about lockdowns, the huge drop in consumptions, the closed of almost whole markets except these essential suppliers for daily life, as well as the bankruptcy of companies especially SMEs as they are more vulnerable in such a crisis (Bretas & Alon, 2020). There could be witnessed with highly unpredictable business environment for a long period of time (Reeves et al., 2015). By referring to OECD's global economic outlook, it is estimated to reach a 6% decrease in global GDP and a further worse situation to 7.6% decline if the occurrence of second wave of COVID-19, and the number would be doubled up for certain seriously hit nations, as well as the projections to recover by 2.8% for following year of 2021 (OECD, 2021).

Date Country		Impact on business	Expectations	
10 Feb.	China	80% of SMEs have not resumed operations yet	1/3 out of business in 1 month, anoth 1/3 in two month	
25 Feb.	Finland	1/3 anticipated a negative or very negative impact	n.a.	
Early March	Italy	72% directly affected	n.a.	
Early March	UK	63% see crisis as moderate to high/severe threat to their business	n.a.	
9 March	Germany	50% expect a negative impact	n.a.	
9 March	Japan	39% report supply chain disruptions, 26% decrease in orders and sales	n.a.	
10 March	Poland	1/3 of SMEs experience increasing costs and reduced sales	27% already encounter cash flow problems	
11 March	USA	70% experience supply chain disruptions, 80% the impact of the crisis	n.a.	
12 March	UK	69% experience serious cash flow problems	1/3 fear being out of business in 1 month	
13 March	USA	23% negatively affected, 36% expect to be		
16 March	Canada	50% drop in sales	25% expect not to survive longer than 1 month	
16 March	Israel	55% experienced no impact yet, 1/3 planning lay-offs	n.a.	
16 March	Greece	60% experience marked decline in sales	n.a.	
17 March	USA	50% negatively affected, 75% very concerned	n.a.	
17-20 March	Korea	61% have been impacted	42% fear being out of business in 3 months, 70% in six months	
18 March	Belgium	75% report declines in turnover	50% fear not to be able to pay costs in the short term	
19 March	USA	96% have been affected	51% indicate not be able to survive three months	
20 March	Hungary	60% expect a decline in sales	n.a.	
20 March	Netherlands	50% start-ups lost significant revenue	50% expect to be out of business within 3 months	

n.a.	92% experience economic impact	Japan	21 March
1/3 expect to be out of business in a month	60% experience significant impact	Canada	24 March
50% of SMEs have a month cash reserves or less	30% of SMEs expect to lay off 50% of their staff.	Several Asian countries	31 March- 6 April
18% of firms could be out of business in one month	n.a.	United Kingdom	1 April
35% of small business out of business in three months	n.a.	United States	1 April
n.a.	Two thirds of small business experience the impact of the crisis. 41% experience a drop in income of 50% or more in the last two months	Australia	3 April
1 in 10 companies likely to face bankruptcy	40% of companies see drop in revenue of 75% or more	Belgium	3 April
Over 31% of Belgium SMEs may not survive the crisis	n.a.	Belgium	7 April
1/3 lack the reserves to survive longer than a few weeks	90% of small business affected	Canada and the US	7 April
6% out of cash, 57% three months reserves or less	37% expect to furlough 75-100% of their staff in the next week	UK	8 April
85% of SMEs in financial difficulty because of COVID 19 20% is at serious risk	n.a.	Netherlands	8 April
50% do not have resources for more than 2 months	37% experience a drop in production of more than 50%.	Portugal	6-10 April
32% cannot stay open longer than 3 months	62% of small business experience a drop in revenues	United States	15-22 April
Half of SMEs have only two months liquidity reserve	58% of SMEs experience a drop in turnover by on average 50%	Germany	24 April
32% worry about the viability of their business over the next year	81% of small businesses indicate their operations are negatively affected	Canada	4 May
1/5 of small businesses closed down temporarily, 1/3 expects to close permanently within 2 months	n.a.	United States	5 May
n.a.	81% of firms experience and expect impact of pandemic in the next 12-16 months	United States	11 May
41% of firms have temporarily closed, 35% fear they will not reopen again	37% of firms are considering, or have already made, redundancies	United Kingdom	13 May
52% of small business expects to close down if containment measures last longer	90% of firms expect extreme revenue loss	Thailand	15 May
n.a.	SMEs that remained until 18 May closed incurred an average cost of EUR 177 000 during the lockdown period. Of businesses that remained open, 70% reported a decrease in revenue.	Ireland	8 June
n.a.	78% of small business reported a drop in sales, 47% between 50 and 100%.	Canada	Mid-June
39% of SMEs fear having to close down	71% of SMEs have taken a revenue hit by COVID-19	New Zealand	20 June

Table 2. SME surveys on the Impact of COVID-19 source: OECD (2020)

According to OECD (2020)'s report, there are empirically various negative impacts of COVID-19 that SMEs from different countries face, typically including supply chain disruptions, decline in orders and sales, increase of costs, problems in cash flows, drop in salaries, drop in production, remaining close because of lockdowns.

The prevalent crisis COVID-19 has negatively impacted the global economies, particularly seeing as SMEs, suffering from the pain of not only the supply dimension, but also the demand dimension. For the supply matter, SMEs are significantly losing the number of employees as labor supplying, given to the fact that their staff get infected by the Coronavirus or they have to take care of their kids or any other reasons arise from the restrictions of governmental policies. Because of these lockdown actions, the interruption of supply chains results in the scarcity of materials and immediate goods. Whereas the demand aspect (OECD,2020) leads SMEs hardly to function and alongside acute dearth of liquidity. As the consequence of COVID-19 occurs in the view of consumers, they strongly lessen their spending because of the reasons that they might get fired by companies, afraid of getting infected and many other rising uncertainties. Furthermore, the global transportation has been negatively influenced so that the inter-related businesses will be certainly decreased and a further destruction of customer confidence, while SMEs gain more vulnerability than other companies (OECD,2020).

In terms of the challenges in supplying, the disruption of transportation and scarcity of labors cause the logistics problematic. Whereas the demand has been experienced by a sharp drop owing to the actions of locking down, the decline in customer confidence, as well as the close of many global value chains in various industries (Juergensen et al., 2020). As the global value chains are intensely integrated by large number of companies from countries at a global level, one side gets interrupted, all the sides will be affected passively. Taken Japanese camera company as example, they could not get supply of necessary components for assemble the digital cameras since the countries which export these components are suffering from a locking down (UNCTAD, 2020). It has been a few decades that the set-up of global productions system towards the optimization of all kinds of costs such as cheap labours, cheap resources and just-in-time production (Javorcik, 2020). Therefore, this prevailing crisis has taught many countries a painful lesson in terms of global value chains, countries like the United States and the European Union have been planning to move a lot of manufacturing lines back to local side. They have learned that the global value chain system should be more resilient in terms of diversifications of supply chains, and avoiding the overreliance of Asian suppliers, as well as lessening the risks from monopsonistic circumstances in the future (Miroudot 2020). Significantly, both (OECD (2009) and Narula (2019) pointed out that within the system of global value chain, SMEs are more vulnerable in exporting shocks than the large counterparts as the leading players tend to pass the difficulty on the SMEs.

Even though the fact that the impact of COVID-19 brings about the huge adjustments in the area of global value chains, it also bears with potential entrepreneurial opportunities followed by, providing the growth from emerging businesses and making younger SMEs be beneficial from the *creative destruction dynamics* 

(Schumpeter, 1911). Giotopoulos et al. (2017) once asserted that the entrepreneurs with strong ambitions tend to find out the emerging marketing preferences and discover the unfulfilled gas with the tribulation of crisis.

Owing to the constraints from government side such as social distancing, a big changes will have to be made by many SMEs, such as physical establishments but it needs a strong support of capitals (Juergensen et al., 2020). When looking at the impacts of COVID-19 to manufacturing SMEs in the long run, the challenges and opportunities alongside are distinct according to different types of manufacturing SMEs. The occurrence of COVID-19 emphasizes the significance of digital technologies, especially for stand-alone SMEs as these technologies could help them in assisting their important activities from downstream side, including sales and marketing and in improving productivity and internal efficiency (PwC, 2018). On the other hand, the upgrading of digitalization help the management to obtain the new opportunities (Cirillo and Zayas, 2019). Yet, it might need the SMEs to spend time and money educating their employees in terms of applying these digital technologies and more importantly plenty of SMEs are struggling with lacking abundant financial backup and hence they are not able to embed such digital technologies into related business activities (Juergensen et al., 2020). Even though the fact that the reorganization of global value chains needs substantial efforts, time and capitals, as well as the coordination of a lot of other participants, which means it is not certainly difficult to arrange these replacement (Shih, 2020). Nonetheless, it is inevitable to see such adjustments happening because of the practices of still ongoing crisis COVID-19.

According to the theory of business, it demonstrates that three distinct kinds of assumptions highly impact the performance of company does business, seeing that:

Firstly, the assumptions that are associated with company internal environment.

Secondly, the assumptions about achieving the mission.

Lastly, the assumptions with regard to the competences and sources used for reaching companies' mission.

When taking the impact of COVID-19 into consideration, the first assumption has pushed many SMEs' business into a digital form, for example, mechanical engineering service SMEs arrange their employees to meet their customers online and finish their work also through online tools. Whilst manufacturing SMEs attempt to replace partial labors with automatic machines in order to minish the impact of COVID-19. What is more, in terms of other assumptions, SMEs should train their employees in the area that the opportunities arise from the impact of COVID-19, such as ICT, robotics and so on.

· Lines of Credit

Global Value Chains

Turnkey digital technologies

· Discovery new market nichos

In terms of challenges that face to SMEs

## Weaknesses Strengths Scarce Financial Resources Local Management · Gap of Technological Knowledge Short-term strategy · Limited Managerial Knowledge Resilience (adaptability) Loss of Knowledge Strategic Alliances / Socialization · Accessing government funding (SECI) Liability of smallness Ambidextry Opportunities Threats · ROI delay Open Innovation · Underuse of Digital Technologies C2B / Social Media

**Figure 5**. General weaknesses, strengths, threats, and opportunities for SMEs to face digital transformation (and COVID-19 pandemic) source: wileyonlinelibrary.com

· Social media generativity

· Recovery from pandemic

Market new entrants

· Data sharing with competitors

By referring Klein and Todesco (2020)'s SWOT analysis for SMEs to confront the digital transformation.

- Scarcity of Financial Resources: Being small as nature means SMEs also possess insufficient funds for dealing with the COVID-19 (International Trade Centre, 2020)
- Gap of Technological Knowledge: the management of SMEs have limited awareness of how and
  where to embed digital solutions into their business processes, whereas their employees also have
  very limited abilities to integrate these digital solution lack of skills to address transformational
  projects on a large scale, and to articulate more robust technical implementation roadmaps
  (European Investment Bank, 2019).
- Difficulty in assessing aid funding: bureaucratic and information barriers create great difficulty for SMEs to get access to governmental support during COVID-19 (Bartik et al., 2020; Humphries et al., 2020; Kuckertz et al., 2020).

Renmin Lyu In terms of opportunities,

Strategic Alliances: SMEs could partner up with actors and even competitors those who are also
experiencing difficult situations so that the alliances would provide both with shared resources,
knowledge between SMEs and other companies with different specialties and it will increase their
innovative performance (Vatamanescu, Cegarra-Navarro, Andrei, Dinc\_a, & Alexandru, 2020).
 Furthermore, through strategic alliances, SMEs can obtain complemented capabilities and knowledge
from competitors and eventually increase their own organization knowledge (Cegarra-navarro, 2005).

In addition, COVID-19 impacts not only the supply side but also the demand, when looking at the supply chains, logistics have been seen problematic, given that the transportation is disrupted, employees are not available when they are sick because of COVID-19 or the restrictions from governments (OECD, 2020). In terms of demand, SMEs are facing significant drop in demands from their customers mainly owing to the governmental restrictions (Juergensen et al., 2020). However, the degrees of supply and demand impact on SMEs are different according to different types of manufacturing SMEs, stand-alone SMEs tend to have big logistical problem on the supplying side, still there are some stand-alone SMEs may have low impact from COVID-19 when they have barely substituted and customers highly reply on them. (Juergensen et al., 2020). Whereas Specialist-supplier SMEs have serious trouble in both demand and supply aspects, but the demand could possibly recover once the restrictions are removed and the productions restart. Lastly, the demand of knowledge-based SMEs is less influenced by COVID-19 than their supply matter, for example, engineers can work from home (Juergensen et al., 2020).

### **Crises**

When internationalizing the business, it is inevitable to encounter miscellaneous kinds of crises in a global level so that they will as a result impact on firms' performance in exporting and strategies for internationalizing activities. Taken the financial crisis of 2007-2008 as example, it stemmed from the

American sub-prime mortgage lending market, with expeditious spread worldwide in terms of financial market which noticeably leaded to the bankruptcy of Lehman Brothers and many other banks internationally. Consequently, the business worldwide had been dwindled due to the fact that bank loans were hampered significantly. The recession of the world economy also resulted in decreasing drastically in demand, as well as credit shock (Costa, Pappalardo and Vicarelli, 2017). The higher vulnerability to financial shocks is borne by exporters than domestic players (Amiti and Weinstein, 2011; Feenstra et al, 2014) given the fact that studies witness slump in sales on exporting after experiencing financial shocks ((Bricongne et al, 2012;

Coulibaly et al. 2011; Egger and Kesina, 2014). Dearth of demand together with credit shock have negative effects on trade flows and firm's internationalization. The smallness of SMEs and their ownership structure led to the poor profitability and liquidity, which makes them even more vulnerable than large players (European Commission 2019). This turbulent financial has damaging influence on small and medium-sized firms mainly because of their limitations of resources in e.g., human resources, financial resources, technical resources etc., while large firms do not have such concerns (Martin et al, 2019; Narula, 2004). Thus, the less resilience is equipped by SMEs than large counterparts constrained them to spend much more time recovering from a black swan event before they operate as normal, in which 2008-2009 financial witnessed the dilemma of both demand and finances by SMEs, especially the plight of dropping demand happens to manufacturing SMEs (OECD 2009; Wymenga et al. 2011). Which can also be referred to this current epidemic crisis, similarly the demand has been unbelievably declining, the financial issues are significantly negative, particularly for manufacturing SMEs as they have been losing customers, employees, they cannot access the resources needed to function the business like normally because of the interruption of COVID-19.

Apart from, when looking back to the historic black swan events, such as the World War I and World War II, along with sundry healthy crises such as the Spanish Flu from 1918 to 1920 (Reiter, 1996; Killingray and Phillips, 2003). In which these crises brought about different challenges in terms of economic outcome and huge falling demand, for example, the World War I resulted in big food demand since the route of trading had been hampered (Simmonds, 2013), in which it eventually affected the strategic industries. While such circumstance is also relevant to study the impact from COVID-19, that brings about the effects on the development of international business in the area of strategic industries (Arslan et al., 2021). Put it differently, strategic adjustment should be implemented depending on the specific changes arising from the very crises, for example, if the companies (those which manufacture COVID-19 related medical products, equipment, technologies etc.) are by chance beneficial to the pandemic, they would potentially have a huge climbing demands from the customer sides, in order to better fulfil the commitment, they might need to set up expansional strategies adjusted to capture the precious opportunities. By referring to another instance, if companies' business activities are negatively impacted by COVID-19, seeing that mechanical engineering service companies could not be able to send their employees to customer sides to solve problems because of constrains from the governmental policies in terms of COVID-19, then the strategic adjustments followed accordingly, seeing that they might upgrade or implement the technological digitalization, e.g., purchasing visual reality equipment to help customers solve machinery problems while their engineers are not necessarily on site or they could customize the digital platform to better communicate with their customers

with the purpose of minish the negative effects of COVID-19 from not being able to contact physically together.

## Challenges from the impact of COVID-19

With the impact of COVID-19, a lot of costs have been raised which becomes a challenge for firms to adjust their financial structure due to the fact that the new or adjusted products might need heavy financial support. For example, owing to the impact of COVID-19, the physical goods that companies would like to export, will now be required to meet the *new standards and regulations requiring certification of product and process regarding hygiene of materials, packaging, and workers.* Therefore, the novel compatibility about following the hygienic regulations and cultural expectations would be one of the most important obstacles to adopt these products (Baber & Ojala, 2021).

Tesar (2021) emphasized that manufacturing SMEs, those that make contracts for components with foreign manufacturers and export to foreign markets or make the production of finished products in foreign markets and ultimately importing the finished products to domestic market, have been facing severe challenges comes from COVID-19, given that they are not classically regarded as traditional manufacturing companies, but as *re-exporters* and when they have pandemic situation domestically, they will not be able to receive necessary components to further complete the production until becoming finished products or they cannot receive the finished products to sell domestically. What is more, once the international operations get ceased because of the locking down of countries, the management of manufacturing SMEs will unavoidably pay these fixed costs, costs that relating to operating, or the salaries to sustain the employees. Another bad consequence would follow, given that they will not be able to make revenues to pay back the loans while their cash flows have been interrupted. Furthermore, manufacturing SMEs tend to have *open account* to operate internationally, meaning they are credited to their customers or they deposit money in foreign countries. The impact of COVID-19 drives such channels of payment to lose efficacy. More important, the value of foreign currencies fluctuates in the time of COVID-19 and the importers definitely are unwilling to pay more than ordinary time, which is in other words, instability of financial matter.

Additionally, there will be also challenges triggered from the governmental sides. For one instance, some countries may prohibit their local companies to import cargos from those countries that are severely impacted by COVID-19, which these types of cargos could be *textile or processed agricultural products* (Tesar, 2021). Take another example, some countries might add up more tariffs temporarily to the products that are not so much fundamental to handle the current pandemic, such as *automobiles, appliances, or home maintenance products* (Tesar, 2021). Given a third instance, companies' foreign employee are banned to enter the

countries, in which the countries of foreign employees are strongly hit by COVID-19 or employees who are dispatched to foreign nations where there have severe development of COVID-19 and as a result they are prohibited to come back to home countries either, so that from which circumstances the intercommunications among employees get interrupted, that are identified as another key challenges in the process of internationalization from the impact of COVID-19.

Apart from, it becomes problematic between manufacturing SMEs and international customers during this pandemic. As some governments put forward limitations for buying regulations in terms of some specific products so that drives their foreign customers fairly reluctant to continue the normal relationships, but rather their customers might turn to those countries that do not set up such constrains.

## Opportunities from the impact of COVID-19

In terms of one potential opportunity that might occurs to manufacturing SMEs, Tesar (2021) illustrated that specific types of manufacturing SMEs generally might obtain support from foreign customers with powerful financial reserves, as those foreign customers attempts to secure their orders during this ongoing pandemic, of which these manufacturing SMEs refer to the types, including producing of *high technology products such as medical instruments and equipment, computer components and computers, telephones, and electronic equipment.* In other words, these types of manufacturing SMEs have the precious opportunities to firmly diminish the harmful influence from the impact of COVID-19, which are gained from the assistance of external partners.

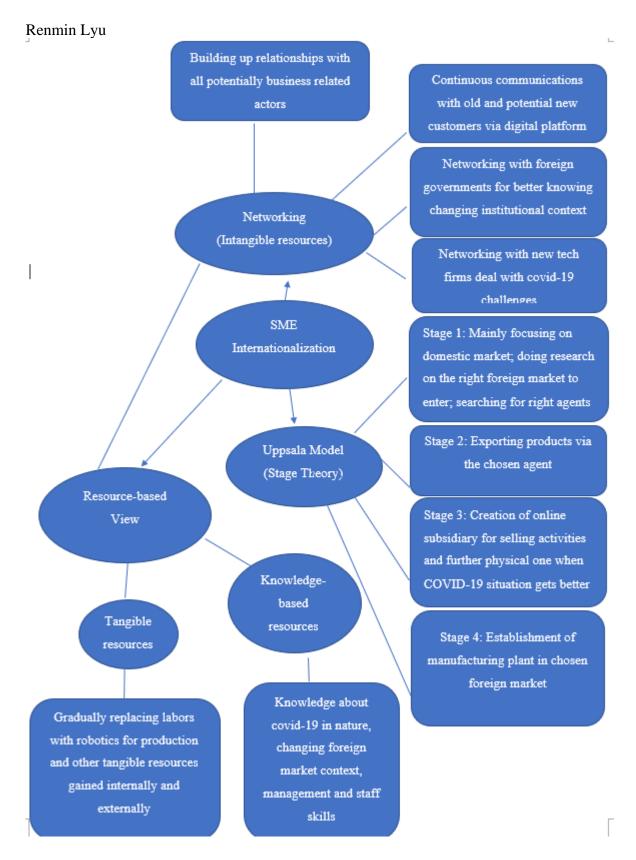
Another opportunity comes from the innovation sof *Product/Service element* that are implemented to the market and the associated business logic (Baber et al., 2019a). These innovations are pushed strongly in order to make adjustments to the business model of *Product/Service element* or re-defined *Product/Service* to the international market (Baber & Ojala, 2021).

Furthermore, Latukba (2021) pointed out that the implementation of TM (Talent Management tools) would help companies better arrange the talents and absorb the right talents that they really need to capture the opportunities arise from the impact of COVID-19, as well as the fact that these TM tools contribute *to knowledge assimilation and transformation* and make the employees value in a maximum level when nowadays this pandemic has pushed the shift to online education and communication. Hence, the author stressed that the setup of Talent Management tool would significantly have positive effects to companies' development of internationalization in the context of COVID-19 and eventually seeing it as an opportunity.

In addition, since the SMEs are more vulnerable than the large counterparts, they need to enhance the networking strategies to have an alliance with many other involvers, this would be an opportunities to not only mitigate the risks from the impact of COVID-19, but also mutually leading to a considerable economic growth to gain a better position than those who fail to diminish the negative effects from COVID-19.

## International strategy of SMEs and adaptation to COVID-19

This study investigates in three specific cases companies from Denmark and China to contrast two different types of manufacturing SMEs, at the same time to compare manufacturing and service SMEs on internationalization under the combination of compounding perspectives to provide a re-conceptualized framework (strategies) based on the prevalent context of COVID-19. Although due to the nature of mechanical engineering service SMEs is "hard" as services makes it much similar to manufacturing SMEs, still manufacturing sell physical products whereas service SMEs sell services, the differences certainly exist, particularly in our case seeing from the Uppsala model, i.e., when manufacturing SMEs initiate their process of internationalization, it involves the establishment of physical and online subsidiaries, manufacturing plants in foreign markets whilst the mechanical engineering service SMEs involve the establishment of only physical subsidiaries without online subsidiaries because they can not sell services to new customers online while they have not achieved trust from customers, not mentioning most of the services they offer need to be on site at customer side. Although the mechanical engineering service SMEs have been communicating with their old customers online, it is not as good as physical contact. Moreover, the process of manufacturing SME internationalization involves the setup of manufacturing plants whereas the mechanical engineering service SME internationalization involves the setup of workshop for production and assembly and other premises for the sake of customers. Regarding the tangible resources under RBV, the manufacturing SMEs should internally attempt to replace the labors with robotics or implement the automotive production lines to minish the negative impacts of COVID-19. In spite of the fact that mechanical engineering service SMEs are the ones that can help manufacturing SMEs to build up the internal resources, they utilize other internal resources to mitigate the negative impacts of COVID-19, for example, purchasing VR tools to guide customers solve the mechanical problems remotely etc.



**Figure 6**. Conceptual framework of Chinese manufacturing SME Internationalization in the context of COVID-19

When considering the impact on COVID-19, SMEs should take the best advantage of digital communication platforms to maintain network with the existing partners and explore the possibility of networking the potential ones. In addition, SMEs should develop good relationships with targeted foreign governments for better understanding of changing institutional environment (such as financial support, border policies and more), networking with competitors for cooperation by attending online forum as well as engagement in networking with new technological companies that deal with COVID-19. What is more, it is also very important to network with all possible actors who are potentially business related.

The Uppsala model is also known as stage theory. Johanson and Vahlne (1977) exhibit the internationalizing process of expansion in specific four stages that are determined by *time*, *commitment of resources and the development of international market knowledge*.

Stage 1: Mainly focusing on domestic market; doing research on the right foreign market to enter; searching for right agents

Stage 2: Exporting via the chosen agent

Stage 3: : Creation of online subsidiary of selling activity, and further physical one when COVID-19 situation gets better

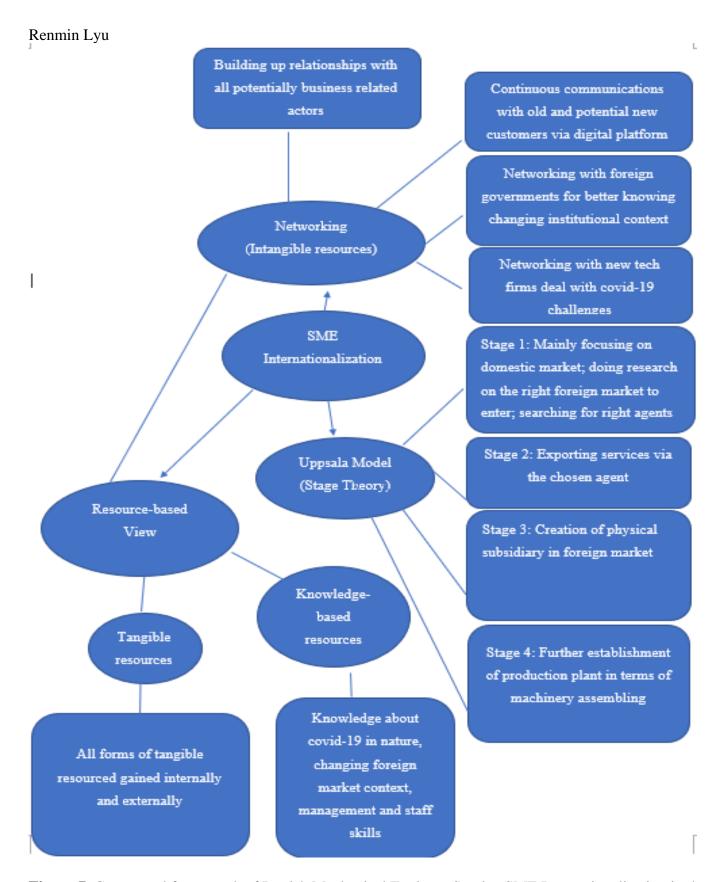
Stage 4: : Establishing manufacturing plant in chosen foreign market

Under the resource-based view, the conceptual framework incorporates three distinct types of resources, which are knowledge-based resources, tangible resources and intangible resources (which are good relationships with all networked business actors).

In terms of the knowledge-based resources, it includes knowledge about COVID-19 in nature as one aspect. For another aspect, to accumulate the knowledge about changing foreign market context, while these experiential knowledge that is required within internationalization process, including *language*, *custom*, *social norms*, *education*, *business practices*, *polical barriers* (Beall, Morris, 2015) while COVID-19 emphasizes strongly in monitoring political changes. As to the third matter that manufacturing SMEs should be concerned about the equipment of knowledge refers to the capacities of the management of SMEs to tackle all of the challenges in the process of internationalization, including the threats from the COVID-19. Lastly, the knowledge of SMEs' employees should also be upgraded regularly, take an example from the manufacturing sector, the companies should educate their employees knowledge in the popular areas like robotics, automatic machinery, computer numerical control in terms of manufacturing and else internationalizing required knowledge.

When taking challenges and opportunities of COVID-19 into account, the tangible resources would be constrained in a great level when it comes to the production of physical goods, in order to remove this barrier, the solutions could be investing in robotics for production (possibility replacing some of labors more or less), but it requires strong financial background which is difficult for SMEs, nevertheless, they could replace manpower into automatic machinery slowly when growing bigger. In other words, the manufacturing SMEs can gradually replace their labor with robotics or automatic machines to mitigate the negative influence from the COVID-19 as this prevailing pandemic seems to be long lasting. The automatic manufacturing lines or robotics would reduce the risks arise from the spread of Coronavirus. In addition, manufacturing SMEs should also take advantages from other forms of tangible resources both from internal side (organization itself) but also external side (governmental support, networking with internationalizing business related actors).

Since mechanical engineering service SMEs can be referred to hard services, which have fewer differences with manufacturing SMEs than other soft service SMEs do, the conceptual framework of Danish mechanical engineering service SME Internationalization in COVID-19 context could be slightly adjusted from that of Chinese manufacturing SME internationalization in the context of COVID-19.



**Figure 7.** Conceptual framework of Danish Mechanical Engineer Service SME Internationalization in the context of COVID-19

With respect to the networking model, it remains the same as that of manufacturing SMEs.

Concerning the Uppsala model, it has slight adjustments accordingly, seeing that:

Stage 1: Mainly focusing on domestic market; doing research on the right foreign market to enter; searching for right agents

Stage 2: Exporting services via the chosen agent

In this stage, the selected agent would help the company to find the potential foreign customer and further dispatch of internal engineers to customer side

Stage 3: : Creation of physical subsidiary in foreign market.

In this stage, it is significant for mechanical engineering servicing SMEs to build up a physical subsidiary in selected foreign market since they provide services and customers tend to prefer the availability of needed engineers to solve their problems and the face-to-face communications would earn the trust from customers and as a result contributing to the expansion of business in foreign market

Stage 4: : Further establishment of production plant in terms of machinery assembling

In this stage, when the company have received the number of orders to the level that they might need a selfowned production plant to assemble the improved machines after designing.

As far as the knowledge-based resources under the resource-based view, the companies' employees should be trained in the courses that incorporate the trending engineering associated knowledge such as software engineering, robotics, as well as the upgrading of already involved professional knowledge.

Noting that the rest of not mentioned aspects sustain the same as that of Chinese manufacturing SME internationalization in the context of COVID-19.

### 4. Methodology

The analysis of studies is conducted at bi-national level i.e., China and Denmark, which is based on two Chinese manufacturing companies and one Danish service company. Firstly, this thesis aims to compare two different types of Chinese manufacturing SMEs from two different types of industries on how they are impacted by COVID-19 in the context of internationalization, and also attempt to compare how different the ongoing and post COVID-19 internationalizing challenges and opportunities are confronted by two respective types of SMEs. Secondly, this thesis also aims to contrast the goods producing SMEs and service SME specifically mechanical engineering service in terms of how differently they handle challenges to

internationalization within the restrictions and impact of COVID-19, as well as how differently they have the potential opportunities from internationalization within the background of COVID-19.

In this thesis, based on the following analysis regarding the internationalizing influence of COVID-19 to manufacturing SMEs in China and service company in Denmark, the political insinuations for facilitating the internationalizing development of SMEs will be drawn to bilateral Danish and Chinese government, together with the underlying global strategic implications to SMEs. In this study, I aim for giving implications to strategic alliances or bridge the potential connectivity between Chinese manufacturing SMEs and Danish mechanical engineering service SMEs.

In respect of generalizability of findings, it is appliable for Danish market and other foreign markets which are highly affected by COVID-19 while the Chinese market is a different situation given that the COVID-19 there has been well contained, meaning the negative impact of COVID-19 remains low. Yet, it is also applicable for Chinese SMEs or Chinese mechanical engineering service SMEs to internationalize their business in any other countries that are strongly influenced by COVID-19. What is more, the cultural differences might lead to the common distinctions in opinions as well.

As regards the ethical issues when interview three specific people from case companies, they all agree to share the information I have gathered publicly. Furthermore, they all claim that whatever they have spoken are in honesty and carefulness.

## **Exploratory**

Yin (2003) outlined exploratory study as handing phenomenon that is not much known, e.g., novel or hardly discovered topic with very limited research on hand. The exploratory study provides a comprehensive insights for research focus and is rather significant to get the in depth views of phenomenon by building good theory as advancing knowledge (Sekaran, 1992, p.95). The exploratory study is initiated by "what" questions and guides the direction with hypotheses and achieves viability for further study (Masum & Fernandez, 2008).

## **Descriptive**

It is portrayed by Sekaran (1992, p.95) that the objective of descriptive study aims to depict the related manners of phenomenon of interest and it is conducted to *learn about the characteristics of a certain group in organizations* based on available knowledge concerning the topic. The descriptive study is initiated by "how" and "who" questions.

## 4.1.Research Approach

Research approaches are generally conducted in qualitative manner, quantitative manner, and the combination of both qualitative and quantitive manner. How the data is used and analyzed differentiates these three approaches.

Qualitative approach has been utilized in this thesis to decode and get an overall understanding of challenges along with the opportunities for the Danish mechanical engineering service and Chinese manufacturing SMEs in the time of COVID-19. It is defined of qualitative approach as "an approach to the study of human behavior that relies on the analysis of narrative data to create an interpretation of the meaning of these behaviors from the perspective of the participants themselves, within their own social context" (Cobb & Forbes, 2002). In other words, qualitative approach deals with non-numerical data such as text, interview, video..., by gathering and analyzing them to comprehend the phenomenon.

Quantitative approach stresses "objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques" It pays attention to collect data in numerical way and induce it over research targeted groups of people or explanation of specific phenomenon (Babbie, 2010).

This thesis applies qualitative approach to have an in-depth insight into chosen problem regarding two different types manufacturing and one service (specifically mechanical engineering service) SME internationalization on COVID-19 impacts and produce new visions for existing research (Bhandari, 2020), quantitative approach is also applied to assess the factors, influence on SME internationalization in the context of COVID-19 through statistical and numerical data, for example financial statements, balance sheets etc. The reason why to utilize the qualitative research is because of the nature of case studies. The interviews of case studies are conducted to get aware of the opinions, thoughts, feelings of respondents (onepoll, 2017) and further decoded and interpreted in words qualitatively to investigate the research questions accordingly.

### 4.2.Data Collection Method

The proper selection of data collection methods is pretty crucial for a study to complete in success. Different methods of data collection leads to different ways of collecting the data. In general, Sekaran (1992) distinguishes data from primary and secondary. Primary data is literally firsthand produced by researchers themselves, collecting by interviews, surveys, observations etc., whereas secondary data is "second hand" originating from external channels such as articles, TV, magazines, journals, organizational reports and so on.

This study collects primary data from multiple in-depth interviews back and forth to two Chinese manufacturing SMEs and one Danish mechanical engineering service SME, as well as some numeric secondary data regarding organizational data i.e., financial statements and balance sheets.

It is analyzed by combining both inductive and deductive approach. Bernard (2011) depicts the inductive approach as the search for pattern from observation and the development of explanations – theories – for those patterns through series of hypotheses". In short, initiating with collecting data in respect to specific focus, followed by seeking for patterns and finalizing with the development of theories or hypothesis. Whereas deductive approach is done through the reverse steps as inductive approach, namely starting with theories or hypothesis, connecting by the analysis of data, ending with the test of whether the theories or hypotheses are supported or not.

The initial stage of data analysis starts with designing the interviews questions that are extended from research questions into smaller and detailed segments. The second stage is to execute the multiple in-depth interviews to two Chinese manufacturing companies and one Danish mechanical engineering service company, along with recording, collecting and integration of data from all interviews. Noticeably, the interviews to Tech Invent A/S are conducted in English whilst the interviews to Chengmaoyuan Technology CO., Ltd and Good Century printing packing Co., Ltd are conducted by Chinese and a further translation from Chinese to English will be initiated spontaneously by myself. Meanwhile the process of interviewing three companies, the adjustments and supplements of questions will be witnessed after getting inspirations from three respective companies in each interview and then repeating the step of interviewing.

There were in total three face to face interviews (roughly 90 minutes each time) with the owner of Chengmaoyuan Technology CO., Ltd, one interview (around 60 minutes) via phone and another interview (approximately 100 minutes) via Zoom streaming to Jesper, one of the three founders of Tech Invent A/S, whereas two interviews (about 45 minutes each time) via voice call to the one of the key management members of Good Century printing packing Co., Ltd. The third stage involves decoding, analyzing and eventually finalizing data into conclusive results. This thesis utilizes not only inductive approach but also deductive approach within the process of data analysis.

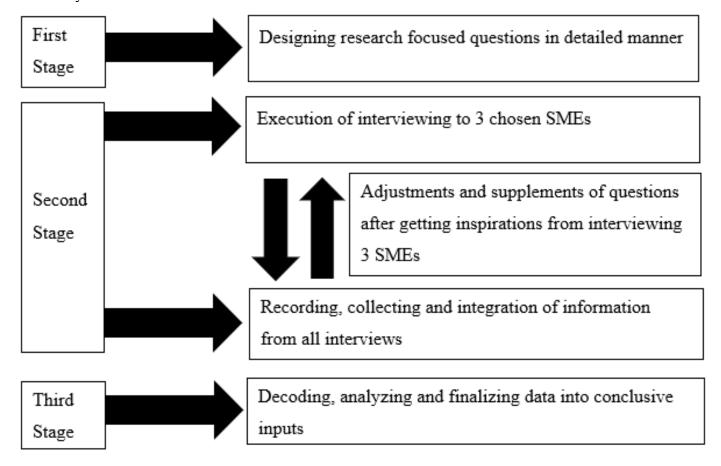


Figure 8. Flow diagram of data analysis source: own production

The decoding this thesis seeks to combine theories and at the same time re-conceptualize them into new or refined framework.

## 4.3.Limitations

The research of this thesis is conducted by primary data, namely interviews, which has limited reliability because of the nature of fixed interviewing questions and unique way of decoding and understanding the responses from SMEs. Furthermore, there are limitations about accessibility and readiness to data owing to the fact that only 3 SMEs agreed to share information. Based on the analysis found in these three companies, which are representatives of three specific industries, but this does not necessarily mean that this is valid for every company in this particular industry, it is probably quite likely that we may find the same challenges and opportunities in other companies, but we do not know we have to conduct additional research. The reliability of this thesis stays moderate since all of the seven interviews are handled one time and further confirmed one time as well. The validity of this thesis is limited with the context of Shenzhen manufacturing SMEs instead of the whole country of China as the Chinese context is a complicated mixture, the situations

are quite different from province to province and even from city to city, seeing that Shenzhen is a very special metropolitan city that obtains strong financial supports from central government of China, and aims for establishing the technological capital of China, whereas is also limited with the context of Skanderborg mechanical engineering service SME, in which Skanderborg is a small town in Denmark and due to the fact that only single mechanical engineering service fir is researched without comparison to another peer.

## 5. Findings

This study is based upon three single cases to research the potential challenges and opportunities confronted by Chinese manufacturing SMEs and Danish mechanical engineering service SMEs in the process of internationalization and in the context of COVID-19. In more details, it comprises two Chinese manufacturing SMEs, which are both from Shenzhen in which a city that generates enormous firms that focus on technological development and international trades, whereas the third case company refers to the mechanical engineering service SMEs in the Danish market context. There will be case-specific discussion about manufacturing versus services SMEs that are actually offering to the marketplace, either manufactured goods or services, under COVID-19, there are certain issues that are making this process a little bit different.

And even the situations are different from country to country, which in our case it means there will be distinctions between Chinese market and Danish market at national level.

## A. Chengmaoyuan Technology CO., Ltd Case

Chengmaoyuan Technology CO., Ltd. is a manufacturing company that mainly focuses on metal processing (semi-finished products or completely finished products) in a rather wide range for other companies in China, it includes the components for machines, automobile plates and so on, while the types of metals including iron, aluminum and even sometimes metals are replaced by PVE plastics as they are light, cheap and wear-resistant. They are such kind of manufacturing SME that processes metal, plastics, produces making up puff and any other kind of in terms of manufacturing. They can do the manufacturing work according to customized blueprints and they can even help the customers to design the blueprint and further manufacturing the products for them. Noting that they have been using over 20 computer numerical control equipment

They partially produce powder puff within making up industry, which mainly focuses on domestic market and has already started exploring some Southern Asian markets and Singapore with small volumes of exporting sales and is very interested in Danish market. The owner of the company has noticed there are potentially great revenues for selling this product in Denmark given that cheap materials and labors make the

costs of manufacturing power puff extremely low in China while the lowest selling price of powder puff in Denmark is even over 50 times high as the manufacturing costs back in China.

# Challenges that preliminarily find by them from COVID-19 impact on SME internationalization in their specific industry.

- 1. Facing the dearth of the PVE, PVC, PVK plastics which are mainly supplied by companies in Changzhou in Jiangsu Province. But the supplies will become normal in short period of time (regraded as short-term challenges)
- 2. Difficulty in qualification of products i.e., CE mark (information asymmetry gets worse in this time of covid) (Referring to knowledge unfamiliarness in terms of foreign market)
- 3. Fluctuating demand of making up puff because of the changing restrictions polities in Denmark
- 4. Barriers in transportation of goods by train and air (covid makes the speed much slower and even interrupted in some cases), so that driving them not be able to supply to their customers in time and stably.
- 5. The costs (labor costs, transportation) get raised for meeting the epidemic prevention requirements in many countries
- 6. The Chinese market is almost fully opened up whereas Danish market is restrictedly functioning.
- 7. The willingness of buying making up puff gets reduced also because the selling price gets raised and customers' salaries get reduced or null because of the impact of COVID-19
- 8. The opportunity to investigate the interested foreign markets physically get challenged
- 9. The promotion of making up puff in terms of marketing activities in foreign market gets challenged.
- 10. It is difficult to do pricing calculations of making up puff as the demands are fluctuating, the demand curve calculated in the context of COVID-19 is inaccurate

## Opportunities as a SMEs in COVID-19 for exploring small international market such as Denmark:

- 1. They notice that the worldwide markets shrink significantly, large companies are very hard to maintain supplying the large number of products in small markets like Denmark as its demand drops strongly so that it might also be a good opportunity for SMEs to supply in small load of products as long as they can guarantee the quality and stable supply of products.
- 2. A lot of production lines are interrupted in massive countries while the Chinese market do not have such concerns
- 3. Financial supports from local Shenzhen government

## B. Good Century printing packing Co., Ltd Case

Good Century printing packing Co., Ltd mainly manufactures printing and packing associated products in traditional industry, as well as some office stationery products. In China, it is a top level of medium-sized company that very much approaching to bottom line of large company seeing that they have over 1000 employees worldwide, recent years' annual turnover very close to 400 million yuan while the large enterprise in China is defined as sales over 300 million yuan, total assets over 400 million yuan and employees over 2000 at the same time. When it comes to printing and packing associated products, Huawei, TP-Link and DJI are its three main customers domestically, Epson, Panasonic, brother are its three main customers in Japan whereas Philips (Netherland) and RR Donnelley (USA) are its main overseas customers. For its office stationery products, it has Office Depot (USA) and Staples (USA) as main customers.

## Challenges from the impact of COVID-19 on internationalization:

- Comparing to stable and well-contained COVID-19 situation in China, the overseas development of cov1id-19 is terrible and can hardly controlled that leads to unstable and highly reduced demand from most of international customers, particularly American customers.
- It becomes fairly difficult to main the usual orders from old customers because some of their old customers might have been experiencing financial problems, bankruptcy or so on problems result from the impact of COVID-19
- The uncertainties regarding the changes in existing orders for example, sometimes their customers
  cancel or reduce the order owing to the variety of reasons arise from the negative impact of COVID19
- 4. Because of the instability of COVID-19, the U.S. has been issuing tremendous US dollars which results in currencies inflation and consequently making rise of the costs of a single paper for printing by 30%. The fluctuation of changes in prices of raw materials (i.e., printing papers) would also heavily affect the quantity and quoted prices of customers' orders. They can hardly decide between quantity and quoted prices given that according to the demand curve, the higher price you name, the less quantity shall follow (Humphrey, 1992)

## Opportunities that trigger from the impact of COVID-19 on internationalization:

1. Because of the positive circumstance of COVID-19 in China, the local orders have been stabilized with considerable growth that helps them to grow bigger. This could be a very good opportunity for them to better compete with its international competitors considering that its overseas competitors are experiencing restricted markets, financial problems etc. that hampers their development.

- 2. It has noticed its customers or potential customers have strategic expansion of international markets in COVID-19 which is an opportunity to extend its product portfolio and increase sales volumes.
- 3. A lot of orders from Southeast Asian countries have to shifted to manufacturing in China, which is absolutely a huge opportunity for them
- 4. Financial supports from local Shenzhen government

## C. Tech Invent A/S Case

In the context of Danish market, Tech Invent A/S is a mechanical engineering service SME, which originates from Skanderborg in which a city that also collects a cluster of SMEs from different industries.

Professionally, they provide their customers with specialized solutions in dynamic simulations, IOT (Internet of Things), vibration and noise, plant & offshore, topology optimization and visual reality (VR). Apart from, they also offer a big range of mechanical engineering related services, including mechanical development and construction, electrical engineering and automation, finite element analysis, CFD simulation, test setup and data collection, analytical calculation, concept development, project management, CE-marking and product protection. The premise of Tech Invent A/S lies besides a colossal Boeing 727 which is a famous landmark locally and even nationally. The Boeing 727 is bought by Danish marketing company 727 and has been refurnished into 3 meeting rooms. Tech Invent A/s as a tenant for using the office who also has opportunity to experience the meeting rooms with its customers as long as the appointment is booked, which is a quite amazing bonus for absorbing new customers through unique customer experience.

Tech Invent A/S is a mechanical engineering service company that specializes in offering mechanical solutions within the industries of wind, aerospace and defense, energy and distribution, pharmaceutical, food, technology and metal. Tech invent cares so much about its employees as employees are its biggest assets and the services what they offer are knowledge based. Consequently, they arrange many team-building activities. They have breakfast meeting every second Friday to talk about what they have been doing in these recent two weeks. They have social activities every two months, such as CS Go, Nintendo gaming night, having after-work time at Aarhus Street Food, playing handball, company trip to Hamburg for visiting the factory of Airbus and experiencing room escape, team cycling etc. Which in other words, Tech Invent A/S focuses highly on the networking with internal employees. The good communication environment of Tech Invent helps to enhance their employees' loyalty and eventually retain them to be long staying in the company.

### The circumstances before the COVID-19

Tech Invent A/S mainly focused on the domestic market and partially involved in the international markets (In most cases they are European markets), seeing that 92% of their sales were accomplished in domestic market whereas 8% of revenues were generated from the international market.

When referring to the time that there was without COVID-19, Tech Invent A/S absorbed their customers through either proactively contacting to potentially new customers or customers directly reach to them from networking. For example, the former employees of Tech Invent A/S worked for a company that needed the aid of mechanical engineering services and then they introduced Tech Invent A/S.

## The circumstances after the COVID-19

Due the appearance of COVID-19, it becomes quite difficult for Tech Invent A/S to attain new customers because they tend to meet them physically before the customers decide to work with them. Furthermore, it also becomes hard to host receptions for gathering existing customers to enhance their relationships from each other. Within the time of COVID-19, Tech Invent A/S has already met physically with some of old customers but not all of them since some of their customers are very much cautious about the Coronavirus. Thus, instead of physical contact, they choose to have video meetings through Skype or Soup. The real situation was that Tech Invent A/S met the new customers once and then had visual meetings ever since.

One barrier arises from the impact of COVID-19 that Jesper identifies is that it will be troublesome if they have to deal with the machinery work on site at their customer sides while the countries of customers are severely hit by COVID-19 and there will be restrictions according to go across that countries' board. Even though the fact that some countries do not have strict policies but the employees of Tech Invent A/S still bear high risks entering for example Sweden, in which a neighbor country that does not have strict policies for people from other countries to enter but Sweden itself is strongly hit by Coronavirus.

Another huge challenge that comes from the impact of COVID-19 is that they have to do things on site, for instance, FAD tests, CAD tests and installation, but rather, they have to teach the local people to do it via Skype and Teams while normally they have to be present and do the job, so that it takes Tech Invent A/S a lot of time to communications owing to the fact that the local people do not know the equipment at all., Jesper commented that "The practices of doing things virtually can even be advantages cause I've seen people don't have to travel that you can actually do the meeting virtual and then you go into the workshop with your camera and you're like you and me no then you just use your phone, and then you can walk around the machine, and doing the test like that. It actually works pretty well. Yeah, but the installation is, that's where the trouble is". He specifically emphasized that the installation of machines is troublesome, on which they spend too much time.

Another barrier which is et up by COVID-19 is that the scheduled courses regarding automation have been reduced in amount because the institute haven't been able to conduct it due to current restricted situation, given that on average, one course per employee, it has been cut down to one course every second employee, but this situation has been sort of improved recently.

In addition, not until recent days that Jesper has heard that the components of the machine they need to make for their customers, are actually out of stock from foreign countries that they normally import. Most of times, the components of machines have not been to a real problem since in Denmark there are a lot of local steel companies manufacturing the machinery pieces and the delivery of server motors and electronics are faced a little longer delivery time due to the COVID-19 effects. It means that even though the fact that it's rare to witness the circumstances they face the unavailability of components, but it still could be one challenge for them because of the impact of COVID-19.

In terms of opportunities, Jesper commented that "Many tech companies have been manufacturing things in China actually or other places abroad. And some of them have some issues, that they cannot get their things that it is very difficult to ship things from China from South America, and areas like this. And a lot of them are looking into getting their production back to Denmark, to get the whole supply chain back to Denmark, so they don't, they don't need to get anything from abroad. And these companies, they start manufacturing abroad, because it's cheaper. So, if they have to bring their production back home, they need to automate it. And for companies like us, we can help them make an efficient supply chain" Put it shortly, some Danish manufacturing lines have been planned to move back to Denmark, from which opportunities that Tech Invent A/S could gain to help Danish manufacturing companies to improve the efficiency of production.

In order to capture the above mentioned opportunities, the strategic approaches that Tech Invent A/S applies is to

- 1. Have a workshop to make the productions like robotics and else, which they already have one but maybe in the future when have huge growing orders they might build or rent another workshop.
- 2. Build up stronger skills in terms of electrical engineering and programming of robots programming or PLC programming (Before COVID started, they hired one electrical engineer. And three months ago, they hired another one. And they are in the process of hiring yet another one, the process of further absorbing new employees will be continuously carried forward when the rising demands comes along)

Furthermore, another opportunity resulted from COVID-19 is pointed out by Jesper:

"Very soon after COVID-19 started, we were contacted by a company that makes a sanitizer dispensers, you know, the one you don't touch them, you just put your hand on them, and then you get some hand sanitizer, and you can do like this. And then this company, has been selling this kind of machines for many years. They don't produce them by themselves; they get them from a company that produce it in Mexico. So, the machine was produced in Mexico, but the actual sanitizer that you put inside, was not produced in Mexico, but from different things sailing from all over the world. So as soon as COVID started, they couldn't produce any more machines, because they couldn't get the supplies and they couldn't produce my sanitizer too. So, when this company needed, had everyone called them, they need to buy their machines, they need to buy refills for the machines, but they couldn't get it. So, they decided, Okay, we're gonna make our own machine, it's gonna be made in Denmark, the sanitizer that goes into the machine cannot be made in Denmark. So, we developed a machine for them. So that was a great opportunity for us that happened only due to COVID". In short, Tech Invent A/S obtained the precious opportunity because of COVID-19 and customers decided to build up a machine to produce sanitizer dispensers instead of importing from Mexico when the process of supplying is problematic.

On one hand,, the case company A Chengmaoyuan Technology CO., Ltd by chance is looking for the Danish company to help them with the process of CE marking of their product namely making up puff before they actually get ready to enter the Danish market legally, while Tech Invent A/S could either help them with this kind of work or introduce them a Danish company that specially does such work, because Tech Invent A/S generally do CE marking on machines. On the other hand, Chengmaoyuan Technology CO., Ltd mainly manufactures metals processed as semi-finished products or completely finished products for other companies in China, although they don't have the plan to enter the Danish market in terms of the area of metal process, it is still related the machinery industry in which the industry that Tech Invent A/S is very much specialized, the chance of the cooperation between both sides may exist. I would argue that this good opportunity comes from the indirect impact of COVID-19 due to the fact that if there were no COVID-19, these three specific cases would not be studied and further on there would be no chance of networking between each other.

Tech Invent A/S

# Resultatopgørelse

## 1. JULI 2019 - 30. JUNI 2020

		2019/20	2018/19
		Dkk	T.kr
	BRUTTOFORTJENESTE	15.975.886	12.429
1	Personaleomkostninger	-12.937.386	-11.113
	Af- og nedskrivninger af materielle og immaterielle anlægsaktiver	-31.653	-82
	DRIFTSRESULTAT	3.006.847	1.234
	Andre finansielle indtægter	245	0
	Andre finansielle omkostninger	-22.137	-9
	RESULTAT FØR SKAT	2.984.955	1.225
2	Skat af årets resultat	-657.659	-270
	ÅRETS RESULTAT	2.327.296	955
	FORSLAG TIL RESULTATDISPONERING		
	Forslag til udbytte for regnskabsåret	1.500.000	600
	Overført resultat	827.296	355
	DISPONERET I ALT	2.327.296	955

**Figure 9**. Financial report of Tech Invent A/S 2018-2020

Referring to the financial report of Tech Invent A/S between the July of 2019 to the June of 2020, although it shows partially the situation when the COVID-19 arrived in Denmark, it is obvious to see that Tech Invent A/S have attained a lot of more orders than ever before. However, as Jesper mentioned that most of the growth comes from the existing customers. Because of the impact of COVID-19, the old customers of Tech Invent A/S are desperately in need of accelerating the process of their production lines into automatic and then Tech Invent A/S has received massive orders consequently. But notably, the approach to potentially new customers remains a challenged.

On top of that, Jesper highlighted that the drastic increase of orders from old customers also owing to the fact that they have built up the good relationships before the occurrence of COVID-19, he noticed that their customers with better relationships tend to have a higher chance to ask them for help, comparing to those with not close relationships after COVID-19, which firmly reflects the great importance of networking. To further discuss the importance of networking from external side, there is another example, seeing that Tech Invent A/S closed their subsidiary in area of Copenhagen and it happened before the COVID-19 mainly due to the fact that on one hand, their networking of old and potentially new customers is not so much, consequently they have limited orders that generate revenues can hardly or not to cover the fixed costs such as office renting fees and so on. On the other hand, they are not familiar with the context of Copenhagen area, namely the knowledge of niche market when taking the resource-based view into account. Although Copenhagen and Skanderborg are both Danish cities, the differences of even languages still lie given that the accents of citizens get affected by the languages of neighbor countries. In this sense, I would argue that the expansion in Copenhagen market could be regarded as the internationalization of seeing Copenhagen as a foreign country.

And for the future plan of expanding domestically in the city of Odense, they have an employee who is very much familiar with the knowledge of Odense context and good relationships with potentially new customers and old customers as well. Plus, one of the three founders of Tech Invent A/S will also work there physically to lead the team for expansion. I would argue that it is a brilliant decision due to the fact that the familiarness about the niche market (resource-based view), the good networking situation along with leadership or entrepreneurship will strongly contribute to the expansion of Odense market.

As regards the internal resources that Tech Invent A/S has been using to monitoring the degree of busyness about orders, the pipeline shows the indicator of how many per centage of people are booked for the following week, for example 75% for next week.

Other obvious challenges from the impact of COVID-19 on internationalization:

- 1. They cannot have outside activities for team building and noting that this is one of its most important process to enhance the relationships with employees.
- 2. Its employees realize that after 3 months working from home, the efficiency also gets reduced, as well as the online communications are not as effective as physical contact

Other obvious opportunity that triggers from the impact of COVID-19 on internationalization:

 COVID-19 boosts creativity and innovation in a higher level as a mechanical engineering service company

- Jesper thinks that as a SME they are more agile than large companies to deal with COVID-19, as the
  demands in the market get shrunk heavily, it becomes difficult for large counterpart to maintain the
  normal amounts of orders, but it is much easier for SMEs to sustain for example 10 quality customers
  like usually.
- 3. Governmental support to firms
- 4. Some competitors get bankrupted so that the fewer peers in the market, meaning a better position of Tech Invent A/S
- 5. Because of the impact of COVID-19, Tech Invent A/S spends fewer costs to its employees in terms of transportation to company office and customer sides, as well as the expenses come from food, administrative matter (regarded as short-term opportunity)

## 5.1. Compatibility of Findings

The findings in China are not very much compatible to the findings in Denmark. It is mainly because of the very dissimilar national contexts and dissimilar industrial specifics between China and Denmark For one thing, seeing that China has highly contained the COVID-19, the impact of which do not affect the business activities that much. As a result, the Chinese manufacturing SMEs will not have the same strong desire as Danish manufacturing SMEs to make their production line automatically or replace the labor with robotics or machinery because they don't have the problems from availability of labors and rising labor costs. And hence the Chinese mechanical engineering service SMEs will not have the unique opportunity that come from the strong demands in reducing the negative effects from COVID-19. Whereas the Danish market is fairly impacted by COVID-19, such as the continuous big rising of new cases of COVID-19 patients has pushed the Danish government to further constrain the policies in term of physical contact so that the Danish manufacturing SMEs have a strong need to make their production more efficiently or without humans and consequently the Danish mechanical engineering service SMEs have greatly more orders from manufacturing firms domestically.

## 6. Conclusion

Theoretically, I have combined three theories in terms of SME internationalization to mitigate the challenges and magnify the potential opportunities arising from the impact of COVID-19, that are the networking theory, the Uppsala model or as known as the stage theory and the perspective of resource-based view The theoretical implications show respectively below:

## **Chinese Manufacturing SMEs**

The Uppsala model (or stage theory): starting by mainly focusing on domestic market at the same time doing international market analysis to eventually decide the right markets to enter (neighbor countries are prior to consider because of similar context about cultures, languages, institutional environment etc.), as well as in search for the right agents for the absorption of new customers. The next stage goes with exporting products via the selected agent. Thirdly, to create online subsidiary for selling activities and further physical one when COVID-19 situation gets better. Ending with setup of manufacturing plant in chosen foreign market

Resource-based view: to take advantage of tangible resources, knowledge-based resources and intangible resources (including networking as social capital resources). About tangible resources, replacing labors with robotics for production or optimization in automatic production machines in order for reduce or eliminate the threats from the human contact because of COVID-19and other tangible resources gained internally and externally. Regarding knowledge-based resources, accumulation of knowledge about covid-19 in nature, changing foreign market context, management and staff skills for achieving competitive advantages to better survive and prosper in the era of COVID-19.

Networking as one of the branches of RBV, it is beneficial to build up relationships with all potentially business related actors, continuous communicate with old and potential new customers via digital platform, Networking with foreign governments for better knowing changing institutional context in relation to the development of COVID-19, as well as networking with new tech firms dealing with covid-19 challenges.

## **Danish Mechanical Engineering Service SMEs**

Theoretically the mechanical engineering service SME internationalization has distinctions contrasting to manufacturing SME internationalization, seeing that in phase 2 of Uppsala model, they sell services instead of physical products and in phase 4, they would need to setup plant for production and assembly purpose, as well as further creation of premises for the sake of customer needs and convenience. Another difference occurs in the tangible resources under RBV, they do not have the need to replace labors with robotics or optimization in automatic production machine but rather they would help manufacturing firms to capture such internal resources, still they still need to gain other forms of resources both internally and externally to handle the impact of COVID-19.

In comparison to empirically implications, the main challenges arise from the impact of COVID-19 in the process of internationalization for Chinese manufacturing SMEs refer to the changing institutional contexts, barriers in transportation (highly delayed or temporarily ceased), the fluctuation of demands (most of time drastically falling demand), the unfamiliarness to foreign market context, the rising costs (e.g., labor costs, transportation etc.), the willingness of buying gets reduced also because the selling price gets raised and

customers' salaries get reduced or null because of the impact of COVID-19, the marketing and so on downstream activities can hardly be operated, whereas the opportunities of which lie to the aspects that the availability of financial assistance from Shenzhen government and the Chinese manufacturing SMEs are mildly affected by COVID-19 whereas the manufacturing SMEs from most of other countries are firmly impacted by COVID-19.

The main challenges arise from the impact of COVID-19 in the process of internationalization for Danish mechanical engineering service SMEs refer to barriers in networking with potentially new customers and old customers as well, maintain the regular network with internal employees, obstacles in employees travelling from (or) to severe crisis-hit countries to provide mechanical engineering services, challenges in the circumstances when the employees strongly need to be on site but they can't because of COVID-19 and consequently they have to spend redundant time and communications to teach local people how to operate, reduced scheduled courses in terms of the upgrading of employee professional knowledge, difficulty in availability in components (short-term), whilst the opportunities of which lie to the aspects that many Danish companies have strategic plans to move manufacturing line back to Denmark while they can be potential customers, enhancement of employee competences in trending knowledge about electrical engineering and programming of robots programming or PLC programming would add up extra advantages, unique opportunity to new orders that arises from the impact of COVID-19 seeing that customers of Tech Invent A/S decided to build up a machine to produce sanitizer dispensers instead of importing from Mexico when the process of supplying is problematic, potential networking between manufacturing SMEs and mechanical engineering service SMEs, COVID-19 boosts creativity and innovation in a higher level, Agility as SMEs, financial support from government, fewer competitor due to bankruptcy of many peers, reducing costs (employee transportation, food, administrative costs etc.) (short-term).

When looking at the similarities with the obstacles that COVID-19 brings upon, it comes from barriers in transportation of goods (such as postponing or cancel of delivery because of the fierce development of COVID-19 within the involved nations), the rising costs (labor costs, transportation costs, raw materials costs resulted from for instance the inflation of currencies, the rising transportation costs etc.) and the fluctuating demands owing to the instable development of COVID-19 While it is noticed by me that the unique opportunities exist in specific industry and it might be case that only applies to specific firms as well, considering that the printing paper production has been strategically shift from Southeast Asian countries to China, and the manufacturing firms have fairly strong desire to optimize their efficiency of production machines or purchase robotics to replace the manual production which consequently creates a huge opportunities for mechanical engineering consulting companies but it applies in Danish context, rather than

Chinese context as the latter contains COVID-19 in a manageable prospect so that it do not have much challenges in manual production, rising labor costs and so forth. However, it is not known whether this unique opportunity applies in other national contexts, it depends on the development of COVID-19 and how well the countries have been containing the COVID-19 and other reason as well. In addition, I have empirically learned that the Danish mechanical engineering consulting firms do not use agents for absorbing new customers in their expansion of internationalization or mostly localization but only by networking instead, which emphasizes the importance of networking at a higher level for such type of enterprises within the process of their internationalization in the context of Danish market.

The strategic implications to Chinese manufacturing SMEs would be networking with all the actor beneficial, accumulation of knowledge about COVID-19 in nature, changing foreign market context and the management and employee skills, and gradually replacing labors with robotics or higher efficiency automatics machinery and other tangible resources gained internally and externally. While the strategic implications to Danish mechanical engineering service SMEs would be networking with all the actor beneficial, accumulation of knowledge about COVID-19 in nature, changing foreign market context and the management and employee skills, and all forms of tangible resources gained internally and externally.

Concerning the future research development, *the innovation-based models* (I- models) in which a model also sees the process of internationalization step by step in stages(Czinkota, 1982). Although these models certainly have distinctions among each other, i.e., the quantity of stages and how it illustrates the process of internationalization in respective stages, the fundamental similarities remain given that firstly they are created to make differentiations among SMEs within their process of internationalization, secondly, they focus on the explanations of the innovative strategic concerns about how entrepreneurship and decision making influence the behaviors of exporting (Reid, 1981). For another, namely the theory of international entrepreneurship, Andersson (2000) stressed that *the process of internationalization is not an activity that can be separated from the other ones*, but rather, it is the result of strategies of the firms while seeing such strategies as entrepreneurship action.

In relation to the limitations, it comes from the accessibility to what I am able to get, the limitation of the information that I have access and the implementation of this particular approach to my research, as well as my unique way of decoding and interpreting the interviews and such.

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